National Nuclear Security Administration
Sandia Site Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

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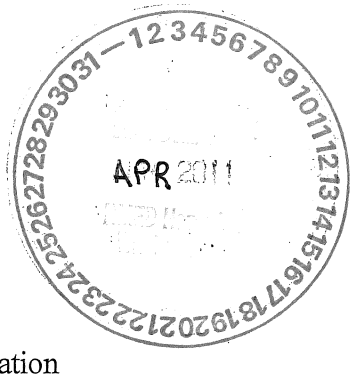

James Bearzi, Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505

Subject: March 2011 Consolidated Quarterly Report for Environmental Restoration Operations, March 2011

Dear Mr. Bearzi:

On behalf of the Department of Energy/National Nuclear Security Administration (DOE/NNSA) and Sandia Corporation, DOE/NNSA is submitting the March 2011 Consolidated Quarterly Report for Environmental Restoration Operations that addresses all quarterly reporting (November 2010 through January 2011) required under the *Hazardous and Solid Waste Amendments Module of the Resource Conservation and Recovery Act Permit, the Compliance Order on Consent and the Chemical Waste Landfill (CWL) Closure Plan* for Sandia National Laboratories/New Mexico, Environmental Protection Agency, EPA No. 5890110518.

Should you have any questions regarding this correspondence, please feel free to contact me at (505) 845-6036 or Joe Estrada of my staff at (505) 845-5326. For perchlorate or CWL groundwater related items, please contact John Gould of my staff at (505) 845-6089.

Sincerely,

Kimberly A Davis for

Patty Wagner
Manager

Enclosure

cc w/enclosure:
L. King, EPA, Region 6 (Certified Mail)
W. Moats, NMED-HWB (Certified Mail)
T. Skibitski, NMED-OB, MS-1396
B. Birch, NMED-OB, MS-1396
B. Fleming, NA-56, HQ/FORS

C. Daniel, SNL/NM, Org. 06234, MS-0718
SNL ES&H Records Center, SNL/NM, Org. 06234, MS-0718
Zimmerman Library, UNM
K. Davis, SSO/MO, MS-0184
C. Wimberly, SSO/MO, MS-0184
S. Mondy, SSO/MO, MS-0184
J. Estrada, SSO/FP, MS-0184
J. Gould, SSO/ESH, MS-0184

cc w/o enclosure:
T. Longo, NA-56, HQ/GTN
A. Blumberg, SNL/NM, Org. 11100, MS-0141
S. Orrell, SNL/NM, Org. 06200, MS-0771
D. Miller, SNL/NM, Org. 06234, MS-0718
T. Cooper, SNL/NM, Org. 04143, MS-0729
J. Cochran, SNL/NM, Org. 06234, MS-0719
M. Skelly, SNL/NM, Org. 06234, MS-0718
B. Langkopf, SNL/NM, Org. 06234, MS-0718
D. Pellegrino, SSO/ESH, MS-0184

CERTIFICATION STATEMENT FOR APPROVAL AND FINAL RELEASE OF DOCUMENTS

Document title: **Environmental Restoration Operations Consolidated Quarterly Report, March 2011**

Document author: **John Cochran, Department 06234**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Signature: _____ 3/21/11
Date

S. Andrew Orrell, Director
Nuclear Energy & Fuel Cycle Programs
Center 6200
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185
Operator

and

Signature: _____ for 3/29/11
Date

Ms. Patty Wagner, Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office
Owner and Co-Operator

Sandia National Laboratories

Sandia National Laboratories, New Mexico

Environmental Restoration Operations

A U.S. Department of Energy Environmental Cleanup Program

Consolidated Quarterly Report

November 2010 through January 2011

March 2011

United States Department of Energy
Sandia Site Office

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CONSOLIDATED QUARTERLY REPORT

March 2011

SANDIA NATIONAL LABORATORIES, NEW MEXICO (SNL/NM)

ENVIRONMENTAL RESTORATION OPERATIONS

U.S. DEPARTMENT OF ENERGY (DOE): SANDIA SITE OFFICE
CONTRACTOR: SANDIA CORPORATION
PROJECT MANAGER: John Cochran

NUMBER OF POTENTIAL RELEASE SITES SUBJECT TO THIS PERMIT: 36

SUSPECT WASTE: Radionuclides, metals, organic compounds, and explosives

OVERVIEW

This Consolidated Quarterly Report for the SNL/NM Environmental Restoration Operations addresses all quarterly reporting requirements pertaining to the Hazardous and Solid Waste Amendments Module of the Resource Conservation and Recovery Act Permit, the Compliance Order on Consent, and the Chemical Waste Landfill Closure Plan. The following entities and reporting periods are addressed as follows:

SECTION I
Environmental Restoration Operations Quarterly Report, reporting period:
November 2010 through January 2011

SECTION II
Chemical Waste Landfill Quarterly Closure Progress Report, reporting period:
November 2010 through January 2011

SECTION III
Perchlorate Screening Quarterly Monitoring Report, reporting period:
October through December 2010

ABBREVIATIONS AND ACRONYMS

µg/L	microgram(s) per liter
AOC	Area of Concern
BSG	Burn Site Groundwater
BW	background well
CAC	Corrective Action Complete
CAMU	Corrective Action Management Unit
CFR	Code of Federal Regulations
CME	Corrective Measures Evaluation
CMI	Corrective Measures Implementation
COA	certificates of analyses
COC	constituent of concern
CWL	Chemical Waste Landfill
CY	Calendar Year
CYN	Canyons (Burn Site)
DO	dissolved oxygen
DOE	U.S. Department of Energy
EB	equipment blank
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration Operations
ET	evapotranspirative
FB	field blank
FOP	Field Operating Procedure
FY11	Fiscal Year 2011
GEL	GEL Laboratories, LLC
GWPP	Groundwater Protection Program
lbs	pounds
LE	Landfill Excavation
LTES	Long-Term Environmental Stewardship
MCL	maximum contaminant level
MDL	method detection limit
mg/L	milligram(s) per liter
MW	monitoring well
MWL	Mixed Waste Landfill
ND	nondetect
NMED	New Mexico Environment Department
NOD	Notice of Disapproval
OB	Oversight Bureau

ORP	oxidation-reduction potential
pH	potential of hydrogen
PPE	personal protective equipment
QC	quality control
RCRA	Resource Conservation and Recovery Act
RPD	relative percent difference
Sandia	Sandia Corporation
SAP	Sampling and Analysis Plan
SC	specific conductance
SNL/NM	Sandia National Laboratories, New Mexico
SWMU	Solid Waste Management Unit
TA	Technical Area
TAG	Tijeras Arroyo Groundwater
TB	trip blank
TCE	trichloroethene
TSCA	Toxic Substances Control Act
VCM	Voluntary Corrective Measure
VOC	volatile organic compound
VZMS	Vadose Zone Monitoring System

SECTION I
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SECTION I
ENVIRONMENTAL RESTORATION OPERATIONS CONSOLIDATED QUARTERLY REPORT

1.0 Introduction

This Environmental Restoration Operations (ER) Consolidated Quarterly Report (ER Quarterly Report) discusses ongoing corrective actions being implemented by Sandia National Laboratories, New Mexico (SNL/NM) ER. The status of regulatory closure activities is outlined in the following sections. In this section, "the Quarter" refers to the November 2010 through January 2011 quarterly reporting period.

2.0 Environmental Restoration Operations Work Completed

2.1 Mixed Waste Landfill Investigation Activities

- In November 2010 tumbleweeds were removed from the Mixed Waste Landfill (MWL) evapotranspirative (ET) cover. The ET cover was installed and seeded in September 2009 in accordance with the conditionally approved Corrective Measures Implementation (CMI) Plan (SNL/NM November 2005). Removal of tumbleweeds was conducted as required in the New Mexico Environment Department (NMED) conditional approval letter (NMED December 2008, Condition 2). A total of 45 loads of weeds were removed from the ET cover, using a dump truck and large trailer (Figures 1 through 3). Native grass from the 2009 seeding effort continues to grow on the ET cover (Figure 4).

- On December 14, 2010, the U.S. Department of Energy (DOE) and Sandia Corporation (Sandia) participated in the NMED Public Meeting on the MWL CMI Report (SNL/NM January 2010).

- In January 2011, DOE/Sandia received an approval letter from the NMED entitled, "Notice of Approval Mixed Waste Landfill Toluene Investigation Report, revised October 2010" (NMED January 2011). DOE/Sandia submitted the MWL Toluene Investigation Report in August 2010 (SNL/NM August 2010) and received a Notice of Disapproval (NOD) from the NMED in September 2010 (NMED September 2010). The DOE/Sandia NOD response was submitted in October 2010 (SNL/NM October 2010) and included a revised version of the report. The NMED approved the NOD response and revised report on January 13, 2011.

Figure 1
Close-up view of the MWL ET cover to the west prior to weed removal, November 15, 2010.

Figure 2

View of the MWL ET cover to the west during weed removal, November 18, 2010.

**Figure 3
View of north end of the MWL ET cover to the west
close to completion of weed removal, November 23, 2010.**

**Figure 4
Close-up view of native grass growth on the MWL ET cover,
November 2010.**

- The DOE/Sandia have implemented the recommendations of the MWL Toluene Investigation Report (SNL/NM August 2010), summarized as follows:

    - Follow up with the contract analytical laboratory (GEL Laboratories, LLC) is ongoing to (1) tighten the requirements used to verify that sample containers are clean and (2) perform additional method blank sample analyses during analysis of DOE/Sandia environmental volatile organic compound samples.

    - Field sampling team awareness training was conducted on January 26, 2011.

    - Additional field blank samples (one field blank sample at each monitoring well location) are being collected and analyzed to address potential ambient environmental sources of toluene.

2.2 Project Management and Site Closure

ER sites undergoing regulatory and administrative closure activities are presently addressed under project management. Two permit modification requests are currently in progress with the NMED and are summarized in this section. The sites are listed in Section 2.2.1. In April 2010, DOE/Sandia received official written communication from the NMED regarding its decisions on these sites (NMED April 2010). The decisions, presented in the NMED letter dated April 8, 2010, are summarized in this section.

2.2.1 Permit Modification Request Submitted in March 2006

- Twenty-six sites were submitted to the NMED for the final determination of Corrective Action Complete (CAC) in March 2006 (Wagner March 2006). The sites included 19 Solid Waste Management Units (SWMUs) and 7 Areas of Concern (AOCs). The NMED issued a Notice of Public Comment Period and Intent to Approve a Class 3 Permit Modification of the Resource Conservation and Recovery Act (RCRA) Permit for SNL/NM for these 26 sites in December 2007 (NMED December 2007). The NMED public review and comment period ended in February 2008. The SWMUs and AOCs included in this permit modification request are listed as follows:

    - SWMUs 4, 5, 46, 49, 52, 68, 91, 101, 116, 138, 140, 147, 149, 150, 154, 161, 196, 233, and 234

    - AOCs 1090, 1094, 1095, 1114, 1115, 1116, and 1117

2.2.2 Permit Modification Request Submitted in January 2008

- Five sites were submitted for the final regulatory determination of CAC in a permit modification request in January 2008 (Wagner January 2008). This permit modification included all remaining SNL/NM ER sites with the exception of three active sites (SWMUs 83, 84, and 240), three groundwater investigation sites (Tijeras Arroyo, Technical Area [TA]-V, and Burn Site), and the MWL (SWMU 76). The final report of the CMI for the MWL was submitted in January 2010 (SNL/NM January 2010) and is pending NMED approval. The MWL is addressed separately in Section 2.1 of this ER Quarterly Report. The four SWMUs and one AOC included in the January 2008 permit modification request are listed as follows:

    - SWMUs 8, 28-2, 58, and 105
    - AOC 1101

2.2.3 Status of Permit Modification Requests Submitted in March 2006 and January 2008

- In April 2010, DOE/Sandia received a letter from the NMED entitled, "Class 3 Permit Modification Requests for Granting Corrective Action Complete Status for 26 SWMUs/AOCs (Request of March 1, 2006) and 5 Other SWMUs/AOCs (Request of January 7, 2008), Sandia National Laboratories, EPA ID# NM5890110518, HWB-SNL-06-007 and HWB-SNL-08-001" (NMED April 2010). This letter included four main sections: "SWMUs Requiring Additional Corrective Action," "SWMUs/AOCs to be Subject to Groundwater Monitoring Controls," "SWMUs/AOCs to be Restricted to Industrial Land Use," and "SWMUs/AOCs that do not Require Corrective Action." The NMED requirements stated in this letter are summarized as follows:

    - The section titled, "SWMUs Requiring Additional Corrective Action," specifies additional characterization requirements for SNL/NM SWMUs 68 (Old Burn Site), 149 (Building 9930 Septic System), 154 (Building 9960 Septic System and Seepage Pits), and 8/58 (Open Dump [Coyote Canyon Blast Area]/Coyote Canyon Blast Area). Activities associated with these requirements are summarized in Section 2.3 of this ER Quarterly Report.
    - The section titled, "SWMUs/AOCs to be Subject to Groundwater Monitoring Controls," specifies that annual groundwater monitoring is to be conducted at SWMUs 49 and 116. Groundwater Monitoring at SWMUs 49 and 116 is scheduled for March 2011. Analytical results will be presented in the June 2011 ER Quarterly Report.

- The section titled, "SWMUs/AOCs to be Restricted to Industrial Land Use," indicates that the NMED intends to restrict the future land use of the following SWMUs/AOCs to industrial:

    1. SWMU 4 – Liquid Waste Disposal System Surface Impoundments
    2. SWMU 46 – Old Acid Waste Line Outfall
    3. SWMU 91 – Lead Firing Site
    4. SWMU 196 – Building 6597 Cistern (TA-V)
    5. SWMU 234 – Storm Drain System Outfall
    6. AOC 1090 – Building 6721 Septic System (TA-III)

- The section titled, "SWMUs/AOCs that do not Require Corrective Action," includes the following SWMUs/AOCs:

    1. SWMU 4 – Liquid Waste Disposal System Surface Impoundments
    2. SWMU 5 – Liquid Waste Disposal System Drainfield
    3. SWMU 28-2 – Mine Shaft
    4. SWMU 46 – Old Acid Waste Line Outfall
    5. SWMU 49 – Building 9820 Drains (Lurance Canyon)
    6. SWMU 91 – Lead Firing Site
    7. SWMU 101 – Building 9926/9926A Septic System and Seepage Pit (Coyote Test Field)
    8. SWMU 105 – Mercury Spill (Building 6536)
    9. SWMU 116 – Building 9990 Septic System (Coyote Test Field)
    10. SWMU 138 – Building 6630 Septic Systems (TA-III)
    11. SWMU 140 –- Building 9965 Septic System and Drywell (Thunder Range)
    12. SWMU 147 – Building 9925 Septic Systems (Coyote Test Field)
    13. SWMU 150 – Building 9939/9939A Septic System and Drainfield (Coyote Test Field)
    14. SWMU 161 – Building 6636 Septic System (TA-III)
    15. SWMU 196 – Building 6597 Cistern (TA-V)
    16. SWMU 233 – Storm Drain System Outfall
    17. SWMU 234 – Storm Drain System Outfall
    18. AOC 1090 – Building 6721 Septic System (TA-III)
    19. AOC 1094 – Live Fire Range East Septic System (Lurance Canyon)
    20. AOC 1095 – Building 9938 Seepage Pit (Coyote Test Field)
    21. AOC 1101 – Building 885 Septic System
    22. AOC 1114 – Building 9978 Drywell (Coyote Test Field)
    23. AOC 1115 – Former Offices Septic System (Solar Tower Complex)
    24. AOC 1116 – Building 9981A Seepage Pit (Solar Tower Complex)
    25. AOC 1117 – Building 9982 Drywell (Solar Tower Complex)

2.3 Site-Wide Hydrogeologic Characterization

The following sections present site-wide hydrogeological characterization activities at three groundwater investigation sites, the Chemical Waste Landfill (CWL), MWL, and five

SWMUs subject to groundwater monitoring controls as discussed in Section 2.2 of this ER Quarterly Report.

2.3.1 Technical Area III/V Groundwater

- In November 2010, DOE/Sandia completed installation of the four groundwater monitoring wells described in the work plan attached to the DOE/Sandia response to the NMED's third NOD on the TA-V Corrective Measures Evaluation (CME) Report (SNL/NM July 2005).

- In November 2010, DOE/Sandia prepared and submitted to the NMED a report entitled "Technical Area V Geophysical Logs and Slug Test Results" (SNL/NM November 2010).

- In January 2011, DOE/Sandia began installing the three soil-vapor wells described in the work plan attached to the DOE/Sandia response to the NMED's third NOD on the TA-V CME Report (SNL/NM July 2005).

- Groundwater sampling at TA-III/V was conducted in January 2011. Analytical results will be discussed in the Calendar Year (CY) 2011 Groundwater Protection Program (GWPP) Annual Groundwater Monitoring Report (anticipated submittal to the NMED in summer 2012).

2.3.2 Burn Site Groundwater

- Groundwater sampling for the Burn Site Groundwater (BSG) was conducted in October and November 2010. Results of perchlorate analysis are discussed in Section III of this ER Quarterly Report, and other analytical results will be discussed in the CY 2010 GWPP Annual Groundwater Monitoring Report (anticipated submittal to the NMED in summer 2011).

    - Of note, for the October and November 2010 sampling results, nitrate was detected above the maximum contaminant level (10 milligrams per liter [mg/L]) in samples from all four newly installed wells at concentrations up to 36.6 mg/L.

- DOE/Sandia continued preparing a report describing the fieldwork performed in accordance with the BSG Characterization Work Plan (SNL/NM November 2009). This field report will include analytical data from the soil sampling program and the first two groundwater monitoring sampling events at the newly installed wells.

2.3.3 Tijeras Arroyo Groundwater

- Groundwater sampling for the Tijeras Arroyo Groundwater (TAG) investigation was completed in November 2010. Results of perchlorate analysis are discussed in Section III of this ER Quarterly Report, and other analytical results will be discussed in the CY 2010 GWPP Annual Groundwater Monitoring Report (anticipated submittal to the NMED in summer 2011).

2.3.4 Mixed Waste Landfill Groundwater

- The requirement for eight consecutive quarters of groundwater sampling at MWL groundwater monitoring wells (MWL-BW2, MWL-MW7, MWL-MW8, and MWL-MW9) was completed in October 2009, and the sampling frequency for all existing MWL monitoring wells will be annual hereafter in accordance with Table XI-1 of the Compliance Order on Consent (NMED April 2004). All CY 2010 groundwater monitoring results will be presented in the MWL Annual Groundwater Monitoring Report for CY 2010 (anticipated delivery to the NMED by summer 2011).

2.3.5 Chemical Waste Landfill Groundwater

- CWL semiannual groundwater monitoring activities were performed in November and December 2010; results are presented in Section II, Appendix A of this ER Quarterly Report. This was the first sampling event for the four monitoring wells (CWL-BW5, CWL-MW9, CWL-MW10, and CWL-MW11) installed in 2010. Analytical results will be discussed in the CY 2010 GWPP Annual Groundwater Monitoring Report (anticipated submittal to the NMED in summer 2011).

2.3.6 SWMUs 8/58 Groundwater

- No groundwater monitoring activities were performed at SWMUs 8/58 during this reporting period (November 2010 through January 2011).

2.3.7 SWMU 68 Groundwater

- No groundwater monitoring activities were performed at SWMU 68 during this reporting period (November 2010 through January 2011).

2.3.8 SWMU 149 Groundwater

- DOE/Sandia received approval with modifications from the NMED (NMED December 2010) for the Sampling and Analysis Plan (SAP) for monitoring well CTF-MW3 located near SWMU 149 (SNL/NM June 2010).

2.3.9 SWMU 154 Groundwater

- DOE/Sandia received approval with modifications from the NMED (NMED December 2010) for the SAP for monitoring well CTF-MW2 located near SWMU 154 (SNL/NM June 2010).

2.4 Environmental Restoration Documents Submitted to the NMED Pending Regulatory Review and Approval

The following section lists the ER documents that have been submitted to the NMED that are, as of this reporting period, still pending approval:

- The TA-V Groundwater CME Work Plan was submitted to the NMED on May 11, 2004 (SNL/NM April 2004).

- The BSG Interim Measures Work Plan was submitted to the NMED on May 26, 2005 (SNL/NM May 2005).

- The CME Report for the TAG Investigation was submitted to the NMED on September 1, 2005 (SNL/NM August 2005).

- The BSG CME Work Plan was submitted to the NMED on April 9, 2008 (SNL/NM March 2008a).
- The BSG Current Conceptual Model of Groundwater Flow and Contaminant Transport was submitted to the NMED on April 9, 2008 (SNL/NM March 2008b).

- The MWL CMI Report was submitted to the NMED on January 26, 2010 (SNL/NM January 2010).

- The CWL Final RCRA Closure Report was submitted to the NMED on September 27, 2010 (SNL/NM September 2010a).

- The Groundwater Characterization Work Plan for SWMU 8 – Open Dump (Coyote Canyon Blast Area) and SWMU 58 – Coyote Canyon Blast Area, Foothills Test Area, was submitted to the NMED on September 23, 2010 (SNL/NM September 2010b).

- The Groundwater Characterization Work Plan for SWMU 68, Old Burn Site, was submitted to the NMED on September 23, 2010 (SNL/NM September 2010b).

- The TA-V Geophysical Logs and Slug Test Report, was submitted to the NMED on November 24, 2010 (SNL/NM November 2010).

3.0 Long-Term Environmental Stewardship/Environmental Restoration Work Completed this Quarter

3.1 Corrective Action Management Unit

Corrective Action Management Unit (CAMU) post-closure care operations consist of vadose-zone monitoring, leachate removal, and post-closure inspections, as required in the Post-Closure Care Permit. Activities for this reporting period (November 2010 through January 2011) include the following:

- Weekly pumping of leachate from the leachate collection and removal system.

- Weekly inspection of the less-than-90-day accumulation area.

- Quarterly inspection of the site was performed on December 9 and December 20, 2010, and included the containment cell cover, storm water diversion structures, security fences, gates, signs, and benchmarks:

    - During site inspection activities, 6 four-wing saltbush plants were identified growing on the cover. Because these plants can develop extensive root systems that could damage the high-density polyethylene fabric that is part of the cover system, they were removed on December 9, 2010.

    - On November 22, 2010, a request was submitted to SNL/NM Facilities for the removal of tumbleweeds and excess vegetation around the containment cell. SNL/NM Facilities had not scheduled a date for weed removal during this reporting period.

- Quarterly monitoring of the Vadose Zone Monitoring System (VZMS) was conducted in December 2010. The results will be presented in the 2011 CAMU VZMS Annual Monitoring Results report (anticipated submittal to the NMED in September 2011). Waste management associated with the leachate collection and removal system was conducted and is outlined in Section 3.1.1.

- Composite leachate sampling for waste characterization was conducted on November 17, 2010, and January 25, 2011.

3.1.1 CAMU Waste Management Activities

During the reporting period (November 2010 through January 2011), the following waste management data for the CAMU were reported:

- Waste stored on site at the beginning of this period:
  - 83 gallons of leachate
  - 0 gallons of rinsate
  - 2 pounds (lbs) personal protective equipment (PPE)

- Waste generated on-site during the period:
  - 143 gallons of leachate
  - 2 gallons of rinsate
  - 8 lbs PPE, paper wipes, plastic drum pump

- Waste removed from the site by the Hazardous Waste Management Facility:
  - 111 gallons of leachate on November 18, 2010
  - 5 lbs PPE, paper wipes, plastic drum pump on November 18, 2010

- Waste remaining on site at the end of this period:
  - 115 gallons of leachate
  - 2 gallons of rinsate
  - 5 lbs PPE, paper wipes, plastic drum pump

3.1.2 CAMU Regulatory Activities

There were no regulatory activities conducted at the CAMU during this reporting period.

3.2 Long-Term Environmental Stewardship Documents Submitted to the NMED Pending Regulatory Review and Approval

No Long-Term Environmental Stewardship documents submitted to the NMED are pending regulatory review and approval.

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SECTION II
CHEMICAL WASTE LANDFILL QUARTERLY CLOSURE PROGRESS REPORT

This Quarterly Closure Progress Report for the Sandia National Laboratories, New Mexico (SNL/NM) Chemical Waste Landfill (CWL) has been prepared pursuant to the CWL Final Closure Plan and Post-Closure Care Permit Application (Closure Plan) (SNL/NM December 1992). This section documents activities at the CWL for the reporting period from November 2010 through January 2011. CWL groundwater sampling was conducted in November and December 2010. Analytical results associated with this sampling event are summarized in Section II, Appendix A of this Environmental Restoration Operations (ER) Consolidated Quarterly Report.

1.0 Introduction

All voluntary corrective measure (VCM) activities for the CWL have been completed. The CWL Landfill Excavation (LE) VCM Final Report was submitted to the New Mexico Environment Department (NMED) in April 2003 (SNL/NM April 2003) and approved by the NMED in December 2003 (Moats December 2003). The Site Operational Boundary Closure Addendum to the LE VCM Final Report was submitted to the NMED in August 2005 (SNL/NM August 2005) and approved by the NMED on October 25, 2005 (Bearzi October 2005). With the submittal of the Waste Management Addendum to the LE VCM Final Report as Appendix B in the CWL Quarterly Closure Progress Report on February 22, 2006 (SNL/NM February 2006), all LE VCM regulatory deliverables have been submitted. With the completion of the VCMs, technical meetings will be held on an as-needed basis. The public will continue to be informed of significant events through the SNL/NM ER public meeting process.

Installation of the cover as an interim measure was requested in April 2004 (Wagner April 2004) and approved with conditions in September 2004 (Kieling September 2004). The cover was completed in September 2005 in accordance with the conditions of approval. All field activities have been completed at the CWL, including the installation of new groundwater monitoring wells CWL-BW5, CWL-MW9, CWL-MW10, and CWL-MW11 and decommissioning of groundwater monitoring wells CWL-BW4A, CWL-MW4, CWL-MW5U/L, and CWL-MW6U/L, which are detailed in Section 2.0. Long-term monitoring under the NMED-approved CWL Post-Closure Care Permit (NMED October 2009a) will commence after NMED approval of final closure.

2.0 Status of Closure

The Final Toxic Substances Control Act (TSCA) Closure Report documents the completion of all closure activities specified in the "Risk-Based Approval Request, 40 CFR [Code of Federal Regulations] 761.61(c) Risk-Based Method for Management of PCB [Polychlorinated Biphenyl] Materials" (SNL/NM October 2001), approved by the U.S. Environmental Protection Agency (EPA) in June 2002 (Cooke June 2002). The Final TSCA Closure Report was submitted to the EPA and NMED on November 2, 2006 (SNL/NM November 2006).

The Final Resource Conservation and Recovery Act (RCRA) Closure Report documenting closure in accordance with all CWL Closure Plan requirements was submitted to the NMED on September 27, 2010 (SNL/NM September 2010). The required 40 CFR 265.116 (survey plat) and 40 CFR 265.119 (notation on property deed) notices were submitted to the Bernalillo County Zoning Commission and County Clerk, respectively, as well as the NMED in early September 2010 in accordance with the Closure Plan. These notices were also included as an appendix in the Final RCRA Closure Report (SNL/NM September 2010), which documents the backfilling of the former CWL, installation of the at-grade evapotranspirative (ET) cover, ET cover revegetation activities, installation of the four new groundwater monitoring wells, and the final end-state conditions and cumulative risk assessment.

Fieldwork associated with the installation of the four new groundwater monitoring wells (CWL-BW5, CWL-MW9, CWL-MW10, and CWL-MW11) and decommissioning of groundwater monitoring wells CWL-BW4A, CWL-MW4, CWL-MW5U/L, and CWL-MW6U/L was completed in August 2010 with the final land survey of the new wells. The Well Installation and Decommissioning Report was submitted as an appendix to the Final RCRA Closure Report, in accordance with the requirements of the CWL Closure Plan.

All required closure actions have now been completed in accordance with the CWL Closure Plan and the 2008 through 2009 negotiations that covered the CWL Closure Plan Amendment As Changed (revisions to Chapter 12 and to Appendix G [NMED October 2009b]), the CWL Post-Closure Care Permit, and the CWL Corrective Measures Study Report and Final Remedy.

The 2008 through 2009 negotiations were completed on October 15, 2009, and documented in the settlement agreement and Final Order In the Matter of Application for a Post-Closure Care Hazardous Waste Permit for the Chemical Waste Landfill, Sandia National Laboratories No. NM5890110518 (Final Order) (NMED October 2009a), which also included the final Post-Closure Care Permit. The NMED issued the "Notice of Approval,

Final Remedy and Closure Plan Amendment, Chemical Waste Landfill" on October 16, 2009 (NMED October 2009b). The October 16, 2009, NMED approval included the final versions of two revisions to the Closure Plan that were part of the Closure Plan Amendment as Changed: Chapter 12 and Appendix G, Revision 4, Section 1.0.

3.0 Groundwater and Soil-Gas Monitoring

Semiannual groundwater monitoring activities were performed at the CWL in November and December 2010; results are presented in Appendix A. This was the first sampling event for the four new monitoring wells (CWL-BW5, CWL-MW9, CWL-MW10, and CWL-MW11) installed in 2010.

No soil-gas sampling was performed at the CWL during this reporting period. Soil-gas sampling is not required under the Closure Plan but will be a requirement under the CWL Post-Closure Care Permit (NMED October 2009a).

4.0 Evapotranspirative Cover Maintenance

In June 2009, the U.S. Department of Energy and Sandia submitted a revegetation plan to the NMED for the CWL at-grade ET cover (SNL/NM June 2009) because the initial seeding performed in 2005 was not successful (i.e., the planted native grass species were overgrown by weedy invasive species). The NMED approved the plan on July 31, 2009 (Bearzi July 2009). Revegetation activities were performed from August through November 2009 and included weed removal, applying new seed and gravel mulch over the ET cover (1.7 acres enclosed by the perimeter security fence) and surrounding areas (an additional 0.5 acres), and performing supplemental watering. The result of this revegetation project was robust growth of native perennial grass species that replaced the formerly dominant annual weedy invasive species, which is documented in the CWL Final RCRA Closure Report (SNL/NM September 2010).

In March 2010, additional ET cover maintenance work was performed at the CWL. Undesirable plant species, in particular Russian thistle (i.e., tumbleweeds), were cleared from the ET cover surface and perimeter fence. In November 2010, weed removal was again performed and included, along with the Russian thistle, four-wing saltbush, which had been inadvertently added to the seed mix during the 2009 seeding effort. (Figures 1 and 2).

Figure 1
Close-up view to the south from the northeast end of the CWL prior to weed removal, November 15, 2010.

Figure 2
View to the northeast from the southwest corner of the CWL after completion of weed removal, November 23, 2010.

5.0 Projected Activities for the Upcoming Quarter

There are no planned activities for the upcoming quarter.

After NMED approval of the CWL Final RCRA Closure Report, the Closure Plan will no longer be in effect, and the CWL Post-Closure Care Permit (NMED October 2009a) will become the sole source of operating conditions.

6.0 References

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Appendix A

Chemical Waste Landfill Semiannual Groundwater Monitoring Assessment Report, August 2010–January 2011

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SECTION II, APPENDIX A
CHEMICAL WASTE LANDFILL SEMIANNUAL GROUNDWATER MONITORING ASSESSMENT REPORT, AUGUST 2010–JANUARY 2011

1.0 Introduction

This report was prepared pursuant to Sections 1.2.1.6 and 1.3 of the *Chemical Waste Landfill [CWL] Final Closure Plan and Postclosure Permit Application* (CWL Closure Plan) (SNL/NM December 1992). In compliance with recent requests by the New Mexico Environment Department (NMED) dated January 2009 and December 2010, this and all future quarterly reports will graphically present groundwater data for CWL constituents of concern (COCs) detected above minimum detection limits along with corresponding measured groundwater elevations (Bearzi January 2009 and December 2010). These graphs will be provided in addition to the tabular form of results. The activities associated with the groundwater monitoring task are summarized as follows.

Sandia Corporation performed Fiscal Year 2011 (FY11) semiannual groundwater sampling at the CWL, Sandia National Laboratories/New Mexico (SNL/NM) (Figure A-1) from November 29 to December 14, 2010. This sampling represents the semiannual groundwater monitoring event for the time period of August 2010 through January 2010. CWL groundwater sampling is required by the interim status standards of the Resource Conservation and Recovery Act (RCRA) contained in Title 40 of the Code of Federal Regulations (CFR), Part 265, Subpart F, and the State of New Mexico Hazardous Waste Management Regulations. This groundwater sampling event was conducted in conformance with procedures outlined in the *Sampling and Analysis Plan for Groundwater Assessment Monitoring at the Chemical Waste Landfill*, Appendix G, Revision 4 of the CWL Closure Plan (Appendix G of the CWL Closure Plan) (SNL/NM December 1992).

In March 1998, the NMED approved eliminating chlorinated dioxins, furans, and pesticides from the Appendix IX list of constituents for CWL groundwater monitoring (Dinwiddie March 1998). In May 2000, the NMED approved the following changes to Appendix G of the CWL Closure Plan (Bearzi May 2000):

- Biannual frequency (every other year) for agreed upon Appendix IX constituents including volatile organic compounds (VOCs), semivolatile organic compounds, chlorinated herbicides, polychlorinated biphenyls, total cyanide, sulfides, dissolved chromium, and total metals plus iron.

- Semiannual frequency (twice a year) for Appendix IX VOCs and total metals plus iron.

This report describes groundwater sampling activities and presents analytical results from the first FY11 semiannual groundwater assessment monitoring period. In November and December 2010, environmental groundwater samples were collected from background well (BW) CWL-BW5, and monitoring wells (MW) CWL-MW9, CWL-MW10, and CWL-MW11 (Figure A-2). This was the first round of sampling for these monitoring wells that were installed in 2010. The samples were analyzed for the required 40 CFR 264 (Appendix IX) constituents: VOCs and total metals plus iron. The NMED U.S. Department of Energy (DOE) Oversight Bureau (OB) participated in the November and December 2010 sampling event and received split samples from three CWL monitoring wells (CWL-MW9, CWL-MW10, and CWL-MW11). The split samples were submitted to a different laboratory for analysis of Appendix IX VOCs and total metals plus iron. Additional samples for total aluminum, calcium, magnesium, manganese, potassium, and sodium were requested by the NMED DOE OB at the three CWL wells. These additional analyses are not required by Appendix G of the CWL Closure Plan (SNL/NM December 1992). The NMED DOE OB split sampling results are presented in a separate report and not addressed in this report.

Groundwater monitoring was performed at the newly installed wells CWL-BW5, CWL-MW9, CWL-MW10, and CWL-MW11 in accordance with the NMED-approved CWL Closure Plan Appendix G Amendment (Kieling October 2009). After NMED approval of the CWL Final RCRA Closure Report, the NMED-approved CWL Post-Closure Care Permit (NMED October 2009) will take effect and the other existing monitoring wells will be decommissioned as stipulated in the permit. The following sections provide descriptions of the field methods used and a discussion of the analytical and quality control (QC) results.

2.0 Field Methods and Measurements

The semiannual groundwater sampling field measurements were collected in conformance with Appendix G of the CWL Closure Plan (SNL/NM December 1992). Groundwater monitoring was performed according to Appendix G of the Closure Plan and updated SNL/NM Field Operating Procedures (FOPs) (SNL/NM November 1995, September 1996, and February 1997).

2.1 Groundwater Elevation Determinations

Groundwater elevations at the CWL wells were determined using a Solinst® water level indicator prior to purging activities. Measurements were taken in accordance with FOP 95-02, "A Technical Procedure for the Measurement of Static Water Levels" (SNL/NM November 1995) until three replicate measurements agreed to within 0.05 foot of each other. The portion of the well sounder in contact with the groundwater was decontaminated between measurements at different wells (SNL/NM February 1997). Table A-1 summarizes the depth-to-water measurements for all CWL wells. Attachment 1 provides complete field measurement information as described in Section 2.2. Figure A-2 graphically displays the potentiometric surface based on October 2010 groundwater elevations for the newly installed CWL monitoring wells. Plots A-1 to A-6 show water level elevations obtained from CWL monitoring wells in October 2010.

2.2 Well Evacuation

A portable Bennett™ groundwater sampling system was used to collect groundwater samples from all wells. Prior to sample collection, each monitoring well was purged to remove stagnant well casing water. More than one day was required to complete purging and sampling at CWL-MW10 and CWL-MW11 due to the slow recharge rate of the monitoring wells. Monitoring wells purged to dryness were allowed to recover before sampling to ensure the most representative groundwater sample possible given the low yield of these wells. CWL-BW5 and CWL-MW9 were purged a minimum of three well-bore volumes prior to sampling.

Collection of field analytical measurements and groundwater samples was performed in accordance with procedures described in FOP 94-48, "Sampling Groundwater Monitoring Wells" (SNL/NM September 1996), consistent with the requirements of Appendix G of the CWL Closure Plan (SNL/NM December 1992). Groundwater temperature, specific conductance (SC), and potential of hydrogen (pH) were measured using a YSI™ Model 620 Water Quality Meter. Turbidity was measured with a Hach™ Model 2100P portable turbidity meter. Groundwater stability is considered acceptable when measurements are within 5 nephelometric turbidity units, 0.2 pH units, and 0.2 degrees Celsius, and SC is within 1 percent or 10 micromhos per centimeter (whichever is greater). Monitoring wells CWL-BW5 and CWL-MW9 were purged until three stable measurements of turbidity, temperature, SC, and pH were obtained. All purged water was placed into 55-gallon containers and stored at the Building 9925 waste accumulation area pending the results of the analyses. Table A-2 summarizes average pumping rates, pumping duration, and well discharge volumes for each well sampled.

Table A-3 summarizes temperature, pH, SC, and turbidity measurements. Field Measurement Logs in Attachment 1 document well purging and water quality measurements.

2.3 Groundwater Sample Collection

All groundwater samples were collected directly from the sample discharge tube into laboratory-prepared sample containers. Chemical preservatives for samples intended for chemical analyses were added to the sample containers at the laboratory prior to shipment to SNL/NM.

Table A-4 presents the sample number assigned to each sample. Table A-5 summarizes the analyses performed, analytical methods, sample containers, preservatives, and holding time requirements. Section 3.0 of this appendix summarizes the analytical results. Analysis Request/Chain-of-Custody documentation for all samples submitted for analyses are presented in Attachment 2 and filed in the SNL/NM Customer Funded Records Center.

2.4 Pump Decontamination

A portable Bennett^{TM} groundwater sampling system was used to collect groundwater samples from all wells. The sampling pump and tubing bundle were decontaminated prior to installation in monitoring wells according to procedures described in FOP 94-26, "General Equipment Decontamination" (SNL/NM February 1997). An equipment blank (EB) or rinsate sample was collected to verify the effectiveness of the equipment decontamination process. This sample was collected prior to sampling CWL-MW9, and the results are discussed in Section 4.1.1 of this appendix.

3.0 Analytical Results

Groundwater samples collected for analysis of VOCs and metals were submitted to GEL Laboratories, LLC in Charleston, South Carolina. Tables A-6 and A-7 summarize the chemical parameters, laboratory method detection limits (MDLs), and U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs) for drinking water supplies. Tables A-8 and A-9 summarize all analytes detected in samples collected from CWL groundwater monitoring wells during the first FY11 semiannual sampling event. All chemical analytical results are compared with EPA MCLs for drinking water supplies. Analytical reports, including the results of the analyses,

analytical methods, quantitation limits, dates of analysis, and results of QC analyses, are filed in the SNL/NM Customer Funded Records Center.

No VOCs were detected at concentrations exceeding the associated MCL. No VOCs were detected in any sample except for trichloroethene (TCE), which was detected below the MCL of 5.0 micrograms per liter (μg/L) in the groundwater sample from CWL-MW10 at a concentration of 1.11 μg/L. Table A-8 summarizes the detected VOCs. Plot A-1 shows the TCE result for CWL-MW10.

No total metal parameters were detected above established regulatory limits in any groundwater sample. Chromium was detected below the MCL of 0.10 milligrams per liter (mg/L) in the sample from CWL-MW11 at a concentration of 0.00253 mg/L. Nickel was detected above the laboratory MDL in all environmental groundwater samples. Detected nickel concentrations ranged from 0.003 mg/L (CWL-BW5) to 0.00707 mg/L (CWL-MW10). No MCL is established for nickel. Table A-9 summarizes the total metal concentrations for all groundwater samples collected during the first FY11 semiannual sampling event at the CWL. Plots A-2 through A-6 show detected chromium and nickel results.

4.0 Quality Control

Field and laboratory QC samples were prepared to determine the accuracy of the methods used and to detect inadvertent sample contamination that may have occurred during the sampling and analysis process. The following sections discuss each sample type.

4.1 Field Quality Control Samples

Field QC samples included EB, environmental duplicate, field blank (FB), and trip blank (TB) samples. The field QC samples were submitted for analysis along with the groundwater samples in accordance with QC procedures specified in Appendix G of the CWL Closure Plan (SNL/NM December 1992).

4.1.1 Equipment Blank Samples

One EB or rinsate sample was collected to verify the effectiveness of the equipment decontamination process. This sample was collected prior to sampling CWL-MW9 and analyzed for VOCs and total metals. Table A-10 summarizes detected parameters in the

EB sample. Detected analytes included chloroform and copper. No corrective action was required for chloroform, as this compound was not detected in the associated environmental sample. Copper was detected in both the CWL-MW9 environmental and duplicate samples at concentrations less than five times the EB result and was qualified as not detected during data validation.

4.1.2 Duplicate Environmental Samples

A duplicate environmental sample was collected and analyzed for all parameters in order to determine the overall reproducibility of the sampling and analysis process. The duplicate sample was collected at CWL-MW9 immediately after the original environmental sample in order to reduce variability caused by time and/or sampling mechanics.

Relative percent difference (RPD) calculations between duplicate samples were performed for all analytes. Table A-11 summarizes the results for the duplicate sample analyses and calculated RPD values. The results show that sampling and analysis precision was in conformance with Appendix G of the CWL Closure Plan requirements for all measured parameters (SNL/NM December 1992).

4.1.3 Field Blank Samples

One FB sample was collected from monitoring well CWL-MW10 and analyzed for VOCs to assess whether contamination of the sample resulted from ambient field conditions. The FB sample was prepared by pouring deionized water into sample containers at the sample collection point to simulate the transfer of environmental samples from the sampling system to the sample container. VOCs detected above laboratory MDLs included bromodichloromethane and chloroform. No corrective action was necessary, as these compounds were not detected in the associated environmental sample.

4.1.4 Trip Blanks

TB samples are submitted whenever samples are collected for VOC analysis to assess whether contamination of the samples has occurred during shipment and storage. TB samples consist of laboratory reagent grade water with hydrochloric acid preservative contained in 40-milliliter VOC vials prepared by the analytical laboratory, which accompany the empty sample containers supplied by the laboratory. TBs were brought to the field and accompanied each VOC sample shipment. A total of five TB samples were

submitted with the samples discussed in this report. No VOCs were detected above laboratory MDLs in any TB sample.

4.2 Laboratory Quality Control

Internal laboratory QC analyses performed included method blank, laboratory control sample, matrix spike, matrix spike duplicate, and surrogate spike analyses. All laboratory data were reviewed and qualified in accordance with AOP [Administrative Operating Procedure] 00-03, "Data Validation Procedure for Chemical and Radiochemical Data," Revision 2 (SNL/NM July 2007). Although some analytical results were qualified as not detected or as estimated values during the data validation process, no significant data quality problems were noted for any CWL groundwater sample. The chromium result for CWL-MW10 was qualified as not detected during data validation because chromium was detected at a concentration less than five times the detected laboratory method blank value. Data validation reports associated with the first FY11 semiannual groundwater sampling event are provided in Attachment 3.

4.3 Variances and Nonconformances

Variances and nonconformances from requirements in Appendix G of the CWL Closure Plan (SNL/NM December 1992) are identified as follows:

- COCs detected above MDLs and groundwater levels are presented in graphical form as requested by the NMED (Bearzi January 2009 and December 2010).

5.0 Summary

In November and December 2010, samples were collected from CWL monitoring wells (CWL-BW5, CWL-MW9, CWL-MW10, and CWL-MW11) and analyzed for 40 CFR 264 (Appendix IX) VOCs and total metals plus iron. No analytes were detected at concentrations exceeding the associated EPA MCLs in any CWL groundwater samples.

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Figures

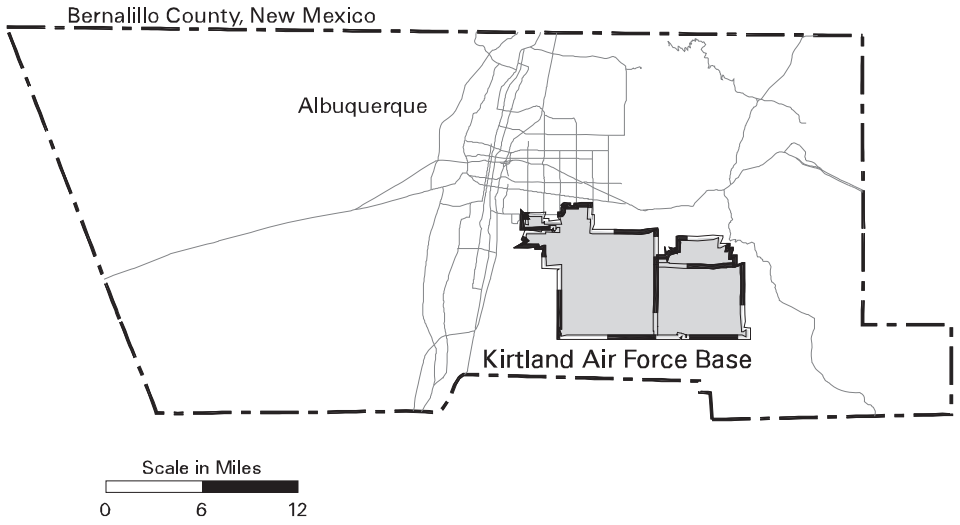
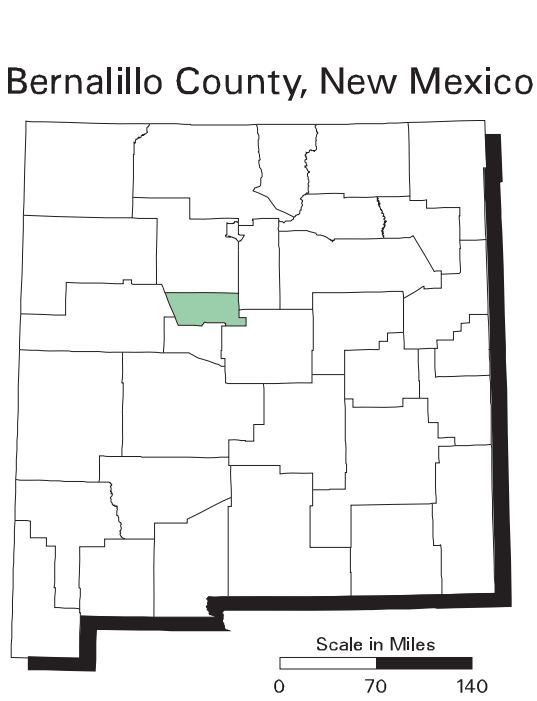
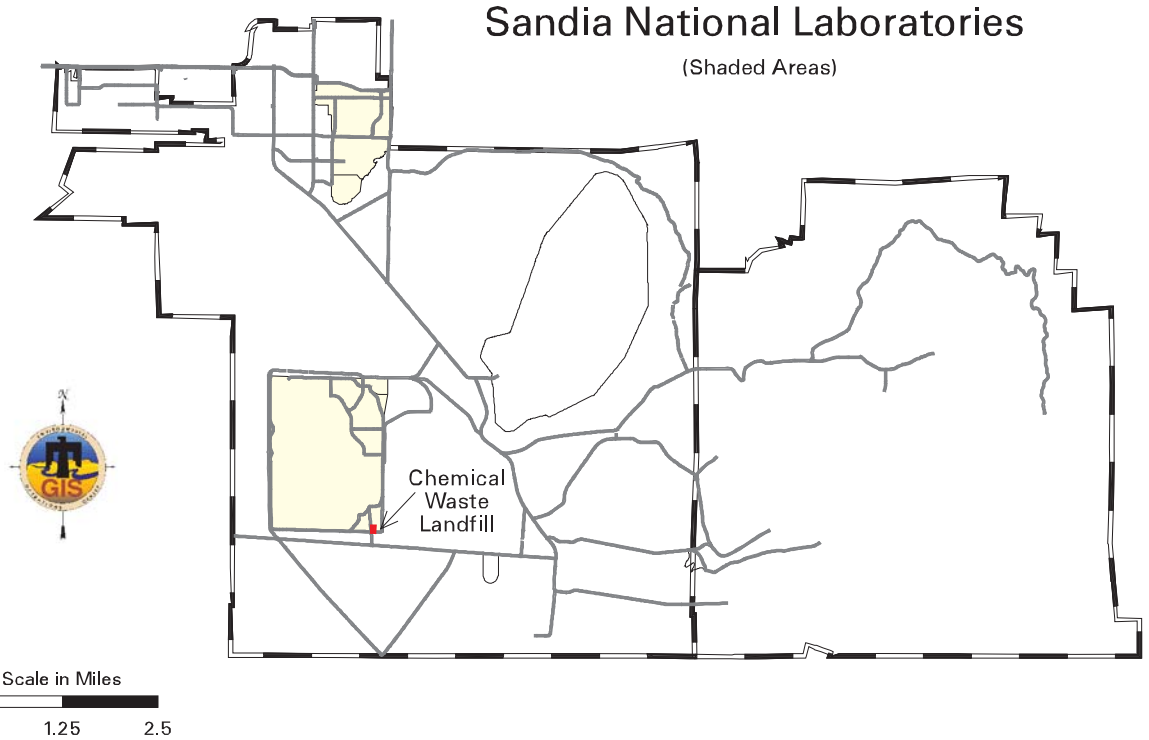


Figure A-1
Location of the Chemical Waste Landfill,
Sandia National Laboratories
New Mexico





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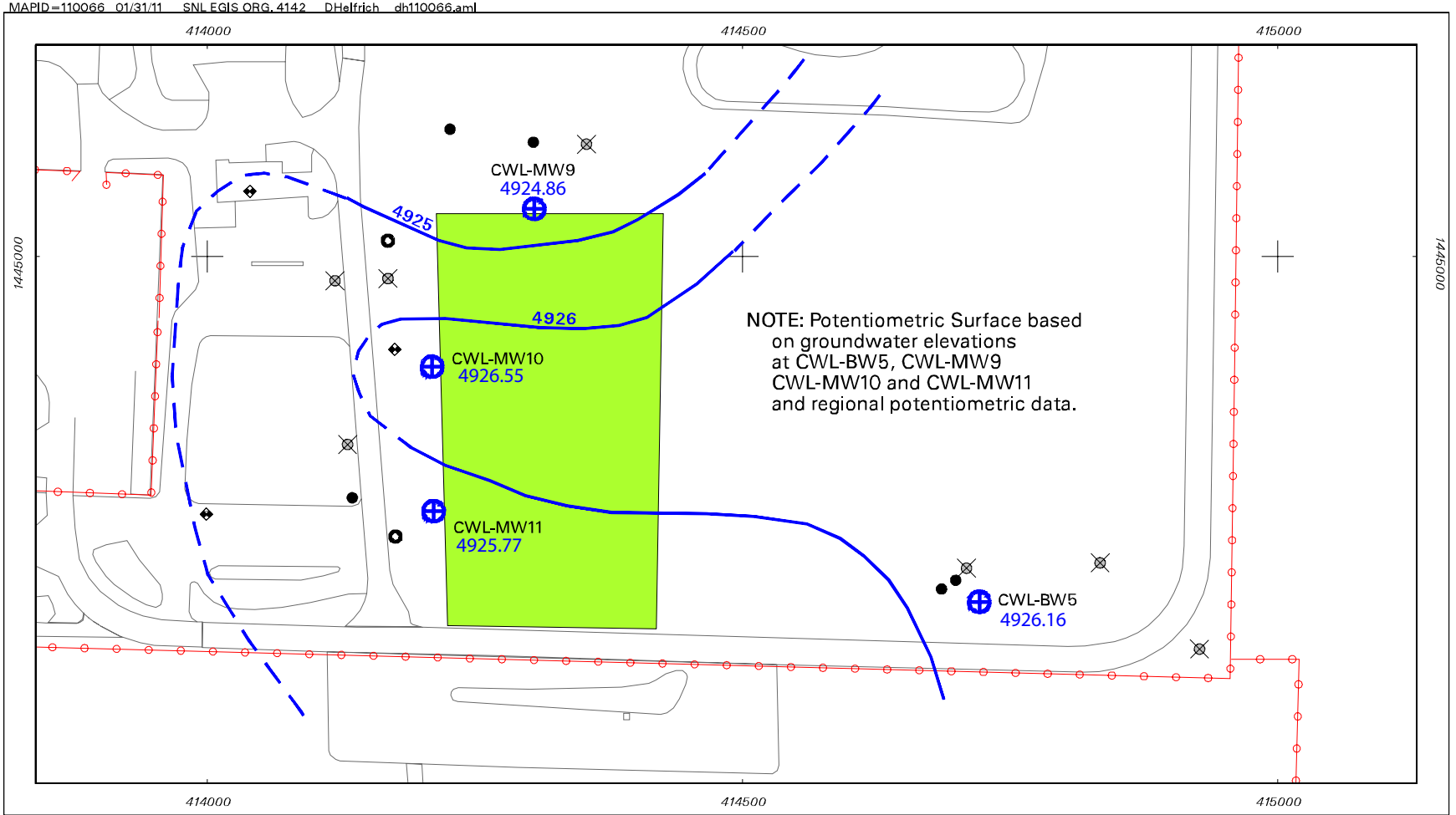


Legend

- Groundwater Monitoring Well
- Plugged & Abandoned Monitoring Well
- Deep Regional Aquifer Monitoring Well
- Multiple Completion Monitoring Well
- Monitoring Well - installed 2010
- Groundwater Elevation (in Feet Above Mean Sea Level) as of October, 2010 (Inferred where dashed)
- Fence
- Paved / Unpaved Road
- Chemical Waste Landfill

Figure A-2
Current Monitoring Well Network and Potentiometric Surface Map, Chemical Waste Landfill
Sandia National Laboratories, New Mexico

0 75 150
Scale in Feet

0 18 36
Scale in Meters

Tables

Table A-1
Monitoring Well Groundwater Elevations
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Well Number	Date of Measurement	Measuring Point Elevation[a] (FAMSL)	Depth to Water (FBTOC)	Groundwater Elevation (FAMSL)	Bottom of Well Elevation (FAMSL)	Static Water Height (feet)
CWL-BW5	10-14-10	5434.79	508.63	4926.16	4907.20	18.96
CWL-MW9	10-14-10	5426.12	501.26	4924.86	4903.50	21.36
CWL-MW10	10-14-10	5424.58	498.03	4926.55	4904.20	22.35
CWL-MW11	10-14-10	5423.24	497.47	4925.77	4904.80	20.97

Notes

[a]Measurement point is the top of well casing.
BW = Background well.
CWL = Chemical waste landfill.
FAMSL = Feet above mean sea level.
FBTOC = Feet below top of casing.
MW = Monitoring well.

Table A-2
Volumes Purged from Monitoring Wells
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Well Number	Volume Purged[a] (gal.)	Time Pumped (minutes)	Average Pump Rate (gal./minute)	Well Pumped to Dryness
CWL-BW5	75	188	0.40	No
CWL-MW9	88	183	0.48	No
CWL-MW10	22	67	0.33	Yes
CWL-MW11	25.5	77	0.33	Yes

Notes

[a]Volume of groundwater purged before sampling.
BW = Background well.
CWL = Chemical waste landfill.
gal. = Gallon(s).
MW = Monitoring well.

Table A-3
Summary of Field Measurements
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Well Number	Measurement Period[a]	pH	Temperature °C	SC (μmhos/cm)	Turbidity (NTU)
CWL-BW5	Purge measurements: 11-29-10	6.98 6.97 6.97	18.69 18.80 18.79	1,051 1,050 1,050	1.57 1.60 1.59
CWL-MW9	Purge measurements: 12-01-10	7.11 7.11 7.11	19.68 19.71 19.62	924 924 924	0.92 0.92 0.94
CWL-MW10	Purge measurements: 12-06-10	7.24 7.24 7.24	17.25 18.04 18.25	877 880 880	8.38 7.99 8.45
CWL-MW11	Purge measurements: 12-14-10	7.05 7.05 7.05	17.74 18.73 19.05	980 982 982	1.55 2.02 4.09

Notes

[a]Last three water quality measurements prior to sampling. For complete record reference Attachment 1.

°C = Degrees Celsius.
BW = Background well.
CWL = Chemical Waste Landfill.
μmhos/cm = Micromhos per centimeter
MW = Monitoring well.
NTU = Turbidity measured in nephelometric turbidity units.
pH = Potential of hydrogen (negative logarithm of the hydrogen ion concentration).
SC = Specific conductance, in micromhos per centimeter.

Table A-4
Sample Number Identification
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Sample Identification	AR/COC	Sample Number	Date Sampled	Laboratory	Sample Type
CWL-BW5	613369	089878	11-29-10	GEL	Environmental Sample
CWL-MW9	613371	089882	12-01-10	GEL	Environmental Sample
CWL-MW9	613371	089883	12-01-10	GEL	Duplicate Sample
CWL-MW10	613372	089885	12-06-10	GEL	Environmental Sample
CWL-MW11	613373	089888	12-14-10	GEL	Environmental Sample
CWL-EB1 (prior to CWL-MW9)	613370	089880	11-30-10	GEL	Equipment Blank
CWL-FB1	613372	089887	12-06-10	GEL	Field Blank
CWL-TB1	613369	089879	11-29-10	GEL	Trip Blank
CWL-TB2	613370	089881	11-30-10	GEL	Trip Blank
CWL-TB3	613371	089884	12-01-10	GEL	Trip Blank
CWL-TB4	613372	089886	12-06-10	GEL	Trip Blank
CWL-TB5	613373	089889	12-14-10	GEL	Trip Blank

Notes

AR/COC = Analysis Request and Chain of Custody.
BW = Background well.
CWL = Chemical Waste Landfill.
EB = Equipment blank sample.
FB = Field blank sample.
GEL = GEL Laboratories, LLC.
MW = Monitoring well.
TB = Trip blank.

Table A-5
Analysis, Methods, Sample Containers, Preservatives, and Holding Times
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Analysis	Method[a]	Container Type/ Volume/Preservative	Holding Time
Appendix IX Volatile Organic Compounds	8260B	Glass; 3 x 40 mL; HCl, 4°C	14 days
Appendix IX Total Metals Plus Iron	6020/7470A	Polyethylene; 500 mL; HNO_3, 4°C	28 days/180 days[b]

Notes

[a]U.S. Environmental Protection Agency, November 1986. "Test Methods for Evaluating Solid, Physical/Chemical Methods," 3rd ed., (and updates), *SW-846*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.
[b]Holding time for mercury is 28 days; all other metals are 180 days.
°C = Degrees Celsius.
HCl = Hydrochloric acid.
HNO_3 = Nitric acid.
mL = Milliliter(s).

Table A-6
Chemical Parameters, MDL/MCL for Volatile Organic Compounds Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Test Method 8260B[a] (Appendix IX List)[b]	MDL (μg/L)	MCL (μg/L)	Test Method 8260B[a] (Appendix IX List)[b]	MDL (μg/L)	MCL (μg/L)
1,1,1,2-Tetrachloroethane	0.300	NE	Carbon tetrachloride	0.300	5.0
1,1,1-Trichloroethane	0.325	200	Chlorobenzene	0.250	100
1,1,2,2-Tetrachloroethane	0.250	NE	Chloroethane	0.300	NE
1,1,2-Trichloroethane	0.250	5.0	Chloroform	0.250	NE
1,1-Dichloroethane	0.300	NE	Chloromethane	0.300	NE
1,1-Dichloroethene	0.300	7.0	Chloroprene	0.300	NE
1,2,3-Trichloropropane	0.300	NE	Dibromochloromethane	0.300	NE
1,2,4-Trichlorobenzene	0.300	70	Dibromomethane	0.300	NE
1,2-Dibromo-3-chloropropane	0.300	0.2	Dichlorodifluoromethane	0.300	NE
1,2-Dibromoethane	0.250	0.05	Ethyl benzene	0.250	700
1,2-Dichloroethane	0.250	5.0	Ethyl cyanide	1.50	NE
1,2-Dichloropropane	0.250	5.0	Ethyl methacrylate	1.00	NE
2-Butanone	1.25	NE	Iodomethane	1.25	NE
2-Hexanone	1.25	NE	Isobutanol	12.5	NE
4-methyl-, 2-Pentanone	1.25	NE	Methacrylonitrile	1.00	NE
Acetone	3.50	NE	Methyl methacrylate	1.00	NE
Acetonitrile	6.25	NE	Methylene chloride	3.00	5.0
Acrolein	1.25	NE	Pentachloroethane	1.00	NE
Acrylonitrile	1.00	NE	Styrene	0.250	100
Allyl chloride	1.50	NE	Tetrachloroethene	0.300	5.0
Benzene	0.300	5.0	Toluene	0.250	1,000
Bromodichloromethane	0.250	NE	Trichloroethene	0.250	5.0
Bromoform	0.250	NE	Trichlorofluoromethane	0.300	NE
Bromomethane	0.300	NE	Vinyl acetate	1.50	NE
Carbon disulfide	1.25	NE	Vinyl chloride	0.500	2.0

Refer to footnotes at end of table.

Table A-6 (concluded)
Chemical Parameters, MDL/MCL for Volatile Organic Compounds Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Test Method 8260B[a] (Appendix IX List)[b]	MDL (μg/L)	MCL (μg/L)	Test Method 8260B[a] (Appendix IX List)[b]	MDL (μg/L)	MCL (μg/L)
Xylenes (Total)	0.300	10,000	trans-1,2-Dichloroethene	0.300	100
bis(2-Chloroisopropyl)ether	1.50	NE	trans-1,3-Dichloropropene	0.250	NE
cis-1,3-Dichloropropene	0.250	NE	trans-1,4-Dichloro-2-butene	1.00	NE

Notes

[a]U.S. Environmental Protection Agency, November 1986. "Test Methods for Evaluating Solid, Physical/Chemical Methods," 3rd ed., (and updates), *SW-846*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.
[b]Title 40, Code of Federal Regulations, Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, Appendix IX, Groundwater Monitoring List.

CFR = Code of Federal Regulations.
EPA = U.S. Environmental Protection Agency.
MCL = Maximum contaminant level established by the EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), as amended or 20.7.10 NMAC, incorporating 40 CFR 141.
MDL = The method detection limit of an analyte that can be determined, but not quantified, with 99% confidence.
μg/L = Microgram(s) per liter.
NE = Not established.
NMAC = New Mexico Administrative Code.

Table A-7
Chemical Parameters, MDL/MCL for Metal Parameters Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Appendix IX List[a]	Test Method[b]	MDL (mg/L)	MCL (mg/L)
Antimony	6020	0.0005	0.006
Arsenic	6020	0.0015	0.01
Barium	6020	0.0005–0.0025	2.0
Beryllium	6020	0.0001	0.004
Cadmium	6020	0.00011	0.005
Chromium	6020	0.0025	0.10
Cobalt	6020	0.0001	NE
Copper	6020	0.0003	NE
Iron	6020	0.01	NE
Lead	6020	0.0005	NE
Mercury	7470A	0.000066	0.002
Nickel	6020	0.0005	NE
Selenium	6020	0.001	0.05
Silver	6020	0.0002	NE
Thallium	6020	0.0003	0.002
Tin	6020	0.001	NE
Vanadium	6020	0.003	NE
Zinc	6020	0.0026	NE

Notes

[a]Title 40, Code of Federal Regulations, Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, Appendix IX, Groundwater Monitoring List. Additional metal parameter includes iron.

[b]U.S. Environmental Protection Agency, November 1986. "Test Methods for Evaluating Solid, Physical/Chemical Methods," 3rd ed., (and updates), *SW-846*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.

CFR = Code of Federal Regulations.
EPA = U.S. Environmental Protection Agency.
MCL = Maximum contaminant levels established by the EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), as amended or 20.7.10 NMAC, incorporating 40 CFR 141.
MDL = The method detection limit of an analyte that can be determined, but not quantified, with 99% confidence.
mg/L = Milligram(s) per liter.
NE = Not established.
NMAC = New Mexico Administrative Code.

Table A-8
Summary of Detected Volatile Organic Compounds
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

			AR/COC No.: 613369 Sample No.: 089878 Well No.: CWL-BW5 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 11-29-10	AR/COC No.: 613371 Sample No.: 089882 Well No.: CWL-MW9 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-01-10	AR/COC No.: 613371 Sample No.: 089883 Well No.: CWL-MW9 Sample Type: Duplicate Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-01-10	AR/COC No.: 613372 Sample No.: 089885 Well No.: CWL-MW10 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-06-10	AR/COC No.: 613373 Sample No.: 089888 Well No.: CWL-MW11 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-14-10
Parameter	**Method**	**MCL**	**All results in μg/L**				
Trichloroethene	8260B	5.0	ND (0.250)	ND (0.250)	ND (0.250)	1.11	ND (0.250)

Notes

AR/COC = Analysis Request and Chain of Custody.
BW = Background well.
CFR = Code of Federal Regulations
CWL = Chemical Waste Landfill.
EPA = U.S. Environmental Protection Agency.
GEL = GEL Laboratories, LLC.
MCL = Maximum contaminant levels established by the EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), as amended or 20.7.10 NMAC, incorporating 40 CFR 141.
μg/L = Microgram(s) per liter.
MW = Monitoring well.
ND = The analyte was analyzed for but was not detected or qualified as not detected during data validation. The associated numerical value is the sample quantitation limit.
NMAC = New Mexico Administrative Code.

Table A-9
Summary of Total Metal Parameters
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

		AR/COC No.:	**613369**	**613371**	**613371**	**613372**	**613373**
		Sample No.:	**089878**	**089882**	**089883**	**089885**	**089888**
		Well No.:	**CWL-BW5**	**CWL-MW9**	**CWL-MW9**	**CWL-MW10**	**CWL-MW11**
		Sample Type:	**Environmental**	**Environmental**	**Duplicate**	**Environmental**	**Environmental**
		Sample Method:	**Bennett Pump**	**Bennett Pump**	**Bennett Pump**	**Bennett Pump**	**Bennett Pump**
		Laboratory:	**GEL**	**GEL**	**GEL**	**GEL**	**GEL**
		Date Sampled:	**11-29-10**	**12-01-10**	**12-01-10**	**12-06-10**	**12-14-10**
Parameter	**Method**	**MCL**	**All results in mg/L**				
Antimony	6020	0.006	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0075)
Arsenic	6020	0.01	ND (0.0015)	ND (0.0015)	ND (0.0015)	ND (0.0015)	ND (0.0015)
Barium	6020	2.0	0.063	0.148	0.141	0.311	0.0818
Beryllium	6020	0.004	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Cadmium	6020	0.005	ND (0.00011)	ND (0.00011)	ND (0.00011)	ND (0.00011)	ND (0.00011)
Chromium	6020	0.10	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.014)	0.00253 (0.010) J+
Cobalt	6020	NE	0.00027 (0.001) J+	0.00118 J+	0.00119 J+	0.00185 J+	0.000489 (0.001) J+
Copper	6020	NE	0.00091 (0.001) J+	ND (0.0034)	ND (0.0034)	0.00201 J+	0.00129
Iron	6020	NE	0.470	1.06	1.11	1.07	0.531
Lead	6020	NE	0.00052 (0.002) J	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.000578 (0.002) J
Mercury	7470A	0.002	ND (0.000066)	ND (0.000066)	ND (0.000066)	ND (0.000066) UJ	ND (0.000066)
Nickel	6020	NE	0.003 J+	0.00329 J+	0.00348 J+	0.00707 J+	0.00449 J+
Selenium	6020	0.05	0.00127 (0.005) J-	ND (0.001) UJ	ND (0.001) UJ	ND (0.001)	0.00257 (0.005) J
Silver	6020	NE	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)
Thallium	6020	0.002	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0019)
Tin	6020	NE	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)

Table A-9 (concluded)
Summary of Total Metal Parameters
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

			AR/COC No.: 613369 Sample No.: 089878 Well No.: CWL-BW5 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 11-29-10	AR/COC No.: 613371 Sample No.: 089882 Well No.: CWL-MW9 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-01-10	AR/COC No.: 613371 Sample No.: 089883 Well No.: CWL-MW9 Sample Type: Duplicate Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-01-10	AR/COC No.: 613372 Sample No.: 089885 Well No.: CWL-MW10 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-06-10	AR/COC No.: 613373 Sample No.: 089888 Well No.: CWL-MW11 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 12-14-10
Parameter	**Method**	**MCL**	**All results in mg/L**				
Vanadium	6020	NE	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)
Zinc	6020	NE	ND (0.0026)	0.023 J+	0.0228 J+	0.0682 J+	0.0222 J+

Notes

If result detected below laboratory practical quantitation limit, then practical quantitation limit is indicated in parenthesis.

AR/COC = Analysis Request and Chain of Custody.
BW = Background well.
CFR = Code of Federal Regulations.
CWL = Chemical Waste Landfill.
EPA = U.S. Environmental Protection Agency.
GEL = GEL Laboratories, LLC.
J = The associated numerical value is an estimated quantity and/or detected below the practical quantitation limit.
J+ = The associated numerical value is an estimated quantity with a suspected positive bias.
J- = The associated numerical value is an estimated quantity with a suspected negative bias.
MCL = Maximum contaminant levels established by the EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), as amended or 20.7.10 NMAC, incorporating 40 CFR 141.
mg/L = Milligram(s) per liter.
MW = Monitoring well.
ND = The analyte was analyzed for but was not detected or qualified as not detected during data validation. The associated numerical value is the sample quantitation limit.
NE = Not established.
NMAC = New Mexico Administrative Code.
UJ = The analyte was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

Table A-10
Summary of Detected Parameters in the Equipment Blank Sample
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

		AR/COC No.:	**613370**
		Sample No.:	**089880**
		Well No.:	**Prior to CWL-MW9**
		Sample Type:	**Equipment Blank**
		Sample Method:	**Bennett Pump**
		Laboratory:	**GEL**
		Date Sampled:	**11-30-10**
Parameter	**Method**	**MCL**	**All results in μg/L (unless otherwise specified)**
Chloroform	8260B	NE	1.67
Copper (mg/L)	6020	NE	0.000671 (0.001) J

Notes

If result detected below laboratory practical quantitation limit, then practical quantitation limit is indicated in parenthesis.

AR/COC = Analysis Request and Chain of Custody.
CFR = Code of Federal Regulations.
CWL = Chemical Waste Landfill
EPA = U.S. Environmental Protection Agency.
GEL = GEL Laboratories, LLC.
J = The associated value is an estimated quantity and/or detected below the practical quantitation limit.
MCL = Maximum contaminant levels established by the EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), as amended or 20.7.10 NMAC, incorporating 40 CFR 141.
μg/L = Microgram(s) per liter.
mg/L = Milligram(s) per liter.
MW = Monitoring well.
NE = Not established.
NMAC = New Mexico Administrative Code.

Table A-11
Summary of Environmental and Duplicate Analyses
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semiannual Assessment, August 2010–January 2011

Parameter	Environmental Sample Results (R_1) (mg/L, unless indicated)	Duplicate Sample Results (R_2) (mg/L, unless indicated)	RPD
CWL-MW9			
Barium	0.148	0.141	5
Cobalt	0.00118 J+	0.00119 J+	1
Iron	1.06	1.11	5
Nickel	0.00329 J+	0.00348 J+	6
Zinc	0.023 J+	0.0228 J+	1

Notes

CWL = Chemical Waste Landfill.
J+ = The associated numerical value is an estimated quantity with a suspected positive bias.
mg/L = Milligram(s) per liter.
MW = Monitoring well.
RPD = Relative percent difference is calculated with the following equation and rounded to nearest whole number:

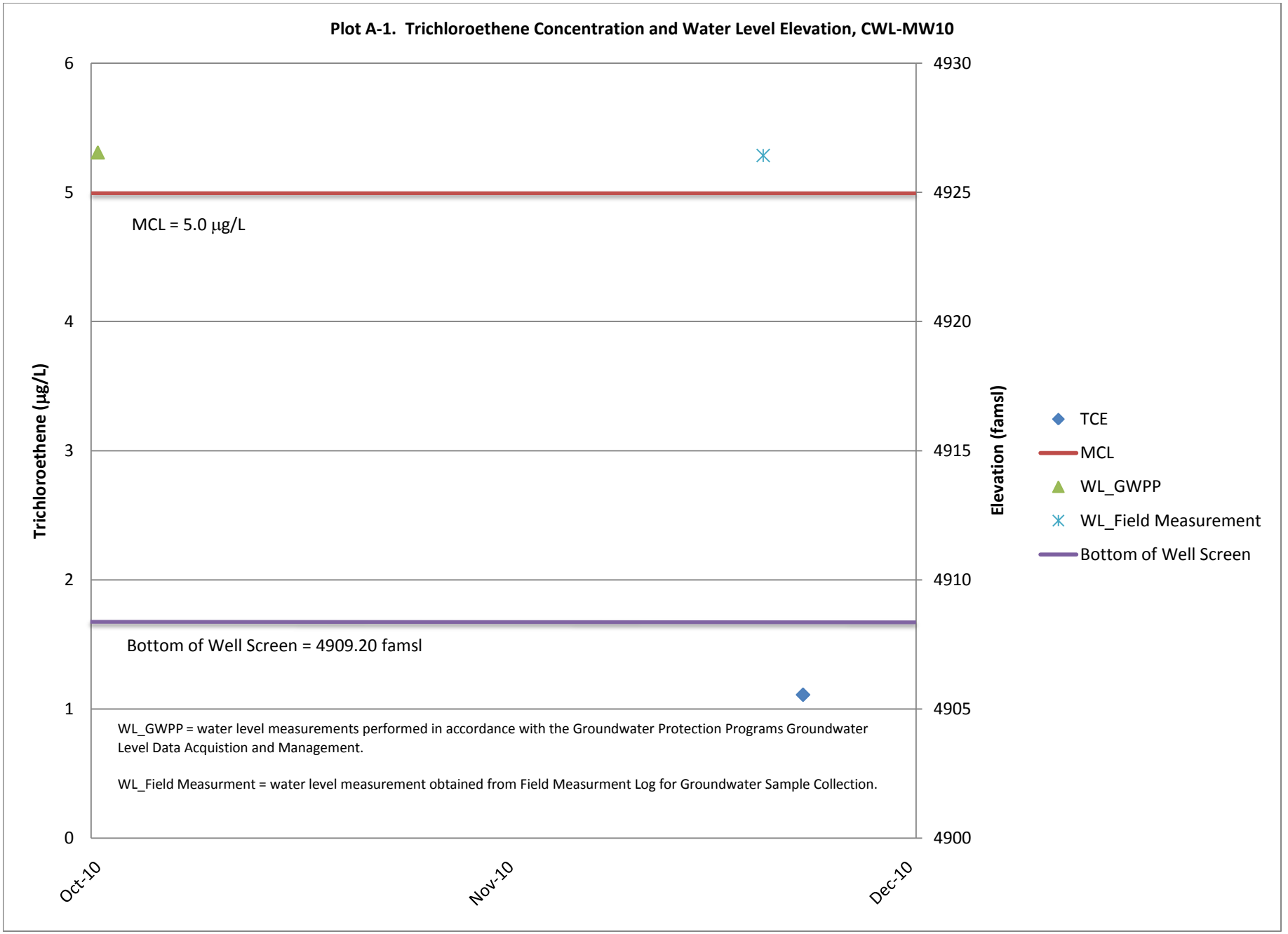
$$RPD = \frac{\left|R_1 - R_2\right|}{[(R_1 + R_2)/2]} \times 100$$

where:

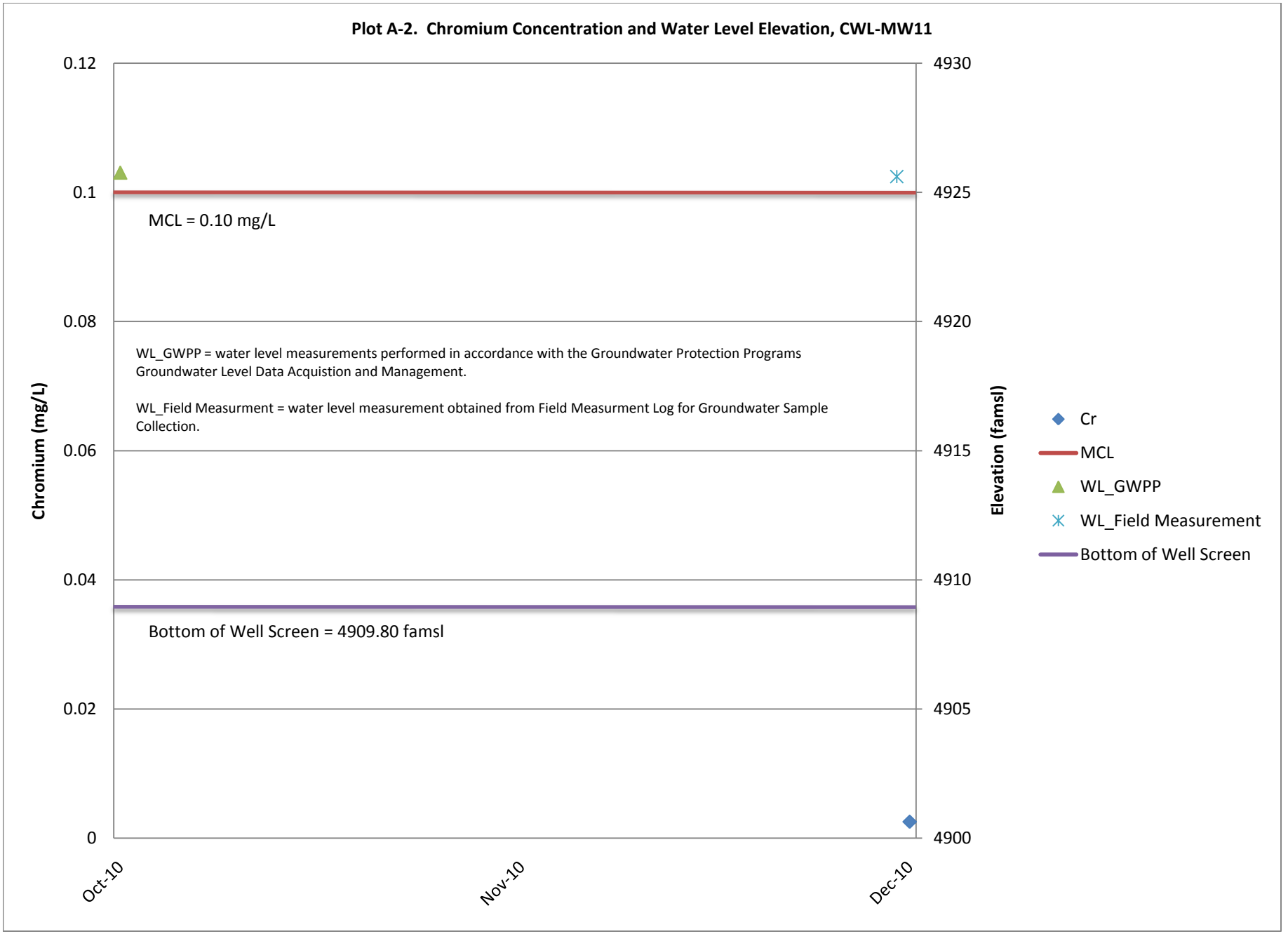
R_1 = analysis result.
R_2 = duplicate analysis result.

Plots

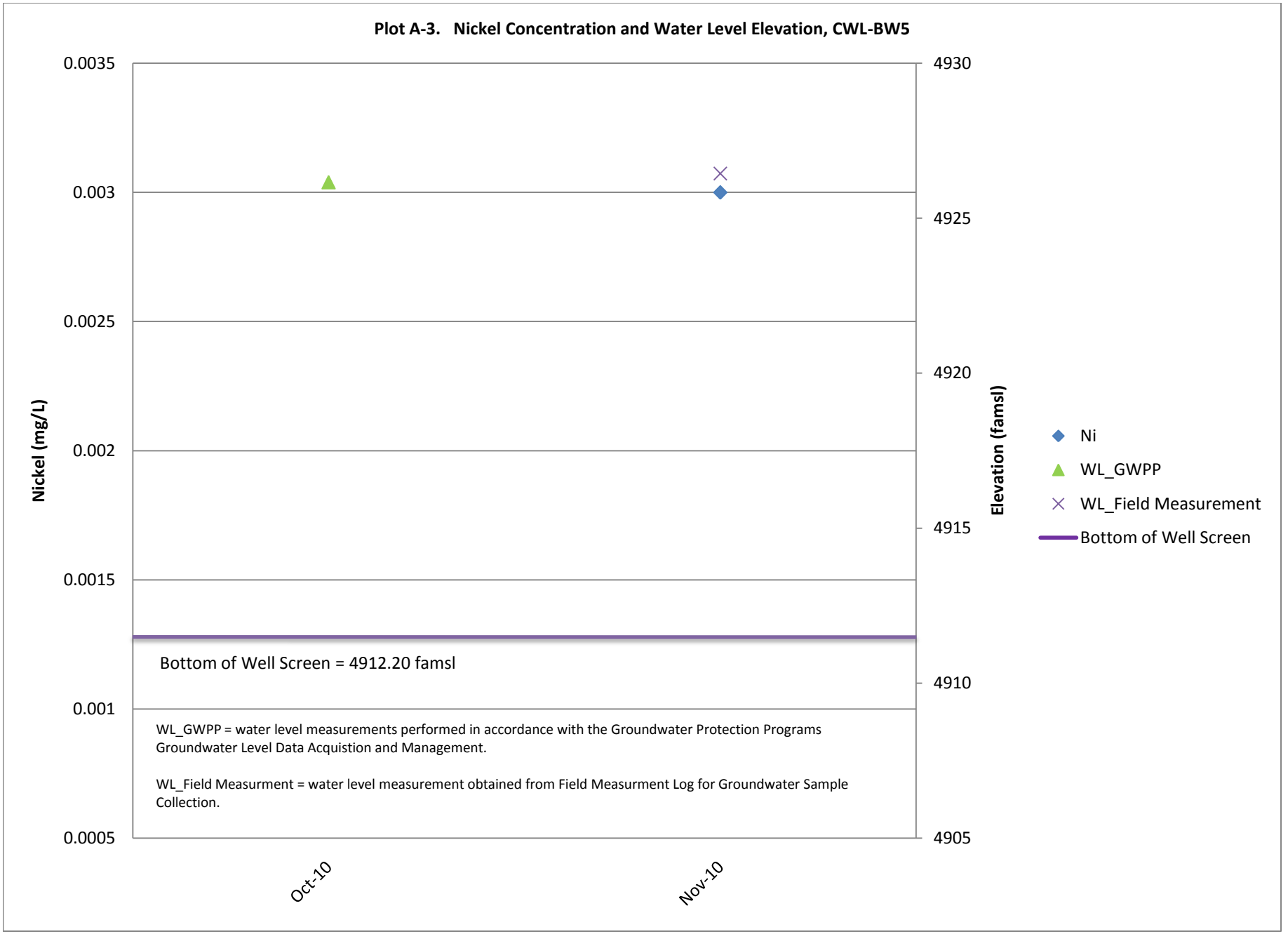
Plot A-1. Trichloroethene Concentration and Water Level Elevation, CWL-MW10



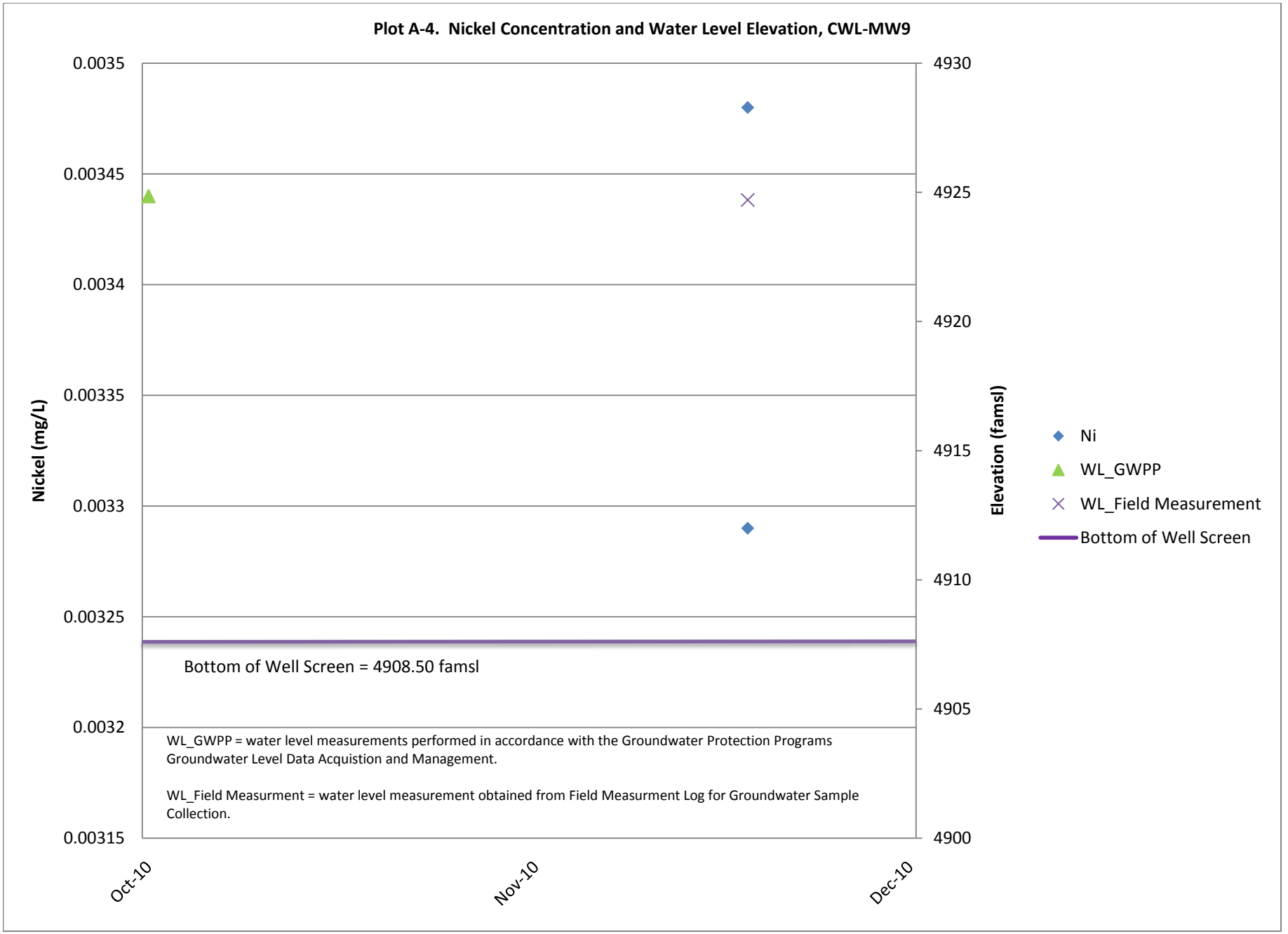
Plot A-2. Chromium Concentration and Water Level Elevation, CWL-MW11



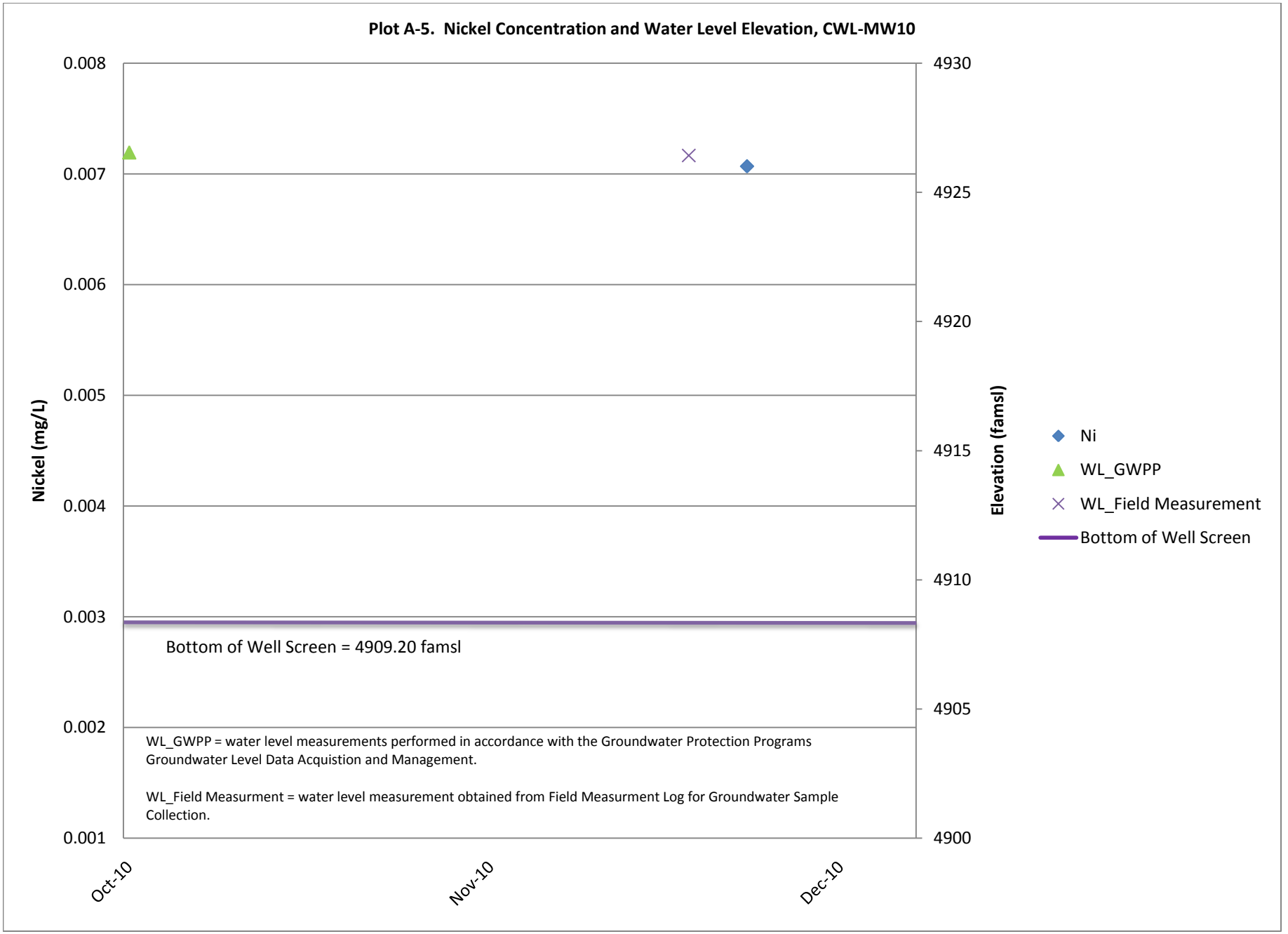
Plot A-3. Nickel Concentration and Water Level Elevation, CWL-BW5



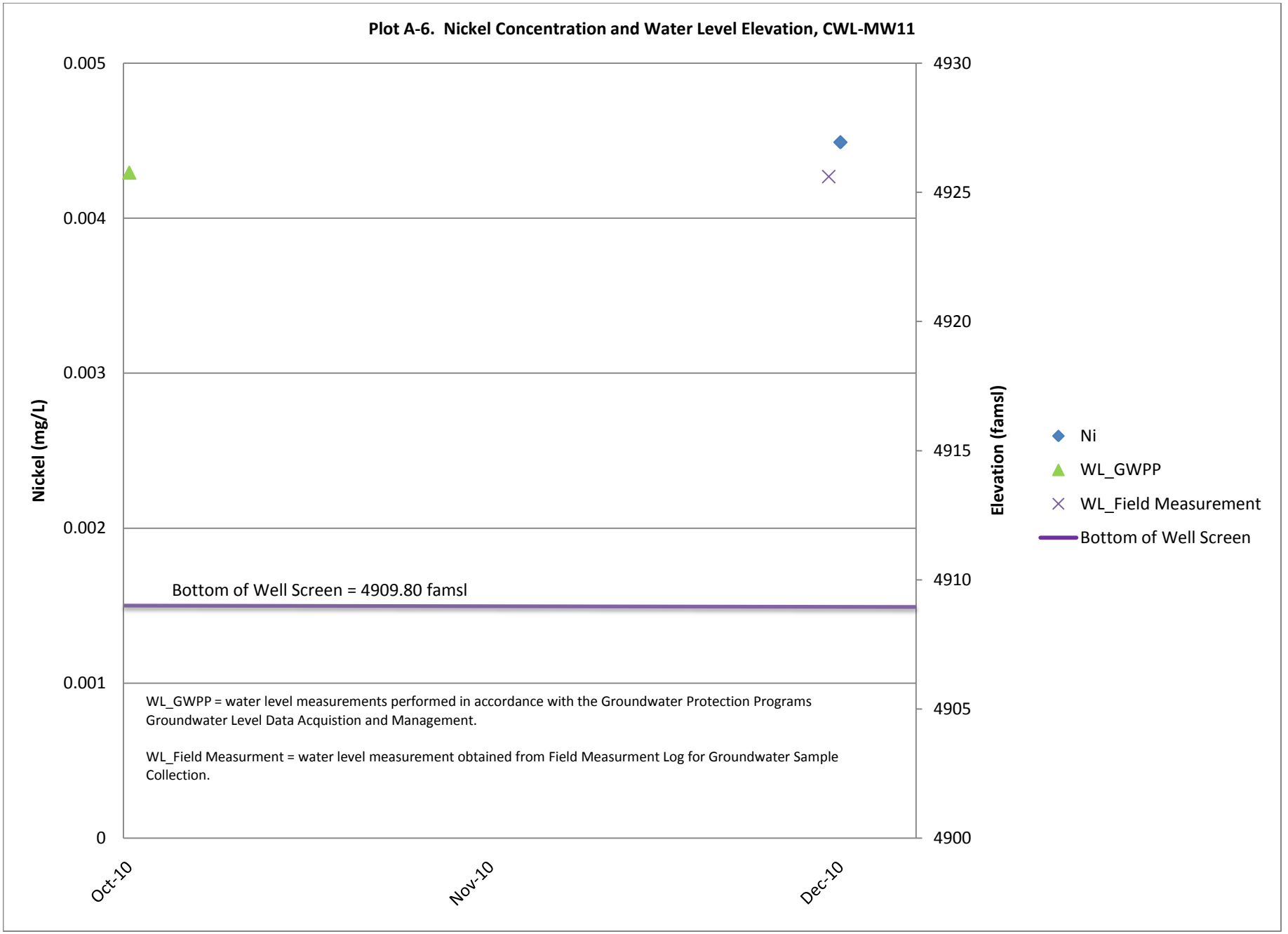
Plot A-4. Nickel Concentration and Water Level Elevation, CWL-MW9



Plot A-5. Nickel Concentration and Water Level Elevation, CWL-MW10



Plot A-6. Nickel Concentration and Water Level Elevation, CWL-MW11



Attachment 1
Field Measurement Logs and Documentation

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL-BW5	Date: 11/29/10
Well Condition:	Weather Condition:
Method: Portable pump X	Dedicated pump _____ Pump depth: 522'

PURGE MEASUREMENTS

Depth to Water (ft)	Time 24 hr	Vol. (L (gal))	Temp (°C)	SC (µS/cm)	ORP (mV)	pH	Turbidity (NTU)	DO (%)	Comments DO mg/L
508.35	0813	/	START						
511.94	0900	10	15.11	1057	204.4	6.98	6.25	71.6	7.09
513.48	0923	20	17.22	1058	195.1	6.98	7.89	70.2	6.74
513.82	0934	25	17.69	1061	196.9	6.98	7.42	70.3	6.68
514.31	0957	35	18.20	1059	196.6	6.98	4.51	70.0	6.58
514.58	1008	40	18.40	1059	197.3	6.97	3.68	69.7	6.53
514.76	1018	45	18.71	1059	198.7	6.97	3.24	70.5	6.56
514.85	1029	50	18.29	1056	200.4	6.97	2.77	69.8	6.53
514.70	1041	55	18.03	1054	203.1	6.97	1.58	71.0	6.73
515.22	1051	60	18.52	1052	200.2	6.97	1.54	69.3	6.47
515.48	1101	65	18.69	1051	201.4	6.98	1.57	70.4	6.55
515.67	1110	70	18.80	1050	201.9	6.97	1.60	70.9	6.57
515.81	1121	75	18.79	1050	202.0	6.97	1.54	70.9	6.60
	1122	/	SAMPLING						
									0830
									≈ 4.00 gal purged
									prior to measurement.

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL-MW9	Date: 12/01/10
Well Condition: good	Weather Condition: clear + cold
Method: Portable pump ____X____	Dedicated pump _____ Pump depth: 517.1'

PURGE MEASUREMENTS

Depth to Water (ft)	Time 24 hr	Vol (L/gal)	Temp (°C)	SC (µS/cm)	ORP (mV)	pH	Turbidity (NTU)	DO (%)	Comments DO mg/L
501.41	0756	/	START						
507.04	0823	10	18.72	825	286.7	7.22	3.35	30.1	2.80
508.87	0843	20	19.05	867	62.2	7.16	3.88	18.4	1.71
509.28	0905	30	19.16	896	26.2	7.13	2.15	15.5	1.43
510.57	0924	40	19.26	901	8.8	7.13	1.78	16.7	1.53
511.17	0944	50	19.55	915	2.8	7.11	1.15	18.7	1.71
571.61	1003	60	19.71	915	-1.0	7.12	1.09	20.0	1.82
511.78	1013	65	19.85	920	-2.7	7.11	1.02	20.7	1.89
511.99	1022	70	19.85	919	-4.2	7.11	0.93	19.2	1.75
512.08	1032	75	19.92	922	-5.5	7.11	0.80	20.0	1.82
512.20	1041	80	19.95	922	-6.3	7.11	0.68	21.2	1.93
512.05	1046	82	19.82	923	-6.7	7.11	0.83	20.1	1.83
511.92	1050	84	19.68	924	-6.7	7.11	0.92	22.9	2.08
511.77	1054	86	19.71	924	-6.4	7.11	0.92	22.1	2.02
511.56	1059	88	19.62	924	-6.7	7.11	0.94	22.4	2.05
	1100	/	sampling						
									0804
									~4.00 gals purged
									from tubing

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

80% = 502.60

Project Name: CWL	Project No.:
Well I.D.: CWL-MW10	Date: 12/03/10 12-6-10
Well Condition:	Weather Condition:
Method: Portable pump ____X____	Dedicated pump _____ Pump depth: 514.9'

PURGE MEASUREMENTS

Depth to Water (ft)	Time 24 hr	Vol. (L gal)	Temp (°C)	SC (µS/cm)	ORP (mV)	pH	Turbidity (NTU)	DO (%)	Comments DO mg/L
198.15 ~~484~~	0803	/	START						
505.82	0821	5	19.25	881	186.7	7.08	9.08	11.3	1.04
510.32	0831	10	19.36	881	133.7	7.10	20.7	5.9	0.54
511.29	0834	12	19.40	881	74.0	7.11	27.3	7.1	0.65
513.53	0838	14	19.40	881	20.3	7.11	28.6	7.3	0.67
514.31	0841	15	19.24	880	2.3	7.12	26.9	7.5	0.69
515.28	0844	16	19.13	881	-5.9	7.12	23.5	8.0	0.73
515.38	0845	/	well	DRY					
498.15	0822	/	START						
503.06	0837	2	17.25	877	374.5	7.24	8.38	24.3	2.31
504.62	0842	4	18.04	880	373.9	7.24	7.99	21.1	1.98
506.22	0848	6	18.25	880	375.2	7.24	8.45	20.3	1.90
	0849	/	Sampling						
									0811
									~4.00 gals purged
									from tubing

12-6-10 = 0832

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

80% = 501.79

Project Name: CWL	Project No.:
Well I.D.: CWL-MW11	Date: 12/13/10 12-14-10
Well Condition:	Weather Condition:
Method: Portable pump ___X___	Dedicated pump _____ Pump depth: 512.9'

PURGE MEASUREMENTS

Depth to Water (ft)	Time 24 hr	Vol. (L (gal))	Temp (°C)	SC (µS/cm)	ORP (mV)	pH	Turbidity (NTU)	DO (%)	Comments DO mg/L
497.63	0808	/	START						
502.92	0827	5	18.56	984	381.7	6.98	2.28	54.9	5.12
506.17	0837	10	19.19	985	388.3	7.01	10.70	54.6	5.03
508.99	0847	15	19.30	976	390.0	7.02	8.72	50.7	4.65
510.18	0851	17	19.40	945	324.6	7.05	10.60	33.5	3.06
511.54	0856	19	19.48	938	261.1	7.06	8.01	32.6	2.99
511.77	0858	19.5	19.43	941	271.9	7.06	6.31	25.6	2.34
511.77	0858	well	DRY						
4/14 497.50	0843	/	Start						
501.06	0857	2	17.74	980	389.3	7.05	1.55	59.5	5.64
502.28	0904	4	18.73	982	392.5	7.05	2.02	55.9	5.20
503.48	0910	6	19.05	982	395.2	7.05	4.09	57.2	5.29
	0911	/	SAMPLING						
									0853
									↑
									0817 (12/14)*
									~4.00 gals. purged
									from tubing

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: **CWL**	SNL/NM Project No.: 146422.10.11.01
Calibrations done by: JL	Date: 11/29/10

Make & Model:

YSI 6920-V Sonde (S/N: 99J0064) with DO, Ec, pH, ORP, and temperature probes: _____

YSI 650 MDS (S/N): _____

pH Calibration

pH Calibrated to (std): 7.00 — pH sloped to (std): 10.00

Reference value:	4.00		7.00		10.00	
	Value	Temp	Value	Temp	Value	Temp
1. Time: 0646	4.01	17.6	7.00	17.6	9.99	17.7
2. Time: 1323	4.00	17.9	7.00	17.9	10.01	17.9
3. Time:						
4. Time:						
Standard lot no.:054115						
Expiration date: 12/10						

SC Calibration

Reference Value: 1278 — Standard Lot No.: 1710737

	Value	Temp	Expiration Date: 12/10
1. Time: 0641	1276	17.6	
2. Time: 1320	1277	17.9	
3. Time:			
4. Time:			

ORP Calibration

Reference Value: 200.0 — Standard Lot No. 03K0868

	Value	Temp	Expiration Date: 12/10
1. Time: 0643	201.1	17.5	
2. Time: 1321	201.0	17.9	
3. Time:			
4. Time:			

DO Calibration

Calibration Value:	81% air saturation @ 5200 ft.	Atmospheric Pressure in Hg
1. Time: 0640	80.4	24.08
2. Time: 1318	80.7	24.10
3. Time:		
4. Time:		

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG (continued) **Page 2 of 2**

SNL/NM Project Name: **CWL**	Project No.: 146422.10.11.01
Calibration done by: RL	Date: 11/29/10

TURBIDIMETER	
Make & Model: HACH 2100Q	Serial No. 10050C002897

Reference Value	10	20	100	800
Standard Lot No.				
1. Time 0758	9.7	20.1	103	801
2. Time 1132	9.8	20.4	102	803
3. Time				
4. Time				

Comments:

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: **CWL**	SNL/NM Project No.: 146422.10.11.01
Calibrations done by: RL	Date: 12/01/10

Make & Model:

YSI 6920-V Sonde (S/N: 99J0064) with DO, Ec, pH, ORP, and temperature probes: _____

YSI 650 MDS (S/N): _____

pH Calibration

pH Calibrated to (std): 7.00			pH sloped to (std): 10.00			
Reference value:	4.00		7.00		10.00	
	Value	Temp	Value	Temp	Value	Temp
1. Time: 0640	4.01	18.3	6.99	18.3	10.00	18.3
2. Time: 1028	4.03	18.8	7.01	18.8	10.01	18.8
3. Time:						
4. Time:						
Standard lot no.:054115						
Expiration date: 12/10						

SC Calibration

Reference Value: 1278			Standard Lot No.: 1710737
	Value	Temp	Expiration Date: 12/10
1. Time: 0637	1276	18.3	
2. Time: 1223	1278	18.8	
3. Time:			
4. Time:			

ORP Calibration

Reference Value: 200.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 12/10
1. Time: 0638	201.0	18.3	
2. Time: 1225	200.8	18.8	
3. Time:			
4. Time:			

DO Calibration

Calibration Value:	81% air saturation @ 5200 ft.	Atmospheric Pressure in Hg
1. Time: 0636	81.8	24.52
2. Time: 1222	81.6	24.50
3. Time:		
4. Time:		

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG (continued)

SNL/NM Project Name: **CWL**	Project No.: 146422.10.11.01
Calibration done by: RL	Date: 12/01/10

TURBIDIMETER

Make & Model: HACH 2100Q	Serial No. 10050C002897

Reference Value	10	20	100	800
Standard Lot No.				
1. Time 0753	9.8	20.1	102	798
2. Time 1116	9.7	20.4	103	799
3. Time				
4. Time				

Comments:

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: **CWL**	SNL/NM Project No.: 146422.10.11.01
Calibrations done by: RL	Date: 12/03/10 12-6-10

Make & Model:

YSI 6920-V Sonde (S/N: 99J0064) with DO, Ec, pH, ORP, and temperature probes: _____

YSI 650 MDS (S/N): _____

pH Calibration

pH Calibrated to (std): 7.00 | pH sloped to (std): 10.00

Reference value:	4.00		7.00		10.00	
	Value	Temp	Value	Temp	Value	Temp
1. Time: 0645	4.01	18.9	7.01	18.9	10.01	18.9
2. Time: 1316	4.03	19.4	7.00	19.4	10.01	19.4
3. Time: 0814	4.02	17.8	6.99	17.8	9.98	17.8
4. Time: 0920	4.01	17.9	7.00	17.9	10.00	17.8
Standard lot no.:054115						
Expiration date: 12/10						

SC Calibration

Reference Value: 1278 | Standard Lot No.: 1710737

	Value	Temp	Expiration Date: 12/10
1. Time: 0642	1277	18.9	
2. Time: 1313	1279	19.4	
3. Time: 0811	1275	17.7	
4. Time: 0917	1276	17.9	

ORP Calibration

Reference Value: 200.0 | Standard Lot No. 03K0868

	Value	Temp	Expiration Date: 12/10
1. Time: 0643	201.1	18.9	
2. Time: 1314	200.8	19.4	
3. Time: 0812	200.7	17.7	
4. Time: 0918	200.9	17.9	

DO Calibration

Calibration Value:	81% air saturation @ 5200 ft.	Atmospheric Pressure in Hg
1. Time: 0641	81.5	24.44
2. Time: 1312	81.4	24.46
3. Time: 0810	82.8	24.76
4. Time: 0916	81.9	24.74

12/6

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG (continued) **Page 2 of 2**

SNL/NM Project Name: **CWL**	Project No.: 146422.10.11.01
Calibration done by: RL	Date: 12/03/10 12-6-10

TURBIDIMETER

Make & Model: HACH 2100Q	Serial No. 10050C002897

Reference Value	10	20	100	800
Standard Lot No.				
1. Time 0750	9.9	20.3	102	803
2. Time 1242	9.7	20.1	103	805
3. Time 0810	9.8	20.4	101	802
4. Time 0855	9.9	20.4	102	804

2/6

Comments:

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: **CWL**	SNL/NM Project No.: 146422.10.11.01
Calibrations done by: RL	Date: 12/13/10 12-14-10

Make & Model:

YSI 6920-V Sonde (S/N: 99J0064) with DO, Ec, pH, ORP, and temperature probes: _____

YSI 650 MDS (S/N): _____

pH Calibration

pH Calibrated to (std): 7.00 — pH sloped to (std): 10.00

Reference value:	4.00		7.00		10.00	
	Value	Temp	Value	Temp	Value	Temp
1. Time: 0644	4.02	20.0	7.01	20.0	10.00	20.0
2. Time: 0943	4.01	21.3	7.01	21.3	10.01	21.3
12/14 3. Time: 0849	4.02	19.6	7.00	19.6	10.01	19.6
4. Time: 1033	4.03	19.7	6.98	19.7	10.00	19.7
Standard lot no.:054115						
Expiration date: 12/10						

SC Calibration

Reference Value: 1278 — Standard Lot No.: 1710737

	Value	Temp	Expiration Date: 12/10
1. Time: 0640	1280	20.0	
2. Time: 0938	1279	21.3	
12/14 3. Time: 0845	1279	19.6	
4. Time: 1028	1279	19.7	

ORP Calibration

Reference Value: 200.0 — Standard Lot No. 03K0868

	Value	Temp	Expiration Date: 12/10
1. Time: 0642	200.4	20.0	
2. Time: 0934	200.3	21.3	
12/14 3. Time: 0843	200.3	19.6	
4. Time: 1031	200.6	19.7	

DO Calibration

Calibration Value:	81% air saturation @ 5200 ft.	Atmospheric Pressure in Hg
1. Time: 0639	81.9	24.51
12/14 2. Time: ~~0900~~ 0930	~~82.~~ 81.8	~~24.57~~ 24.49
12/14 3. Time: 0839	82.2	24.57
4. Time: 1026	81.8	24.55

GROUNDWATER SAMPLE COLLECTION FIELD EQUIPMENT CHECK LOG (continued)

SNL/NM Project Name: **CWL**	Project No.: 146422.10.11.01
Calibration done by: RL	Date: 12/13/10 12-14-10

TURBIDIMETER

Make & Model: HACH 2100Q	Serial No. 10050C002897

Reference Value	10	20	100	800
Standard Lot No.				
1. Time 0753	9.7	20.2	101	803
2. Time 0944	9.8	20.4	101	802
3. Time 0853	9.8	20.2	101	801
4. Time 0919	9.9	20.3	103	804

12/14

Comments:

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	Monitoring Well ID # CWL-BW5	Date: 11/29/10

The following equipment was decontaminated at completion of sampling activities in accordance with FOP-05-03

Pump and Tubing Bundle ID #: Pump 2	Water Level Indicator ID#: 56159
Personnel Performing Decontamination: Print Name: Robert Lynch RL Initial: Print Name: Alfred Santillanes AS Initial:	Personnel Performing Decontamination: Print Name : Robert Lynch RL Initial: Print Name Alfred Santillanes AS Initial

Condition of Equipment

Pump: Good Tubing Bundle: Good Water Level Indicator: Good

List of Decontamination Materials

Distilled or **Deionized** (circle one) **Source: Culligan** **Lot Number: 10-13-10**	**HNO_3** **Grade: Reagent** **UN #: 2031** **Manufacture: Fisher** **Lot Number: 002735**

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	Monitoring Well ID # CWL-MW9	Date: 12/01/10

The following equipment was decontaminated at completion of sampling activities in accordance with FOP-05-03

Pump and Tubing Bundle ID #: Pump 2	Water Level Indicator ID#: 56159
Personnel Performing Decontamination: Print Name: Robert Lynch RL Initial: Print Name: Alfred Santillanes AS Initial:	Personnel Performing Decontamination: Print Name : Robert Lynch RL Initial: Print Name Alfred Santillanes AS Initial

Condition of Equipment

Pump: Good Tubing Bundle: Good Water Level Indicator: Good

List of Decontamination Materials

Distilled or **Deionized** (circle one) **Source: Culligan** **Lot Number: 10-13-10**	**HNO_3** **Grade: Reagent** **UN #: 2031** **Manufacture: Fisher** **Lot Number: 002735**

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	Monitoring Well ID # CWL-MW10	Date: 12/06/10

The following equipment was decontaminated at completion of sampling activities in accordance with FOP-05-03

Pump and Tubing Bundle ID #: Pump 2	Water Level Indicator ID#: 56159
Personnel Performing Decontamination: Print Name: Robert Lynch RL Initial: Print Name: William Gibson WJG Initial:	Personnel Performing Decontamination: Print Name : Robert Lynch RL Initial: Print Name William Gibson WJG Initial

Condition of Equipment

Pump: Good Tubing Bundle: Good Water Level Indicator: Good

List of Decontamination Materials

Distilled or **Deionized** (circle one)	HNO_3
Source: Culligan	**Grade: Reagent**
Lot Number: 10-13-10	**UN #: 2031**
	Manufacture: Fisher
	Lot Number: 002735

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	Monitoring Well ID # CWL-MW11	Date: 12/14/10

The following equipment was decontaminated at completion of sampling activities in accordance with FOP-05-03

Pump and Tubing Bundle ID #: Pump 2	Water Level Indicator ID#: 56159
Personnel Performing Decontamination: Print Name: Robert Lynch RL Initial: Print Name: Alfred Santillanes Initial:	Personnel Performing Decontamination: Print Name : Robert Lynch RL Initial: Print Name Alfred Santillanes Initial

Condition of Equipment

Pump: Good Tubing Bundle: Good Water Level Indicator: Good

List of Decontamination Materials

Distilled or **Deionized** (circle one) **Source: Culligan** **Lot Number: 10-13-10**	**HNO_3** **Grade: Reagent** **UN #: 2031** **Manufacture: Fisher** **Lot Number: 002735**

ER WASTE GENERATION LOG

(Version: 5/2/01) Return completed form with a copy of the Chain of Custody toCraig Wood MS-1087 Fax 284-2616

Form Generator: Alfred Santillanes **Phone:** 844-5130 **Task Leader:** Don Schofield

Signature: Alfred Santillanes To the best of my knowledge this information is correct & accurate.

Container I.D. # (site-date-sequence)	CWL-BW5-112910-01		CWL-BW5-112910-02		CWL-BW5-112910-03	
Container Certification # (i.e.SNL/NM######)	NA		NA		NA	
Project Name	CWL-GWM		CWL-GWM		CWL-GWM	
Site Number	NA		NA		NA	
146422.10.11.01	146422.10.11.01		146422.10.11.01		146422.10.11.01	
Initial Label Type	~~Non-Reg~~ HAZ-WASTE		~~Non-Reg~~ HAZ-WASTE		~~Non-Reg~~ HAZ WASTE	
Waste Matrix (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Purge water		Purge water		Purge Water water	
Container Type / Vol (always use Certified containers)	CHPD	55gal.	CHPD	55gal.	CHPD	55gal.
Volume of Waste	29 gals		25 gals		20 gals	
Total Container Weight	270 lbs.		200 lbs.		160 lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 613369 SMO# 089878		COC# 613369 SMO# 089878		COC# 613369 SMO# 089878	
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 11/29 /10 Full 11/29/10		Start 11/29/10 Full 11/29/10		Start 11/29/10 Full 11/29/10	
Date Moved to Waste Accumulation Area	11/29/10		11/29/10		11/29/10	
Accumulation Area Name	9925		9925		9925	
ERwm Memo #						
Comments						

(OHSD)= open head steel drum; (CHSD)= closed head steel drum; (CHPD)= closed head poly drum; (OHPD)= open head poly drum; (OHPB)= open head poly bucket; (RL-Off)= roll off; (WGLR)= wrangler bag; (744)= 7'x4'x4' steel box; (BB)= Burrito bag.

NOTE: Complete all information, mark boxes NA if Not Applicable. Shaded area is for ERwm use only.

LTES Groundwater Monitoring Waste Generation Log

Waste Generator : William Gibson **Phone:** 239-7367 **Project Leader**: Don Schofield			
Project Name	CWL-GWM		
Container ID # (site-date-sequence)	CWL-112910		
Initial Label Type (Hazardous or Non-Regulated)	HAZ Waste		
Waste Matrix (purge water, decon water, HACH Accu-Vac ampule)	Decon Water		
Container Type / Volume	55 CHPD		
Volume of Waste	30 gal.		
Total Container Weight	260 lbs.		
COC#: Sample#-Fraction	CoC#: 613369 Sample#:089878	CoC#: Sample#:	CoC#: Sample#:
Accumulation Date	Start:11\29\10 Full:11\29\10	Start: Full:	Start: Full:
Date Waste Moved to Accumulation Area	11\29\10		
Accumulation Area Name	9925	9925	9925
Comments:	Decon after CWL-BW5:CoC 613369		

LTES Groundwater Monitoring Waste Generation Log

Waste Generator : Alfred Santillanes **Phone:** 844-5130 **Project Leader:** Don Schofield

Project Name	CWL-GWM	CWL-GWM	CWL-GWM
Container ID # (site-date-sequence)	CWL-MW9-120110-01	CWL-MW9-120110-02	CWL-MW9-120110-03
Initial Label Type (Hazardous or Non-Regulated)	HAZ Waste	HAZ Waste	HAZ Waste
Waste Matrix (purge water, decon water, HACH Accu-Vac ampule)	Purge Water	Purge Water	Purge Water
Container Type / Volume	55 CHPD	55 CHPD	55 CHPD
Volume of Waste	34 gal.	28 gal.	25 gal.
Total Container Weight	320 lbs.	290 lbs.	250 lbs.
COC#: Sample#-Fraction	CoC#: 613371 Sample#:089882, 089883	CoC#: 613371 Sample#:089882, 089883	CoC#: 613371 Sample#:089882, 089883
Accumulation Date	Start:12/01/10 Full:12/01/10	Start:12/01/10 Full:12/01/10	Start:12/01/10 Full:12/01/10
Date Waste Moved to Accumulation Area	12/01/10	12/01/10	12/01/10
Accumulation Area Name	9925	9925	9925
Comments:			

LTES Groundwater Monitoring Waste Generation Log

Waste Generator : Alfred Santillanes **Phone:** 844-5130 **Project Leader:** Don Schofield

Project Name	CWL-GWM		
Container ID # (site-date-sequence)	CWL-120110		
Initial Label Type (Hazardous or Non-Regulated)	HAZ Waste		
Waste Matrix (purge water, decon water, HACH Accu-Vac ampule)	Decon Water		
Container Type / Volume	55 CHPD		
Volume of Waste	30 gal.		
Total Container Weight	260 lbs.		
COC#: Sample#-Fraction	CoC#: 613371 Sample#:089882, 089883	CoC#: Sample#:	CoC#: Sample#:
Accumulation Date	Start:12\01\10 Full:12\01\10	Start: Full:	Start: Full:
Date Waste Moved to Accumulation Area	12\01\10		
Accumulation Area Name	9925	9925	9925
Comments:	Decon after CWL-MW9:CoC 613371		

LTES Groundwater Monitoring Waste Generation Log

Waste Generator : William Gibson **Phone:** 239-7367 **Project Leader**: Don Schofield			
Project Name	CWL-GWM	CWL-GWM	
Container ID # (site-date-sequence)	CWL-MW10-120310	CWL-120610	
Initial Label Type (Hazardous or Non-Regulated)	HAZ Waste	HAZ Waste	
Waste Matrix (purge water, decon water, HACH Accu-Vac ampule)	Purge Water	Decon Water	
Container Type / Volume	55 CHPD	55 CHPD	
Volume of Waste	30 gal.	30 gal.	
Total Container Weight	300 lbs.	300 lbs.	
COC#: Sample#-Fraction	CoC#: 613372 Sample#:089885	CoC#: 613372 Sample#:089885	CoC#: Sample#:
Accumulation Date	Start:12/03/10 Full:12/06/10	Start:12/06/10 Full:12/06/10	Start: Full:
Date Waste Moved to Accumulation Area	12/06/10	12/06/10	
Accumulation Area Name	9925	9925	9925
Comments:		Decon prior CWL-MW11 purge, CoC 613372	

LTES Groundwater Monitoring Waste Generation Log

Waste Generator : William Gibson **Phone:** 239-7367 **Project Leader:** Don Schofield

Project Name	CWL-GWM	CWL-GWM	
Container ID # (site-date-sequence)	CWL-MW11-121310	CWL-121410	
Initial Label Type (Hazardous or Non-Regulated)	HAZ Waste	HAZ Waste	
Waste Matrix (purge water, decon water, HACH Accu-Vac ampule)	Purge Water	Decon Water	
Container Type / Volume	55 CHPD	55 CHPD	
Volume of Waste	36 gal.	30 gal.	
Total Container Weight	360 lbs.	300 lbs.	
COC#: Sample#-Fraction	CoC#: 613373 Sample#:089888	CoC#: 613373 Sample#:089888	CoC#: Sample#:
Accumulation Date	Start:12/13/10 Full:12/14/10	Start:12/14/10 Full:12/14/10	Start: Full:
Date Waste Moved to Accumulation Area	12/14/10	12/14/10	
Accumulation Area Name	9925	9925	
Comments:		Decon after CWL-MW11 purge; CoC 613373	

TAILGATE SAFETY MEETING FORM

Dept: 4142 Well Location: **CWL-BW5** Date: 11/29/10 Time: 0747

Activities: Ground Water monitoring/ sampling
(Anyone has the right to cease field activities for safety concerns. The buddy system will be used when needed.)

Weather Conditions:
Temp: _____ °F Wind Speed: _____ MPH Humidity: _____ % Wind Chill ____ °F

Chemicals Used: Acids in sample containers, standard solutions, Hach ACCU-VAC ampoules
Other: _____

Safety Topics Presented

☑ Be aware of slips, trips, and falls. Keep work area clean and use a stepping stool when necessary.		☑ Be aware of environmental conditions (heat / cold stress). Dress accordingly. Wear sunscreen if necessary. Stay hydrated.
☑ Wear safety boots.		☑ Be aware of electrical hazards
☑ Use safe lifting practices. Wear leather gloves if necessary.		☑ Be aware of pressure hazards.
☑ Be aware of pinch points on pump cable reel and hydraulic tailgate lift.		☑ No eating or drinking at sampling counter.
☑ Be aware of chemical hazards.		☑ Be aware of biohazards (snakes, spiders, etc.)
☑ Wear nitrile or latex gloves when sampling.		☑ Wear communication device (cell phone, EOC pager).
☑ Wear chemical safety goggles.		☑ Avoid spilling purge / decon water.

Hospital/Clinic: Sandia Medical Clinic Phone: 844-0911/911

Attendees

Printed Name	Signature
Robert Lynch	
William Gibson	
ALFRED SANTILLANES	

TAILGATE SAFETY MEETING FORM

Dept: 4142 Well Location: **CWL-MW9** Date: 12/01/10 Time: 0757

Activities: Ground Water monitoring/ sampling
(Anyone has the right to cease field activities for safety concerns. The buddy system will be used when needed.)

Weather Conditions:
Temp: _____ °F Wind Speed: _____ MPH Humidity: _____ % Wind Chill ____ °F

Chemicals Used: Acids in sample containers, standard solutions, Hach ACCU-VAC ampoules
Other: _____

Safety Topics Presented

☐ Be aware of slips, trips, and falls. Keep work area clean and use a stepping stool when necessary.	☐ Be aware of environmental conditions (heat / cold stress). Dress accordingly. Wear sunscreen if necessary. Stay hydrated.
☐ Wear safety boots.	☐ Be aware of electrical hazards
☐ Use safe lifting practices. Wear leather gloves if necessary.	☐ Be aware of pressure hazards.
☐ Be aware of pinch points on pump cable reel and hydraulic tailgate lift.	☐ No eating or drinking at sampling counter.
☐ Be aware of chemical hazards.	☐ Be aware of biohazards (snakes, spiders, etc.)
☐ Wear nitrile or latex gloves when sampling.	☐ Wear communication device (cell phone, EOC pager).
☐ Wear chemical safety goggles.	☐ Avoid spilling purge / decon water.

Hospital/Clinic: Sandia Medical Clinic Phone: 844-0911/911

Attendees

Printed Name	Signature
Robert Lynch	Robert Lynch
ALFRED SANTILLANES	Alfred Santillanes

Printed Name / Signature

TAILGATE SAFETY MEETING FORM

Dept: 4142 Well Location: **CWL-MW10** Date: 12/03/10 Time: 0749

Activities: Ground Water monitoring/ sampling
(Anyone has the right to cease field activities for safety concerns. The buddy system will be used when needed.)

Weather Conditions:
Temp: _____ °F Wind Speed: _____ MPH Humidity: _____ % Wind Chill ____ °F

Chemicals Used: Acids in sample containers, standard solutions, Hach ACCU-VAC ampoules
Other: _____

Safety Topics Presented

☐ Be aware of slips, trips, and falls. Keep work area clean and use a stepping stool when necessary.	☐ Be aware of environmental conditions (heat / cold stress). Dress accordingly. Wear sunscreen if necessary. Stay hydrated.
☐ Wear safety boots.	☐ Be aware of electrical hazards
☐ Use safe lifting practices. Wear leather gloves if necessary.	☐ Be aware of pressure hazards.
☐ Be aware of pinch points on pump cable reel and hydraulic tailgate lift.	☐ No eating or drinking at sampling counter.
☐ Be aware of chemical hazards.	☐ Be aware of biohazards (snakes, spiders, etc.)
☐ Wear nitrile or latex gloves when sampling.	☐ Wear communication device (cell phone, EOC pager).
☐ Wear chemical safety goggles.	☐ Avoid spilling purge / decon water.

Hospital/Clinic: Sandia Medical Clinic Phone: 844-0911/911

Attendees

Printed Name	Signature
Robert Lynch	Robert Lynch
ALFRED SANTILLANES	Alfred Santillanes
William Gibson	William Gibson
12/6 William Gibson	William Gibson
Robert Lynch	Robert Lynch
ALFRED SANTILLANES	Alfred Santillanes

TAILGATE SAFETY MEETING FORM

Dept: 4142 Well Location: **CWL-MW11** Date: 12/13/10 12-14-10 Time: 0747

Activities: Ground Water monitoring/ sampling

(Anyone has the right to cease field activities for safety concerns. The buddy system will be used when needed.)

Weather Conditions:
Temp: _____ °F Wind Speed: _____ MPH Humidity: _____ % Wind Chill ____ °F

Chemicals Used: Acids in sample containers, standard solutions, Hach ACCU-VAC ampoules
Other: _____

Safety Topics Presented

☐ Be aware of slips, trips, and falls. Keep work area clean and use a stepping stool when necessary.		☐ Be aware of environmental conditions (heat / cold stress). Dress accordingly. Wear sunscreen if necessary. Stay hydrated.
☐ Wear safety boots.		☐ Be aware of electrical hazards
☐ Use safe lifting practices. Wear leather gloves if necessary.		☐ Be aware of pressure hazards.
☐ Be aware of pinch points on pump cable reel and hydraulic tailgate lift.		☐ No eating or drinking at sampling counter.
☐ Be aware of chemical hazards.		☐ Be aware of biohazards (snakes, spiders, etc.)
☐ Wear nitrile or latex gloves when sampling.		☐ Wear communication device (cell phone, EOC pager).
☐ Wear chemical safety goggles.		☐ Avoid spilling purge / decon water.

Hospital/Clinic: Sandia Medical Clinic Phone: 844-0911/911

Attendees

Printed Name	Signature
Robert T Lynch	
ALFRED SANTILLANES	
William Gibson	
12/14 William Gibson	
Robert Lynch	
ALFRED SANTILLANES	

Attachment 2
Analysis Request/Chain-of-Custody Forms

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC **613369**

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	11/24/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089878-001	CWL-BW5	522.1	NA	11/29/10 1122	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	
089878-009	CWL-BW5	522.1	NA	11/29/10 1123	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	
089879-001	CWL-TB1	NA	NA	11/29/10 1122	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by: QC Inits:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4143/MS 0729/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4142/844-5130/228-0710
	Robert Lynch		RL	Weston/4142/844-4013/250-7090
	William J Gibson		WJG	Weston/4142/844-4013/239-7367

1.Relinquished by		Org. 4147	Date 11/29/10	Time 1138	4.Relinquished by	Org.	Date	Time
1. Received by	for SMO	Org. 4147	Date 11/29/10	Time 1138	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Page 1 of 1

Batch No. N/A

SMO Use

AR/COC 613371

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	12/1/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization: [signature] SMO	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	SEE BOTTLE ORDER	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area	Reference LOV(available at SMO)			P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preservative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089882-001	CWL-MW9	517.1	NA	12/01/10 1100	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	
089882-009	CWL-MW9	517.1	NA	12/01/10 1101	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	
089883-001	CWL-MW9	517.1	NA	12/01/10 1100	GW	G	3 x 40ml	HCL	G	DU	APP IX VOC (SW846-8260)	
089883-009	CWL-MW9	517.1	NA	12/01/10 1101	GW	P	500 ml	HNO3	G	DU	APP IX Metals+Fe (SW846-6020/7470)	
089884-001	CWL-TB3	NA	NA	12/01/10 1100	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy):

Entered by: QC Inits.

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4143/MS 0729/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes	[signature]	AS	Weston/4142/844-5130/228-0710
	Robert Lynch	[signature]	RL	Weston/4142/844-4013/250-7090
	William J Gibson	[signature]	WJG	Weston/4142/844-4013/239-7367

1.Relinquished by	[signature]	Org. 4142	Date 12/1/10	Time 1128	4.Relinquished by	Org.	Date	Time
1. Received by	[signature] SMO	Org. 4142	Date 12/1/10	Time 1128	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 613372

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	12/6/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	☐ Released by COC No.:_____
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☑ Validation Required
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		Bill To: Sandia National Labs (Accounts Payable)
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		P.O. Box 5800 MS 0154
Location	Tech Area	Reference LOV(available at SMO)			Albuquerque, NM 87185-0154
Building	Room				

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089885-001	CWL-MW10	514.9	NA	120610\0849	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	
089885-009	CWL-MW10	514.9	NA	120610\0850	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	
089886-001	CWL-TB4	NA	NA	120610\0849	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	
089887-001	CWL-FB1	NA	NA	120610\0845	DIW	G	3x40ml	HCL	G	FB	APP IX VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT QC Inits

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4143/MS 0729/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes		AS	Weston/4142/844-5130/228-0710
	Robert Lynch		RL	Weston/4142/844-4013/250-7090
	William J Gibson		WJG	Weston/4142/844-4013/239-7367

1.Relinquished by		Org. 4142	Date 12/6/10	Time 0940	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4142	Date 12/6/10	Time 0940	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 613373

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	12/14/10	Project/Task No.	146422.10.11.01
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #:	PO 691436
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		500 BOTTLE ORDER
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		
Location	Tech Area				
Building	Room				

☐ Waste Characterization
-Send preliminary/copy report to:

☐ Released by COC No.:_____
☑ Validation Required

Bill To: Sandia National Labs (Accounts Payable)
P.O. Box 5800 MS 0154
Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089888-001	CWL-MW11	512.9	NA	121410/0911	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	
089888-009	CWL-MW11	512.9	NA	121410/0912	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	
089889-001	CWL-TB5	NA	NA	121410/0911	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking — Smo Use
Date Entered(mm/dd/yy):
Entered by:
QC inits:

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ Yes ☑ No
*Send report to:
Tim Jackson/Org 4143/MS 0729/505-284-2547

Last well for CWL and 1st Quarter project

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4142/844-5130/228-0710
	Robert Lynch			Weston/4142/844-4013/250-7090
	William J Gibson			Weston/4142/844-4013/239-7367

1.Relinquished by		Org.	4142	Date	12/14/10	Time	0955	4.Relinquished by	Org. Date Time
1. Received by		Org.	4142	Date	12/14/10	Time	0955	4. Received by	Org. Date Time
2.Relinquished by		Org.		Date		Time		5.Relinquished by	Org. Date Time
2. Received by		Org.		Date		Time		5. Received by	Org. Date Time
3.Relinquished by		Org.		Date		Time		6.Relinquished by	Org. Date Time
3. Received by		Org.		Date		Time		6. Received by	Org. Date Time

Prior to CWL-MWG

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N167

SMO Use

AR/COC 613370

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	11/30/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room	**Reference LOV(available at SMO)**			Albuquerque, NM 87185-0154

	Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
1	089880-001	CWL-EB1	NA	NA	113010\0815	DIW	G	3 x 40ml	HCL	G	EB	APP IX VOC (SW846-8260)	
1	089880-009	CWL-EB1	NA	NA	113010\0816	DIW	P	500 ml	HNO3	G	EB	APP IX Metals+Fe (SW846-6020/7470)	
1	089881-001	CWL-TB2	NA	NA	113010\0815	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT QC inits.

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4143/MS 0729/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes		AS	Weston/4142/844-5130/228-0710
	Robert Lynch		RL	Weston/4142/844-4013/250-7090
	William J Gibson		WJG	Weston/4142/844-4013/239-7367

1.Relinquished by		Org. 4142	Date 11/30/10	Time 0920	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4142	Date 11/30/10	Time 0920	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

Attachment 3
Data Validation Reports for Groundwater Analytical Results August 2010–January 2011

Sample Findings Summary

AR/COC: 613369, 613370, 613371

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
SW846 3005/6020 DOE-AL			
	089878-009/CWL-BW5	Cobalt (7440-48-4)	J+, CK2
	089878-009/CWL-BW5	Copper (7440-50-8)	J+, CK2
	089878-009/CWL-BW5	Nickel (7440-02-0)	J+, CK2
	089878-009/CWL-BW5	Selenium (7782-49-2)	J-, CK3
	089880-009/CWL-EB1	Antimony (7440-36-0)	0.0088U, B
	089882-009/CWL-MW9	Cobalt (7440-48-4)	J+, CK2
	089882-009/CWL-MW9	Copper (7440-50-8)	0.0034U, B2
	089882-009/CWL-MW9	Nickel (7440-02-0)	J+, CK2
	089882-009/CWL-MW9	Selenium (7782-49-2)	UJ, CK3
	089882-009/CWL-MW9	Zinc (7440-66-6)	J+, CK2
	089883-009/CWL-MW9	Cobalt (7440-48-4)	J+, CK2
	089883-009/CWL-MW9	Copper (7440-50-8)	0.0034U, B2
	089883-009/CWL-MW9	Nickel (7440-02-0)	J+, CK2
	089883-009/CWL-MW9	Selenium (7782-49-2)	UJ, CK3
	089883-009/CWL-MW9	Zinc (7440-66-6)	J+, CK2
SW846 8260B DOE-AL			
	089878-001/CWL-BW5	2-Butanone (78-93-3)	UJ, I4
	089878-001/CWL-BW5	Acrolein (107-02-8)	UJ, I4
	089878-001/CWL-BW5	Isobutyl alcohol (78-83-1)	UJ, I4
	089878-001/CWL-BW5	Propionitrile (107-12-0)	UJ, I4
	089879-001/CWL-TB1	2-Butanone (78-93-3)	UJ, I4
	089879-001/CWL-TB1	Acrolein (107-02-8)	UJ, I4
	089879-001/CWL-TB1	Isobutyl alcohol (78-83-1)	UJ, I4
	089879-001/CWL-TB1	Propionitrile (107-12-0)	UJ, I4
	089880-001/CWL-EB1	2-Butanone (78-93-3)	UJ, I4
	089880-001/CWL-EB1	Acrolein (107-02-8)	UJ, I4
	089880-001/CWL-EB1	Isobutyl alcohol (78-83-1)	UJ, I4

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
	089880-001/CWL-EB1	Propionitrile (107-12-0)	UJ, I4
	089881-001/CWL-TB2	2-Butanone (78-93-3)	UJ, I4
	089881-001/CWL-TB2	Acrolein (107-02-8)	UJ, I4
	089881-001/CWL-TB2	Isobutyl alcohol (78-83-1)	UJ, I4
	089881-001/CWL-TB2	Propionitrile (107-12-0)	UJ, I4
	089882-001/CWL-MW9	2-Butanone (78-93-3)	UJ, I4
	089882-001/CWL-MW9	Acrolein (107-02-8)	UJ, I4
	089882-001/CWL-MW9	Isobutyl alcohol (78-83-1)	UJ, I4
	089882-001/CWL-MW9	Propionitrile (107-12-0)	UJ, I4
	089883-001/CWL-MW9	2-Butanone (78-93-3)	UJ, I4
	089883-001/CWL-MW9	Acrolein (107-02-8)	UJ, I4
	089883-001/CWL-MW9	Isobutyl alcohol (78-83-1)	UJ, I4
	089883-001/CWL-MW9	Propionitrile (107-12-0)	UJ, I4
	089884-001/CWL-TB3	2-Butanone (78-93-3)	UJ, I4
	089884-001/CWL-TB3	Acrolein (107-02-8)	UJ, I4
	089884-001/CWL-TB3	Isobutyl alcohol (78-83-1)	UJ, I4
	089884-001/CWL-TB3	Propionitrile (107-12-0)	UJ, I4

All other analyses met QC acceptance criteria; no further data should be qualified.

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

Date: January 11, 2011

To: File

From: Kevin Lambert

Subject: Inorganic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 613369, 613370, and 613371
SDG: 267697
Laboratory: GEL
Project/Task: 146422.10.11.01
Analysis: Metals

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

Four samples were prepared and analyzed with approved procedures using methods EPA 6020 (ICP-MS metals) and EPA 7470A (CVAA mercury). Data were reported for all required analytes. Problems were identified with the data package that result in the qualification of data.

1. ICP-MS metals:
   Sb, Fe, and Sn were detected in the method blank (MB) at concentration ≥ the method detection limit (MDL) but < the practical quantitation limit (PQL). The Sb result for 267697-005 was a detect <5X the MB result and will be **qualified "0.0088U,B"** (mg/L) at 5X the MB value. All other associated sample results were either non-detects or detects >5X the MB values and will not be qualified.

   Cu was detected in the equipment blank (EB), sample -005, associated with samples -008 and -010, at a concentration ≥ the MDL but < the PQL. The associated sample results were detects <5X the EB result and will be **qualified "0.0034U,B2"** at 5X the EB value (mg/L).

   The Ca concentrations for samples -002, -008, and -010 were > the ICS A Ca concentration and the ICS A results for Co, Cu, Ni, and Zn were > the MDL. The Cu results for samples -008 and -010 and the Zn result for sample -002 were non-detects and will be not be qualified. All other associated sample results were detects <50X the ICS A result and will be **qualified "J+,CK2."**

The Ca concentrations for samples -002, -008, and -010 were > the ICS A Ca concentration and the ICS A result for Se was negative with an absolute value ≥ the MDL but <2X the MDL. The Se result for sample -002 was a detect <50X the absolute value of the ICS A result and will be **qualified "J-,CK3."** The other associated sample results were non-detects and will be **qualified "UJ,CK3."**

Data are acceptable and reported QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times and Preservation

The samples were analyzed within the prescribed holding times and properly preserved.

Calibration

All initial and continuing calibration QC acceptance criteria were met.

Reporting Limit Verification

All CRA/CRI recoveries met QC acceptance criteria.

Blanks

No target analytes were detected in the blanks except as noted above in the summary section and as follows.

Tl was detected in the initial and continuing calibration blanks (ICB/CCB) at concentrations ≥ the MDL but < the PQL. The associated sample results were non-detects and will not be qualified.

Sb was detected in the EB, sample -005, associated with samples -008 and -010, at a concentration ≥ the MDL but < the PQL. However, it should be noted that the Sb result for the EB has already been qualified non-detect due to MB contamination and, thus, does not affect the associated field sample results.

Matrix Spike (MS)

All MS recoveries met QC acceptance criteria.

Laboratory Replicate

The replicate analyses met all QC acceptance criteria.

Laboratory Control Sample (LCS)

All LCS recoveries met QC acceptance criteria.

Detection Limits/Dilutions

All detection limits were properly reported. No samples were diluted except as follows.

ICP-MS metals:
Samples -008 and -010 were diluted 5X for Ba due to high concentrations.

All associated batch QC samples were analyzed at dilution factors that resulted in relative dilution factors to the samples that were ≤5X. No sample data will be qualified as a result.

ICP Interference Check Sample (ICS A and AB)

All ICS A and AB met QC acceptance criteria except as noted above in the summary section and as follows.

ICP-MS metals:
The Ca concentrations for samples -002, -008, and -010 were > the ICS A Ca concentration and the ICS A result for Cd was > the MDL. However, all associated sample results were non-detects and will not be qualified.

ICP Serial Dilution

The serial dilution analyses met all QC acceptance criteria.

Other QC

An EB and field duplicate pair were submitted on the AR/COC(s). There are no "required" review criteria for field duplicate analyses comparability; no data will be qualified as a result.

No other specific issues that affect data quality were identified.

Data Validation Summary Worksheet

AR/COC #: 613369, 613370, 613371 Site/Project: SNL CWL GWM Validation Date: 01.11.11

SDG #: 267697 Laboratory: GEL Validator: Kevin A. Lambert

Matrix: aqueous # of Samples: LAB 11 Client 7 CVR present: yes Analysis Type: [X] Organic [X] Metals

AR/COC(s) present: yes Sample Container Integrity: OK ☐ Rad ☐ Gen Chem

Requested Analyses Not Reported

Sample Number	Laboratory ID	organic	genchem	metals	rad	Comments
All						
Reported						

Hold Time/Preservation Outliers

Sample Number	Laboratory ID	Analysis	Pres.	Coll. Date	Prep. Date	Anal. Date	Anal. within 2X HT	Anal. beyond 2X HT
Met								
Criteria								

Comments:

Revised 7/2007

Validated By: Kevin A Lambert

Organic Worksheet (GC/MS)

AR/COC #: 613369, 613370, 613371 SDG #: 267697 Matrix: aqueous

Laboratory Sample IDs: 267697-001, -003, -004, -006, -007, -009, -011

Method/Batch #s: EPA 8260B (VOC) / 1055527 Tuning (pass/fail): Pass TICs Required? (yes/no) No

Analyte (outliers)	Calibration ICV Int.	RF	RSD/ R^2	CCV %D	Method Blank	5X (10X) Blank	LCS %R	MS %R	MSD %R	MS/ MSD RPD	TB(1) -003	TB(2) -006	TB(3) -011	EB(4) -004
Chloroform	NA	✓	✓	✓	✓	8.35	✓	✓	✓	✓	✓	✓	✓	1.67
2-Butanone	NA	0.04	↓	✓	↓	NA	↓	↓	↓	↓	↓	↓	↓	✓
Acetonitrile	✓	✓	↓	29	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Acrolein	NA	0.04	↓	✓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Isobutyl alcohol	↓	0.01	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Propionitrile	↓	0.03	✓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓

Surrogate Recovery Outliers

Sample ID						
Met Criteria						

IS Outliers

Sample ID	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Met Criteria												

Comments: QC: -001
DL: 1X

(1) applies to -001
(2) applies to -004
(3) applies to -007, -009
(4) applies to -007, -009

Revised 7/2007

Inorganic Metals Worksheet

AR/COC #: 613369, 613370, 613371 SDG #: 267697 Matrix: aqueous

Laboratory Sample IDs: 267697-002, -005, -008, -010

Method/Batch #s: EPA 6020 (ICP-MS) / 1054270, 1060738 ; EPA 7470A (CVAA) / 1054369

ICPMS Mass Cal (pass/fail) Pass ICPMS Resolution (pass/fail) Pass

Analyte (outliers)	Calibration						Method Blank mg/L	5X Blank or (5X MDL)	LCS %R	MS %R	Lab Rep. RPD	Serial Dil. %D	ICS AB %R	ICS A ± MDL mg/L	CRA/ CRI %R	EB (1) -005			
	Int.	R^2	ICV	CCV	ICB mg/L	CCB													
Sb	✓	✓	✓	✓	✓	✓	0.00176J	0.0088	✓	✓	✓	✓	✓	✓	✓	0.000677J			
Cu							✓	0.003355						2.21		0.000671J			
Fe							0.0197J	0.0985						✓		✓			
Sn					↓	↓	0.00147J	0.00735						✓		↓			
Tl					0.000336J	0.000376J	✓	0.00188						✓					
Cd					✓	✓	↓	NA						0.212					
Co					↓	↓	↓	↓						0.296					
Ni					↓	↓	↓	↓						2.3					
Se					↓	↓	↓	↓						-1.3					
Zn	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	5.96	↓	↓			

IS Outliers				IS Outliers			
Sample ID	%Recovery	%Recovery	%Recovery	CCV/CCB ID	%Recovery	%Recovery	%Recovery
Met Criteria				Met Criteria			

Comments: QC: -002
DL: 1X, 5X

(1) applies to -008, -010

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Page 1 of 1

Batch No. N/A

SMO Use

AR/COC 613369

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	11/29/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.	120508	SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	(SEE BOTTLE ORDER)	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154 267697

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089878-001	CWL-BW5	522.1	NA	11/29/10 1122	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	001
089878-009	CWL-BW5	522.1	NA	11/29/10 1123	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	002
089879-001	CWL-TB1	NA	NA	11/29/10 1122	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	003

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking — Smo Use
Date Entered(mm/dd/yy):
Entered by:
QC Inits:

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ Yes ☑ No
*Send report to:
Tim Jackson/Org 4143/MS 0729/505-284-2547

Abnormal Conditions on Receipt
Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4142/844-5130/228-0710
	Robert Lynch			Weston/4142/844-4013/250-7090
	William J Gibson			Weston/4142/844-4013/239-7367

*Please list as separate report.

1.Relinquished by		Org. 4142	Date 11/29/10	Time 1138	4.Relinquished by		Org.	Date	Time
1. Received by	SMO	Org. 4142	Date 11/29/10	Time 1138	4. Received by		Org.	Date	Time
2.Relinquished by	SMO	Org. 4142	Date 11/29/10	Time 1245	5.Relinquished by		Org.	Date	Time
2. Received by		Org. GEL	Date 11-30-10	Time 0820	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Page 1 of 1

Batch No. N/A

SMO Use /

AR/COC 613370

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	11/30/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.	120840	SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	SEE BELOW ORDER	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154 265697
Location	Tech Area				
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089880-001	CWL-EB1	NA	NA	113010\0815	DIW	G	3 x 40ml	HCL	G	EB	APP IX VOC (SW846-8260)	004
089880-009	CWL-EB1	NA	NA	113010\0816	DIW	P	500 ml	HNO3	G	EB	APP IX Metals+Fe (SW846-6020/7470)	005
089881-001	CWL-TB2	NA	NA	113010\0815	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	006

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

QC inits.

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

***Send report to:**

Tim Jackson/Org 4143/MS 0729/505-284-2547

***Please list as separate report.**

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes		AS	Weston/4142/844-5130/228-0710
	Robert Lynch		RL	Weston/4142/844-4013/250-7090
	William J Gibson		WJG	Weston/4142/844-4013/239-7367

1.Relinquished by		Org. 4142	Date 11/30/10	Time 0970	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4142	Date 11/30/10	Time 0970	4. Received by	Org.	Date	Time
2.Relinquished by		Org. 4142	Date 11/30/10	Time 1260	5.Relinquished by	Org.	Date	Time
2. Received by		Org. GEL	Date 12-1-10	Time 0735	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 613371

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	12/1/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.	120841	SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	SOW BOTTLE ORDER	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154 267697
Location	Tech Area				
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089882-001	CWL-MW9	517.1	NA	12/01/10 1100	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	007
089882-009	CWL-MW9	517.1	NA	12/01/10 1101	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	008
089883-001	CWL-MW9	517.1	NA	12/01/10 1100	GW	G	3 x 40ml	HCL	G	DU	APP IX VOC (SW846-8260)	009
089883-009	CWL-MW9	517.1	NA	12/01/10 1101	GW	P	500 ml	HNO3	G	DU	APP IX Metals+Fe (SW846-6020/7470)	010
089884-001	CWL-TB3	NA	NA	12/01/10 1100	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	011

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use
Date Entered(mm/dd/yy):
Entered by:
QC Inits:

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ Yes ☑ No
*Send report to:
Tim Jackson/Org 4143/MS 0729/505-284-2547
*Please list as separate report.

Abnormal Conditions on Receipt
Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes	Alfred Santillanes	AS	Weston/4142/844-5130/228-0710
	Robert Lynch	Robert Lynch	RL	Weston/4142/844-4013/250-7090
	William J Gibson	William J Gibson	WJG	Weston/4142/844-4013/239-7367

1.Relinquished by	Alfred Santillanes	Org.	4142	Date	12/1/10	Time	1128	4.Relinquished by	Org. Date Time
1. Received by	GWO	Org.	4142	Date	12/1/10	Time	1128	4. Received by	Org. Date Time
2.Relinquished by	GWO	Org.	4142	Date	12/1/10	Time	1240	5.Relinquished by	Org. Date Time
2. Received by	Mike Hamilton	Org.	GEL	Date	12-2-10	Time	0740	5. Received by	Org. Date Time
3.Relinquished by		Org.		Date		Time		6.Relinquished by	Org. Date Time
3. Received by		Org.		Date		Time		6. Received by	Org. Date Time

Sample Findings Summary

AR/COC: 613372

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
SW846 3005/6020 DOE-AL			
	089885-009/CWL-MW10	Chromium (7440-47-3)	0.014U, B
	089885-009/CWL-MW10	Cobalt (7440-48-4)	J+, CK2
	089885-009/CWL-MW10	Copper (7440-50-8)	J+, CK2
	089885-009/CWL-MW10	Nickel (7440-02-0)	J+, CK2
	089885-009/CWL-MW10	Zinc (7440-66-6)	J+, CK2
SW846 7470A			
	089885-009/CWL-MW10	Mercury (7439-97-6)	UJ, MS3
SW846 8260B DOE-AL			
	089885-001/CWL-MW10	2-Butanone (78-93-3)	UJ, I4
	089885-001/CWL-MW10	Acrolein (107-02-8)	UJ, I4
	089885-001/CWL-MW10	Isobutyl alcohol (78-83-1)	UJ, I4
	089885-001/CWL-MW10	Propionitrile (107-12-0)	UJ, I4
	089886-001/CWL-TB4	2-Butanone (78-93-3)	UJ, I4
	089886-001/CWL-TB4	Acrolein (107-02-8)	UJ, I4
	089886-001/CWL-TB4	Isobutyl alcohol (78-83-1)	UJ, I4
	089886-001/CWL-TB4	Propionitrile (107-12-0)	UJ, I4
	089887-001/CWL-FB1	2-Butanone (78-93-3)	UJ, I4
	089887-001/CWL-FB1	Acrolein (107-02-8)	UJ, I4
	089887-001/CWL-FB1	Isobutyl alcohol (78-83-1)	UJ, I4
	089887-001/CWL-FB1	Propionitrile (107-12-0)	UJ, I4

All other analyses met QC acceptance criteria; no further data should be qualified.

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

Date: January 14, 2011

To: File

From: Kevin Lambert

Subject: GC/MS Organic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 613372
SDG: 268138
Laboratory: GEL
Project/Task: 146422.10.11.01
Analysis: VOCs

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. Data are evaluated using SNL/NM SMO AOP 00-03 Rev 2.

Summary

Three samples were prepared and analyzed with accepted procedures using method EPA 8260B (VOCs). All compounds were successfully analyzed. Problems were identified with the data package that result in the qualification of data.

1. The initial calibration response factors (RFs) for 2-butanone, acrolein, isobutyl alcohol, and propionitrile were <0.05 but ≥0.01. All associated sample results were non-detects and will be **qualified "UJ, I4."**

Data are acceptable and reported QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times

The samples were extracted and analyzed within the prescribed holding times and properly preserved.

Instrument Tune

All instrument tune requirements were met.

Calibration

The initial calibration and continuing calibration data met QC acceptance criteria except as noted above in the summary section and as follows.

The calibration verification percent differences for acetone, acetonitrile, and carbon tetrachloride were >20% with a positive bias. All associated sample results were non-detects and will not be qualified for the calibration infractions.

Blanks

No target analytes were detected in the blanks except as follows.

In the field blank (FB), sample 268138-004, associated with sample -001, bromodichloromethane was detected at a concentration > the method detection limit (MDL) but < the practical quantitation limit (PQL) and chloroform was detected at a concentration > the PQL. All associated sample results were non-detects and will not be qualified.

Surrogates

All surrogate recoveries met QC acceptance criteria.

Internal Standards

All internal standards met QC acceptance criteria.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The MS/MSD analyses met QC acceptance criteria.

Laboratory Control Sample (LCS)

All LCS recoveries met QC acceptance criteria.

Detection Limits/Dilutions

All detection limits were properly reported. The samples were not diluted.

Tentatively Identified Compounds (TICs)

TIC reports were not required.

Other QC

A trip blank and an FB were submitted on the AR/COC(s).

No other specific issues that affect data quality were identified.

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

Date: January 14, 2011

To: File

From: Kevin Lambert

Subject: Inorganic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 613372
SDG: 268138
Laboratory: GEL
Project/Task: 146422.10.11.01
Analysis: Metals

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

One sample was prepared and analyzed with approved procedures using methods EPA 6020 (ICP-MS metals) and EPA 7470A (CVAA mercury). Data were reported for all required analytes. Problems were identified with the data package that result in the qualification of data.

1. CVAA mercury:
   The MS percent recovery for Hg was <75% but ≥30%. The associated sample result was a non-detect and will be **qualified "UJ,MS3."**

2. ICP-MS metals:
   Cr was detected in the method blank (MB) at a concentration ≥ the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated sample result was a detect <5X the MB result and will be **qualified "0.014U,B"** (mg/L) at 5X the MB value.

   The Ca concentration for sample 268138-002 was > the ICS A Ca concentration and the ICS A results for Co, Cu, Ni, and Zn were > the MDL. All associated sample results were detects <50X the ICS A result and will be **qualified "J+,CK2."**

Data are acceptable and reported QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times and Preservation

The sample was analyzed within the prescribed holding times and properly preserved.

Calibration

All initial and continuing calibration QC acceptance criteria were met.

Reporting Limit Verification

All CRA/CRI recoveries met QC acceptance criteria.

Blanks

No target analytes were detected in the blanks except as noted above in the summary section and as follows.

ICP-MS metals:
Tl was detected in the initial and continuing calibration blanks (ICB/CCB) at concentrations ≥ the MDL but < the PQL. The associated sample result was a non-detect and will not be qualified.

Fe, Ni, and Ba were detected in the MB at concentrations ≥ the MDL but < the PQL. All associated sample results were detects >5X the MB values and will not be qualified.

Matrix Spike (MS)

All MS recoveries met QC acceptance criteria except as noted above in the summary section. It should be noted that the MS analyses were performed on a SNL sample from another SDG. No sample data will be qualified as a result.

Laboratory Replicate

The replicate analyses met all QC acceptance criteria. It should be noted that the replicate analyses were performed on SNL samples of similar matrix from other SDGs. No sample data will be qualified as a result.

Laboratory Control Sample (LCS)

All LCS recoveries met QC acceptance criteria.

Detection Limits/Dilutions

All detection limits were properly reported. No samples were diluted except as follows.

ICP-MS metals:
The sample was diluted 5X for Ba due to high concentrations.

All associated batch QC samples were analyzed at dilution factors that resulted in relative dilution factors to the samples that were ≤5X. No sample data will be qualified as a result.

ICP Interference Check Sample (ICS A and AB)

All ICS A and AB met QC acceptance criteria except as noted above in the summary section and as follows.

ICP-MS metals:
The Ca concentration for sample -002 was > the ICS A Ca concentration and the ICS A result for Cd was > the MDL. However, the associated sample result was a non-detect and will not be qualified.

ICP Serial Dilution

The serial dilution analyses met all QC acceptance criteria.

Other QC

No other specific issues that affect data quality were identified.

Data Validation Summary Worksheet

AR/COC #: 613372 Site/Project: SNL CWL GWM Validation Date: 01.14.11

SDG #: 268138 Laboratory: GEL Validator: Kevin A. Lambert

Matrix: aqueous # of Samples: LAB 4 client 3 CVR present: yes Analysis Type: [X] Organic [X] Metals

AR/COC(s) present: yes Sample Container Integrity: OK [ ] Rad [ ] Gen Chem

Requested Analyses Not Reported

Sample Number	Laboratory ID	organic	genchem	metals	rad	Comments
All						
Reported						

Hold Time/Preservation Outliers

Sample Number	Laboratory ID	Analysis	Pres.	Coll. Date	Prep. Date	Anal. Date	Anal. within 2X HT	Anal. beyond 2X HT
Met								
Criteria								

Comments:

Revised 7/2007

Validated By: Kevin A Lambert

Organic Worksheet (GC/MS)

AR/COC #: 613372 SDG #: 268138 Matrix: aqueous

Laboratory Sample IDs: 268138-001, -003, -004

Method/Batch #s: EPA8260B (VOC) / 1058040 Tuning (pass/fail): Pass TICs Required? (yes/no) No

Analyte (outliers)	Calibration Int.	Calibration RF	Calibration RSD/R^2	Calibration ICV/CCV %D	Method Blank	5X (10X) Blank	LCS %R	MS %R	MSD %R	MS/MSD RPD	TB (2) -003	FB (1) -004		
Bromodichloromethane	NA	✓	✓	✓	✓	1,4	✓	✓	✓	✓	✓	0.280J		
Chloroform	↓	✓	↓	↓	↓	12.46	↓	↓	↓	↓	✓	1.78		
2-Butanone	↓	0.04	0.04 RRC 05.14.11	↓	↓	NA	↓	↓	↓	↓	↓	✓		
Acrolein	↓	0.04	0.04 RRC 05.14.11	↓	↓	↓	↓	↓	↓	↓	↓	↓		
Isobutyl alcohol	↓	0.01	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
Propionitrile	↓	0.03	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
Acetone	✓	✓	↓	22	↓	↓	↓	↓	↓	↓	↓	↓		
Acetonitrile	✓	↓	↓	28	↓	↓	↓	↓	↓	↓	↓	↓		
Carbon tetrachloride	NA	↓	↓	27	↓	↓	↓	↓	↓	↓	↓	↓		

Surrogate Recovery Outliers

Sample ID						
Met Criteria						

IS Outliers

Sample ID	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Met Criteria												

Comments: QC: -001
DL: 1X

(1) applies to -001
(2) applies to -001, -004

Revised 7/2007

Inorganic Metals Worksheet

AR/COC #: 613372 SDG #: 268138 Matrix: aqueous

Laboratory Sample IDs: 268138-002

Method/Batch #s: EPA 6020 (ICP-MS)/1055178 ; EPA 7470A (CVAA)/1056217

ICPMS Mass Cal (pass/fail) Pass ICPMS Resolution (pass/fail) Pass

Analyte (outliers)	Calibration						Method Blank	5X Blank or (5X MDL)	LCS %R	MS %R	Lab Rep. RPD	Serial Dil. %D	ICS AB %R	ICS A ± MDL	CRA/ CRI %R			
	Int.	R^2	ICV	CCV	ICB	CCB	mg/L			75-125				ug/L				
					ug/L													
Hg	✓	✓	✓	✓	✓	✓	✓	NA	✓	74	✓	✓	✓	✓	✓			
Cd							✓	NA		✓				1.68				
CR							0.0027J	0.0135						✓				
Co							✓	NA						0.394				
Cu							✓	NA						4.46				
Fe							0.0137J	0.0685						✓				
Ni					↓	↓	0.000526J	0.00263						3.06				
Tl					0.359J	0.354J	✓	0.001795		↓				✓				
Ba					✓	✓	0.0016J	0.0082		✓N/A				✓				
Zn	↓	↓	↓	↓	✓	✓	✓	NA	↓	✓	↓	↓	↓	8.11	↓			
														✓ KRL 01.14.11				

IS Outliers				IS Outliers			
Sample ID	%Recovery	%Recovery	%Recovery	CCV/CCB ID	%Recovery	%Recovery	%Recove
	Met Criteria			Met Criteria			

Comments: QC: another SNL SDG

DL: 1X

5X

N/A - Sample [C] > 4X Spike [C]

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC **613372**

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	12/6/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	John Cochran	Carrier/Waybill No.	12/13/2021	SMO Authorization: GMO	
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	☐ Released by COC No.:
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	SMO BOTTLE ORDER	☑ Validation Required
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		Bill To: Sandia National Labs (Accounts Payable)
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		P.O. Box 5800 MS 0154
Location	Tech Area				Albuquerque, NM 87185-0154
Building	Room				268138

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089885-001	CWL-MW10	514.9	NA	120610\0849	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	001
089885-009	CWL-MW10	514.9	NA	120610\0850	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	002
089886-001	CWL-TB4	NA	NA	120610\0849	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	003
089887-001	CWL-FB1	NA	NA	120610\0845	DIW	G	3x40ml	HCL	G	FB	APP IX VOC (SW846-8260)	004

RMMA ☐ Yes ☑ No Ref. No.	**Sample Tracking** Smo Use	**Special Instructions/QC Requirements**	Abnormal Conditions on Receipt
Sample Disposal ☐ Return to Client ☑ Disposal by lab	Date Entered(mm/dd/yy)	**EDD** ☑ Yes ☐ No	
Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day	Entered by:	**Level D Package** ☐ Yes ☑ No	
Return Samples By: ☐ Negotiated TAT	QC Inits	***Send report to:** Tim Jackson/Org 4143/MS 0729/505-284-2547	Lab Use

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	Alfred Santillanes		AS	Weston/4142/844-5130/228-0710
	Robert Lynch		RL	Weston/4142/844-4013/250-7090
	William J Gibson		WJG	Weston/4142/844-4013/239-7367

***Please list as separate report.**

1.Relinquished by		Org. 4142	Date 12/6/10	Time 0940	4.Relinquished by	Org.	Date	Time
1. Received by	GMO	Org. 4142	Date 12/6/10	Time 0940	4. Received by	Org.	Date	Time
2.Relinquished by	GMO	Org. 4142	Date 12/6/10	Time 1200	5.Relinquished by	Org.	Date	Time
2. Received by		Org. GEL	Date 12-7-10	Time 0745	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

Sample Findings Summary

AR/COC: 613373

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
SW846 3005/6020 DOE-AL			
	089888-009/CWL-MW11	Antimony (7440-36-0)	0.0075U, B,B3
	089888-009/CWL-MW11	Chromium (7440-47-3)	J+, CK2
	089888-009/CWL-MW11	Cobalt (7440-48-4)	J+, CK2
	089888-009/CWL-MW11	Nickel (7440-02-0)	J+, CK2
	089888-009/CWL-MW11	Thallium (7440-28-0)	0.0019U, B3
	089888-009/CWL-MW11	Zinc (7440-66-6)	J+, CK2
SW846 8260B DOE-AL			
	089888-001/CWL-MW11	Acetonitrile (75-05-8)	UJ, I4
	089888-001/CWL-MW11	Isobutyl alcohol (78-83-1)	UJ, I4
	089888-001/CWL-MW11	Propionitrile (107-12-0)	UJ, I4
	089889-001/CWL-TB5	Acetonitrile (75-05-8)	UJ, I4
	089889-001/CWL-TB5	Isobutyl alcohol (78-83-1)	UJ, I4
	089889-001/CWL-TB5	Propionitrile (107-12-0)	UJ, I4

All other analyses met QC acceptance criteria; no further data should be qualified.

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

DATE: January 18, 2011

TO: File

FROM: David Schwent

SUBJECT: Organic GC/MS Data Review and Validation - SNL
Site: CWL GWM
AR/COC: 613373
SDG: 268706
Laboratory: GEL
Project/Task No: 146422.10.11.01

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

All samples were prepared and analyzed with approved procedures using method EPA 8260B (VOCs). Problems were identified with the data package that result in the qualification of data.

Calibration: The initial calibration response factors (RFs) of acetonitrile, propionitrile, and isobutyl alcohol were <0.05 but ≥0.01. All associated sample results were non-detects (NDs) and will be qualified "UJ,I4."

Data are acceptable. QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times/Preservation

All samples were analyzed within the prescribed holding times and properly preserved.

Instrument Tune

All instrument tune requirements were met.

Calibration

All initial and continuing calibration QC acceptance criteria were met, except as noted above in the summary section and the following. The initial calibration verification (ICV) percent differences (%Ds) of five target analytes were >20% but ≤40% with negative bias. All associated sample results were NDs and no other calibration QC acceptance criteria were exceeded. Therefore, no sample data will be qualified as a result. The continuing calibration verification (CCV) %D of pentachloroethane was >20% with positive bias. All associated sample results were NDs and will not be qualified.

Blanks

No target analytes were detected in the blanks.

Internal Standards (ISs)

All IS QC acceptance criteria were met.

Surrogates

All surrogate QC acceptance criteria were met.

Laboratory Control Sample (LCS)

All LCS QC acceptance criteria were met, except the following. The LCS percent recovery (%R) of pentachloroethane was > the upper acceptance limit. All associated sample results were NDs and will not be qualified.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS/MSD (PS/PSD) QC acceptance criteria were met, except the following. The PS/PSD relative percent difference (RPD) of styrene was > the upper acceptance limit. However, the RPD was above the acceptance limit by only 1% and, based on professional judgment, no sample data will be qualified as a result.

Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not requested.

Detection Limits/Dilutions

All detection limits were reported correctly. No samples required dilution.

Other QC

No field blanks (FBs), equipment blanks (EBs), or field duplicates (FDs) were submitted on the AR/COC(s).

No other specific issues were identified that affect data quality.

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

DATE: January 19, 2011

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL GWM
AR/COC: 613373
SDG: 268706
Laboratory: GEL
Project/Task No: 146422.10.11.01

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

The samples were prepared and analyzed with accepted procedures using methods EPA 6020 (ICP-MS) and EPA 7470A (CVAA). Problems were identified with the data package that result in the qualification of data.

ICP-MS Analysis:

Blanks: Tl was detected in the continuing calibration blank (CCB) at a concentration > the method detection limit (MDL) but ≤ the practical quantitation limit (PQL). The associated result of sample 268706-002 was a detect <5X the CCB concentration and will be qualified "0.0019U,B3" at 5X the value of the CCB (mg/L).

Blanks: Sb was detected in the CCB and method blank (MB) at concentrations > the MDL but ≤ the PQL. The associated result of sample -002 was a detect <5X the CCB concentration and <5X the MB concentration will be qualified "0.0075U,B,B3" at 5X the value of the MB (mg/L).

ICS A: For sample -002, the sample Ca concentration was > the associated ICS A concentration and the ICS A results of Cr, Co, Ni, and Zn were > the MDLs. All associated sample results were detects <50X the associated ICS A result and will be qualified "J+,CK2."

Data are acceptable. QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times/Preservation

All Analyses: All samples were analyzed within the prescribed holding times and properly preserved.

ICP-MS Instrument Tune

ICP-MS Analysis: All instrument tune requirements were met.

Calibration

All Analyses: All initial and continuing calibration QC acceptance criteria were met.

Reporting Limit Verification

All Analyses: All CRI/CRA QC acceptance criteria were met.

Blanks

ICP-MS Analysis: No target analytes were detected in the blanks, except as noted above in the summary section and the following. Sn was detected in the CCB and MB at concentrations > the MDL but ≤ the PQL. The associated result of sample -002 was an ND and will not be qualified. Fe was detected in the MB at a concentration > the MDL but ≤ the PQL. The associated result of sample -002 was a detect >5X the MB concentration and will not be qualified.

CVAA Analysis: No target analytes were detected in the blanks.

ICP-MS Internal Standards (ISs)

ICP-MS Analysis: All ICP-MS IS QC acceptance criteria were met.

Matrix Spike (MS)

All Analyses: All MS QC acceptance criteria were met.

Laboratory Replicate

All Analyses: All replicate QC acceptance criteria were met.

Laboratory Control Sample (LCS)

All Analyses: All LCS QC acceptance criteria were met.

Detection Limits/Dilutions

All Analyses: All detection limits were properly reported. No dilutions were required.

ICP Interference Check Sample (ICS A and AB)

ICP-MS Analysis: All ICS A and AB QC acceptance criteria were met, except as noted above in the summary section and the following. For sample -002, the sample Ca concentration was > the associated ICS A concentration and the ICS A results of Ba and Cd were > the MDLs. The associated Ba result was

a detect >50X the associated ICS A result and will not be qualified. The associated Cd result was an ND and will not be qualified.

ICP Serial Dilution

ICP-MS Analysis: All serial dilution QC acceptance criteria were met.

Other QC

All Analyses: No field blanks (FBs), equipment blanks (EBs), or field duplicates (FDs) were submitted on the AR/COC(s).

No other specific issues were identified that affect data quality.

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Page 1 of 1

Batch No. N/A

SMO Use

AR/COC 613373

Dept. No./Mail Stop:	6234/0719	Date Samples Shipped:	12/14/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.	1232383	SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	5 EB BOTTLES ORDER	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154 268706
Location	Tech Area				
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089888-001	CWL-MW11	512.9	NA	121410/0911	GW	G	3 x 40ml	HCL	G	SA	APP IX VOC (SW846-8260)	001
089888-009	CWL-MW11	512.9	NA	121410/0912	GW	P	500 ml	HNO3	G	SA	APP IX Metals+Fe (SW846-6020/7470)	002
089889-001	CWL-TB5	NA	NA	121410/0911	DIW	G	3x40ml	HCL	G	TB	APP IX VOC (SW846-8260)	003

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use
Date Entered(mm/dd/yy)
Entered by
QC Inits

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ Yes ☑ No
*Send report to:
Tim Jackson/Org 4143/MS 0729/505-284-2547

Last well for CWL and 1st Quarter project

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	Alfred Santillanes			Weston/4142/844-5130/228-0710
	Robert Lynch			Weston/4142/844-4013/250-7090
	William J Gibson			Weston/4142/844-4013/239-7367

1.Relinquished by		Org. 4142	Date 12/14/10	Time 0955	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4142	Date 12/14/10	Time 0955	4. Received by	Org.	Date	Time
2.Relinquished by		Org. 4142	Date 12/14/10	Time 1145	5.Relinquished by	Org.	Date	Time
2. Received by	Jumpha Lee Racenes	Org. GEL	Date 12/15/10	Time 0940	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time 0745	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

12/15/10

Data Validation Summary Worksheet

AR/COC #: 613373 Site/Project: SNL/CWL GWM Validation Date: 1-18-11

SDG #: 268706 Laboratory: GEL Validator: David Schwent

Matrix: Groundwater # of Samples: 3 CVR present: yes Analysis Type: ☑ Organic ☐ Metals

AR/COC(s) present: yes Sample Container Integrity: okay ☐ Rad ☐ Gen Chem

Requested Analyses Not Reported

Sample Number	Laboratory ID	organic	genchem	metals	rad	Comments
None						

Hold Time/Preservation Outliers

Sample Number	Laboratory ID	Analysis	Pres.	Coll. Date	Prep. Date	Anal. Date	Anal. within 2X HT	Anal. beyond 2X HT
No Outliers								

Comments:

Revised 7/2007

Validated By: David Schwent

Organic Worksheet (GC/MS)

AR/COC #: 613373 SDG #: 268706 Matrix: Groundwater

Laboratory Sample IDs: 268706-001 and -003

Method/Batch #s: EPA 8260B (VOCs)/1059997 Tuning (pass/fail): pass TICs Required? (yes/no) No

Analyte (outliers)	Calibration Int.	Calibration RF	Calibration RSD/R^2	Calibration (ICV) CCV %D	Method Blank	5X (10X) Blank	LCS %R	MS %R	MSD %R	MS/MSD RPD	TB (-003)			
acetonitrile	NA	0.037	✓	✓	✓	NA	✓	✓	✓	✓	✓			
propionitrile		0.040												
isobutyl alcohol		0.012												
Styrene		✓		↓	↓	↓	↓	↓	↓	21				
dichlorodifluoromethane				(-31.5)						✓				
acetone				(-25.3)										
acrolein				(-23.1)										
2-butanone				(-22.7)										
pentachloroethane	↓	↓	↓	(-39.3)/60.6	↓	↓	163	↓	↓	↓	↓			

Surrogate Recovery Outliers

Sample ID						
No Outliers						

IS Outliers

Sample ID	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
No Outliers												

Comments:

Inorganic Metals Worksheet

AR/COC #: 613373 SDG #: 268706 Matrix: Groundwater

Laboratory Sample IDs: 268706-002.

Method/Batch #s: EPA 6020 (ICP-MS)/1057792 and EPA 7470A (CVAA)/1057905.

ICPMS Mass Cal (pass/fail) pass ICPMS Resolution (pass/fail) pass

Analyte (outliers)	Calibration						Method Blank	5X Blank or 5X MDL	LCS %R	MS %R	Lab Rep. RPD	Serial Dil. %D	ICS AB %R	ICS A ± MDL	CRA/ CRI %R				
	Int.	R^2	ICV	CCV	ICB	CCB µg/L	mg/L	mg/L						µg/L					
Sb	✓	✓	✓	✓	✓	1.03	0.00149	0.0025/0.0075	✓	✓	✓	✓	✓	✓	✓				
Tl						0.382	✓	0.0019											
Sn						1.15	0.00243	0.0058/0.012											
Fe						✓	0.0119	0.060						↓					
Ba							✓	NA						0.199					
Cd														0.493					
Cr														4.25					
Co														0.194					
Ni														3.52					
Zn	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	4.27	↓				

IS Outliers				IS Outliers			
Sample ID	%Recovery	%Recovery	%Recovery	CCV/CCB ID	%Recovery	%Recovery	%Recovery
No Outliers				No Outliers			

Comments: No dilutions.

SECTION III
PERCHLORATE SCREENING QUARTERLY MONITORING REPORT

EXECUTIVE SUMMARY

Section IV.B of the Compliance Order on Consent (the Order), between the New Mexico Environment Department (NMED), the U.S. Department of Energy (DOE), and Sandia Corporation (Sandia) for Sandia National Laboratories, New Mexico (SNL/NM), effective on April 29, 2004, stipulates that a select group of groundwater monitoring wells be sampled for perchlorate at SNL/NM (NMED April 2004). This report summarizes the perchlorate monitoring completed during the Fourth Quarter of Calendar Year (CY) 2010 (October, November, and December 2010) in response to the requirements of the Order. During the Fourth Quarter of CY 2010, groundwater samples were collected from monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, and TA1-W-03.

CYN-MW9, CYN-MW10, CYN-MW11, and CYN-MW12 are recently installed Burn Site Groundwater monitoring wells that were sampled for the second time. TA1-W-03 is located in the Tijeras Arroyo Groundwater Investigation study area and was required to be sampled for perchlorate based on NMED requirements (NMED April 2009). This well was sampled for the fourth time during this reporting period.

All samples were submitted to GEL Laboratories, LLC for perchlorate analysis using U.S. Environmental Protection Agency Method 314.0 (EPA November 1999). No perchlorate was detected in the environmental samples from CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, or TA1-W-03 at a method detection limit of 4 micrograms per liter. No perchlorate has been detected during four consecutive quarterly sampling events at TA1-W-03; therefore, this well will be removed from the perchlorate screening well network. DOE/Sandia have recently installed four new groundwater monitoring wells in Technical Area (TA)-V, including TAV-MW11, TAV-MW12, TAV-MW13, and TAV-MW14. Samples from these four new TA-V wells will be analyzed for perchlorate, and the results will be discussed in the next quarterly report.

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Appendix B. Data Validation Sample Findings Summary Sheets for the Perchlorate Data

SECTION III
PERCHLORATE SCREENING QUARTERLY MONITORING REPORT

1.0 Introduction

Section IV.B of the Compliance Order on Consent (the Order), between the New Mexico Environment Department (NMED), the U.S. Department of Energy (DOE), and Sandia Corporation (Sandia) for Sandia National Laboratories, New Mexico (SNL/NM), effective on April 29, 2004, stipulates that a select group of groundwater monitoring wells be sampled for perchlorate at SNL/NM (NMED April 2004). This report summarizes the perchlorate screening monitoring completed during the Fourth Quarter of Calendar Year (CY) 2010 (October, November, and December 2010) in response to the requirements of the Order. The outline of this report is based on the required elements of a "Periodic Monitoring Report" described in Section X.D. of the Order (NMED April 2004).

In November 2005, DOE/Sandia submitted a letter report on the status of perchlorate screening in groundwater at SNL/NM monitoring wells (SNL/NM November 2005). The purpose of the letter report was to summarize previous correspondence and sampling results and to outline proposed future work to comply with NMED requirements for perchlorate screening in groundwater. As specified in the letter report, quarterly reports will be submitted for wells active in the perchlorate-screening monitoring well network.

Based on the NMED response (NMED January 2006), DOE/Sandia will submit each quarterly report within 90 days following the quarter that the data represent. In November 2008, DOE/Sandia received approval from the NMED to proceed to semiannual reporting (NMED November 2008); however, upon further consideration, the NMED once more required quarterly reporting (NMED April 2009). This did not alter the previously negotiated frequency for CYN-MW6, an existing Burn Site Groundwater (BSG) study area well that has been under the sampling and reporting requirements of the Order since the well was installed and which will remain at a semiannual frequency for sampling and reporting.

This report is the twentieth to be submitted since the November 2005 letter report; the previous reports were submitted for Fourth Quarter of CY 2005 through the Third Quarter of CY 2010 (SNL/NM February 2006, June 2006, September 2006, December 2006, March 2007, June 2007, September 2007, December 2007, March 2008, June 2008, September 2008, December 2008, June 2009, September 2009, December 2009, March 2010, June 2010, September 2010, and December 2010).

Groundwater at Tijeras Arroyo Groundwater (TAG) well TA1-W-03 has been sampled for four consecutive quarters; and BSG wells CYN-MW9, CYN-MW10, CYN-MW11, and

CYN-MW12 have been sampled twice (Figure 1). The Order requires that new wells be sampled for perchlorate for a minimum of four quarters (NMED April 2004). Reporting will continue as long as groundwater monitoring wells remain active in the perchlorate-screening monitoring well network unless negotiated otherwise with the NMED.

2.0 Scope of Activities

This report provides perchlorate screening results for the Fourth Quarter of CY 2010 (October, November, and December 2010) for the wells currently active in the perchlorate-screening program as shown in Figure 1 and listed in Table 1. In accordance with the requirements of Table XI-1 of the Order, a well with four consecutive quarters of nondetects (NDs) at the screening level/method detection limit (MDL) of 4 micrograms per liter (μg/L) is removed from the requirement of continued monitoring for perchlorate. Data from numerous wells identified in the Order have satisfied this requirement; therefore, these wells have been removed from the perchlorate-screening program. Data for these wells have been provided in previous reports and are not discussed in this current report. Wells discussed in previous perchlorate-screening reports include the following: CYN-MW1D, CYN-MW5, CYN-MW7, CYN-MW8, LWDS-MW1, MRN-2, MRN-3D, MWL-BW1, MWL-BW2, MWL-MW1, MWL-MW7, MWL-MW8, MWL-MW9, NWTA3-MW2, SWTA3-MW4, TA1-W-06, TA1-W-08, TA2-W-01, and TA2-W-27.

DOE/Sandia performed groundwater sampling at five wells on the dates listed in Table 1. CYN-MW9, CYN-MW10, CYN-MW11, and CYN-MW12 were installed after the Order was finalized and were therefore required to be sampled for perchlorate as "new" wells; sampling at TA1-W-03 was specifically required by the NMED's April 2009 letter (NMED April 2009). Groundwater sampling activities were conducted in accordance with procedures outlined in the following investigation-specific sampling and analysis plans (SAPs) entitled:

- "Tijeras Arroyo Groundwater Investigation, Mini-SAP for FY11 [Fiscal Year 2011], 1st Quarter Sampling, November 2010" (SNL/NM October 2010a)

- "Burn Site Groundwater Monitoring, Mini-SAP for First Quarter, FY11" (SNL/NM October 2010b).

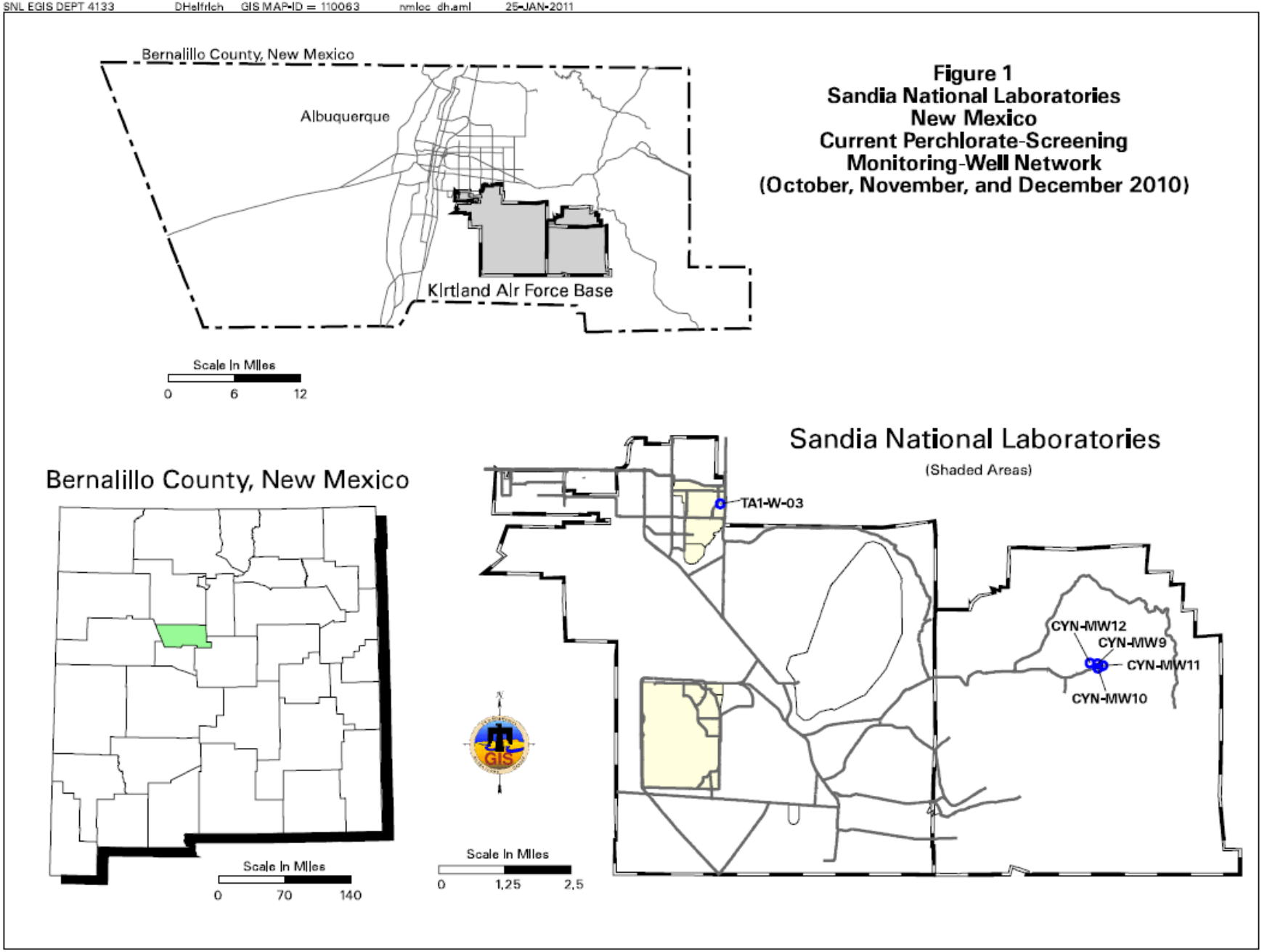

Figure 1
Sandia National Laboratories
New Mexico
Current Perchlorate-Screening
Monitoring-Well Network
(October, November, and December 2010)

Table 1
Current Perchlorate-Screening Monitoring Well Network
Fourth Quarter, CY 2010
(October, November, and December 2010)

Well	Date Sampled	Number of Consecutive Sampling Events[a]	Remaining Number of Sampling Events[b]	Sampling Equipment
CYN-MW9	27-Oct-2010	2	2	Bennett™ Pump
CYN-MW10	02-Nov-2010	2	2	Bennett™ Pump
CYN-MW11	01-Nov-2010	2	2	Bennett™ Pump
CYN-MW12	28-Oct-2010	2	2	Bennett™ Pump
TA1-W-03	08-Nov-2010	4	0	Bennett™ Pump

Notes

[a] Includes this sampling event.
[b] Per the requirements of Table XI-1 of the Order (NMED April 2004), a well will be removed from the perchlorate-screening monitoring well network after four quarters unless perchlorate is detected above the screening level/MDL of 4 μg/L. If perchlorate is detected above the screening level/MDL in a specific well, monitoring will continue at that well at a frequency negotiated with the NMED.

μg/L = Microgram(s) per liter.
CY = Calendar Year.
MDL = Method detection limit.
NMED = New Mexico Environment Department.

As described in the Mini-SAPs, groundwater sampling was performed in accordance with current SNL/NM Environmental Management, Long-Term Environmental Stewardship (LTES) Project Field Operating Procedures (FOPs). A portable Bennett™ groundwater sampling system was used to collect the groundwater samples. The sampling pump and tubing bundle were decontaminated prior to installation into monitoring wells in accordance with procedures described in FOP 05-03, "LTES Groundwater Sampling Equipment Decontamination" (SNL/NM August 2007a). Wells CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, and TA1-W-03 were purged a minimum of one saturated screen volume before sampling in accordance with FOP 05-01, "LTES Groundwater Monitoring Well Sampling and Field Analytical Measurements" (SNL/NM August 2007b).

Field water-quality measurements for turbidity, potential of hydrogen (pH), temperature, specific conductance (SC), oxidation-reduction potential (ORP), and dissolved oxygen (DO) were obtained from the well prior to collecting groundwater samples. Groundwater

temperature, SC, ORP, DO, and pH were measured with a YSI™ Model 620 Water Quality Meter. Turbidity was measured with a HACH™ Model 2100P turbidity meter. Purging continued until four stable measurements for turbidity, pH, temperature, and SC were obtained. Groundwater stability is considered acceptable when:

- Turbidity measurements are within 10 percent, or less than 5 nephelometric turbidity units
- pH is within 0.1 units
- Temperature is within 1.0 degrees Celsius
- SC is within 5 percent

Field Measurement Logs documenting details of well purging and water quality measurements have been submitted to the SNL/NM Customer Funded Records Center.

The groundwater samples were submitted to GEL Laboratories, LLC (GEL) for chemical analysis for perchlorate using U.S. Environmental Protection Agency Method 314.0 (EPA November 1999). The sample identification, Analysis Request/Chain-of-Custody form number, and the associated groundwater investigation are provided in Table 2. The analytical report from GEL, including certificates of analyses (COA) (Appendix A), analytical methods, MDLs, practical quantitation limits, dates of analyses, results of quality control (QC) analyses, and data validation findings (Appendix B) have been submitted to the SNL/NM Customer Funded Records Center.

Table 2
Sample Details for Fourth Quarter, CY 2010 Perchlorate Sampling

Well	Sample Identification	AR/COC Number	Associated Groundwater Investigation
CYN-MW9	089759-020	613321	BSG
CYN-MW10	089773-020 089774-020	613325	BSG
CYN-MW11	089765-020	613323	BSG
CYN-MW12	089762-020	613322	BSG
TA1-W-03	089837-020	613350	TAG

Notes

AR/COC = Analysis request/chain of custody.
BSG = Burn Site Groundwater.
CY = Calendar Year.
TAG = Tijeras Arroyo Groundwater.

3.0 Regulatory Criteria

In a given monitoring well, four consecutive NDs using the screening level/MDL of 4 μg/L are considered by the NMED to be evidence of the absence of perchlorate, such that additional monitoring for perchlorate in that well is not required. If perchlorate is detected using the screening level/MDL of 4 μg/L in a specific well, then monitoring will continue at that well at a frequency negotiated with the NMED. The Order (NMED April 2004) also requires that for detections equal to or greater than 4 μg/L, DOE/Sandia will evaluate the nature and extent of perchlorate contamination, based on a screening level/MDL of 4 μg/L, and incorporate the results of this evaluation into a Corrective Measures Evaluation (CME). Section VII.C of the Order clarifies that the CME process will be initiated where there is a documented release to the environment and where corrective measures are necessary to protect human health or the environment.

In April 2009, DOE/Sandia received a letter from the NMED requiring DOE/Sandia to characterize the nature and extent of the perchlorate contamination in soil and groundwater in the BSG study area (NMED April 2009). A characterization work plan was prepared and submitted to the NMED (SNL/NM November 2009), approved by the NMED (NMED February 2010), and implemented in July 2010. In the April 2009 letter, the NMED had also requested that DOE/Sandia monitor perchlorate concentrations for a minimum of four quarters at several TAG and Technical Area (TA)-V monitoring wells, including TA1-W-03 (NMED April 2009).

4.0 Monitoring Results

Table 3 summarizes current and historical perchlorate results for wells currently in the perchlorate-screening monitoring network. The analytical laboratory COA for the Fourth Quarter of CY 2010 perchlorate data is included as Appendix A. Consistent with historical analytical results, perchlorate was not detected above the screening level in the samples from CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, and TA1-W-03.

Table 4 summarizes field water quality measurements collected immediately before the analytical sample was collected. Field water quality measurements include turbidity, pH, temperature, SC, ORP, and DO.

Table 3
Summary of Perchlorate Screening Analytical Results for the Current Monitoring Well Network as of Fourth Quarter, CY 2010

Well ID	Sample Date	AR/COC No.	Sample No.	Perchlorate Result[a] (μg/L)	MDL[b] (μg/L)	PQL[c] (μg/L)	MCL[d] (μg/L)	Laboratory Qualifier[e]	Validation Qualifier[f]	Analytical Method[g]	Comments
CYN-MW9	28-Sep-10	613285	089672-020	ND	4.0	12	NE	U		EPA 314.0	
			089673-020	ND	4.0	12	NE	U		EPA 314.0	Duplicate sample
	27-Oct-10	613321	089759-020	ND	4.0	12	NE	U		EPA 314.0	
CYN-MW10	27-Sep-10	613283	089668-020	ND	4.0	12	NE	U		EPA 314.0	
	02-Nov-10	613325	089773-020	ND	4.0	12	NE	U		EPA 314.0	
			089774-020	ND	4.0	12	NE	U		EPA 314.0	Duplicate sample
CYN-MW11	29-Sep-10	613286	089675-020	ND	4.0	12	NE	U		EPA 314.0	
	01-Nov-10	613323	089765-020	ND	4.0	12	NE	U		EPA 314.0	
CYN-MW12	23-Sep-10	613282	089665-020	ND	4.0	12	NE	U		EPA 314.0	
	28-Oct-10	613322	089762-020	ND	4.0	12	NE	U		EPA 314.0	
TA1-W-03	26-Feb-10	612604	088220-020	ND	4.0	12	NE	U		EPA 314.0	
	03-May-10	612995	088976-020	ND	4.0	12	NE	U		EPA 314.0	
	22-Jul-10	613171	089435-020	ND	4.0	12	NE	U		EPA 314.0	
			089436-020	ND	4.0	12	NE	U		EPA 314.0	Duplicate sample
	08-Nov-10	613350	089837-020	ND	4.0	12	NE	U		EPA 314.0	

Notes

[a]Result
ND = Not detected (at MDL).
μg/L = Micrograms per liter.

[b]MDL
Method detection limit. The minimum concentration that can be measured and reported with 99% confidence that the analyte is greater than zero, analyte is matrix specific.

[c]PQL
Practical quantitation limit. The lowest concentration of analytes in a sample that can be reliably determined within specified limits of precision and accuracy by the indicated method under routine laboratory operating conditions.

[d]MCL
Maximum contaminant level. Established by the U.S. Environmental Protection Agency Primary Water Regulations (40 CFR 141.11[b]) and subsequent amendments or Title 20, Chapter 7, Part 1 of the New Mexico Administrative Code, incorporating 40 CFR 141.
NE = Not established.

Table 3 (concluded)
Summary of Perchlorate Screening Analytical Results for the Current Monitoring Well Network as of Fourth Quarter, CY 2010

Notes (continued)

[e]Laboratory Qualifier
U = Analyte is absent or below the MDL.

[f]Validation Qualifier
If cell is blank, then all quality control samples meet acceptance criteria with respect to submitted samples and no qualifier was assigned.

[g]Analytical Method
EPA 314.0: U.S. Environmental Protection Agency, November 1999, "Perchlorate in Drinking Water Using Ion Chromatography," EPA 815/R-00-014 (EPA November 1999).

AR/COC = Analysis Request and Chain of Custody.
CFR = Code of Federal Regulations.
CY = Calendar Year.
EPA = U.S. Environmental Protection Agency.
ID = Identification.
ND = Not detected.

Table 4
Perchlorate Screening Groundwater Monitoring
Field Water Quality Measurements[a], Fourth Quarter, CY 2010

Well ID	Sample Date	Temperature (°C)	Specific Conductivity (μmho/cm)	Oxidation Reduction Potential (mV)	pH	Turbidity (NTU)	Dissolved Oxygen (% Sat)	Dissolved Oxygen (mg/L)
CYN-MW9	27-Oct-10	16.07	1081	210.7	7.08	0.28	48.5	4.75
CYN-MW10	02-Nov-10	16.40	899	259.3	7.37	0.39	66.8	6.52
CYN-MW11	01-Nov-10	16.98	975	81.3	7.34	0.57	5.4	0.55
CYN-MW12	28-Oct-10	17.59	1035	173.4	7.16	0.26	6.6	0.63
TA1-W-03	08-Nov-10	16.72	1569	299.9	7.51	0.19	80.7	7.81

Notes

[a]Field measurements obtained immediately before the groundwater sample was collected.
°C = Degrees Celsius.
% Sat = Percent saturation.
μmho/cm = Micromhos per centimeter.
CY = Calendar Year.
ID = Identification.
mg/L = Milligrams per liter.
mV = Millivolts.
NTU = Nephelometric turbidity units.
pH = Potential of hydrogen (negative logarithm of the hydrogen ion concentration).

The analytical data were reviewed and qualified in accordance with Administrative Operating Procedure 00-03 Revision 2, "Data Validation Procedure for Chemical and Radiochemical Data" (SNL/NM July 2007). No problems were identified with the analytical data that resulted in qualification of the data as unusable. The data are acceptable, and reported QC measures are adequate. The data validation sample findings summary sheets for the perchlorate data are included as Appendix B.

No variances or nonconformances in field activities or field conditions from requirements in the groundwater monitoring Mini-SAPs (SNL/NM October 2010a and October 2010b) were identified during the Fourth Quarter of CY 2010 sampling activities.

5.0 Summary and Conclusions

Based on the analytical data presented in Table 3 and in previous reports, the following statements can be made:

- No perchlorate was detected in the environmental samples from groundwater monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, and TA1-W-03 at the screening level/MDL of 4 μg/L.

- No perchlorate has been detected during four consecutive quarterly sampling events at TA1-W-03, so this well will be removed from the perchlorate-screening well network.

- Since June 2004 (the start of sampling required by the Order), perchlorate has been detected above the screening level/MDL (4 μg/L) in samples from only one of the wells (CYN-MW6) in the perchlorate-screening monitoring well network.

DOE/Sandia will continue semiannual monitoring of perchlorate in CYN-MW6, and quarterly monitoring of perchlorate in CYN-MW9, CYN-MW10, CYN-MW11, and CYN-MW12. DOE/Sandia has installed four new groundwater monitoring wells in TA-V, including TAV-MW11, TAV-MW12, TAV-MW13, and TAV-MW14. Samples from these four new TA-V wells will be analyzed for perchlorate, and the results will be discussed in the next quarterly report.

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Appendix A

Analytical Laboratory Certificates of Analysis for the Perchlorate Data

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 1

Internal Lab

Batch No. N/A

SMO Use

AR/COC 613321

Dept. No./Mail Stop:	4142/1126	Date Samples Shipped:	10-27-10	Project/Task No.146422.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	Don Schofield	Carrier/Waybill No:	1175 41	SMO Authorization:	
Project Name:	Burn Site GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	☐ Released by COC No.:
Record Center Code:	ER/1333/DAT	Lab Destination:	GEL	SEE BOTTLE ORDER	☑ Validation Required
Logbook Ref. No.:	ER 058	SMO Contact/Phone:	Pam Puissant/505-844-3185		Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154 265650
Service Order No.	CF#058-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		
Location	Tech Area				
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089759-001	CYN-MW9	196	NA	102710\1039	GW	G	3x40 ml	HCL	G	SA	TCL VOC (SW846-8260B)	001
089759-002	CYN-MW9	196	NA	102710\1040	GW	AG	4x1 L	4C	G	SA	SVOC (SW846-8270)	002
089759-005	CYN-MW9	196	NA	102710\1043	GW	AG	4x1 L	4C	G	SA	TPH Diesel (SW846-8015A/B) SVOC	003
089759-006	CYN-MW9	196	NA	102710\1042	GW	AG Dup Preserved 10/27/10	3x40 ml	4C HCL 10/27/10	G	SA	TPH Gasoline (SW846-8015A/B) VOC	004
089759-018	CYN-MW9	196	NA	102710\1045	GW	P	250 ml	H2SO4	G	SA	NPN (353.2)	005
089759-020	CYN-MW9	196	NA	102710\1046	GW	P	500 250 ml	4C	G	SA	Perchlorate (314.0)	006
089759-024	CYN-MW9	196	NA	102710\1047	GW	AG	4x1 L	4C	G	SA	High Explosives (SW846-8321A)	007
089760-001	CYN-TB1	NA	NA	102710\1039	DIW	G	3x40 ml	HCL	G	TB	TCL VOC (SW846-8260B)	008
089761-001	CYN-TB2	NA	NA	102710\1042	DIW	AG Dup 10/27/10	3x40 ml	4C HCL 10/27/10	G	TB	TPH Gasoline (SW846-8015A/B) VOC	009

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking — Smo Use
Date Entered(mm/dd/yy)
Entered by
QC Inits

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ Yes ☑ No
*Send report to:
Tim Jackson/Org.4142/MS 0756/505-284-2547
If Perchlorate detected,perform verification analysis using SW846-6850M
*Please list as separate report.

Abnormal Conditions on Receipt — Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	William J Gibson			Weston/4142/844-4013/239-7367
	Robert Lynch			Weston/4142/844-4013/250-7090
	Alfred Santillanes			Weston/4142/844-5130/228-0710

1.Relinquished by		Org.	4142	Date	10/27/10	Time	1118	4.Relinquished by	Org.	Date	Time
1. Received by		Org.	4142	Date	10/27/10	Time	1118	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	4142	Date	10/27/10	Time	1300	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	GEL	Date	10/28/10	Time	0740	5. Received by	Org.	Date	Time
3.Relinquished by		Org.		Date		Time		6.Relinquished by	Org.	Date	Time
3. Received by		Org.		Date		Time		6. Received by	Org.	Date	Time

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Sandia National Laboratories	Report Date:	November 23, 2010
Address :	MS-0756, Org. 06765, Bldg. 823/Rm. 4276 1515 Eubank SE Albuquerque, New Mexico 87123		
Contact:	Ms. Pamela M. Puissant		
Project:	Level C, Groundwater Monitoring		
Client Sample ID:	089759-020	Project:	SNLSGWater
Sample ID:	265650006	Client ID:	SNLS003
Matrix:	AQUEOUS		
Collect Date:	27-OCT-10 10:46		
Receive Date:	28-OCT-10	Client Desc.:	CYN-MW9
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
EPA 314.0 Perchlorate by IC "As Received"										
Perchlorate	U	ND	0.004	0.012	mg/L	1	MAR111/09/10	0708	1043658	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 613325

Dept. No./Mail Stop:	4142/1126	Date Samples Shipped:	11/02/10	Project/Task No.146422.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	Don Schofield	Carrier/Waybill No.	1Z 9407	SMO Authorization:	
Project Name:	Burn Site GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1333/DAT	Lab Destination:	GEL	SEE BOTTLE ORDER	☐ Released by COC No.: ☑ Validation Required
Logbook Ref. No.:	ER 056	SMO Contact/Phone:	Pam Puissant/505-844-3185		
Service Order No.	CF#058-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154 265829
Location	Tech Area				
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089773-001	CYN-MW10	171	NA	110210\1018	GW	G	3x40 ml	HCL	G	SA	TCL VOC (SW846-8260B)	021
089773-002	CYN-MW10	171	NA	110210\1020	GW	AG	4x1 L	4C	G	SA	SVOC (SW846-8270)	022
089773-005	CYN-MW10	171	NA	110210\1026	GW	AG	4x1 L	4C	G	SA	TPH Diesel (SW846-8015A/B) SVOC	023
089773-006	CYN-MW10	171	NA	110210\1024	GW	AG	3x40 ml	4C	G	SA	TPH Gasoline (SW846-8015A/B) VOC	024
089773-018	CYN-MW10	171	NA	110210\1030	GW	P	250 ml	H2SO4	G	SA	NPN (353.2)	025
089773-020	CYN-MW10	171	NA	110210\1031	GW	P	500 ml	4C	G	SA	Perchlorate (314.0)	026
089773-024	CYN-MW10	171	NA	110210\1033	GW	AG	4x1 L	4C	G	SA	High Explosives (SW846-8321A)	027
089774-001	CYN-MW10	171	NA	110210\1018	GW	G	3x40 ml	HCL	G	DU	TCL VOC (SW846-8260B)	028
089774-002	CYN-MW10	171	NA	110210\1020	GW	AG	4x1 L	4C	G	DU	SVOC (SW846-8270)	029
089774-005	CYN-MW10	171	NA	110210\1026	GW	AG	4x1 L	4C	G	DU	TPH Diesel (SW846-8015A/B) SVOC	030

RMMA	☐ Yes ☑ No Ref. No.	Sample Tracking	Smo Use
Sample Disposal	☐ Return to Client ☑ Disposal by lab	Date Entered(mm/dd/yy)	
Turnaround Time	☐ 7 Day ☐ 15 Day ☑ 30 Day	Entered by:	
Return Samples By:	☐ Negotiated TAT	QC Info.	

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org.4142/MS 0756/505-284-2547

If Perchlorate detected, perform verification analysis using SW846-6850M

Last well for BSG project 1st Qtr. 2011.

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	William J Gibson			Weston/4142/844-4013/239-7367
	Robert Lynch		RL	Weston/4142/844-4013/250-7090
	Alfred Santillanes			Weston/4142/844-5130/228-0710

1.Relinquished by		Org. 4142	Date 11/2/10	Time 1122	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4142	Date 11/2/10	Time 1122	4. Received by	Org.	Date	Time
2.Relinquished by		Org. 4142	Date 11/2/10	Time 1250	5.Relinquished by	Org.	Date	Time
2. Received by		Org. GEL	Date 11/03/10	Time 0740	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

OFF-SITE LABORATORY

Analysis Request And Chain Of Custody (Continuation)

AR/COC- 613325

Project Name:	Burn Site GWM	Project/Task Manger:	Don Schofield	Project/Task No.:	146422.10.11.01
Location	Tech Area				
Building	Room				

Reference LOV (available at SMO)

Sample No-Fraction	ER Sample ID or Sample Location detail	Pump Depth (ft)	ER Site No.	Date/Time (hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab use Lab Sample ID
089774-006	CYN-MW10	171	NA	110210\1024	GW	AG	3x40 ml	4C	G	DU	TPH Gasoline (SW846-8015A/B) VOC	031
089774-018	CYN-MW10	171	NA	110210\1030	GW	P	250 ml	H2SO4	G	DU	NPN (353.2)	032
089774-020	CYN-MW10	171	NA	110210\1031	GW	P	500 ml	4C	G	DU	Perchlorate (314.0)	033
089774-024	CYN-MW10	171	NA	110210\1033	GW	AG	4x1 L	4C	G	DU	High Explosives (SW846-8321A)	034
089775-001	CYN-TB9	NA	NA	110210\1018	DIW	G	3x40 ml	HCL	G	TB	TCL VOC (SW846-8260B)	035
089776-001	CYN-TB10	NA	NA	110210\1024	DIW	AG	3x40 ml	4C	G	TB	TPH Gasoline (SW846-8015A/B) VOC	036

Abnormal Conditions on Receipt **LAB USE**

Recipient Initials SK

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Sandia National Laboratories	Report Date: November 24, 2010	
Address :	MS-0756, Org. 06765, Bldg. 823/Rm. 4276 1515 Eubank SE Albuquerque, New Mexico 87123		
Contact:	Ms. Pamela M. Puissant		
Project:	Level C, Groundwater Monitoring		
Client Sample ID:	089773-020	Project:	SNLSGWater
Sample ID:	265829026	Client ID:	SNLS003
Matrix:	AQUEOUS		
Collect Date:	02-NOV-10 10:31		
Receive Date:	03-NOV-10	Client Desc.:	CYN-MW10
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
EPA 314.0 Perchlorate by IC "As Received"										
Perchlorate	U	ND	0.004	0.012	mg/L	1	MAR1 11/09/10	0902	1043658	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Sandia National Laboratories	Report Date: November 24, 2010	
Address :	MS-0756, Org. 06765, Bldg. 823/Rm. 4276 1515 Eubank SE Albuquerque, New Mexico 87123		
Contact:	Ms. Pamela M. Puissant		
Project:	Level C, Groundwater Monitoring		
Client Sample ID:	089774-020	Project:	SNLSGWater
Sample ID:	265829033	Client ID:	SNLS003
Matrix:	AQUEOUS		
Collect Date:	02-NOV-10 10:31		
Receive Date:	03-NOV-10	Client Desc.:	CYN-MW10
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
EPA 314.0 Perchlorate by IC "As Received"										
Perchlorate	U	ND	0.004	0.012	mg/L	1	MAR1 11/09/10	0922	1043658	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC **613323**

Dept. No./Mail Stop:	4142/1126	Date Samples Shipped:	11/9/10	Project/Task No.146422.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	Don Schofield	Carrier/Waybill No.	T9960	SMO Authorization: [signature] SMO	
Project Name:	Burn Site GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	☐ Released by COC No.:_____
Record Center Code:	ER/1333/DAT	Lab Destination:	GEL		☑ Validation Required
Logbook Ref. No.:	ER 058	SMO Contact/Phone:	Pam Puissant/505-844-3185	507 BOTTLE ORDER	Bill To:Sandia National Labs (Accounts Payable)
Service Order No.	CF#058-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		P.O. Box 5800 MS 0154
Location	Tech Area				Albuquerque, NM 87185-0154 265829
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089765-001	CYN-MW11	252	NA	110110\1016	GW	G	3x40 ml	HCL	G	SA	TCL VOC (SW846-8260B)	001
089765-002	CYN-MW11	252	NA	110110\1018	GW	AG	4x1 L	4C	G	SA	SVOC (SW846-8270)	002
089765-005	CYN-MW11	252	NA	110110\1020	GW	AG	4x1 L	4C	G	SA	TPH Diesel (SW846-8015A/B) SVOC	003
089765-006	CYN-MW11	252	NA	110110\1021	GW	AG	3x40 ml	4C	G	SA	TPH Gasoline (SW846-8015A/B) VOC	004
089765-018	CYN-MW11	252	NA	110110\1022	GW	P	250 ml	H2SO4	G	SA	NPN (353.2)	005
089765-020	CYN-MW11	252	NA	110110\1023	GW	P	500 ml	4C	G	SA	Perchlorate (314.0)	006
089765-024	CYN-MW11	252	NA	110110\1025	GW	AG	4x1 L	4C	G	SA	High Explosives (SW846-8321A)	007
089766-001	CYN-TB5	NA	NA	110110\1016	DIW	G	3x40 ml	HCL	G	TB	TCL VOC (SW846-8260B)	008
089767-001	CYN-TB6	NA	NA	110110\1021	DIW	AG	3x40 ml	4C	G	TB	TPH Gasoline (SW846-8015A/B) VOC	009
089768-001	CYN-FB1	NA	NA	110110\1040	DIW	G	3x40 ml	HCL	G	FB	TCL VOC (SW846-8260B)	010

RMMA ☐Yes ☑No Ref. No.	**Sample Tracking**	Smo Use	**Special Instructions/QC Requirements**
Sample Disposal ☐Return to Client ☑Disposal by lab	Date Entered(mm/dd/yy)		**EDD** ☑ Yes ☐No
Turnaround Time ☐7 Day ☐15 Day ☑30 Day	Entered by		**Level D Package** ☐es ☑ No
Return Samples By: ☐ Negotiated TAT	QC Inits:		***Send report to:** Tim Jackson/Org.4142/MS 0756/505-284-2547

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	William J Gibson	[signature]	WJG	Weston/4142/844-4013/239-7367
	Robert Lynch	[signature]	RL	Weston/4142/844-4013/250-7090
	Alfred Santillanes	[signature]	AS	Weston/4142/844-5130/228-0710

If Perchlorate detected,perform verification analysis using SW846-6850M

***Please list as separate report.**

Abnormal Conditions on Receipt

Lab Use

1.Relinquished by	[signature]	Org. 4142	Date 11/1/10	Time 1111	4.Relinquished by		Org.	Date	Time
1. Received by	[signature]	Org. 4142	Date 11/1/10	Time 1111	4. Received by		Org.	Date	Time
2.Relinquished by	[signature]	Org. 4142	Date 11/1/10	Time 1235	5.Relinquished by		Org.	Date	Time
2. Received by	[signature]	Org. GEL	Date 11-2-10	Time 0730	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

OFF-SITE LABORATORY

Analysis Request And Chain Of Custody (Continuation)

AR/COC- 613323

Project Name:	Burn Site GWM	Project/Task Manger:	Don Schofield	Project/Task No.:	146422.10.11.01
Location	Tech Area				
Building	Room	**Reference LOV (available at SMO)**			

Sample No-Fraction	ER Sample ID or Sample Location detail	Pump Depth (ft)	ER Site No.	Date/Time (hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab use Lab Sample ID
089769-001	CYN-FB2	NA	NA	110110\1042	DIW	AG	3x40 ml	4C	G	FB	TPH Gasoline (SW846-8015A/B) VOC	21

Abnormal Conditions on Receipt **LAB USE**

Recipient Initials MK

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Sandia National Laboratories	Report Date:	November 24, 2010
Address :	MS-0756, Org. 06765, Bldg. 823/Rm. 4276 1515 Eubank SE Albuquerque, New Mexico 87123		
Contact:	Ms. Pamela M. Puissant		
Project:	Level C, Groundwater Monitoring		

Client Sample ID:	089765-020	Project:	SNLSGWater
Sample ID:	265829006	Client ID:	SNLS003
Matrix:	AQUEOUS		
Collect Date:	01-NOV-10 10:23		
Receive Date:	02-NOV-10	Client Desc.:	CYN-MW11
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 314.0 Perchlorate by IC "As Received"											
Perchlorate	U	ND	0.004	0.012	mg/L	1	MAR1	11/09/10	0824	1043658	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab Batch No. N/A

SMO Use

Page 1 of 1

AR/COC 613322

Dept. No./Mail Stop:	4142/1126	Date Samples Shipped:	10/28/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	Don Schofield	Carrier/Waybill No.	119805	SMO Authorization: [signature] SMO	
Project Name:	Burn Site GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1333/DAT	Lab Destination:	GEL	SEE BOTTLE ORDER	☐ Released by COC No.:_______
Logbook Ref. No.:	ER 058	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF#058-11	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154
Location	Tech Area				265650
Building	Room	Reference LOV(available at SMO)			

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preservative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089762-001	CYN-MW12	274	NA	102810\1049	GW	G	3x40 ml	HCL	G	SA	TCL VOC (SW846-8260B)	010
089762-002	CYN-MW12	274	NA	102810\1051	GW	AG	4x1 L	4C	G	SA	SVOC (SW846-8270)	011
089762-005	CYN-MW12	274	NA	102810\1053	GW	AG	4x1 L	4C	G	SA	TPH Diesel (SW846-8015A/B) SVOC	012
089762-006	CYN-MW12	274	NA	102810\1055	GW	AG	3x40 ml	4C	G	SA	TPH Gasoline (SW846-8015A/B) VOC	013
089762-018	CYN-MW12	274	NA	102810\1056	GW	P	250 ml	H2SO4	G	SA	NPN (353.2)	014
089762-020	CYN-MW12	274	NA	102810\1057	GW	P	500 ml	4C	G	SA	Perchlorate (314.0)	015
089762-024	CYN-MW12	274	NA	102810\1059	GW	AG	4x1 L	4C	G	SA	High Explosives (SW846-8321A)	016
089763-001	CYN-TB3	NA	NA	102810\1049	DIW	G	3x40 ml	HCL	G	TB	TCL VOC (SW846-8260B)	017
089764-001	CYN-TB4	NA	NA	102810\1055	DIW	AG	3x40 ml	4C	G	TB	TPH Gasoline (SW846-8015A/B) VOC	018

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking — Smo Use — Date Entered(mm/dd/yy) — Entered by: — QC inits.

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org.4142/MS 0756/505-284-2547

If Perchlorate detected, perform verification analysis using SW846-6850M

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	William J Gibson	[signature]	[initials]	Weston/4142/844-4013/239-7367
	Robert Lynch	[signature]	RL	Weston/4142/844-4013/250-7090
	Alfred Santillanes	[signature]	[initials]	Weston/4142/844-5130/228-0710

1.Relinquished by [signature]	Org. 4142	Date 10/28/10	Time 1138	4.Relinquished by	Org.	Date	Time
1. Received by [signature] SMO	Org. 4143	Date 10/28/10	Time 1138	4. Received by	Org.	Date	Time
2.Relinquished by [signature] SMO	Org. 4143	Date 10/28/10	Time 1245	5.Relinquished by	Org.	Date	Time
2. Received by [signature]	Org. GEL	Date 10/29/10	Time 0730	5. Received by	Org.	Date	Time
3.Relinquished by	Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by	Org.	Date	Time	6. Received by	Org.	Date	Time

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Sandia National Laboratories	Report Date: November 23, 2010	
Address :	MS-0756, Org. 06765, Bldg. 823/Rm. 4276 1515 Eubank SE Albuquerque, New Mexico 87123		
Contact:	Ms. Pamela M. Puissant		
Project:	Level C, Groundwater Monitoring		
Client Sample ID:	089762-020	Project:	SNLSGWater
Sample ID:	265650015	Client ID:	SNLS003
Matrix:	AQUEOUS		
Collect Date:	28-OCT-10 10:57		
Receive Date:	29-OCT-10	Client Desc.:	CYN-MW12
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
EPA 314.0 Perchlorate by IC "As Received"										
Perchlorate	U	ND	0.004	0.012	mg/L	1	MAR111/09/10	0805	1043658	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 1

Internal Lab

Batch No. N/A

SMO Use

AR/COC 613350

Dept. No./Mail Stop:	4142/1126	Date Samples Shipped:	11/8/10	Project/Task No. 146422.10.11.01	☐ Waste Characterization
Project/Task Manager:	Don Schofield	Carrier/Waybill No.	1Z0144	SMO Authorization: GMO	-Send preliminary/copy report to:
Project Name:	TAG-GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: 691436	
Record Center Code:	ER/1306/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	NA	SMO Contact/Phone:	Pam Puissant/505-844-3185	SUB BOTW ORDER	☑ Validation Required
Service Order No.	CFO# 010-11	Send Report to SMO:	Lorraine Herrera /505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Buliding	Room	Reference LOV(available at SMO)			Albuquerque, NM 87185-0154 266576

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preservative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
089837-020	TA1-W-03	358	NA	110810\0933	GW	P	500 ml	4C	G	SA	Perchlorate (314.0)	001

RMMA	☐ Yes ☑ No Ref. No.	Sample Tracking	Smo Use
Sample Disposal	☐ Return to Client ☑ Disposal by lab	Date Entered(mm/dd/yy)	
Turnaround Time	☐ 7 Day ☐ 15 Day ☑ 30 Day	Entered by	
Return Samples By:	☐ Negotiated TAT	QC Initls	

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ es ☑ No
*Send report to:
Tim Jackson/ORG.4142/MS.0729/ 284-2547

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Robert Lynch		RL	Weston/4142/844-4013/250-7090
	Alfred Santillanes		AS	Weston/4142/844-5130/228-0710
	William J. Gibson		WJG	Weston/4142/844-4013/239-7367

*Please list as separate report.

1.Relinquished by		Org.	4142	Date	11/08/10	Time	1045	4.Relinquished by	Org.	Date	Time
1. Received by		Org.	4142	Date	11/08/10	Time	1045	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	4142	Date	11/8/10	Time	1215	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	GEL	Date	11-9-10	Time	0755	5. Received by	Org.	Date	Time
3.Relinquished by		Org.		Date		Time		6.Relinquished by	Org.	Date	Time
3. Received by		Org.		Date		Time		6. Received by	Org.	Date	Time

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Sandia National Laboratories	Report Date:	December 8, 2010
Address :	MS-0756, Org. 06765, Bldg. 823/Rm. 4276 1515 Eubank SE Albuquerque, New Mexico 87123		
Contact:	Ms. Pamela M. Puissant		
Project:	Level C, Groundwater Monitoring		
Client Sample ID:	089837-020	Project:	SNLSGWater
Sample ID:	266576001	Client ID:	SNLS003
Matrix:	AQUEOUS		
Collect Date:	08-NOV-10 09:33		
Receive Date:	09-NOV-10	Client Desc.:	TA1-W-03
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 314.0 Perchlorate by IC "As Received"											
Perchlorate	U	ND	0.004	0.012	mg/L	1	MAR1	12/06/10	11:34	1048577	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

Appendix B

Data Validation Sample Findings Summary Sheets for the Perchlorate Data

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

Date: December 2, 2010

To: File

From: Kevin Lambert

Subject: Inorganic Data Review and Validation – SNL
Site: Burn Site GWM
AR/COC: 613321 and 613322
SDG: 265650
Laboratory: GEL
Project/Task: 146422.10.11.01
Analysis: General Chemistry

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

Two samples were prepared and analyzed with accepted procedures using methods EPA 353.2 (nitrate/nitrite by Cd reduction). Two samples were prepared and analyzed with accepted procedures using methods EPA 314.0 (perchlorate). Data were reported for all required analytes. No problems were identified with the data package that results in the qualification of data.

Data are acceptable and reported QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times and Preservation

The samples were analyzed within the prescribed holding times and properly preserved.

Calibration

All initial and continuing calibration QC acceptance criteria were met.

Blanks

No target analytes were detected in the blanks.

Laboratory Control Sample (LCS)

All LCS recoveries met QC acceptance criteria.

Matrix Spike (MS)

All MS recoveries met QC acceptance criteria.

Laboratory Replicate

The replicate met all QC acceptance criteria.

Detection Limits/Dilutions

All detection limits were properly reported. No samples were diluted except as follows.

Nitrate/Nitrite:
Sample 265650-005 was diluted 500X and sample -014 was diluted 50X due to high concentration for this analysis.

All associated batch QC samples were analyzed at dilution factors that resulted in relative dilution factors to the samples that were ≤5X. No sample data will be qualified as a result.

Other QC

No other specific issues that affect data quality were identified.

Sample Findings Summary

AR/COC: 613321, 613322

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
SW846 3535/8321A Modifie			
	089759-024/CYN-MW9	p-Nitrotoluene (99-99-0)	UJ, I4
	089762-024/CYN-MW12	p-Nitrotoluene (99-99-0)	UJ, I4
SW846 8270C			
	089759-002/CYN-MW9	2-Methyl-4,6-dinitrophenol (534	UJ, MS3,MS5
	089759-002/CYN-MW9	4-Nitrophenol (100-02-7)	UJ, MS3
	089759-002/CYN-MW9	Hexachlorocyclopentadiene (77-	UJ, MS5
	089762-002/CYN-MW12	2-Methyl-4,6-dinitrophenol (534	UJ, MS3,MS5
	089762-002/CYN-MW12	4-Nitrophenol (100-02-7)	UJ, MS3
	089762-002/CYN-MW12	Hexachlorocyclopentadiene (77-	UJ, MS5

All other analyses met QC acceptance criteria; no further data should be qualified.

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

DATE: December 8, 2010

TO: File

FROM: David Schwent

SUBJECT: General Chemistry Data Review and Validation - SNL
Site: Burn Site GWM
AR/COC(s): 613323, 613324, and 613325
SDG: 265829
Laboratory: GEL
Project/Task: 146422.10.11.01

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

All samples were prepared and analyzed with accepted procedures using methods EPA 314.0 (perchlorate) and EPA 353.2 (nitrate/nitrite). No problems were identified with the data package that result in the qualification of data.

Data are acceptable. QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times/Preservation

All Analyses: All samples were analyzed within the prescribed holding times and properly preserved.

Calibration

All Analyses: All initial and continuing calibration QC acceptance criteria were met.

Blanks

All Analyses: No target analytes were detected in the blanks.

Laboratory Control Sample (LCS)

All Analyses: All LCS QC acceptance criteria were met.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Perchlorate Analysis: All MS (PS) QC acceptance criteria were met. It should be noted that the PS analysis was performed on an SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Nitrate/nitrite Analysis: All MS (PS) QC acceptance criteria were met.

Replicates

Perchlorate Analysis: All replicate QC acceptance criteria were met. It should be noted that the replicate analysis was performed on an SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Nitrate/nitrite Analysis: All replicate QC acceptance criteria were met.

Detection Limits/Dilutions

Perchlorate Analysis: All detection limits were properly reported. No samples required dilution.

Nitrate/nitrite Analysis: All detection limits were properly reported. Sample 265829-016 was diluted 5X for nitrate/nitrite due to matrix interference and samples -005, -025, and -032 were diluted 25X for nitrate/nitrite due to high concentrations of the target analyte. All associated batch QC samples were analyzed at dilution factors that resulted in relative dilution factors to the samples that were ≤5X. No sample data will be qualified as a result.

Other QC

All Analyses: No field blanks (FBs) were submitted on the AR/COC(s). Samples -032 and -033 were submitted as field duplicate (FDs) on the AR/COC(s). There are no "required" review criteria for FD analyses comparability. Therefore, no sample data will be qualified.

No other specific issues were identified that affect data quality.

Sample Findings Summary

AR/COC: 613323, 613324, 613325

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
SW846 3535/8321A Modifie			
	089765-024/CYN-MW11	p-Nitrotoluene (99-99-0)	UJ, I4
	089770-024/CYN-EB1	p-Nitrotoluene (99-99-0)	UJ, I4
	089773-024/CYN-MW10	p-Nitrotoluene (99-99-0)	UJ, I4
	089774-024/CYN-MW10	p-Nitrotoluene (99-99-0)	UJ, I4
SW846 8260B DOE-AL			
	089765-001/CYN-MW11	2-Butanone (78-93-3)	UJ, C3
	089765-001/CYN-MW11	2-Hexanone (591-78-6)	UJ, C3
	089766-001/CYN-TB5	2-Butanone (78-93-3)	UJ, C3
	089766-001/CYN-TB5	2-Hexanone (591-78-6)	UJ, C3
	089768-001/CYN-FB1	2-Butanone (78-93-3)	UJ, C3
	089768-001/CYN-FB1	2-Hexanone (591-78-6)	UJ, C3
	089770-001/CYN-EB1	2-Butanone (78-93-3)	UJ, C3
	089770-001/CYN-EB1	2-Hexanone (591-78-6)	UJ, C3
	089771-001/CYN-TB7	2-Butanone (78-93-3)	UJ, C3
	089771-001/CYN-TB7	2-Hexanone (591-78-6)	UJ, C3
	089773-001/CYN-MW10	2-Butanone (78-93-3)	UJ, C3
	089773-001/CYN-MW10	2-Hexanone (591-78-6)	UJ, C3
	089774-001/CYN-MW10	2-Butanone (78-93-3)	UJ, C3
	089774-001/CYN-MW10	2-Hexanone (591-78-6)	UJ, C3
	089775-001/CYN-TB9	2-Butanone (78-93-3)	UJ, C3
	089775-001/CYN-TB9	2-Hexanone (591-78-6)	UJ, C3
SW846 8270C			
	089765-002/CYN-MW11	3,3'-Dichlorobenzidine (91-94-1)	UJ, MS3
	089770-002/CYN-EB1	3,3'-Dichlorobenzidine (91-94-1)	UJ, MS3
	089773-002/CYN-MW10	3,3'-Dichlorobenzidine (91-94-1)	UJ, MS3
	089774-002/CYN-MW10	3,3'-Dichlorobenzidine (91-94-1)	UJ, MS3

All other analyses met QC acceptance criteria; no further data should be qualified.

ANALYTICAL QUALITY ASSOCIATES, INC.

616 Maxine NE
Albuquerque, NM 87123
505-299-5201
www.aqainc.net

Memorandum

DATE: December 16, 2010

TO: File

FROM: David Schwent

SUBJECT: General Chemistry Data Review and Validation - SNL
Site: Tijeras Arroyo Assessment GWM
AR/COC: 613350, 613351, 613352, and 613353
SDG: 266576
Laboratory: GEL
Project/Task No: 146422.10.11.01

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

The samples were prepared and analyzed with accepted procedures using methods EPA 314.0 (perchlorate) and EPA 353.3 (nitrate/nitrite). No problems were identified with the data package that result in the qualification of data.

Data are acceptable. QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times/Preservation

All Analyses: All samples were analyzed within the prescribed holding times and properly preserved.

Calibration

All Analyses: All initial and continuing calibration QC acceptance criteria were met.

Blanks

All Analyses: No target analytes were detected in the blanks.

Laboratory Control Sample (LCS)

All Analyses: All LCS QC acceptance criteria were met.

Matrix Spike (MS)

All Analyses: All MS (PS) QC acceptance criteria were met.

Replicates

All Analyses: All replicate QC acceptance criteria were met.

Detection Limits/Dilutions

Perchlorate Analysis: All detection limits were properly reported. No samples required dilution.

Nitrate/nitrite Analysis: All detection limits were properly reported. Sample 266576-003 was diluted 50X, sample -006 was diluted 10X, and sample -009 was diluted 25X for nitrate/nitrite due to high concentrations of the target analyte. All associated batch QC samples were analyzed at dilution factors that resulted in relative dilution factors to the samples that were ≤5X. No sample data will be qualified as a result.

Other QC

All Analyses: No equipment blanks (EBs), field blanks (FBs), or field duplicates (FDs) were submitted on the AR/COC(s).

No other specific issues were identified that affect data quality.

Sample Findings Summary

AR/COC: 613350, 613351, 613352, 613353

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC

All other analyses met QC acceptance criteria; no further data should be qualified.