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



SEP 3 0 2009

CERTIFIED MAIL-RETURN RECEIPT REQUESTED



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

Dear Mr. Bearzi:

On behalf of the U. S. Department of Energy/National Nuclear Security Administration (DOE/NNSA), and Sandia Corporation, DOE/NNSA is submitting the September 2009 Consolidated Quarterly Report for the Environmental Restoration Project that addresses all quarterly reporting from May through July 2009, 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, EPA No. 5890110518.

Should you have any questions regarding this project quarterly report, please 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, also of my staff, at (505) 845-6089.

Sincerely,

Kelly A Davis
for
Patty Wagner
Manager

Enclosure (1)

cc w/enclosure:

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James Bearzi

-2-

SEP 30 2000

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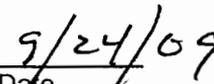
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Report, September 2009

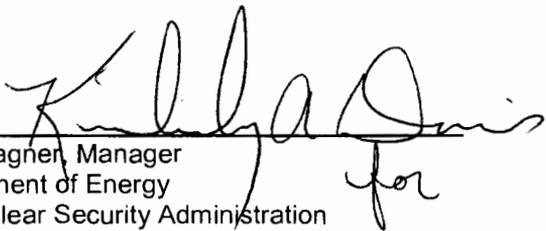
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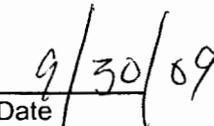
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Signature: 
Les Shephard, Vice President
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Albuquerque, New Mexico 87185
Operator


Date

and

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


Date



Sandia National Laboratories, New Mexico (SNL/NM)

Environmental Restoration Project

A Department of Energy Environmental Cleanup Program

**CONSOLIDATED
Quarterly Report**

May-June-July

September 2009



United States Department of Energy
Sandia Site Office

CONSOLIDATED
QUARTERLY REPORT

September 2009

SANDIA NATIONAL LABORATORIES/NEW MEXICO (SNL/NM)

ENVIRONMENTAL RESTORATION PROJECT

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, organics, and explosives.

OVERVIEW

This Consolidated Quarterly Report for the Sandia National Laboratories Environmental Project addresses all quarterly reporting requirements pertaining to the Hazardous and Solid Waste Amendments (HSWA) Module of the Resource Conservation and Recovery Act (RCRA) Permit, the Compliance Order on Consent (Consent Order), and the Chemical Waste Landfill (CWL) Closure Plan. The following entities and reporting periods are addressed in these Sections:

SECTION I

Environmental Restoration Project Quarterly Report, reporting period: May-July 2009

SECTION II

Chemical Waste Landfill Progress Report, reporting period: May-July 2009

SECTION III

Perchlorate Screening Semiannual Report, reporting period: April-June 2009



Environmental Restoration Project Consolidated Quarterly Report

Section I

Environmental Restoration Project Quarterly Report

September 2009



United States Department of Energy
Sandia Site Office

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Acronyms

| | |
|-------|--|
| AOC | Area of concern |
| BSGW | Burn Site Groundwater |
| CAC | Corrective Action Complete |
| CAMU | Corrective Action Management Unit |
| CME | Corrective Measures Evaluation |
| CMI | Corrective Measures Implementation |
| CSS | CWL Sanitary Sewer |
| CWL | Chemical Waste Landfill |
| DOE | United States Department of Energy |
| ER | Environmental Restoration Project |
| GWPP | Groundwater Protection Program |
| HSWA | Hazardous and Solid Waste Amendment |
| LTES | Long Term Environmental Stewardship |
| LTMMP | Long-term Monitoring and Maintenance Plan |
| MW | Monitoring well |
| BW | Background monitoring well |
| MWL | Mixed Waste Landfill |
| NMED | New Mexico Environment Department |
| NOD | Notice of Deficiency, Notice of Disapproval |
| PPE | Personal Protective Equipment |
| PVC | polyvinyl chloride |
| RCRA | Resource Conservation and Recovery Amendment |
| SNL | Sandia National Laboratories |
| SVOC | Semivolatile organic compounds |
| SWMU | Solid Waste Management Unit |
| TA | Technical Area |
| TAG | Tijeras Arroyo Groundwater |
| VOC | volatile organic compounds |
| VSA | Vertical Sensor Array |
| VZMS | Vadose Zone Monitoring System |

SECTION I: ENVIRONMENTAL RESTORATION PROJECT QUARTERLY REPORT

1.0 Introduction

This report discusses ongoing corrective actions for the Sandia National Laboratories (SNL) Environmental Restoration (ER) Project. The status of regulatory closure activities, specifically permit modifications for final Corrective Action Complete approval, and status of documents pending regulatory approval, is outlined below. In this Section, the Quarter refers to the May through July 2009 quarterly reporting period.

2.0 Work Completed in This Quarter

2.1 Mixed Waste Landfill (MWL)

- MWL Groundwater monitoring results for fiscal year 2008 were compiled and summarized into the MWL Annual Groundwater Monitoring Report, delivered to NMED in May 2009 and the GWPP Annual Report, delivered to NMED in June 2009.
- The MWL Evapotranspirative (ER) Cover Construction Project was completed through the installation of the Native Soil Layer during this reporting period. A quarterly progress report on the MWL ET Cover Construction Project will be delivered to NMED concurrent with this ER Project Quarterly Report. The construction progress report will summarize ET Cover construction activities from May through July 2009 as required by the NMED Final Order.

MWL Documents submitted to NMED pending regulatory review and approval

- There are no MWL documents currently pending regulatory review and approval.

2.2 Project Management Site Closure

Operable units with only regulatory and administrative closure activities remaining will be managed under project management. Two permit modification requests are currently in progress with the New Mexico Environment Department (NMED) and are outlined below. The sites in these two permit modification requests were discussed with NMED and public stakeholders in June as part of comment resolution process for the renewal of the SNL Resource Conservation and Recovery Amendment (RCRA Permit). NMED indicated verbally at the meeting that some of the sites included in the March 2006 and January 2008 permit modification requests would require groundwater characterization and additional soil characterization; official written communication regarding these requirements is anticipated.

Permit Modification Request submitted in March 2006

- Twenty-six sites were submitted to NMED for the final determination of Corrective Action Complete (CAC) in March 2006. The sites included nineteen SWMUs, and seven AOCs. The NMED issued a Notice of Public Comment Period and Intent to Approve a Class 3 Permit Modification of the RCRA Permit for Sandia National Laboratories for these 26 sites on December 10, 2007. The NMED public review and comment period ended on February 8, 2008. The SWMUs and AOCs included in this permit modification request are listed below.

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

AOCs – 1090, 1094, 1095, 1114, 1115, 1116, and 1117.

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. This permit modification included all remaining SNL ER sites with the exception of the three active sites (SWMUs 83, 84, and 240), three Groundwater Investigation sites (Tijeras Arroyo, Technical Area V, and Burn Site), and the Mixed Waste Landfill (SWMU 76), which is pending Corrective Measure Implementation. The MWL is addressed separately in section 2.1 of this Section of this ER Quarterly report. The four SWMUs and one AOC included in the January 2008 permit modification request are listed below.

SWMUs – 8, 28-2, 58, and 105

AOC – 1101

2.3 Site-Wide Hydrogeologic Characterization

TA-3/5 Groundwater

- Groundwater sampling was completed in May and June 2009. Results of perchlorate analysis are discussed in Section III of this ER quarterly report, and other analytical results will be discussed in the upcoming GWPP Annual Groundwater Monitoring Report (anticipated to be published in the spring of 2010).

Burn Site Groundwater (BSG)

- No groundwater sampling was performed during this reporting period.
- In April 2009, DOE/Sandia received a letter from NMED entitled “Perchlorate Contamination in Groundwater,” requiring characterization of the nature and extent of perchlorate contamination at or near the Burn Site. DOE/Sandia have met several times with the NMED to discuss further characterization requirements.

Tijeras Arroyo Groundwater (TAG)

- Groundwater sampling was completed in May 2009. Results will be discussed in the upcoming GWPP Annual Groundwater Monitoring Report (anticipated delivery to NMED in the spring of 2010).
- In February 2009, DOE/Sandia submitted a Response to NMED's Notice of Disapproval (NOD) on the TAG Continuing Investigation Report (submitted in November 2005).

Mixed Waste Landfill Groundwater (MWL)

- Groundwater sampling was performed in July 2009. Results of perchlorate analysis are discussed in Section III of this Report, and other analytical results from the 2009 MWL sampling events will be discussed in the upcoming MWL Annual Groundwater Monitoring Report, (anticipated delivery to NMED in the spring of 2010).

Chemical Waste Landfill Groundwater (CWL)

- CWL semi-annual groundwater monitoring activities were performed in April 2009. Analytical results associated with the April 2009 sampling event are summarized in Section II of this ER quarterly report.

Groundwater Documents submitted to the NMED pending regulatory review and approval

- Technical Area V Groundwater Corrective Measure Evaluation (CME) Work Plan, submitted April 2004.
- CME Report for Tijeras Arroyo Groundwater, submitted August 2005.
- Burn Site Groundwater (BSG) Interim Measures Work Plan, submitted May 2005.
- BSG Current Conceptual Model of Groundwater Flow and Contaminant Transport, submitted April 2008.
- BSG CME Work Plan, submitted April 2008.
- Response to NMED's "Notice of Disapproval: Tijeras Arroyo Groundwater Investigation Report, November 2005, Dated August 2008; submitted February 2009.
- Response to NMED's "Notice of Disapproval: Corrective Measures Evaluation Report for Technical Area V Groundwater, July 2005," submitted April 2009.

2.4 Corrective Action Management Unit (CAMU)

CAMU Post-closure Care operations consist of vadose-zone monitoring, leachate removal, and post-closure inspections, as required in the permit. Activities for this reporting period include the following:

- Weekly pumping of leachate from the leachate collection and removal system.
- Weekly inspection of the less-than-90-day area.
- Quarterly inspection of the site (June 2009), including containment cell cover, storm water diversion structures, security fences, gates, signs, and benchmarks:

- Approximately 12 four-wing saltbush plants were identified growing on the cover. These plants can develop extensive root systems that could damage the high-density polyethylene cover. They were removed on July 8, 2009.
- South gate lock was replaced on June 15, 2009. All VSA and CSS locks were lubricated on June 22, 2009.
- All benchmarks were cleared of weeds and dirt on July 29, 2009.
- Quarterly monitoring of the Vadose Zone Monitoring System (VZMS) was conducted in June 2009. Results will be posted in the annual CAMU report.
- Waste management associated with the leachate collection was conducted (see below).
- Composite leachate sampling for waste characterization was conducted on June 9, 2009.

CAMU Waste Management Activities

- Waste stored on site at the beginning of this period:
 - 124 gallons of leachate.
 - 2 gallons of rinsate.
 - 5 lb PPE, paper wipes, plastic drum pump.
- Waste generated on-site during the period:
 - 124 gallons of leachate.
 - 7 lbs PPE, paper wipes, plastic drum pump.
- Waste removed from site by the Hazardous Waste Management Facility:
 - 124 gallons of leachate on May 4, 2009.
 - 2 gallons of rinsate on May 4, 2009.
 - 5 lbs PPE, paper wipes, plastic drum pump on May 4, 2009.
 - 94 gallons of leachate on July 20, 2009.
 - 5 lbs PPE, paper wipes, plastic drum pump on July 20, 2009.
- Waste remaining on site at the end of this period:
 - 30 gallons of leachate.
 - 2 gallons of rinsate.
 - 2 lbs PPE.

CAMU Regulatory Activities

- There were no regulatory activities during this quarter.

2.5 Suspected Solid Waste Management Unit

Long Term Environmental Stewardship (LTES) Site 1, Cable Debris Site

- There were no activities associated with LTES Site 1/Cable Debris Site during this reporting period.

LTES Documents submitted to NMED pending regulatory review and approval

- Proposal for Corrective Action Complete for LTES Site 1/Cable Debris Site, delivered to NMED in March 2009.



Environmental Restoration Project Consolidated Quarterly Report

Section II

Chemical Waste Landfill Quarterly Closure Progress Report

September 2009



United States Department of Energy
Sandia Site Office

Sandia is a multiprogram laboratory managed and operated by Sandia Corporation, a wholly-owned subsidiary of Lockheed Martin Corporation, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000

SECTION II. CHEMICAL WASTE LANDFILL QUARTERLY PROGRESS REPORT

This Sandia National Laboratories/New Mexico (SNL/NM) Chemical Waste Landfill (CWL) Quarterly Closure Progress Report has been prepared pursuant to the CWL Final Closure Plan and Post-closure Permit Application (Closure Plan) (SNL/NM December 1992). Analytical results for the previous reporting period (January through March) were not received in time to be included in the June 2009 ER Consolidated Quarterly Report and are presented in this Section along with activities at the CWL for the current reporting period (April through July 2009).

1.0 Introduction

All voluntary corrective measures (VCMs) activities for the CWL have been completed. The CWL Landfill Excavation (LE) VCM Final Report was submitted to the 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 in the February 22, 2006 CWL Quarterly Closure Progress Report (SNL/NM February 2006), as Appendix B, 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 Environmental Restoration (ER) Project 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, with the exception of long-term monitoring, have been completed at the CWL.

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 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).

Upcoming CWL Closure Plan reporting activities include revising and submitting the Final Resource Conservation and Recovery Act (RCRA) Closure Report, to be submitted after NMED approval of the Corrective Measures Study (CMS) Report has been received. The Final RCRA Closure Report will document both the backfilling of the former CWL and installation of the cover.

On May 21, 2007, the NMED issued, for public comment, the draft post-closure care permit for the CWL. Also included in the public notices were the CMS Report and the Closure Plan amendment (changes to Chapter 12 revising the closure process). On July 19, 2007, DOE and Sandia responded in opposition to the issuance of the CWL post-closure care permit as drafted and offered a number of comments, the most important of which were related to groundwater and vadose zone monitoring. In

addition, DOE and Sandia requested that a public hearing be scheduled to address these outstanding issues.

For this reporting period, DOE and Sandia continued to work with NMED on post-closure care permit negotiations and a CWL Closure Plan amendment that addresses the replacement of groundwater monitoring wells. Meetings with NMED occurred on May 21 and June 2, 2009. The June 2, 2009 meeting included representatives of Citizen Action and Citizens Against Radioactive Dumping (CARD) and addressed the CWL draft permit issues they had expressed to NMED. Based upon this June 2, 2009 meeting and subsequent direction from NMED, Sandia proceeded with revisions to the CWL Closure Plan amendment previously submitted to NMED in March 2009 that addressed only the decommissioning of groundwater monitoring wells MW4 and BW4A and the installation of wells MW9 and BW5. The revised Closure Plan amendment is offered for settlement purposes only and includes the decommissioning of MW5U/L and MW6U/L in addition to MW4 and BW4A, and the installation of wells MW10 and MW11 in addition to MW9 and BW5. A revised Closure Plan amendment was submitted to NMED in June 2009, and verbal comments were received from NMED on July 15 and 27, 2009. Sandia incorporated the NMED comments and will submit another Closure Plan revision in August 2009. Sandia is anticipating formal comments from NMED documenting the verbal comments transmitted by phone on July 15 and 27, 2009 during the next reporting period. Sandia and DOE reviewed and provided comments to NMED in July 2009 on the final revision to the draft permit, a draft stipulation agreement, and supporting documentation.

3.0 Water Monitoring Assessment

CWL semi-annual groundwater monitoring activities were performed in April 2009. Analytical results associated with the April 2009 are summarized in the Chemical Waste Landfill Quarterly Progress Report in this Section of this ER quarterly report. The activities associated with the groundwater monitoring task will be summarized in the next (September 2009) ER Quarterly Progress Report.

No soil-gas sampling was performed at the CWL during this reporting period. Soil-gas sampling is not required under the Closure Plan but is expected to be a requirement for post-closure care (Kieling, December 2003).

4.0 Projected Activities for the Upcoming Quarter

Efforts to finalize Revision 2 to the draft permit are a high priority this quarter. DOE and Sandia continue to review the draft permit and provide comments to NMED. The possibility exists of the final revised draft version of the permit to be submitted for internal review by the end of this reporting quarter.

5.0 References

Bearzi, J.P. (New Mexico Environment Department), October 2005. Letter to P. Wagner (U.S. Department of Energy) and P.B. Davies (Sandia Corporation), "Notice of Approval: Chemical Waste Landfill Site Operational Boundary Closure Addendum to the Landfill Excavation Corrective Measure Final Report; August 2005, Sandia National Laboratories, NM5890110518, HWB-SNL-05-021." October 25, 2005.

Cooke, G. (U.S. Environmental Protection Agency Region 6), June 2002. Letter to M.J. Zamorski (U.S. Department of Energy), "Approval of the TSCA Risk-Based Approach Request for the CWL." June 26, 2002.

Kieling, J.E. (New Mexico Environment Department), December 2003. Letter to K.L. Boardman (U.S. Department of Energy) and P.B. Davies (Sandia Corporation), "Chemical Waste Landfill Corrective Measures Study, May 2003, Sandia National Laboratories, NM5890110518, HWB-SNL-03-013 " December 12, 2003.

Kieling, J.E. (New Mexico Environment Department), September 2004. Letter to P. Wagner (U.S. Department of Energy) and P.B. Davies (Sandia Corporation), "Approval With Conditions of the Landfill Cover Interim Measure at the Chemical Waste Landfill, Sandia National Laboratories, NM5890110518, HWB-SNL-03-013." September 22, 2004.

Moats, W.P. (New Mexico Environment Department), December 2003. Letter to K.L. Boardman (U.S. Department of Energy) and P.B. Davies (Sandia Corporation), "Final Approval, Landfill Excavation Voluntary Corrective Measures, Final Report, April 2003, Sandia National Laboratories, NM5890110518 HWB-SNL-03-012." December 16, 2003.

Sandia National Laboratories/New Mexico (SNL/NM), December 1992. "The Chemical Waste Landfill Final Closure Plan and Postclosure Permit Application," Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), October 2001. "Risk-Based Approval Request, 40 CFR 761.61 (c) Risk-Based Method For Management of PCB Materials," Chemical Waste Landfill Remediation and Corrective Action Management Unit, Sandia National Laboratories, Albuquerque, New Mexico. October 24, 2001.

Sandia National Laboratories/New Mexico (SNL/NM), April 2004. "Request for Approval to Install the Vegetative Soil Cover Presented in the RAP as an Interim Measure," Sandia National Laboratories, Albuquerque, New Mexico. April 19, 2004.

Sandia National Laboratories/New Mexico (SNL/NM), August 2005. "Chemical Waste Landfill Site Operational Boundary Closure Addendum to the Landfill Excavation Voluntary Corrective Measure Final Report," Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), February 2006. "Chemical Waste Landfill Quarterly Closure Progress Report," Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), November 2006. "Chemical Waste Landfill Toxic Substances Control Act Final Report." Sandia National Laboratories, Albuquerque, New Mexico. November 2, 2006.

Wagner, P. (U.S. Department of Energy), April 2004. Letter to J. Kieling (New Mexico Environment Department) requesting approval of "an interim measure (cover) at the Chemical Waste Landfill." April 19, 2004.

Appendix A

CHEMICAL WASTE LANDFILL SEMI-ANNUAL GROUNDWATER MONITORING ASSESSMENT REPORT January – July 2009

Sandia National Laboratories/New Mexico
Environmental Programs and Assurance
Department 4133
Albuquerque, New Mexico 87185

September 2009

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ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| BW | background well |
| CFR | Code of Federal Regulations |
| COC | Contaminants of Concern |
| CWL | Chemical Waste Landfill |
| EB | equipment blank |
| EPA | U.S. Environmental Protection Agency |
| FB | field blank |
| FOP | Field Operating Procedure |
| FY09 | Fiscal Year 2009 |
| MCL | maximum contaminant level |
| MDL | method detection limit |
| µg/L | microgram per liter |
| mg/L | milligram per liter |
| MW | monitoring well |
| NMED | New Mexico Environment Department |
| pH | potential of hydrogen |
| QC | quality control |
| RPD | relative percent difference |
| Sandia | Sandia Corporation |
| SC | specific conductance |
| SNL/NM | Sandia National Laboratories/New Mexico |
| TB | trip blank |
| TCE | trichloroethene |
| VCM | Voluntary Corrective Measure |
| VE | Vapor Extraction |
| VOC | volatile organic compound |

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* (SNL/NM December 1992). In compliance with a recent request by the New Mexico Environment Department (NMED) dated January 2009, this and all future quarterly reports will graphically present groundwater data for CWL contaminants of concern (COC) detected above minimum detection limits along with corresponding measured groundwater elevations (Bearzi January 2009). These graphs will be in addition to the tabular form of results. The activities associated with the groundwater monitoring task are summarized as follows.

Sandia Corporation (Sandia) performed Fiscal Year 2009 (FY09) semi-annual groundwater sampling at the CWL, Sandia National Laboratories/New Mexico (SNL/NM) (Figure A-1) from April 15 to 25, 2009. CWL groundwater sampling is required by the interim status standards of the Resource Conservation and Recovery Act 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 Final 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, Revision 4 (Bearzi May 2000):

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

This report describes groundwater sampling activities and presents analytical results from the second FY09 semi-annual groundwater assessment monitoring period. In April 2009, samples were collected from monitoring wells (MW) (CWL-MW2BL, CWL-MW4, CWL-MW5L, CWL-

MW5U, CWL-MW6L, and CWL-MW6U) (Figure A-2). These samples were analyzed for the agreed upon 40 CFR 264 (Appendix IX) constituents: VOCs and total metals plus iron. All analytical results from the April 2009 sampling of all CWL monitoring wells are included in this report.

During April 2009, groundwater samples were not collected from background monitoring (BW) wells CWL-BW3 and CWL-BW4A, and monitoring wells CWL-MW1A, CWL-MW2BU, and CWL-MW3A. CWL-BW3, CWL-BW4A, and CWL-MW2BU could not be sampled due to lack of groundwater volume. CWL-MW1A and CWL-MW3A were not sampled because these wells are dry and were partially filled with sediment during the Vapor Extraction (VE) Voluntary Corrective Measure (VCM) while being used as VE wells, and cannot be restored for the purpose of compliance groundwater monitoring.

Three of the monitoring wells (CWL-MW2B, CWL-MW5, and CWL-MW6) are multi-completion wells with two separate polyvinyl chloride and screen intervals. One is screened across the water table, and the other is screened at an interval approximately 30 feet below the water table. The wells screened across the water table are designated as CWL-MW2BU, CWL-MW5U, and CWL-MW6U to indicate the upper (“U”) screened well completions. The wells screened below the first water-bearing zone are designated CWL-MW2BL, CWL-MW5L, and CWL-MW6L to indicate the lower (“L”) screened well completions. Further discussion of the completion of these wells is presented in the CWL Groundwater Assessment Report (SNL/NM October 1995). 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 field measurements collected as part of semi-annual groundwater sampling activities are in conformance with the “Sampling and Analysis Plan for Groundwater Assessment Monitoring at the Chemical Waste Landfill,” Appendix G of the CWL Closure Plan (SNL/NM December 1992). Groundwater monitoring is being performed according to Appendix G, Revision 4 of the Closure Plan (SNL/NM December 1992) and updated SNL/NM Environmental Restoration Project field operating procedures (FOP) (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). During April 2009, SNL/NM verified that monitoring wells CWL-MW1A and CWL-MW3A are dry. Table A-1 summarizes the depth-to-water measurements for all CWL wells, and Attachment A provides complete field measurement information. Plots A-1 to A-9, graphically display water level measurements obtained from CWL monitoring wells between February 2002 and April 2009.

2.2 Well Evacuation

A Bennett Company groundwater sampling system was used to collect groundwater samples from all wells, except small-diameter wells (less than 2 inches). Because CWL-MW2BU, CWL-MW5L, and CWL-MW6L are small-diameter wells (less than 2 inches), dedicated sampling systems manufactured by QED Environmental Systems, Inc. are used to collect samples. 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-MW5U and CWL-MW6U, 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-MW2BL and CWL-MW4 were purged a minimum of three well-bore volumes prior to sampling. CWL-MW5L and CWL-MW6L were purged a minimum of two tubing water 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), as required by the CWL Sampling and Analysis 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-MW2BL, CWL-MW4, CWL-MW5L, and CWL-MW6L 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 A 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 report summarizes the analytical results. Analysis Request/Chain-of-Custody documentation for all samples submitted for analyses are presented in Attachment B and filed in the SNL/NM Customer Funded Records Center.

2.4 Pump Decontamination

A Bennett Company groundwater sampling system was used to collect groundwater samples from all wells, except for CWL-MW5L and CWL-MW6L. 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). Two equipment blank (EB) or rinsate samples were collected to verify the effectiveness of the equipment decontamination process. EB samples were collected and analyzed prior to sampling CWL-MW4 and CWL-MW6U, and results are discussed in section 3.0 of this report.

3.0 Analytical Results

Groundwater samples collected for analysis of VOCs and metals were submitted to General Engineering Laboratories, Inc. in Charleston, South Carolina. Tables A-6 and A-7 summarize

the chemical parameters, laboratory method detection limits (MDL), and U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCL) for drinking water supplies. Tables A-8 and A-9 summarize all analytes detected in samples collected from CWL groundwater monitoring wells during the second FY09 semi-annual sampling event. A plot was generated for CWL COCs detected above laboratory MDLs during April 2009, as shown in Plots A-10 through A-19. The CWL COCs include trichloroethene (TCE), chromium, and nickel. These plots display historical values for the period November 1998 through April 2009. All chemical analytical results are compared to EPA MCLs for drinking water supplies. Table A-10 summarizes detected parameters in equipment blank samples. 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 chloroform, toluene, and TCE. Chloroform was detected below the laboratory practical quantitation limit in CWL-MW2BL, CWL-MW5L, and CWL-MW5L duplicate sample at concentrations of 0.585 microgram per liter ($\mu\text{g/L}$), 0.333 $\mu\text{g/L}$, and 0.337 $\mu\text{g/L}$, respectively. TCE was detected below the MCL of 5.0 $\mu\text{g/L}$ in the groundwater samples from CWL-MW5L, CWL-MW5L duplicate sample, CWL-MW5U, CWL-MW6U, and CWL-MW6U duplicate sample at concentrations of 0.795 $\mu\text{g/L}$, 0.929 $\mu\text{g/L}$, 2.58 $\mu\text{g/L}$, 0.478 $\mu\text{g/L}$, and 0.460 $\mu\text{g/L}$, respectively. Table A-8 summarizes detected VOCs, and Plots A-10 to A-12 display TCE results.

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 CWL-MW4 at a concentration of 0.0151 mg/L . Nickel was detected above the laboratory MDL in all environmental groundwater samples. Detected nickel concentrations ranged from 0.00172 mg/L at CWL-MW6L to 0.215 mg/L at CWL-MW4. There is not an established MCL for nickel. In general, chromium and nickel results from CWL-MW4 groundwater sample correlate to increased field turbidity measurements. Table A-9 summarizes the total metal concentrations for all groundwater samples collected during the second FY09 semi-annual sampling event at the CWL. Plots A-13 to A-19 display detected chromium and nickel results.

Table A-10 summarizes detected parameters in two EB samples. The EB samples were analyzed for VOCs and metal parameters. Detected analytes included bromodichloromethane, bromoform, carbon disulfide, chloroform, dibromochloromethane, and copper. No corrective action was required for VOCs, since compounds detected in the EB samples were not detected in

associated environmental samples. If any parameters were detected in associated environmental samples at concentrations less than five times the EB contamination, then the environmental sample was qualified as not detected during data validation. Copper was qualified as not detected in CWL-MW5L environmental samples due to EB contamination.

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 QC Samples

Field QC samples included 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 the CWL Sampling and Analysis Plan (SNL/NM December 1992).

4.1.1 Duplicate Environmental Samples

Two duplicate environmental samples were 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-MW5L and CWL-MW6U immediately after the original environmental samples 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 of the duplicate sample analyses and calculated RPD values. The results show that sampling and analysis precision was in conformance with the CWL Sampling and Analysis Plan requirements for all measured parameters.

4.1.2 Field Blank Samples

Two FB samples were collected for VOCs to assess whether contamination of the samples resulted from ambient field conditions. The FB samples were prepared by pouring deionized

water into sample containers at the CWL-MW4 and CWL-MW6L sample collection point to simulate the transfer of environmental samples from the sampling system to the sample container. No VOCs were detected above laboratory MDLs in the FB sample, except carbon disulfide and dibromochloromethane. No corrective action was necessary, since these compounds were not detected in associated environmental samples.

4.1.3 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-mL 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 sample shipment. A total of six TBs were submitted with the samples discussed in this report. No VOCs were detected above laboratory MDLs in any TB sample, except for carbon disulfide. Carbon disulfide was detected in TB samples associated with the groundwater samples from CWL-MW2BL and CWL-MW6U. No corrective action was necessary, since this compound was not detected in associated environmental samples.

4.2 Laboratory QC

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, Revision 2, *Data Validation Procedure for Chemical and Radiochemical Data* (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. Data validation reports associated with the second FY09 semi-annual groundwater sampling event are provided in Attachment C.

4.3 Variances and Nonconformances

Variances and nonconformances from requirements in the CWL Sampling and Analysis Plan (SNL/NM December 1992) are identified as follows:

- CWL-MW1A and CWL-MW3A are no longer sampled, since 1998 these wells do not contain water. The wells partially filled with sediment during the VE VCM and have not recovered. SNL/NM personnel lowered a water level meter to verify that these wells are dry.
- No samples were collected from CWL-BW3, CWL-BW4A, or CWL-MW2BU. In April 2009, these wells did not produce enough water to collect a representative sample. NMED was notified by SNL/NM personnel. Waste characterization samples were collected to supplement the waste disposal process. Results from these waste samples are not included within this report.
- CWL-MW5U and CWL-MW6U were purged to dryness, allowed to recover, and then sampled to collect the most representative groundwater sample possible given the low yield of these wells.
- CWL-MW5L and CWL-MW6L were sampled using dedicated sampling systems manufactured by QED Environmental Systems, Inc.
- COCs detected above minimum detection limits, and water levels are presented in graphical form as requested by NMED (Bearzi January 2009).
- The New Mexico Environment Department, Department of Energy Oversight Bureau was on-site and collected sample splits at monitoring wells CWL-MW2BL, CWL-MW4, CWL-MW5U. Results from sample splits are not included in this report.

5.0 Summary

In April 2009, samples were collected from monitoring wells (CWL-MW2BL, CWL-MW4, CWL-MW5L, CWL-MW5U, CWL-MW6L, and CWL-MW6U). The samples were analyzed for 40 CFR 264 (Appendix IX) VOCs and total metals plus iron. No analytes were detected at concentrations exceeding the associated EPA MCLs, from any CWL groundwater sample.

6.0 References

- Bearzi, J.P. (New Mexico Environment Department), January 2009, Letter to K.A. Davis (U.S. Department of Energy) and F.B. Nimick (Sandia Corporation), *Environmental Restoration Project Consolidated Quarterly Report, August – September – October, December 2008*, Sandia National Laboratories, EPA ID# NM5890110518 HWB-SNL-09-003. January 30, 2009.
- Bearzi, J.P. (New Mexico Environment Department), May 2000, Letter to M.J. Zamorski (U.S. Department of Energy) and R.J. Eagan (Sandia Corporation), *Class 1 Permit Modification Approval and Notice of Administrative Completeness: Request for Chemical Waste Landfill Ground-Water Monitoring Schedule Change*, Sandia National Laboratories, NM58901210518, Task HWB-SNL-02-008. May 5, 2000.
- Dinwiddie, R.S. (New Mexico Environment Department), March 1998, Letter to M. Zamorski (U.S. Department of Energy), *Request for Supplemental Information: Appendix G, Sampling and Analysis Plan for Ground Water Assessment at the Chemical Waste Landfill, Revision 5.0, April 1997*. March 31, 1998.
- Sandia National Laboratories/New Mexico (SNL/NM), December 1992, *Chemical Waste Landfill Final Closure Plan and Postclosure Permit Application*, Sandia National Laboratories, Albuquerque, New Mexico.
- Sandia National Laboratories/New Mexico (SNL/NM), October 1995, *Chemical Waste Landfill Groundwater Assessment Report*, Sandia National Laboratories, Albuquerque, New Mexico.
- Sandia National Laboratories/New Mexico (SNL/NM), November 1995, *A Technical Procedure for the Measurement of Static Water Levels*, FOP 95-02, Sandia National Laboratories, Albuquerque, New Mexico.
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- Sandia National Laboratories/New Mexico (SNL/NM), February 1997, *General Equipment Decontamination*, FOP 94-26, Sandia National Laboratories, Albuquerque, New Mexico.
- Sandia National Laboratories/New Mexico (SNL/NM), July 2007, *Data Validation Procedure for Chemical and Radiochemical Data*, AOP 00-03, Revision 2, Sandia National Laboratories, Albuquerque, New Mexico.
- SNL/NM, see Sandia National Laboratories/New Mexico.

FIGURES

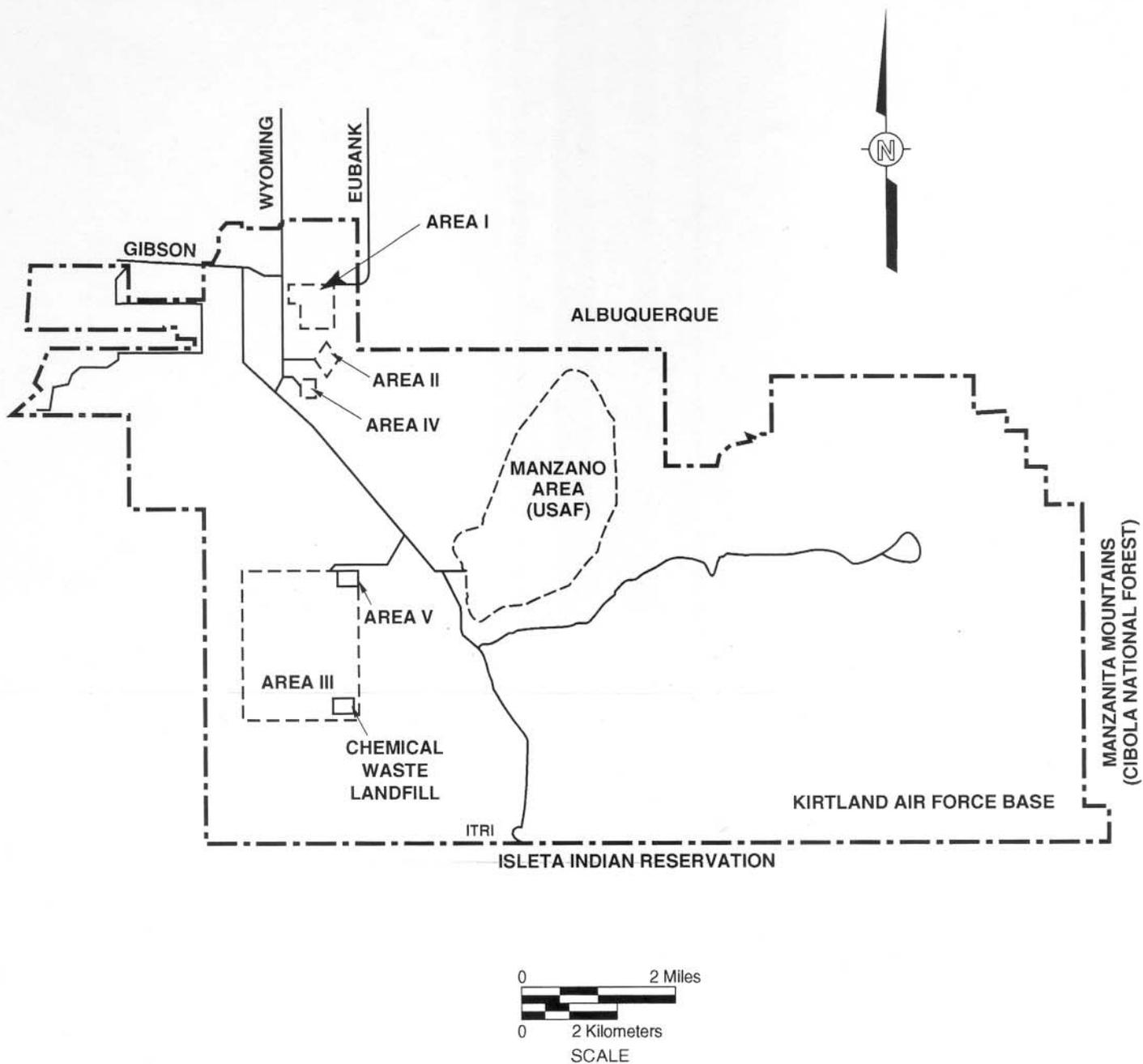


Figure A -1
Location of the Chemical Waste Landfill
Sandia National Laboratories/New Mexico

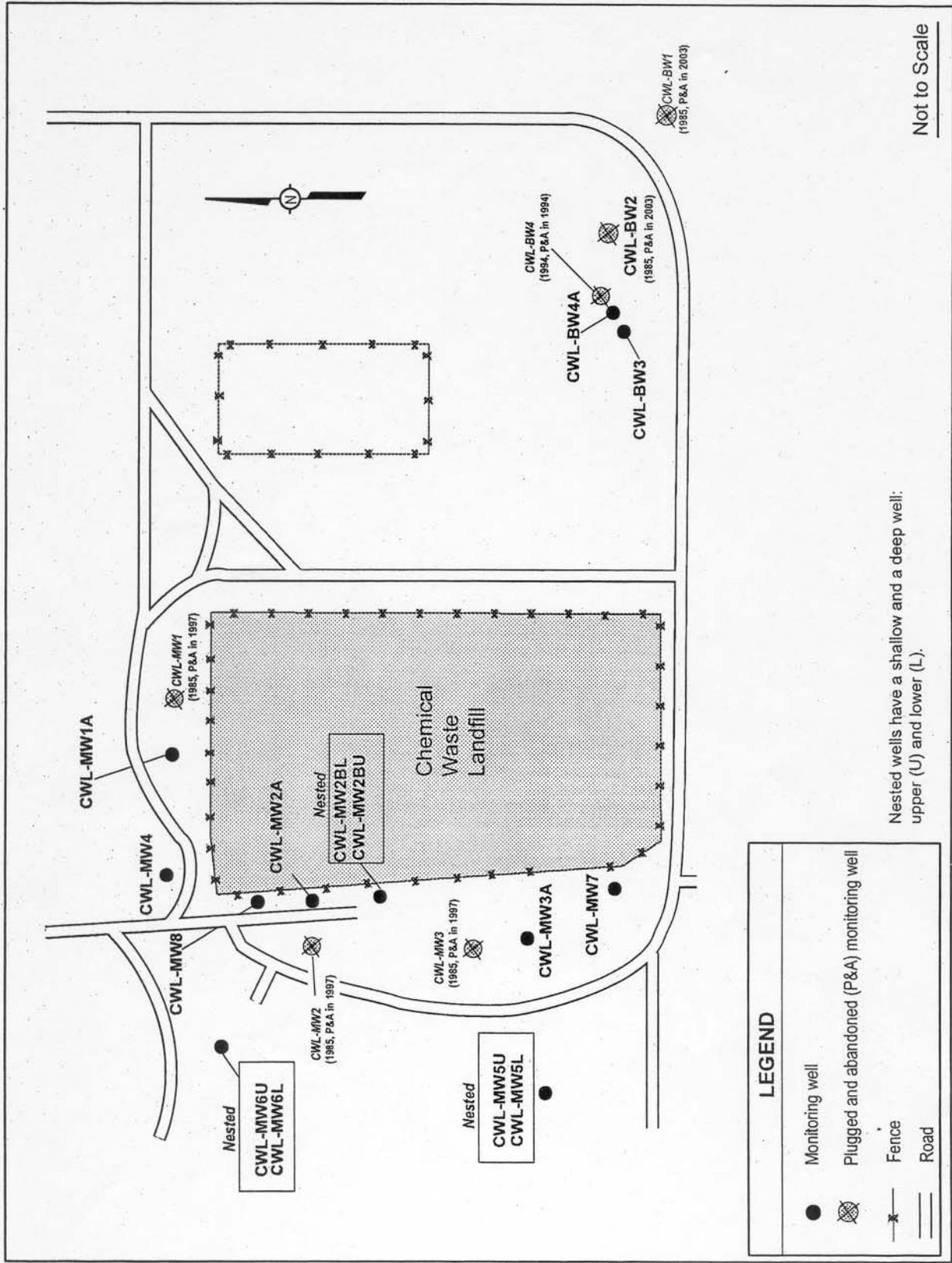


Figure A-2
Monitoring Well Locations at the Chemical Waste Landfill, Sandia National Laboratories/ New Mexico

TABLES

Table A-1
Monitoring Well Groundwater Elevations
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| Well Number | Measuring Point Elevation (famsl) | Depth to Water^a (fbgs) | Groundwater Elevation (famsl) | Total Well Depth^b (fbgs) | Bottom of Well Elevation (famsl) | Static Water Height^c (feet) |
|--------------------|--|--|--------------------------------------|--|---|---|
| CWL-BW3 | 5430.23 | 503.68 | 4926.55 | 507.48 | 4921.05 | 5.50 |
| CWL-BW4A | 5431.36 | 504.31 | 4927.05 | 510.00 | 4919.24 | 7.81 |
| CWL-MW1A | 5421.49 | NA | NA | 495.00 | 4925.41 | Dry |
| CWL-MW2BL | 5419.39 | 498.24 | 4921.15 | 557.50 | 4859.87 | 61.28 |
| CWL-MW2BU | 5419.42 | 493.30 | 4926.12 | 501.00 | 4916.37 | 9.75 |
| CWL-MW3A | 5417.78 | NA | NA | 492.00 | 4924.39 | Dry |
| CWL-MW4 | 5420.33 | 496.86 | 4923.47 | 503.00 | 4915.38 | 8.09 |
| CWL-MW5L | 5415.80 | 494.87 | 4920.93 | 558.00 | 4856.02 | 64.91 |
| CWL-MW5U | 5416.01 | 489.86 | 4926.15 | 502.00 | 4912.02 | 14.13 |
| CWL-MW6L | 5417.13 | 497.68 | 4919.45 | 564.00 | 4850.65 | 68.80 |
| CWL-MW6U | 5416.78 | 490.28 | 4926.50 | 502.00 | 4912.65 | 13.85 |

^aMeasurements transcribed from Groundwater Sample Collection Logs.

^bDerived from well completion logs.

^cCalculated as difference between depth to water and bottom of well.

BW = Background well.

CWL = Chemical waste landfill.

famsl = Feet above mean sea level. Measured from top of casing.

fbgs = Feet below ground surface.

L = Lower well completion zone.

NA = Not applicable, CWL-MW1A and CWL-MW3A are dry wells.

MW = Monitoring well.

U = Upper well completion zone.

Table A-2
Volumes Purged from Monitoring Wells
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| Well Number | Volume Purged^a (gal) | Time Pumped (minutes) | Average Pump Rate (gal/minute) | Well Pumped to Dryness |
|--------------------|--|----------------------------------|---|-----------------------------------|
| CWL-BW3 | NA | NA | NA | NA |
| CWL-BW4A | NA | NA | NA | NA |
| CWL-MW2BL | 229 | 259 | 0.88 | No |
| CWL-MW2BU | NA | NA | NA | NA |
| CWL-MW4 | 27 | 90 | 0.30 | No |
| CWL-MW5L | 3.70 | 76 | 0.05 | No |
| CWL-MW5U | 15.5 | 56 | 0.28 | Yes |
| CWL-MW6L | 3.70 | 94 | 0.04 | No |
| CWL-MW6U | 18 | 61 | 0.29 | Yes |

^aVolume of groundwater purged before sampling.

BW = Background well.

CWL = Chemical waste landfill.

gal = Gallon(s).

L = Lower well completion zone.

MW = Monitoring well.

NA = Not applicable.

U = Upper well completion zone.

Table A-3
Summary of Field Measurements
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| Well Number | Measurement Period ^a | pH | Temperature °C | SC (µmhos/cm) | Turbidity (NTU) |
|-------------|---------------------------------|------|----------------|---------------|-----------------|
| CWL-MW2BL | Purge measurements: | 6.95 | 20.90 | 1,220 | 0.29 |
| | | 6.95 | 20.93 | 1,221 | 0.27 |
| | | 6.95 | 20.88 | 1,220 | 0.27 |
| CWL-MW4 | Purge measurements: | 7.09 | 19.60 | 1,054 | 4.81 |
| | | 7.09 | 19.65 | 1,054 | 4.86 |
| | | 7.09 | 19.69 | 1,054 | 4.79 |
| CWL-MW5L | Purge measurements: | 7.00 | 13.75 | 1,184 | 0.24 |
| | | 7.00 | 13.71 | 1,184 | 0.21 |
| | | 7.00 | 14.11 | 1,182 | 0.20 |
| CWL-MW5U | Purge measurements: | 7.30 | 17.72 | 984 | 0.40 |
| | | 7.23 | 18.04 | 1,015 | 0.38 |
| | | 7.20 | 18.45 | 1,017 | 0.30 |
| CWL-MW6L | Purge measurements: | 7.02 | 12.30 | 1,149 | 0.40 |
| | | 7.01 | 12.64 | 1,149 | 0.36 |
| | | 7.01 | 12.43 | 1,150 | 0.31 |
| CWL-MW6U | Purge measurements: | 7.26 | 18.67 | 1,010 | 0.69 |
| | | 7.20 | 19.37 | 1,011 | 0.35 |
| | | 7.20 | 19.99 | 1,012 | 0.33 |

^aLast three water quality measurements prior to sampling. For complete record reference Attachment A.

CWL = Chemical Waste Landfill.
L = Lower well completion zone.
MW = Monitoring well.
NTU = Turbidity measured in nephelometric turbidity units.
SC = Specific conductance, in micromhos per centimeter.
U = Upper well completion zone.
µmhos/cm = micro-mohs per centimeter
°C = Degrees Celsius.

Table A-4
Sample Number Identification
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| Sample Identification | ARCOC ^a | Sample Number | Date Sampled | Laboratory | Sample Type |
|----------------------------|--------------------|---------------|--------------|------------|----------------------|
| CWL-MW2BL | 612162 | 087344 | 04-27-09 | GEL | Environmental Sample |
| CWL-MW4 | 612168 | 087358 | 04-24-09 | GEL | Environmental Sample |
| CWL-MW5L | 612161 | 087341 | 04-16-09 | GEL | Environmental Sample |
| CWL-MW5L | 612161 | 087342 | 04-16-09 | GEL | Duplicate Sample |
| CWL-MW5U | 612163 | 087346 | 04-21-09 | GEL | Environmental Sample |
| CWL-MW6L | 612165 | 087350 | 04-17-09 | GEL | Environmental Sample |
| CWL-MW6U | 612166 | 087353 | 04-23-09 | GEL | Environmental Sample |
| CWL-MW6U | 612166 | 087354 | 04-23-09 | GEL | Duplicate Sample |
| CWL-EB1(prior to CWL-MW6U) | 612164 | 087348 | 04-21-09 | GEL | Equipment Blank |
| CWL-EB2(prior to CWL-MW4) | 612167 | 087356 | 04-23-09 | GEL | Equipment Blank |
| CWL-FB1 | 612165 | 087351 | 04-17-09 | GEL | Field Blank |
| CWL-FB2 | 612168 | 087359 | 04-24-09 | GEL | Field Blank |
| CWL-TB1 | 612161 | 087343 | 04-16-09 | GEL | Trip Blank |
| CWL-TB2 | 612162 | 087345 | 04-27-09 | GEL | Trip Blank |
| CWL-TB3 | 612163 | 087347 | 04-21-09 | GEL | Trip Blank |
| CWL-TB5 | 612165 | 087352 | 04-17-09 | GEL | Trip Blank |
| CWL-TB6 | 612166 | 087355 | 04-23-09 | GEL | Trip Blank |
| CWL-TB8 | 612168 | 087360 | 04-24-09 | GEL | Trip Blank |

ARCOC^a = Analysis Request and Chain of Custody Record.
CWL = Chemical Waste Landfill.
EB = Equipment blank sample.
L = Lower well completion zone.
TB = Trip blank.

BW = Background well.
GEL = General Engineering Laboratories.
FB = Field blank sample.
MW = Monitoring well.
U = Upper well completion zone.

Table A-5
Analysis, Methods, Sample Containers, Preservatives, and Holding Times
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| 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 + iron | 6020/7470A | Polyethylene; 500 mL; HNO ₃ , 4°C | 28 days/180 days ^b |

^aU.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.

^bHolding time for mercury is 28 days; all other metals are 180 days.

HCl = Hydrochloric acid.

HNO₃ = Nitric acid.

mL = Milliliter(s).

°C = Degrees Celsius.

Table A-6
Chemical Parameters, MDL/MCL for Volatile Organic Compounds Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| 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 | 0.260 | 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 | 0.260 | NE |
| 1,2,4-Trichlorobenzene | 0.300 | 70 | Dibromomethane | 0.300 | NE |
| 1,2-Dibromo-3-chloropropane | 0.500 | 0.2 | Dichlorodifluoromethane | 0.500 | 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 | 0.450 | 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 | 0.310 | NE |
| Bromomethane | 0.500 | 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
Semi-annual Assessment, January - July 2009

| 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) | 0.600 | 10,000 | trans-1,3-Dichloropropene | 0.250 | NE |
| Bis(2-Chloroisopropyl)ether | 1.50 | NE | trans-1,4-Dichloro-2-butene | 1.00 | NE |
| cis-1,3-Dichloropropene | 0.250 | NE | trans-1,2-Dichloroethene | 0.300 | 100 |

^aU.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.

^bTitle 40 Code of Federal Regulations (CFR), Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, Appendix IX, Groundwater Monitoring List.

EPA = Environmental Protection Agency.

MCL = Maximum contaminant levels (established by the U.S. EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), subsequent amendments, or the New Mexico Environmental Improvement Board in the *New Mexico Register*, Title 20, Chapter 7, Part 1).

MDL = The method detection level of an analyte that can be determined, but not quantified, with 99% confidence.

µg/L = Microgram(s) per liter.

NE = Not established.

Table A-7
Chemical Parameters, MDL/MCL for Metal Parameters Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| 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 | 2.0 |
| Beryllium | 6020 | 0.0001 | 0.004 |
| Cadmium | 6020 | 0.00011 | 0.005 |
| Chromium | 6020 | 0.0015 | 0.1 |
| Cobalt | 6020 | 0.0001 | NE |
| Copper | 6020 | 0.0003 | NE |
| Iron | 6020 | 0.010 | NE |
| Lead | 6020 | 0.0005 | NE |
| Mercury | 7470A | 0.000067 | 0.002 |
| Nickel | 6020 | 0.0005 – 0.0025 | 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 |

^aTitle 40 Code of Federal Regulations (CFR), Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, Appendix IX, Groundwater Monitoring List. Addition metal parameter includes iron.

^bU.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.

EPA = Environmental Protection Agency.

MCL = Maximum contaminant levels (established by the U.S. EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), subsequent amendments, or the New Mexico Environmental Improvement Board in the *New Mexico Register*, Title 20, Chapter 7, Part 1).

MDL = The method detection level of an analyte that can be determined, but not quantified, with 99% confidence.

mg/L = Milligram(s) per liter.

NE = Not established.

Table A-8
Summary of Detected Volatile Organic Compounds
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| ARCOC No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled: | | | 612162 087344 CWL-MW2BL Environmental Bennett Pump GEL 04-27-09 | 612168 087358 CWL-MW4 Environmental Bennett Pump GEL 04-24-09 | 612161 087341 CWL-MW5L Environmental QED Pump GEL 04-16-09 | 612161 087342 CWL-MW5L Duplicate QED Pump GEL 04-16-09 |
|--|--------|-------|---|---|--|--|
| Parameter | Method | MCL | All results in µg/L | | | |
| Chloroform | 8260 | NE | 0.585 (1.00) J | ND (0.250) | 0.333 (1.00) J | 0.337 (1.00) J |
| Toluene | 8260 | 1,000 | ND (0.250) | ND (0.250) | ND (0.250) | ND (0.250) |
| Trichloroethene | 8260 | 5 | ND (0.250) | ND (0.250) | 0.795 (1.00) J | 0.929 (1.00) J |

Refer to footnotes at end of table.

Table A-8 (Concluded)
Summary of Detected Volatile Organic Compounds
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| ARCOC No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled: | | | 612163 087346 CWL-MW5U Environmental Bennett Pump GEL 04-21-09 | 612165 087350 CWL-MW6L Environmental QED Pump GEL 04-17-09 | 612166 087353 CWL-MW6U Environmental Bennett Pump GEL 04-23-09 | 612166 087354 CWL-MW6U Duplicate Bennett Pump GEL 04-23-09 |
|--|--------|-------|--|--|--|--|
| Parameter | Method | MCL | All results in µg/L | | | |
| Chloroform | 8260 | NE | ND (0.250) | ND (0.250) | ND (0.250) | ND (0.250) |
| Toluene | 8260 | 1,000 | 1.08 | ND (0.250) | 0.802 (1.00) J | 0.808 (1.00) J |
| Trichloroethene | 8260 | 5 | 2.58 | ND (0.250) | 0.478 (1.00) J | 0.460 (1.00) J |

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

ARCOC= Analysis Request and Chain of Custody.

GEL = General Engineering Laboratories.

J = The associated value is an estimated quantity and/or detected below the practical quantitation limit.

L = Lower well completion zone.

MCL = Maximum contamination levels (established by the U.S. EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), subsequent amendments or the New Mexico Environmental Improvement Board in the New Mexico Register, Title 20, Chapter 7, Part 1).

MW = Monitoring well.

ND = The analyte was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

U = Upper well completion zone.

µg/L = Milligram(s) per liter.

Table A-9
Summary of Total Metal Parameters
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| ARCO No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled: | | | 612162 087344 CWL-MW2BL Environmental Bennett Pump GEL 04-27-09 | 612168 087358 CWL-MW4 Environmental Bennett Pump GEL 04-24-09 | 612161 087341 CWL-MW5L Environmental QED Pump GEL 04-16-09 | 612161 087342 CWL-MW5L Duplicate QED Pump GEL 04-16-09 |
|--|---------------|------------|--|--|---|---|
| Parameter | Method | MCL | All results in mg/L | | | |
| Antimony | 6020 | 0.006 | ND (0.0005) | ND (0.0005) | ND (0.0005) | ND (0.0029) |
| Arsenic | 6020 | 0.01 | ND (0.0015) | ND (0.0015) | ND (0.014) | ND (0.014) |
| Barium | 6020 | 2.0 | 0.0567 | 0.0583 | 0.0601 | 0.0566 |
| Beryllium | 6020 | 0.004 | ND (0.0001) | ND (0.0001) | ND (0.0001) | ND (0.0001) |
| Cadmium | 6020 | 0.005 | ND (0.00011) | ND (0.00011) | 0.000278 (0.001) J, J+ | ND (0.00011) |
| Chromium | 6020 | 0.1 | ND (0.0015) | 0.0151 | ND (0.010) | ND (0.010) |
| Cobalt | 6020 | NE | 0.00031 (0.001) J | 0.00219 | 0.000256 (0.001) J, J+ | 0.000254 (0.001) J, J+ |
| Copper | 6020 | NE | 0.000835 (0.001) J | ND (0.0054) | 0.00107 J+ | 0.00102 J+ |
| Iron | 6020 | NE | 0.406 | 0.842 | 0.383 | 0.391 |
| Lead | 6020 | NE | ND (0.0005) | ND (0.0005) | ND (0.0005) | ND (0.0005) |
| Mercury | 7470A | 0.002 | ND (0.000067) UJ | ND (0.000067) UJ | ND (0.000067) | ND (0.000067) |
| Nickel | 6020 | NE | 0.00247 | 0.215 | 0.0022 J+ | 0.00236 J+ |
| Selenium | 6020 | 0.05 | 0.00144 (0.005) J | 0.00168 (0.005) J | 0.00122 (0.005) J, J+ | 0.001 (0.005) J, J- |
| Silver | 6020 | NE | ND (0.0002) | ND (0.0002) | ND (0.0002) | ND (0.0002) |
| Thallium | 6020 | 0.002 | ND (0.0003) | ND (0.0003) | ND (0.0016) | ND (0.0003) |
| Tin | 6020 | NE | ND (0.001) | ND (0.001) | ND (0.001) | ND (0.001) |
| Vanadium | 6020 | NE | 0.0034 (0.010) J | ND (0.003) | ND (0.042) | ND (0.042) |
| Zinc | 6020 | NE | ND (0.0146) | ND (0.0146) | ND (0.014) | ND (0.014) |

Refer to footnotes at end of table.

Table A-9 (Continued)
Summary of Total Metal Parameters
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| ARCO No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled: | | | 612163 087346 CWL-MW5U Environmental Bennett Pump GEL 04-21-09 | 612165 087350 CWL-MW6L Environmental QED Pump GEL 04-17-09 | 612166 087353 CWL-MW6U Environmental Bennett Pump GEL 04-23-09 | 612166 087354 CWL-MW6U Duplicate Bennett Pump GEL 04-23-09 |
|--|---------------|------------|---|---|---|---|
| Parameter | Method | MCL | All results in mg/L | | | |
| Antimony | 6020 | 0.006 | ND (0.0005) | ND (0.0005) | ND (0.0005) | ND (0.0005) |
| Arsenic | 6020 | 0.01 | ND (0.0015) | ND (0.014) | ND (0.0015) | ND (0.0015) |
| Barium | 6020 | 2.0 | 0.0721 | 0.0544 | 0.0702 | 0.0743 |
| Beryllium | 6020 | 0.004 | 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) |
| Chromium | 6020 | 0.1 | ND (0.0015) | ND (0.010) | ND (0.0015) | ND (0.0015) |
| Cobalt | 6020 | NE | 0.000279 (0.001) J | 0.000238 (0.001) J, J+ | 0.000198 (0.001) J | 0.000196 (0.001) J |
| Copper | 6020 | NE | 0.00148 | 0.00112 J+ | ND (0.0047) | ND (0.0047) |
| Iron | 6020 | NE | 0.251 | 0.395 | 0.255 | 0.262 |
| Lead | 6020 | NE | ND (0.0005) | ND (0.0005) | ND (0.0005) | ND (0.0005) |
| Mercury | 7470A | 0.002 | ND (0.000067) | ND (0.000067) | ND (0.000067) | ND (0.000067) |
| Nickel | 6020 | NE | 0.00231 | 0.00237 J+ | 0.00172 (0.002) J | 0.00186 (0.002) J |
| Selenium | 6020 | 0.05 | 0.00179 (0.005) J | 0.00152 (0.005) J, J- | 0.00172 (0.005) J | 0.00174 (0.005) J |
| Silver | 6020 | NE | ND (0.0002) | ND (0.0002) | ND (0.0002) | ND (0.0002) |
| Thallium | 6020 | 0.002 | ND (0.0018) | ND (0.0003) | ND (0.0003) | ND (0.0003) |
| Tin | 6020 | NE | 0.00944 | ND (0.001) | 0.00263 (0.005) J | 0.00233 (0.005) J |
| Vanadium | 6020 | NE | ND (0.003) | ND (0.042) | ND (0.003) | ND (0.003) |
| Zinc | 6020 | NE | 0.0295 | ND (0.014) | 0.00494 (0.010) J | 0.00526 (0.010) J |

Refer to footnotes at end of table.

Table A-9 (Concluded)
Summary of Total Metal Parameters
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

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

ARCOG = Analysis Request and Chain of Custody.

GEL = General Engineering Laboratories.

J = The associated 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.

L = Lower well completion zone.

MCL = Maximum contamination levels (established by the U.S. EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), subsequent amendments or the New Mexico Environmental Improvement Board. In the New Mexico Register, Title 20, Chapter 7, Part 1).

mg/L = Milligram(s) per liter.

MW = Monitoring well.

ND = The analyte was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

NE = Not established.

U = Upper well completion zone.

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 Equipment Blank Samples
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| | | | ARCO No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled: | 612164 087348 Prior to CWL-MW6U Equipment Blank Bennett Pump GEL 04-21-09 | 612167 087356 Prior to CWL-MW4 Equipment Blank Bennett Pump GEL 04-23-09 |
|----------------------|--------|-----|--|--|---|
| Parameter | Method | MCL | All results in µg/L (unless otherwise specified) | | |
| Bromodichloromethane | 8260 | NE | 1.72 | 2.08 | |
| Bromoform | 8260 | NE | 0.771 (1.00) J | 1.06 | |
| Carbon disulfide | 8260 | NE | 6.56 | ND (5.00) | |
| Chloroform | 8260 | NE | 0.820 (1.00) J | 1.47 | |
| Dibromochloromethane | 8260 | NE | 2.57 | 3.28 | |
| Copper (in mg/L) | 6020 | NE | 0.000935 (0.001) J | 0.00107 | |

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

ARCO = Analysis Request and Chain of Custody.

BW = Background well.

GEL = General Engineering Laboratories.

J = The associated value is an estimated quantity and/or detected below the practical quantitation limit.

MCL = Maximum contamination levels (established by the U.S. EPA Primary Drinking Water Regulations in 40 CFR 141.11(b), subsequent amendments or the New Mexico Environmental Improvement Board in the New Mexico Register, Title 20, Chapter 7, Part 1).

mg/L = Milligrams per liter.

ND = The analyte was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

U = Upper well completion zone.

µg/L = Microgram(s) per liter.

Table A-11
Summary of Environmental and Duplicate Analyses
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, January - July 2009

| Parameter | Environmental Sample Results (R ₁) (mg/L, unless indicated) | Duplicate Sample Results (R ₂) (mg/L, unless indicated) | RPD |
|------------------------|--|--|-----|
| CWL-MW5L | | | |
| Chloroform (µg/L) | 0.333 J | 0.337 J | 1 |
| Trichloroethene (µg/L) | 0.795 J | 0.929 J | 16 |
| Barium | 0.0601 | 0.0566 | 6 |
| Cadmium | 0.000278 J, J+ | ND (0.00011) | NC |
| Cobalt | 0.000256 J, J+ | 0.000254 J, J+ | 1 |
| Copper | 0.00107 J+ | 0.00102 J+ | 5 |
| Iron | 0.383 | 0.391 | 2 |
| Nickel | 0.0022 J+ | 0.00236 J+ | 7 |
| Selenium | 0.00122 J, J+ | 0.001 J, J- | 20 |
| CWL-MW6U | | | |
| Toluene (µg/L) | 0.802 J | 0.808 J | 1 |
| Trichloroethene (µg/L) | 0.478 J | 0.460 J | 4 |
| Barium | 0.0702 | 0.0743 | 6 |
| Cobalt | 0.000192 J | 0.000196 J | 2 |
| Iron | 0.255 | 0.262 | 3 |
| Nickel | 0.00172 J | 0.00186 J | 8 |
| Selenium | 0.00172 J | 0.00174 J | 1 |
| Tin | 0.00263 J | 0.00233 J | 12 |
| Zinc | 0.00494 J | 0.00526 J | 6 |

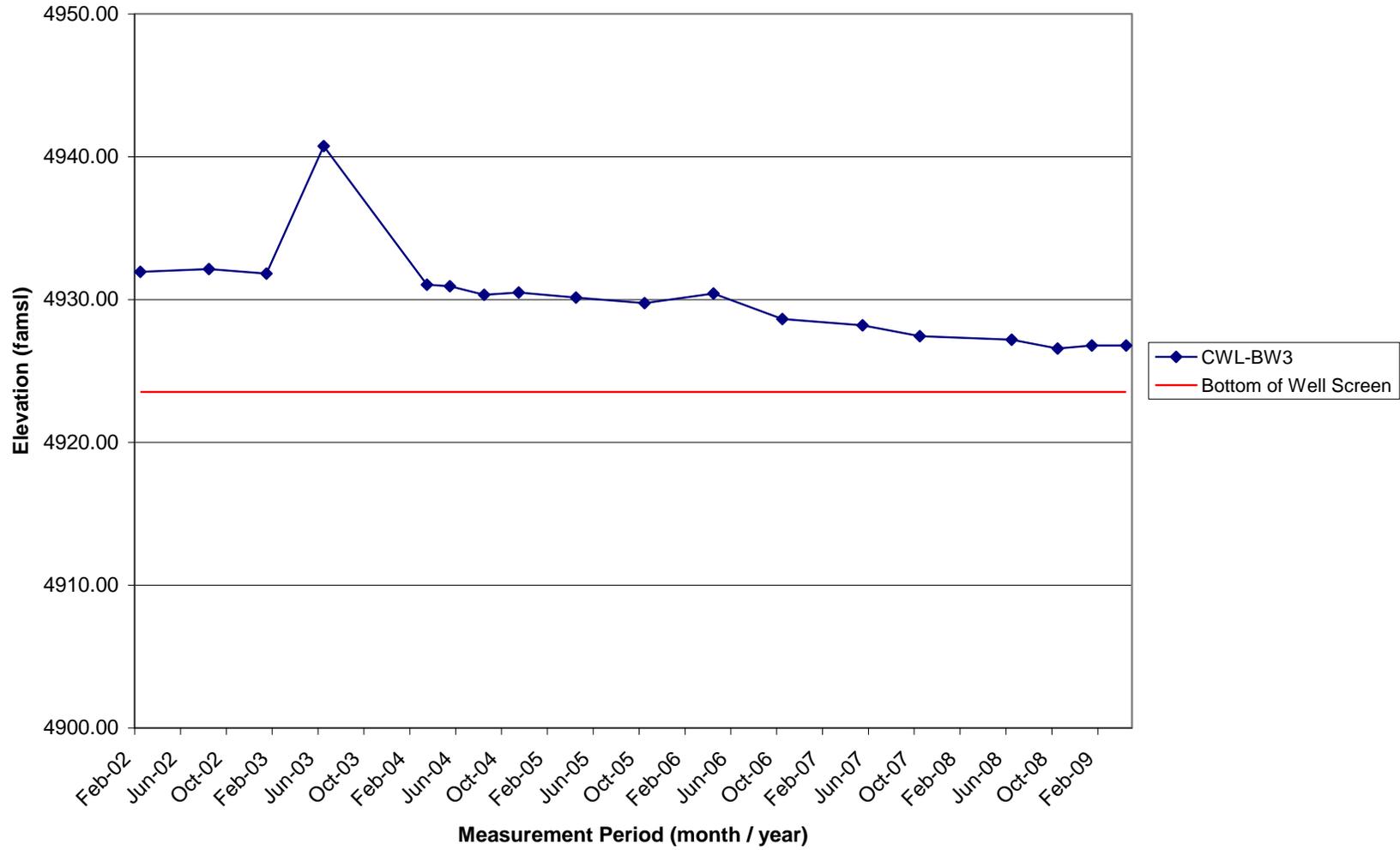
- J = The associated value is qualified as an estimated quantity and/or detected below the practical quantitation limit.
J+ = The associated numerical value is an estimated quantity with a suspected positive bias.
J- = The associated numerical value is an estimated quantity with a suspected negative bias.
mg/L = Milligram(s) per liter.
MW = Monitoring well.
µg/L = Microgram(s) per liter.
NC = Not calculated for estimated or non-detected values.
ND = The analyte was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
RPD = Relative percent difference is calculated with the following equation and rounded to nearest whole number:

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

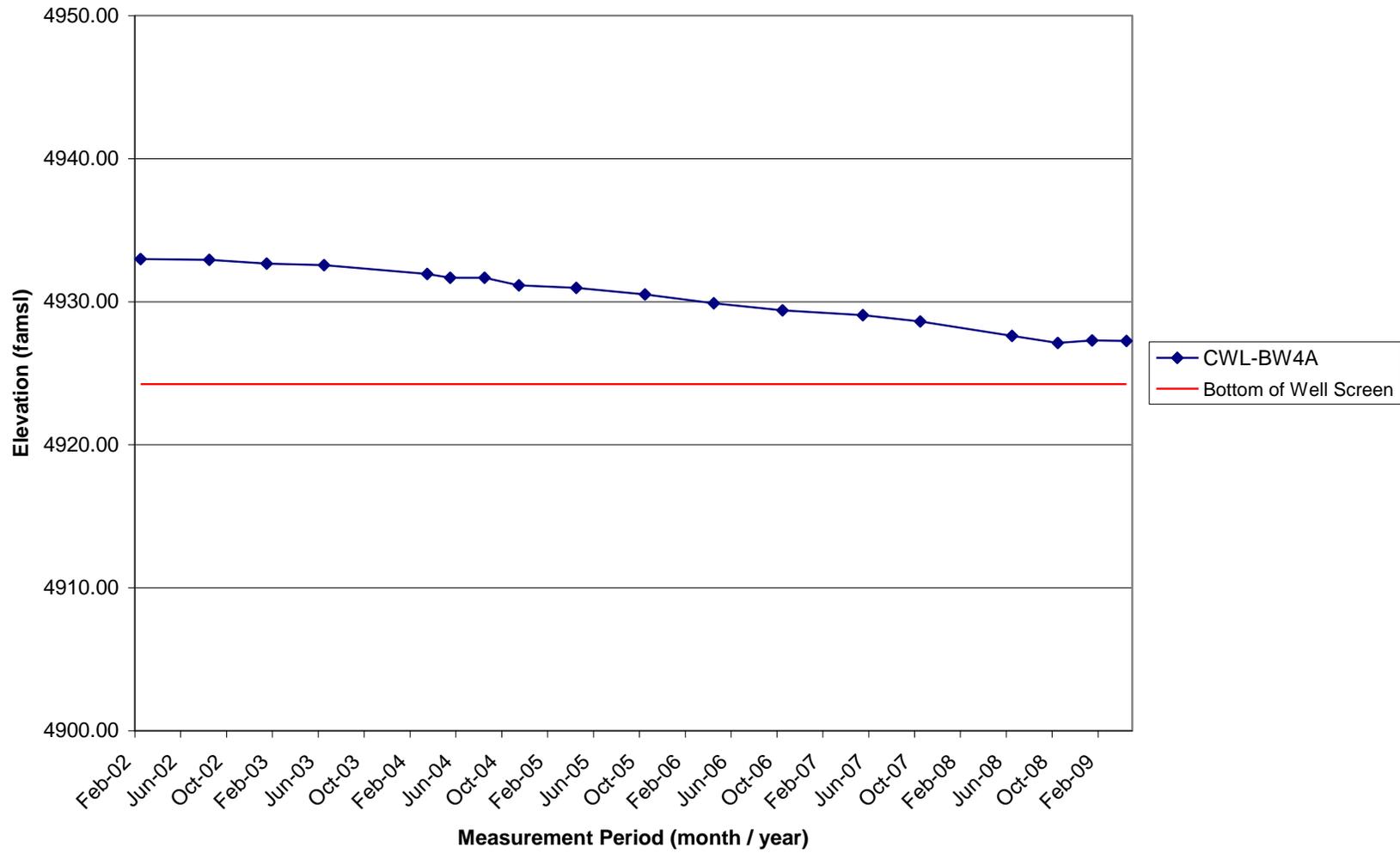
where: R₁ = analysis result.
R₂ = duplicate analysis result.

PLOTS

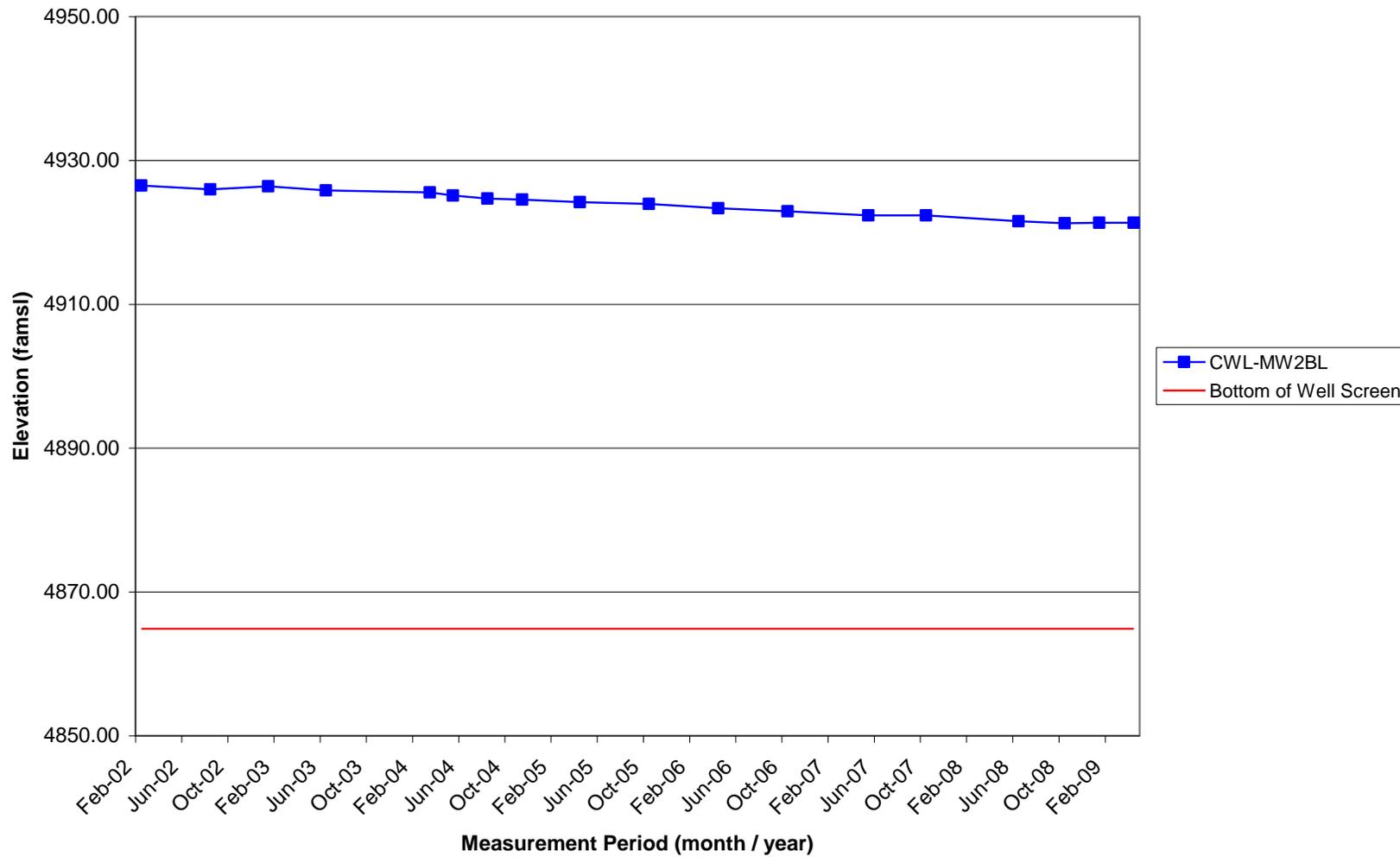
Plot A-1. Water Level Elevation, CWL-BW3



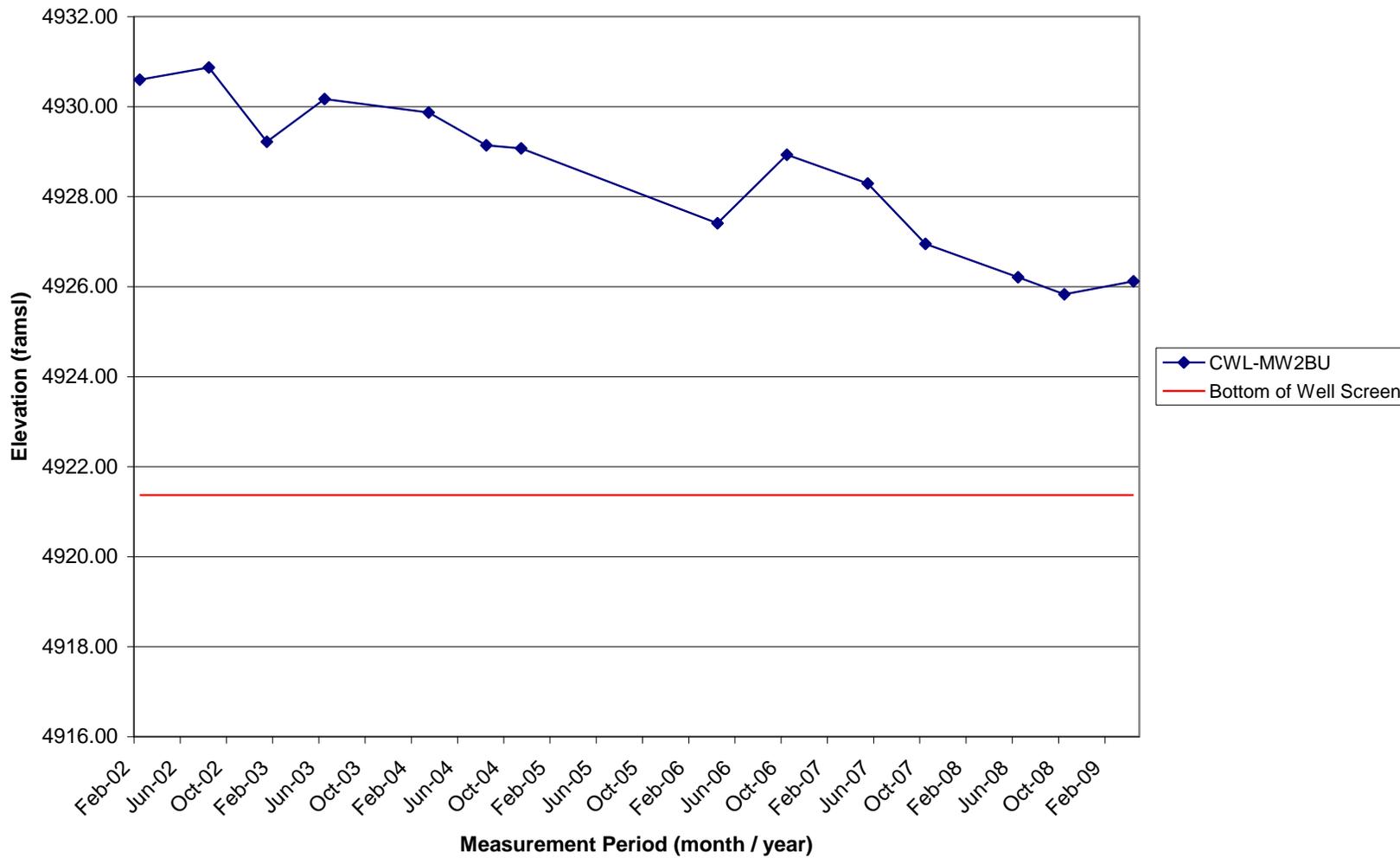
Plot A-2. Water Level Elevation, CWL-BW4A



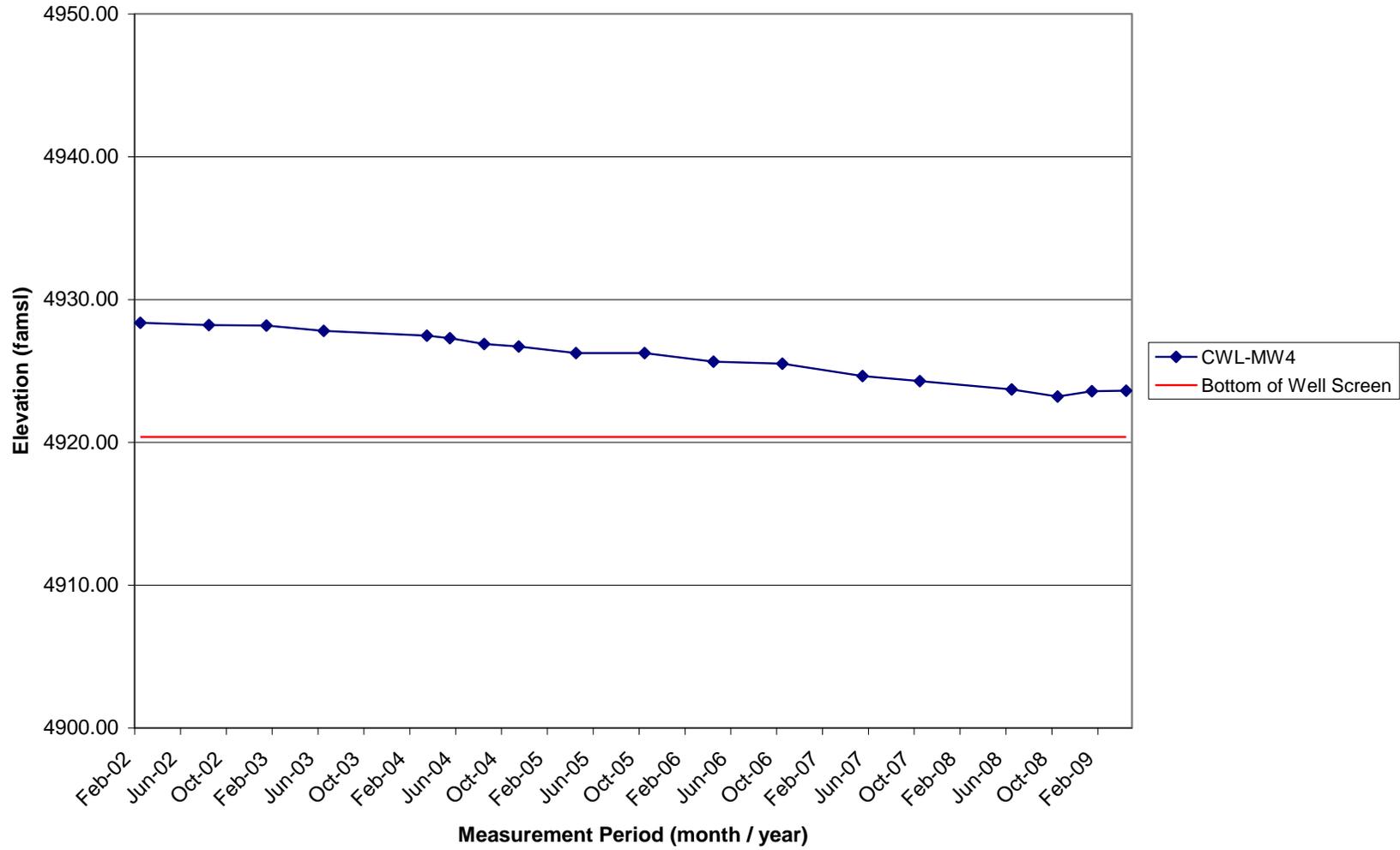
Plot A-3. Water Level Elevation, CWL-MW2BL



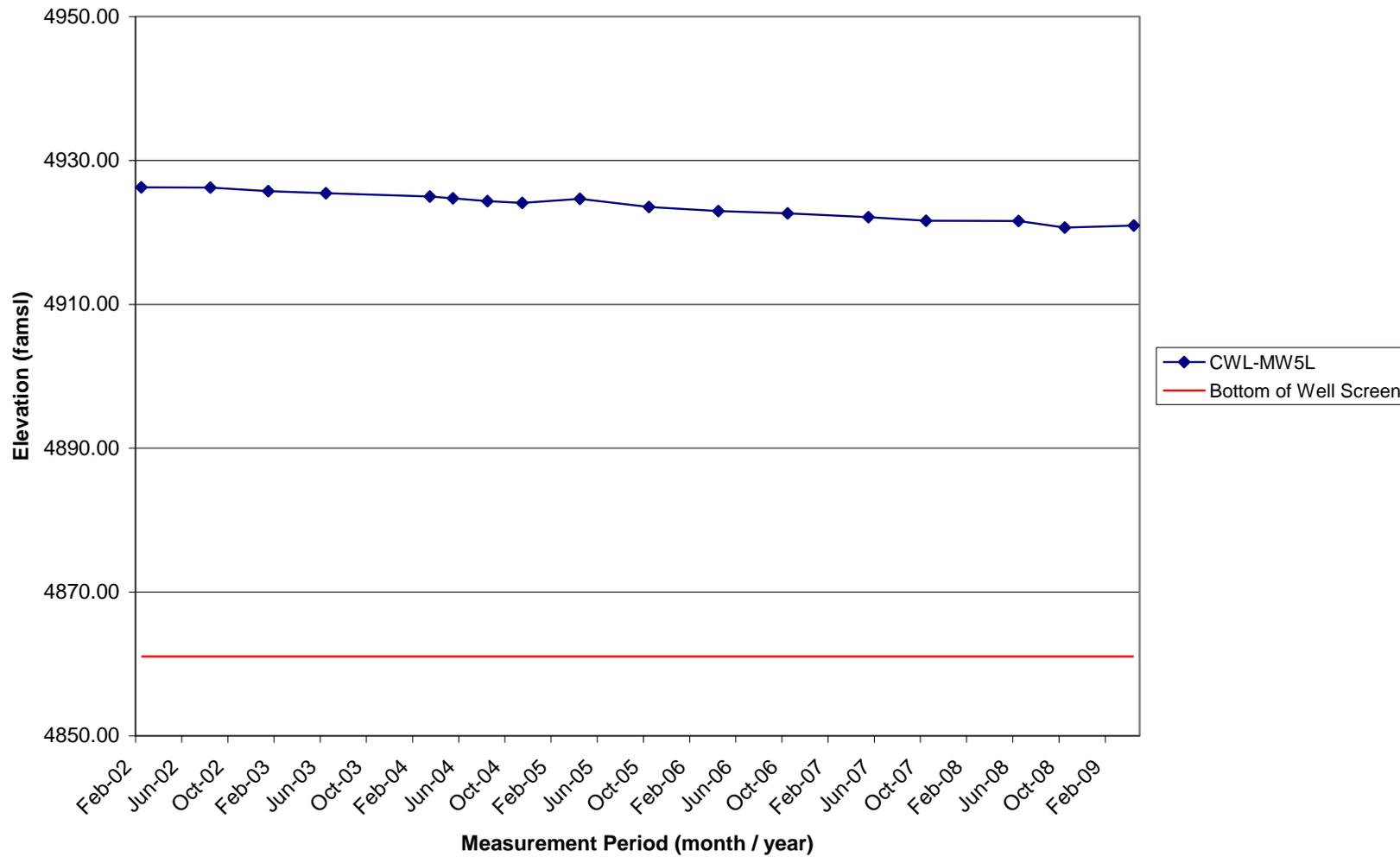
Plot A-4. Water Level Elevation, CWL-MW2BU



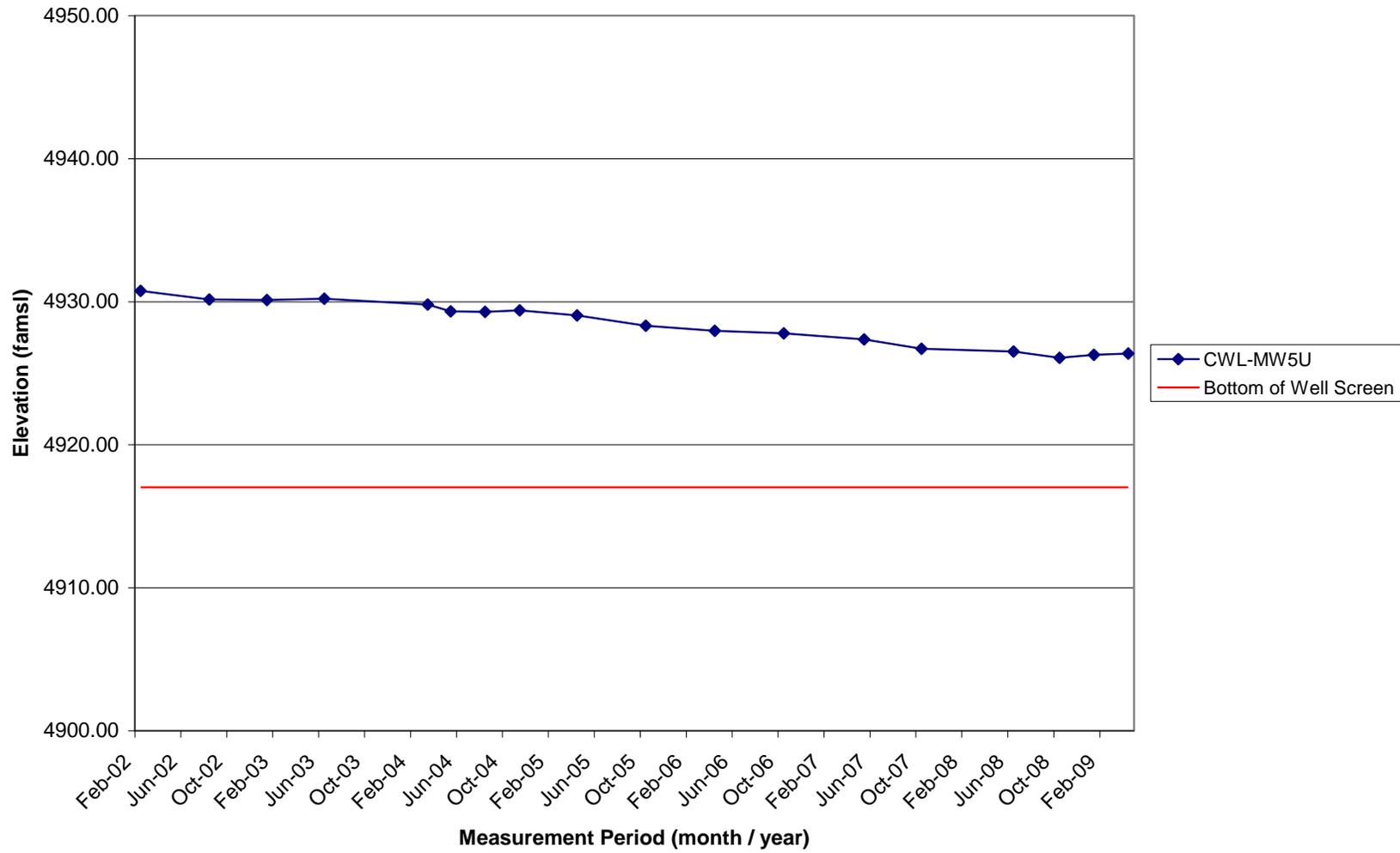
Plot A-5. Water Level Elevation, CWL-MW4



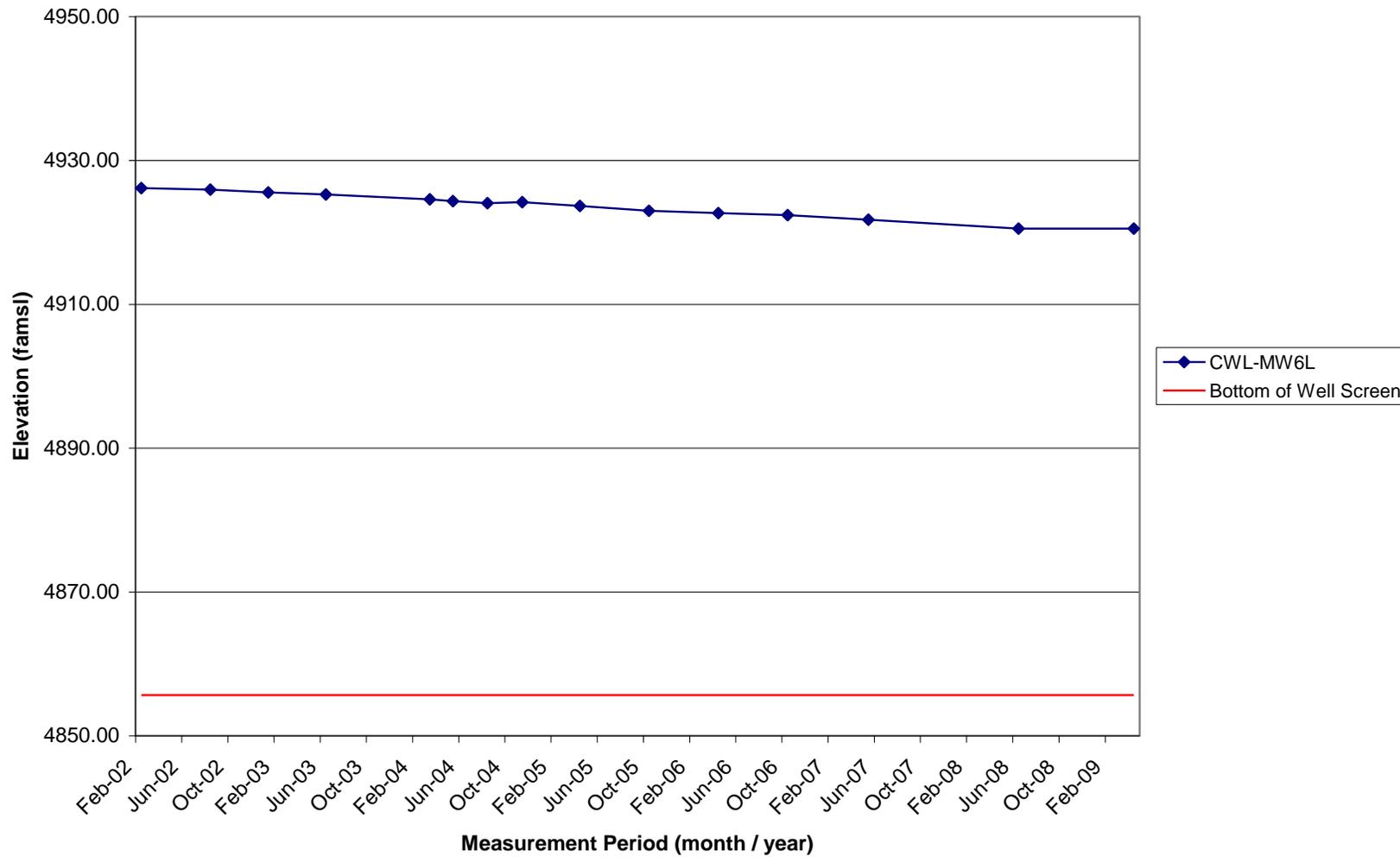
Plot A-6. Water Level Elevation, CWL-MW5L



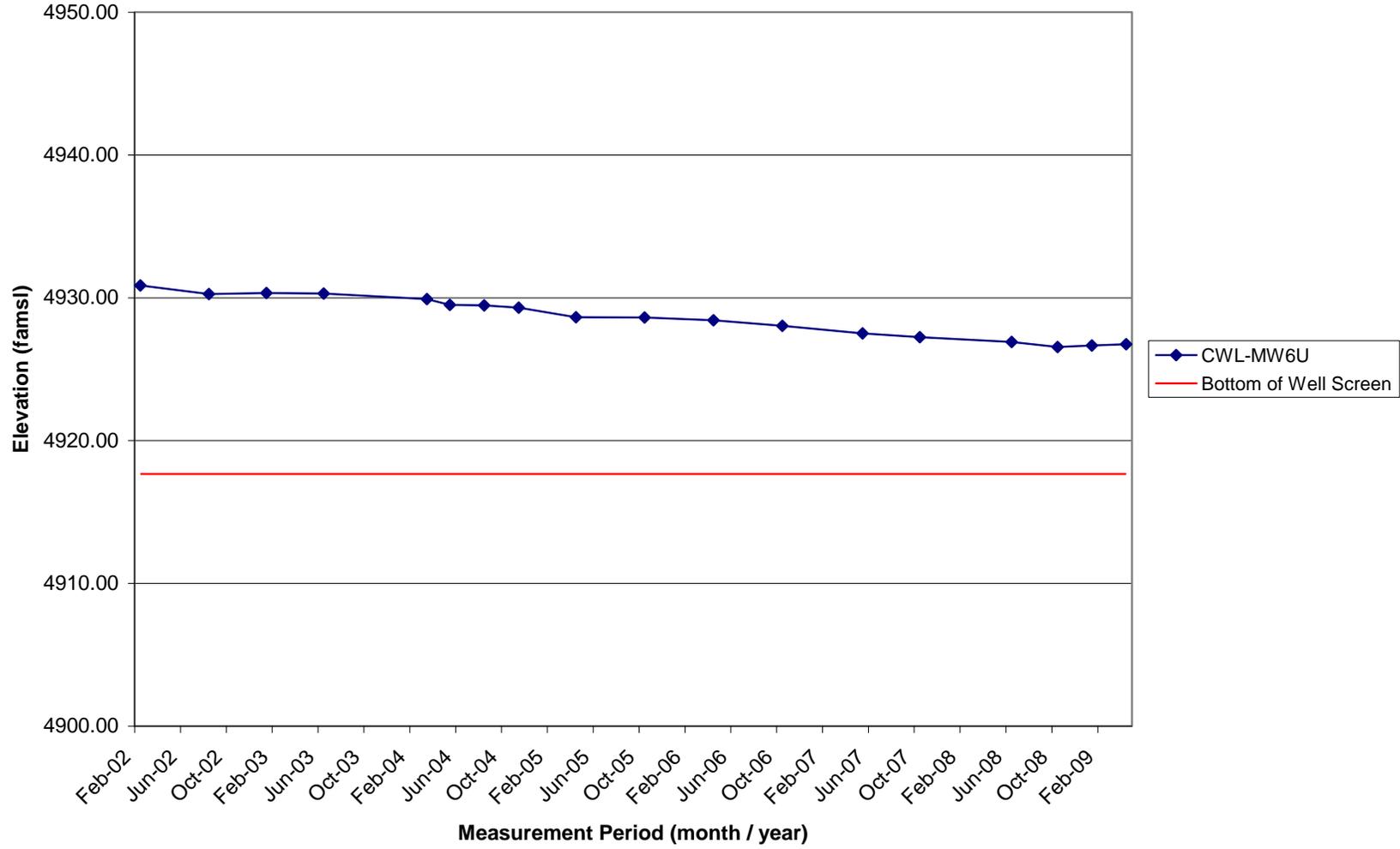
Plot A-7. Water Level Elevation, CWL-MW5U



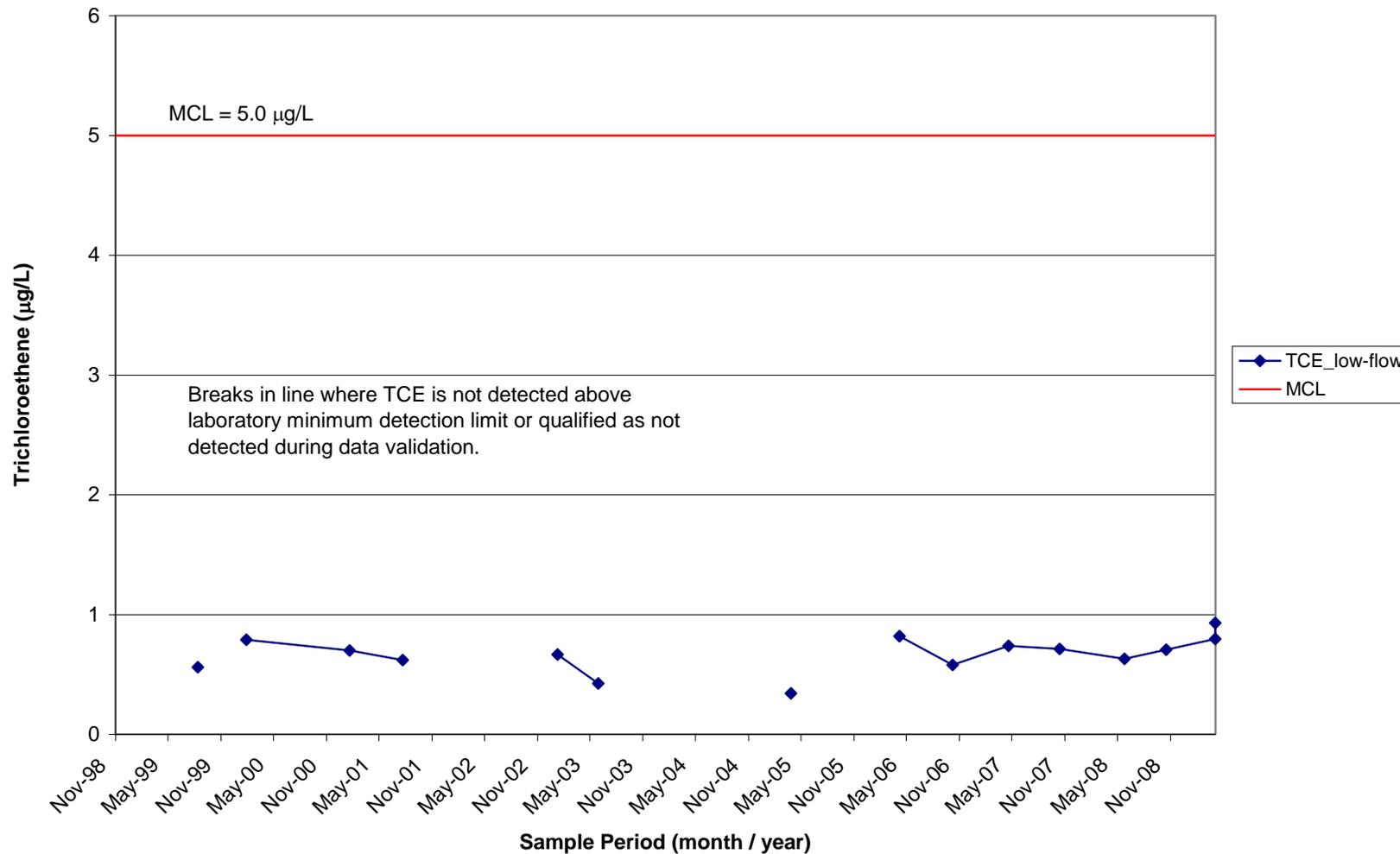
Plot A-8. Water Level Elevation, CWL-MW6L



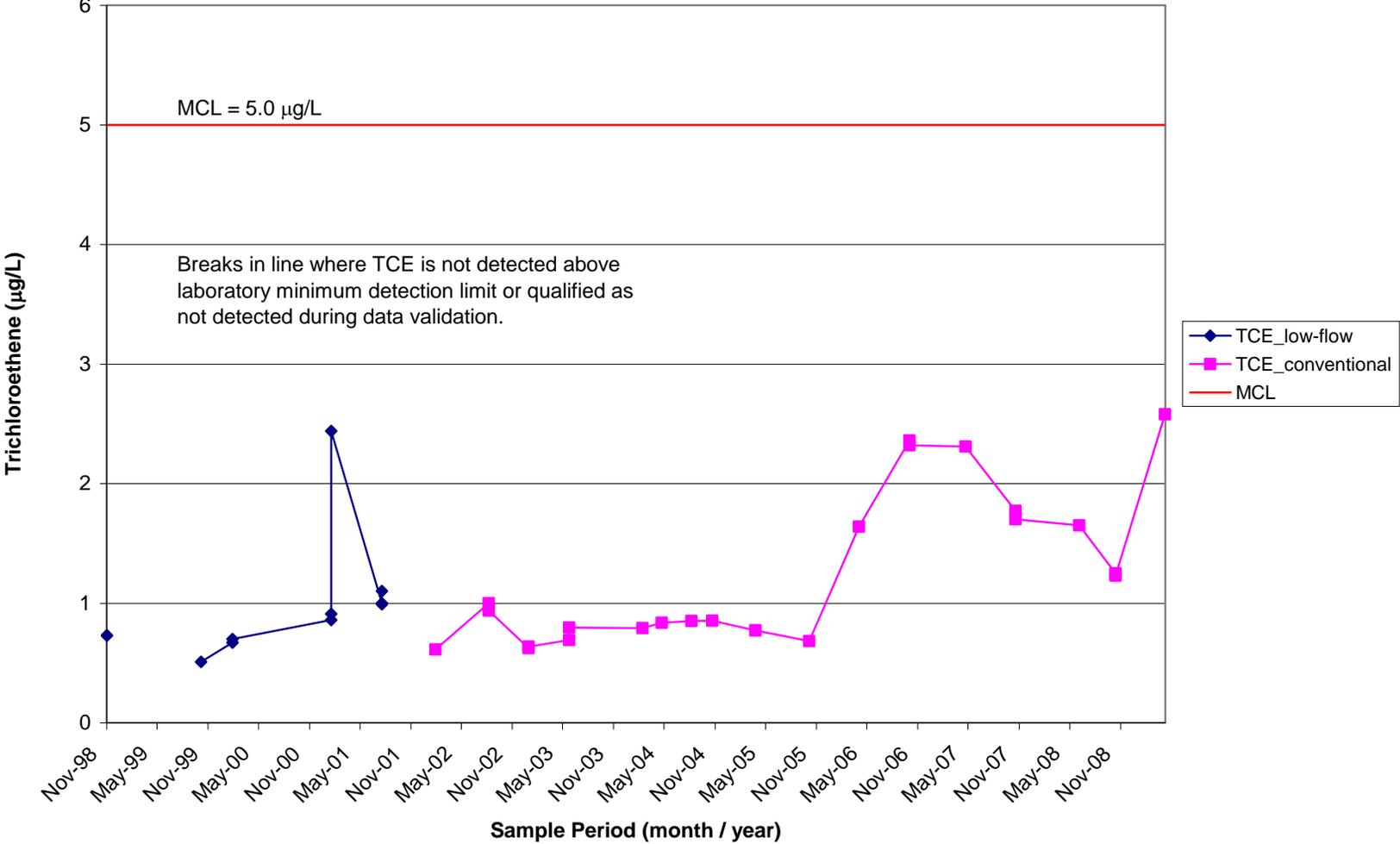
Plot A-9. Water Level Elevation, CWL-MW6U



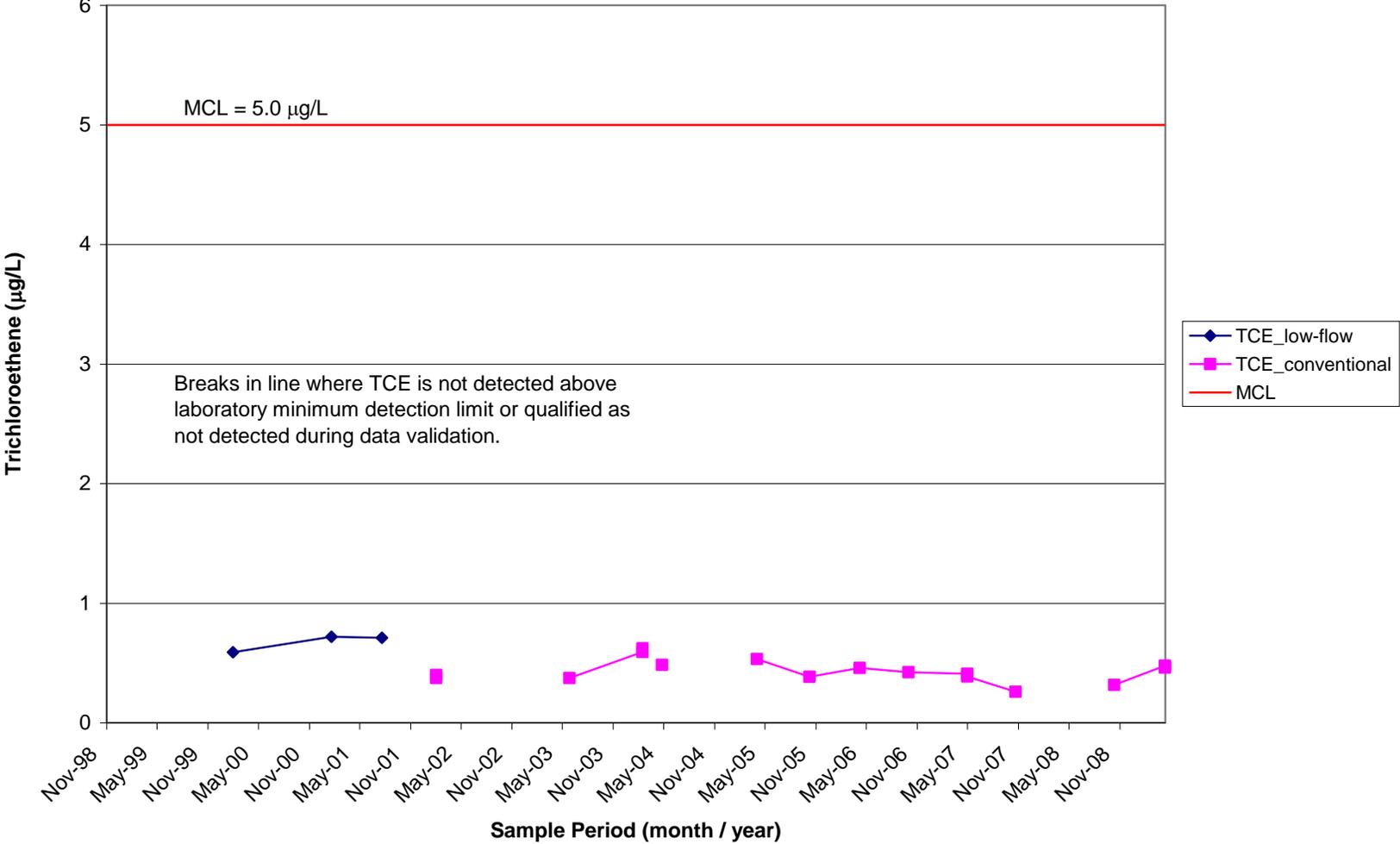
Plot A-10. Trichloroethene Concentration, CWL-MW5L



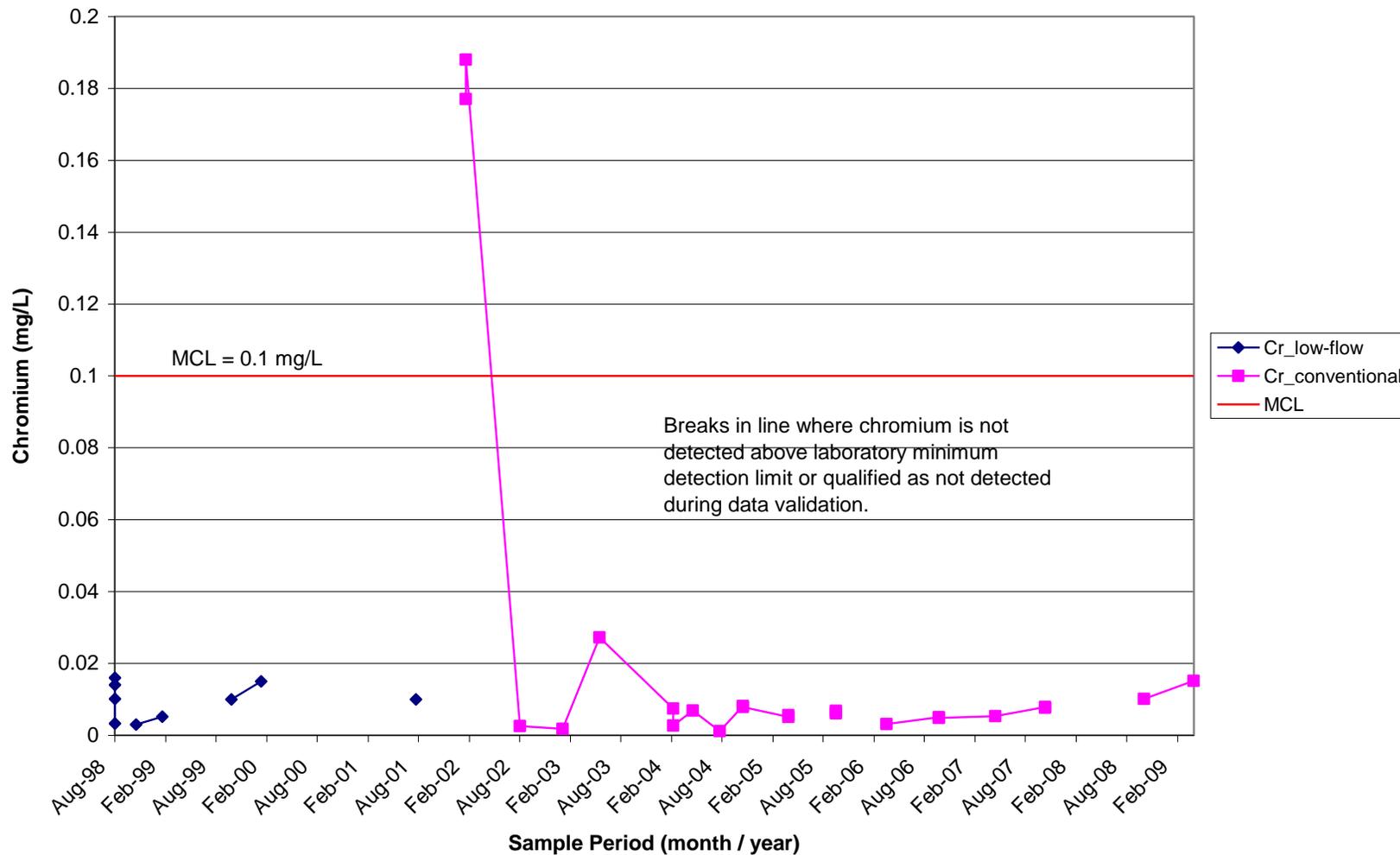
Plot A-11. Trichloroethene Concentrations, CWL-MW5U



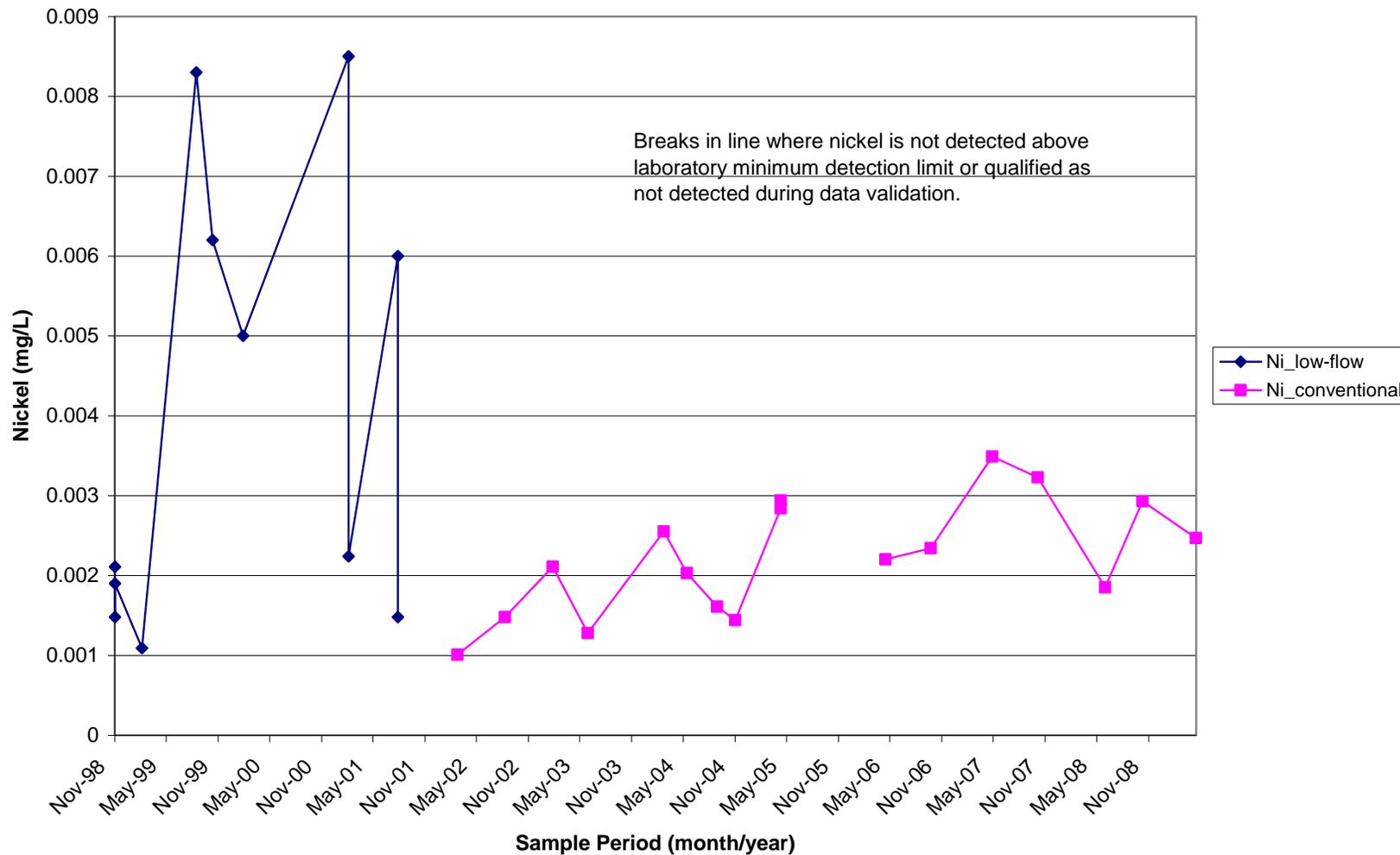
Plot A-12. Trichloroethene Concentrations, CWL-MW6U



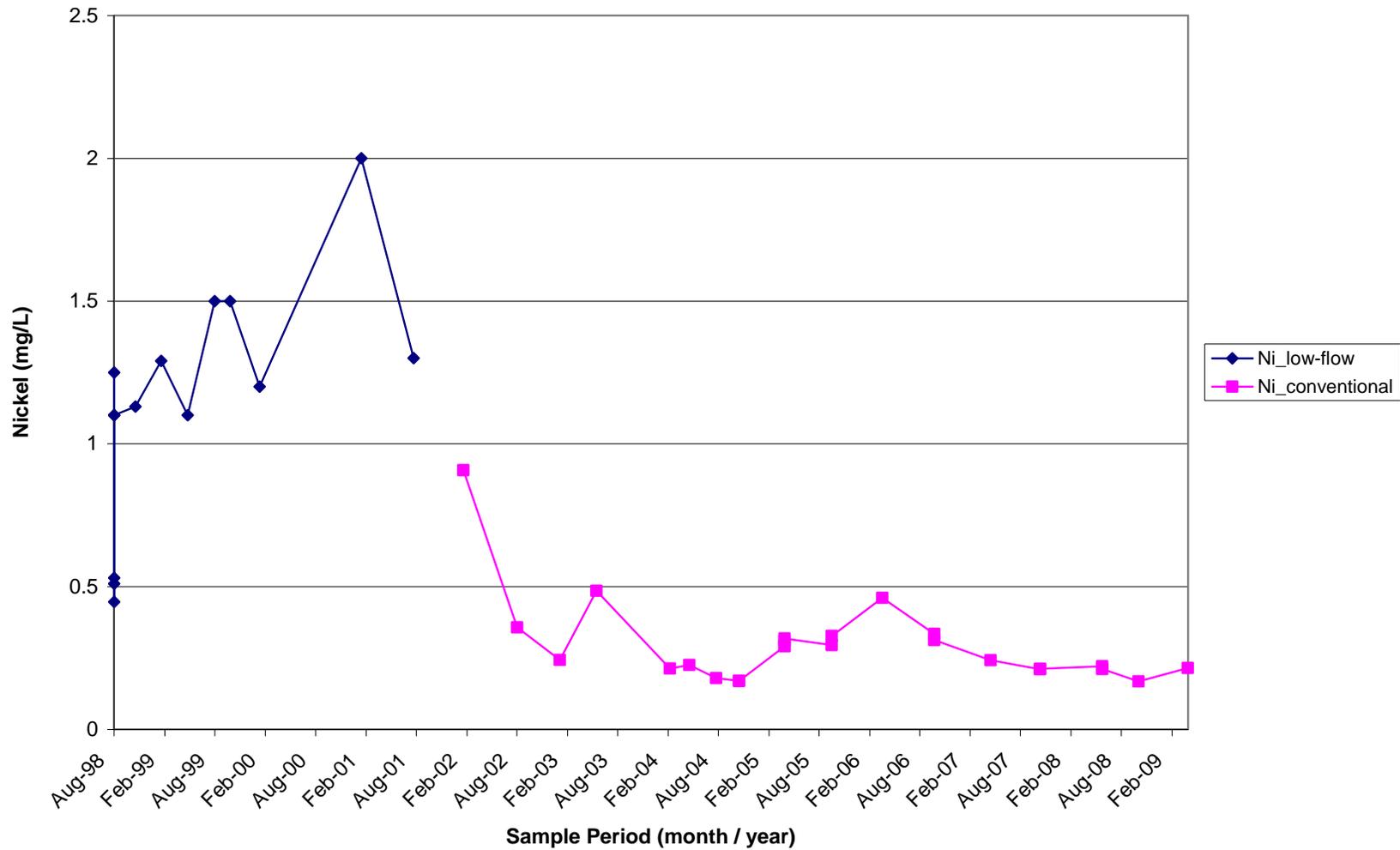
Plot A-13. Chromium Concentrations, CWL-MW4



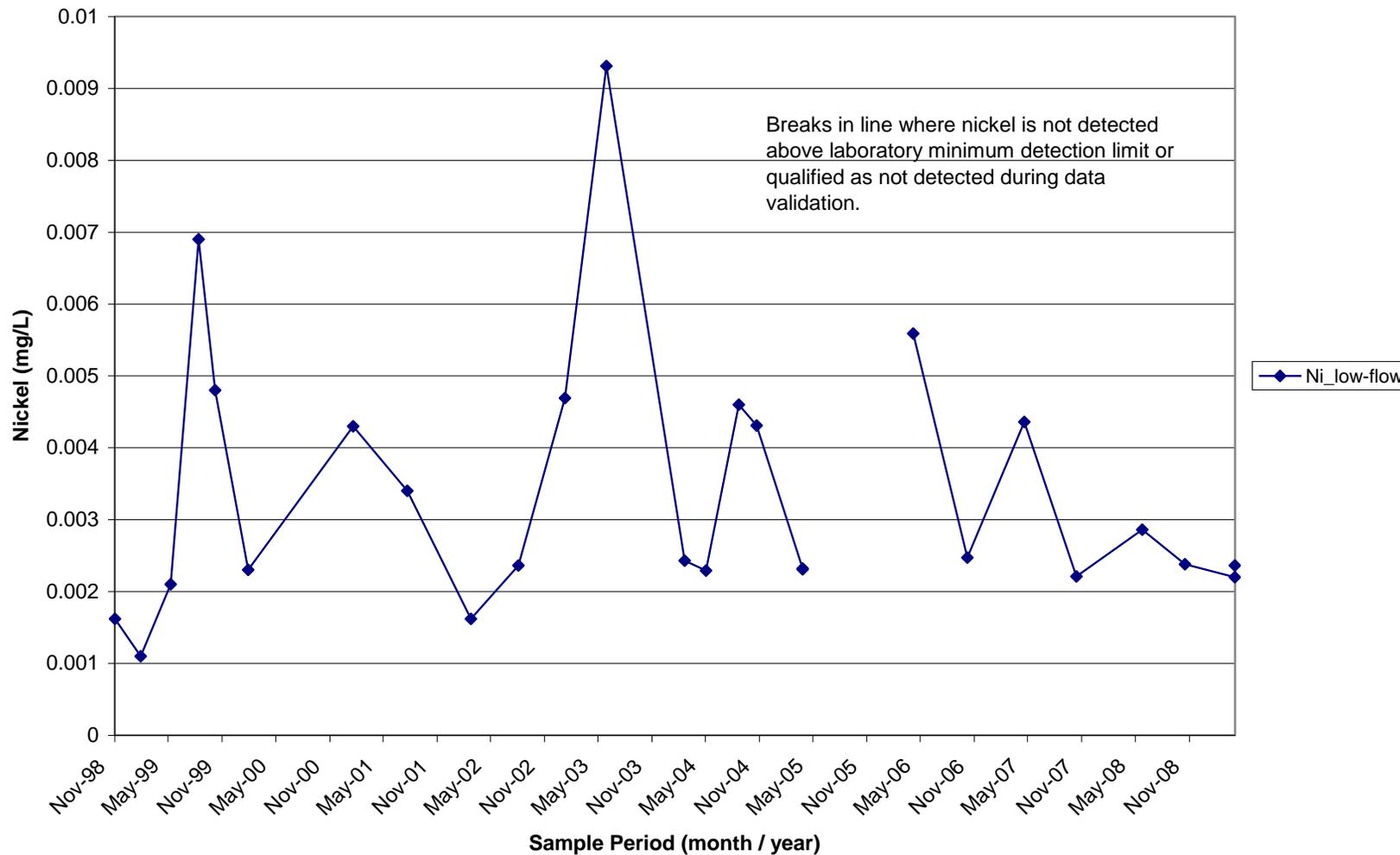
Plot A-14. Nickel Concentrations, CWL-MW2BL



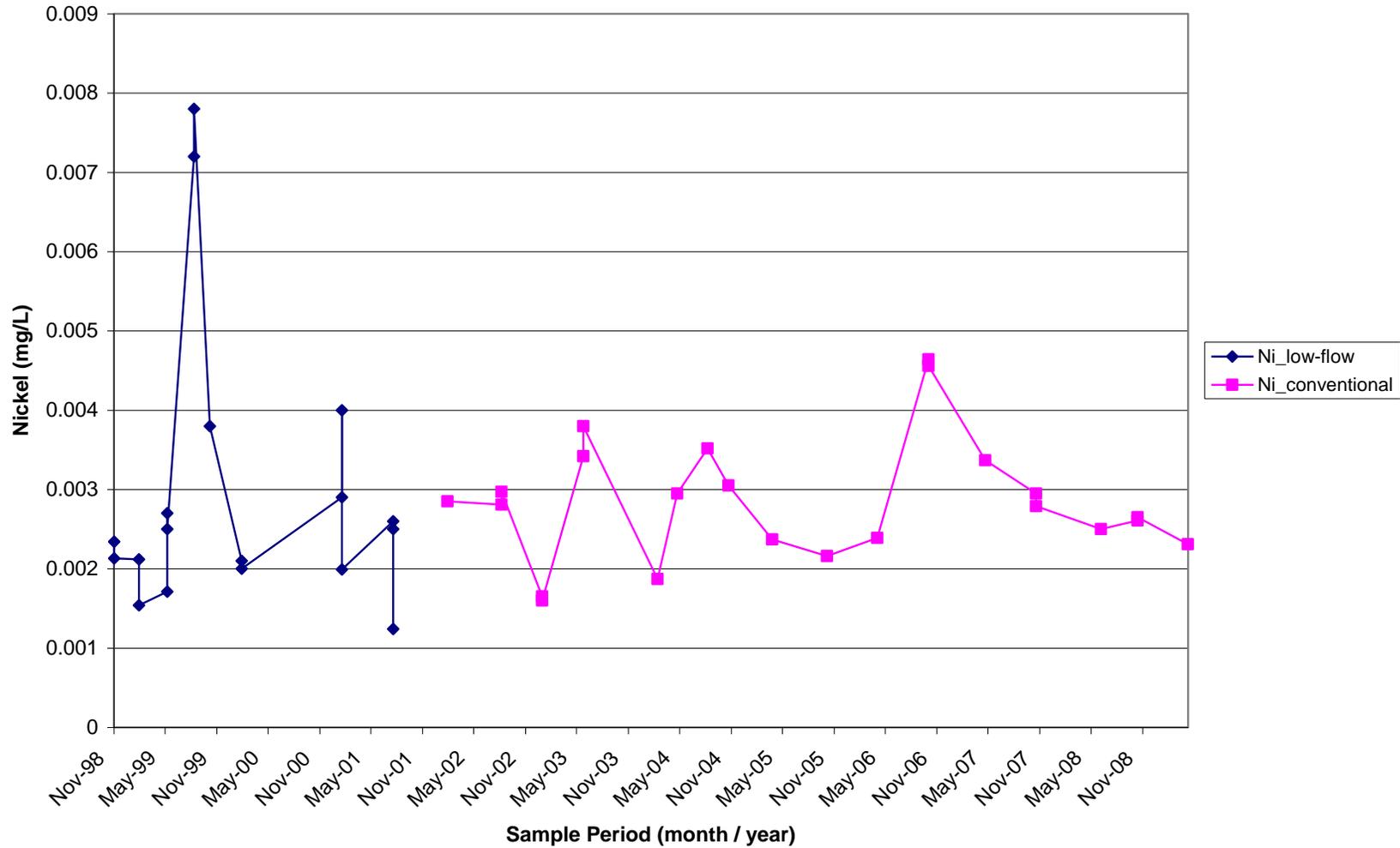
Plot A-15. Nickel Concentrations, CWL-MW4



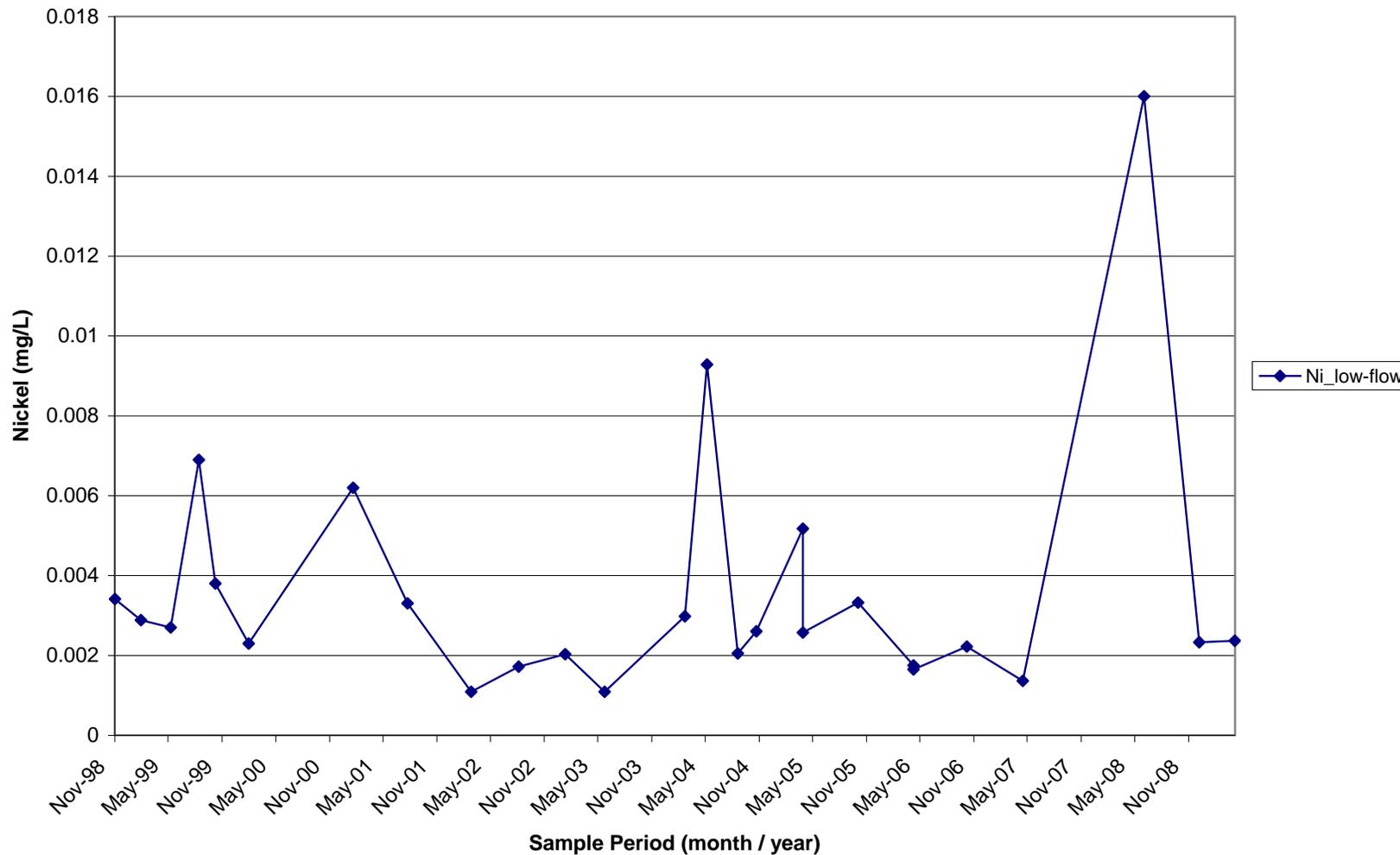
Plot A-16. Nickel Concentrations, CWL-MW5L



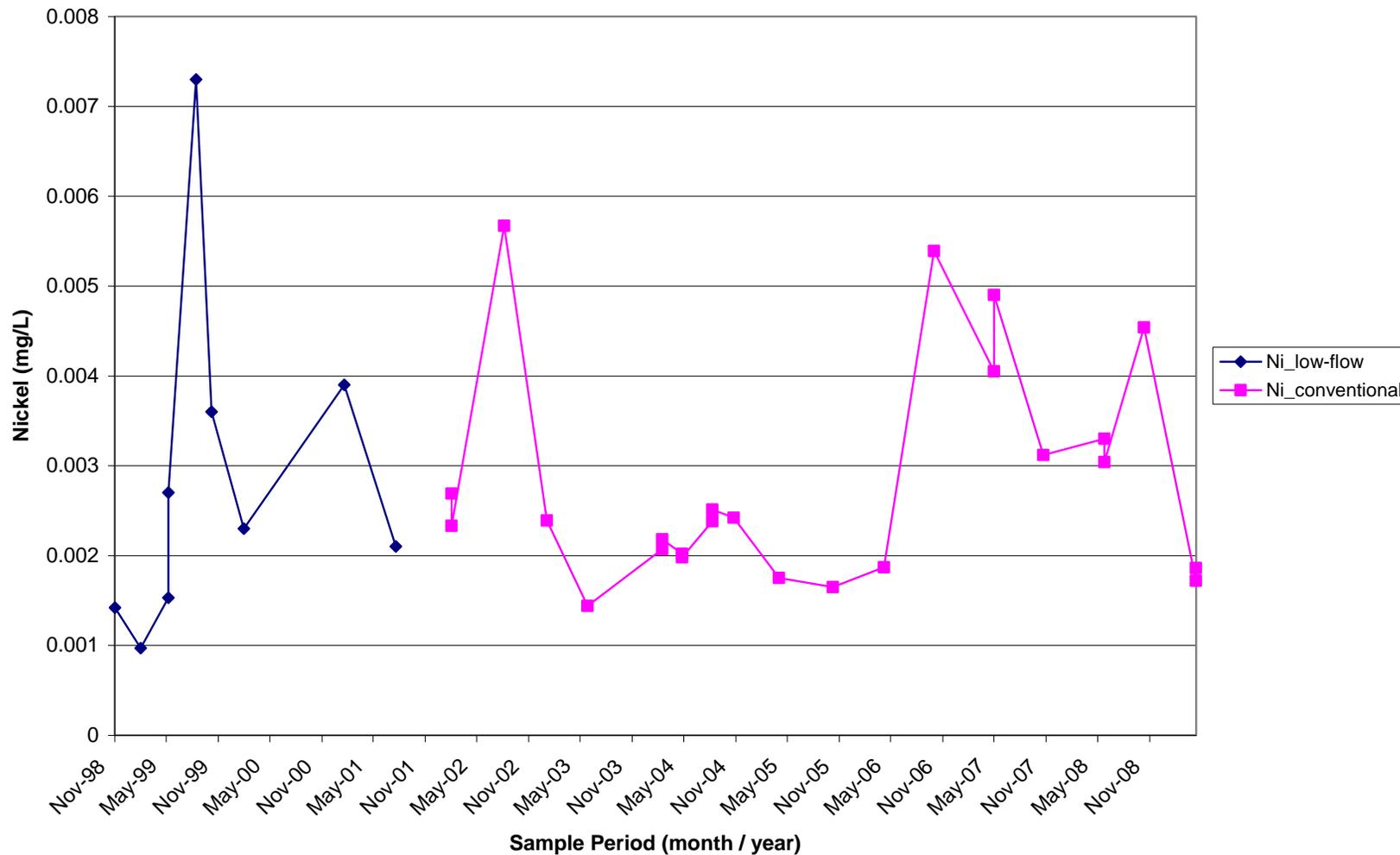
Plot A-17. Nickel Concentrations, CWL-MW5U



Plot A-18. Nickel Concentrations, CWL-MW6L



Plot A-19. Nickel Concentrations, CWL-MW6U



ATTACHMENT A
FIELD MEASUREMENT LOGS AND
DOCUMENTATION

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

| | |
|---|----------------------|
| Project Name: CWL-GWM | Project No.: |
| Well I.D.: CWL-MW2BL | Date: 4-27-09 |
| Weather | |
| Method: <input checked="" type="checkbox"/> Portable pump <input type="checkbox"/> Dedicated pump | |
| Pump depth: 544.5' | |

PURGE MEASUREMENTS

| Depth to Water (FT) | Time 24 hr | Vol L/gls | Temp °C | Ec µmho | ORP MV | pH | Flow L/gls | Turb NTU | DO % | Color and appearance |
|---------------------------------|------------|-----------|---------------------|---------|--------|------|------------|----------|------|----------------------|
| 498.24 | 0753 | / | START | | | | | | | |
| 498.42 | 0848 | 50 | 20.15 | 1214 | 92.4 | 6.96 | | 0.29 | 80.3 | 7.26 |
| 498.41 | 0943 | 100 | 20.61 | 1214 | 89.4 | 6.95 | | 0.23 | 81.4 | 7.29 |
| 498.41 | 1040 | 150 | 20.66 | 1220 | 88.7 | 6.95 | | 0.24 | 81.2 | 7.27 |
| 498.43 | 1131 | 200 | 20.40 | 1220 | 88.1 | 6.96 | | 0.22 | 79.2 | 7.17 |
| 498.44 | 1144 | 210 | 20.70 | 1219 | 88.4 | 6.95 | | 0.20 | 81.2 | 7.26 |
| 498.44 | 1152 | 215 | 20.90 | 1220 | 88.0 | 6.95 | | 0.29 | 81.4 | 7.25 |
| 498.45 | 1202 | 220 | 20.93 | 1221 | 87.4 | 6.95 | | 0.27 | 81.4 | 7.25 |
| 498.45 | 1212 | 225 | 20.88 | 1220 | 87.2 | 6.95 | | 0.27 | 81.1 | 7.23 |
| | 1213 | / | SAMPLING | | | | | | | |
| COC number(s): 612162 | | | | | | | | | | |
| Sample number(s): 087344 | | | | | | | | | | |

Purge Volume Calculations

Well Diameter

- 2" well: 0.16 gal/ft X _____ (height of water column) = _____ gallons
- 4" well: 0.65 gal/ft X _____ (height of water column) = _____ gallons
- 6" well: 1.47 gal/ft X _____ (height of water column) = _____ gallons

Tubing Diameter

- 1/4" OD: 2.4 ml/ft X _____ (length of tubing) = _____ milliliters
- 3/8" OD: 9.7 ml/ft X _____ (length of tubing) = _____ milliliters
- 1/2" OD: 21.6 ml/ft X _____ (length of tubing) = _____ milliliters

~4.00 gals purged from tubing
0800

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE
COLLECTION

| | | | |
|---------------|---|---|-------------------|
| Project Name: | CWL | Project No.: | |
| Well I.D.: | CWL-MW4 | Date: | 4-24-09 |
| Weather | Clear & Cool | | |
| Method: | <input checked="" type="checkbox"/> Portable pump | <input type="checkbox"/> Dedicated pump | Pump depth: 499.5 |

PURGE MEASUREMENTS

| Depth to Water (FT) | Time 24 hr | Vol. L gals | Temp °C | Ec umho | ORP MV | pH | Flow L gals | Turb NTU | DO % | DO mg/L | Color and appearance |
|--------------------------|------------|-------------|----------|---------|--------|------|-------------|----------|------|---------|----------------------|
| 496.86 | 0800 | / | Start | | | | | | | | |
| 498.22 | 0826 | 5 | 17.92 | 1016 | -7.6 | 6.79 | | 11.5 | 8.3 | 0.79 | |
| 498.10 | 0835 | 7 | 18.30 | 1032 | -3.6 | 6.88 | | 48.6 | 19.1 | 1.80 | |
| 498.16 | 0842 | 9 | 18.54 | 1049 | -1.1 | 7.02 | | 50.9 | 34.4 | 3.22 | |
| 498.05 | 0851 | 11 | 18.65 | 1050 | 8.3 | 7.06 | | 37.7 | 44.5 | 4.15 | |
| 497.83 | 0901 | 13 | 18.70 | 1052 | 18.5 | 7.09 | | 19.6 | 51.7 | 4.81 | |
| 498.55 | 0907 | 15 | 19.01 | 1053 | 23.0 | 7.09 | | 12.3 | 54.9 | 5.08 | |
| 498.68 | 0914 | 17 | 19.39 | 1053 | 27.4 | 7.09 | | 6.79 | 58.3 | 5.40 | |
| 498.72 | 0919 | 19 | 19.60 | 1054 | 31.3 | 7.09 | | 4.81 | 58.6 | 5.36 | |
| 498.72 | 0924 | 21 | 19.65 | 1054 | 31.8 | 7.09 | | 4.86 | 60.2 | 5.50 | |
| 498.76 | 0930 | 23 | 19.69 | 1054 | 31.5 | 7.09 | | 4.79 | 61.1 | 5.57 | |
| | 0931 | / | Sampling | | | | | | | | |
| COC number(s): 612168 | | | | | | | | | | | |
| Sample number(s): 087358 | | | | | | | | | | | |

Purge Volume Calculations

Well Diameter

2" well: 0.16 gal/ft X _____ (height of water column) = _____ gallons
 4" well: 0.65 gal/ft X _____ (height of water column) = _____ gallons
 6" well: 1.47 gal/ft X _____ (height of water column) = _____ gallons

Tubing Diameter

1/4" OD: 2.4 ml/ft X _____ (length of tubing) = _____ milliliters
 3/8" OD: 9.7 ml/ft X _____ (length of tubing) = _____ milliliters
 1/2" OD: 21.6 ml/ft X _____ (length of tubing) = _____ milliliters

~ 4.00 gal. purged
 prior to measurement
 0.81

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

| | |
|---|----------------------|
| Project Name: GWL-GWM | Project No.: |
| Well I.D.: CWL-MW5L | Date: 4-16-09 |
| Weather | |
| Method: _____ Portable pump <input checked="" type="checkbox"/> Dedicated pump _____ Pump depth: 543 | |

PURGE MEASUREMENTS

| Depth to Water (FT) | Time 24 hr | Vol. ① gls | Temp °C | Ec µmho | ORP MV | pH | Flow L gls | Turb NTU | DO % | Color and appearance |
|---------------------------------|-------------|---------------|-----------------|-------------|--------------|----------------|---------------|-------------|-------------|-------------------------|
| 494.87 | 0809 | / | START | | | | | | | |
| 494.87 | 0824 | 2 | 13.68 | 872 | 63.3 | 8.05 | | 0.40 | 74.7 | 7.73 |
| 494.89 | 0833 | 4 | 13.87 | 880 | 76.9 | 8.07.92 | | 0.45 | 73.4 | 7.57 |
| 494.91 | 0844 | 6 | 13.80 | 984 | 91.7 | 7.56 | | 0.28 | 69.2 | 7.17 |
| 494.88 | 0854 | 8 | 13.95 | 1168 | 105.8 | 7.10 | | 0.23 | 68.9 | 7.09 |
| 494.91 | 0903 | 10 | 13.58 | 1184 | 113.7 | 7.01 | | 0.22 | 70.9 | 7.36 |
| 494.89 | 0908 | 11 | 13.50 | 1183 | 116.7 | 7.00 | | 0.24 | 71.6 | 7.43 |
| 494.90 | 0914 | 12 | 13.75 | 1184 | 116.9 | 7.00 | | 0.24 | 72.0 | 7.43 |
| 494.90 | 0918 | 13 | 13.71 | 1184 | 116.8 | 7.00 | | 0.21 | 72.0 | 7.44 |
| 494.91 | 0925 | 14 | 14.11 | 1182 | 116.6 | 7.00 | | 0.20 | 71.9 | 7.44 |
| | 0926 | / | SAMPLING | | | | | | | |
| COC number(s): 612161 | | | | | | | | | | |
| Sample number(s): 087341 | | | | | | | | | | |

Purge Volume Calculations

Well Diameter

2" well: 0.16 gal/ft X _____ (height of water column) = _____ gallons
 4" well: 0.65 gal/ft X _____ (height of water column) = _____ gallons
 6" well: 1.47 gal/ft X _____ (height of water column) = _____ gallons

Tubing Diameter

1/4" OD: 2.4 ml/ft X _____ (length of tubing) = _____ millileters
 3/8" OD: 9.7 ml/ft X _____ (length of tubing) = _____ millileters
 1/2" OD: 21.6 ml/ft X _____ (length of tubing) = _____ millileters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

80% = 492.69

| | |
|--|---------------------------------------|
| Project Name: CWL-Gwm | Project No.: |
| Well ID.: CWL-MW5U | Date: 4-20-09 4-21-09 |
| Weather | |
| Method: <u> X </u> Portable pump <u> </u> Dedicated pump Pump depth: 498.5 | |

PURGE MEASUREMENTS

DO mg/L

| Depth to Water (FT) | Time 24 hr | Vol. L gls | Temp °C | Ec µmho | ORP MV | pH | Flow L gls | Turb NTU | DO % | Color and appearance |
|---------------------------------|-----------------|--------------------|---------------------|-------------|--------------|-------------|------------|-------------|-------------|----------------------|
| 489.86 | 0823 | - START | | | | | | | | |
| 494.98 | 0842 | 2 | 19.06 | 954 | 153.6 | 7.17 | | 0.23 | 67.7 | 6.39 |
| 496.70 | 0851 | 4 | 18.82 | 944 | 136.6 | 7.25 | | 0.24 | 67.8 | 6.29 |
| 498.27 | 0900 | 6 | 19.19 | 943 | 128.0 | 7.26 | | 0.31 | 68.1 | 6.29 |
| 498.60 | 0900 | well | DRY | | | | | | | |
| 491.47 | 0831 | | START | | | | | | | |
| 495.95 | 0846 | 0.5 | 17.72 | 984 | 86.6 | 7.30 | | 0.40 | 92.7 | 8.80 |
| 496.26 | 0848 | 1 | 18.04 | 1015 | 87.7 | 7.23 | | 0.38 | 80.2 | 7.53 |
| 496.76 | 0850 | 1.5 | 18.45 | 1017 | 87.2 | 7.20 | | 0.30 | 67.0 | 6.27 |
| | | 2 RL | | | | | | | | |
| | 0851 | | SAMPLING | | | | | | | |
| COC number(s): 612163 | | | | | | | | | | |
| Sample number(s): 087346 | | | | | | | | | | |

Purge Volume Calculations

Well Diameter

- 2" well: 0.16 gal/ft X _____ (height of water column) = _____ gallons
- 4" well: 0.65 gal/ft X _____ (height of water column) = _____ gallons
- 6" well: 1.47 gal/ft X _____ (height of water column) = _____ gallons

Tubing Diameter

- 1/4" OD: 2.4 ml/ft X _____ (length of tubing) = _____ milliliters
- 3/8" OD: 9.7 ml/ft X _____ (length of tubing) = _____ milliliters
- 1/2" OD: 21.6 ml/ft X _____ (length of tubing) = _____ milliliters

~4.00 gals purged from tubing 0836

4/21/09 0843

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE
COLLECTION

| | |
|---|-------------------------|
| Project Name: <u>CWL-GWM</u> | Project No.: |
| Well I.D.: <u>CWL-MW6L</u> | Date: <u>4-17-09</u> |
| Weather | |
| Method: <u> </u> Portable pump <u>X</u> <u> </u> Dedicated pump | Pump depth: <u>549'</u> |

PURGE MEASUREMENTS

| Depth to Water (FT) | Time 24 hr | Vol Dis L/gals | Temp °C | Ec µmho | ORP MV | pH | Flow L/gls | Turb NTU | DO % | Color and appearance | DO mg/L |
|---|-----------------|---------------------------------|----------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 496.68 | 0805 | | START | |
| 496.68 | 0827 | 2 | 12.38 | 933 | 106.2 | 7.81 | | 0.16 | 71.9 | 7.66 | |
| 496.68 | 0840 | 4 | 12.32 | 925 | 108.8 | 7.80 | | 0.20 | 44.8 | 4.78 | |
| 496.68 | 0855 | 6 | 11.24 | 1009 | 115.4 | 7.49 | | 0.48 | 30.8 | 3.37 | |
| 496.68 | 0906 | 8 | 12.45 | 1135 | 124.1 | 7.09 | | 0.56 | 41.3 | 4.39 | |
| 496.68 | 0917 | 10 | 12.43 | 1151 | 128.9 | 7.02 | | 0.38 | 43.5 | 4.62 | |
| 496.68 | 0923 | 11 | 12.34 | 1150 | 129.9 | 7.02 | | 0.42 | 42.3 | 4.61 | |
| 496.68 | 0928 | 12 | 12.30 | 1149 | 129.9 | 7.02 | | 0.40 | 42.4 | 4.54 | |
| 496.68 | 0934 | 13 | 12.64 | 1149 | 130.2 | 7.01 | | 0.36 | 42.6 | 4.50 | |
| 496.68 | 0939 | 14 | 12.43 | 1150 | 130.2 | 7.01 | | 0.31 | 41.5 | 4.41 | |
| | 0940 | | SAMP ling | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| COC number(s): <u>612165</u> | | | | | | | | | | | |
| Sample number(s): <u>087350, 087351</u> | | | | | | | | | | | |

Purge Volume Calculations

Well Diameter

2" well: 0.16 gal/ft X _____ (height of water column) = _____ gallons
 4" well: 0.65 gal/ft X _____ (height of water column) = _____ gallons
 6" well: 1.47 gal/ft X _____ (height of water column) = _____ gallons

Tubing Diameter

1/4" OD: 2.4 ml/ft X _____ (length of tubing) = _____ milliliters
 3/8" OD: 9.7 ml/ft X _____ (length of tubing) = _____ milliliters
 1/2" OD: 21.6 ml/ft X _____ (length of tubing) = _____ milliliters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

recovery
80% = 493.05
~~493.50 RL~~

| | |
|---|---------------------------------------|
| Project Name: <u>CWL</u> | Project No.: |
| Well I.D.: <u>CWL-MW64</u> | Date: <u>4-22-09</u> <u>4-23-09</u> |
| Weather: <u>Clear & Cool</u> | |
| Method: <input checked="" type="checkbox"/> Portable pump <input type="checkbox"/> Dedicated pump | Pump depth: <u>498.6'</u> |

PURGE MEASUREMENTS

DO mg/L

| Depth to Water (FT) | Time 24 hr | Vol. L gls | Temp °C | Ec µmho | ORP MV | pH | Flow L gls | Turb NTU | DO % | Color and appearance |
|---|-------------|-----------------|--------------|-------------|--------------|-------------|------------|-------------|-------------|----------------------|
| <u>490.28</u> | <u>0809</u> | <u>Start</u> | | | | | | | | |
| <u>494.82</u> | <u>0826</u> | <u>2</u> | <u>20.22</u> | <u>1015</u> | <u>138.4</u> | <u>7.10</u> | | <u>0.23</u> | <u>66.6</u> | <u>6.01</u> |
| <u>496.35</u> | <u>0834</u> | <u>4</u> | <u>20.72</u> | <u>1018</u> | <u>116.9</u> | <u>7.16</u> | | <u>0.26</u> | <u>64.5</u> | <u>5.76</u> |
| <u>497.03</u> | <u>0837</u> | <u>5</u> | <u>20.78</u> | <u>1019</u> | <u>112.2</u> | <u>7.17</u> | | <u>0.54</u> | <u>63.8</u> | <u>5.70</u> |
| <u>497.98</u> | <u>0842</u> | <u>6</u> | <u>20.86</u> | <u>1019</u> | <u>107.8</u> | <u>7.18</u> | | <u>0.28</u> | <u>63.6</u> | <u>5.67</u> |
| <u>498.50</u> | <u>0847</u> | <u>7</u> | <u>21.02</u> | <u>1022</u> | <u>104.7</u> | <u>7.18</u> | | <u>0.29</u> | <u>62.1</u> | <u>5.50</u> |
| <u>498.68</u> | <u>0847</u> | <u>well</u> | <u>DRY</u> | | | | | | | |
| <u>490.22</u> | <u>0820</u> | <u>Start</u> | | | <u>71.8</u> | | | | | |
| <u>494.48</u> | <u>0835</u> | <u>1</u> | <u>18.67</u> | <u>1010</u> | <u>167.0</u> | <u>7.26</u> | | <u>0.69</u> | <u>86.6</u> | <u>8.09</u> |
| <u>495.18</u> | <u>0839</u> | <u>2</u> | <u>19.37</u> | <u>1011</u> | <u>72.9</u> | <u>7.20</u> | | <u>0.35</u> | <u>66.7</u> | <u>6.12</u> |
| <u>495.78</u> | <u>0843</u> | <u>3</u> | <u>19.99</u> | <u>1012</u> | <u>72.5</u> | <u>7.20</u> | | <u>0.33</u> | <u>64.6</u> | <u>5.86</u> |
| | <u>0844</u> | <u>Sampling</u> | | | | | | | | |
| COC number(s): <u>612166</u> | | | | | | | | | | |
| Sample number(s): <u>087353, 087354</u> | | | | | | | | | | |

Purge Volume Calculations

Well Diameter

2" well: 0.16 gal/ft X _____ (height of water column) = _____ gallons
 4" well: 0.65 gal/ft X _____ (height of water column) = _____ gallons
 6" well: 1.47 gal/ft X _____ (height of water column) = _____ gallons

Tubing Diameter

1/4" OD: 2.4 ml/ft X _____ (length of tubing) = _____ milliliters
 3/8" OD: 9.7 ml/ft X _____ (length of tubing) = _____ milliliters
 1/2" OD: 21.5 ml/ft X _____ (length of tubing) = _____ milliliters

2 4.00 gal purged
prior to measurement.
0820
4/23/09 0832

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | | | | |
|------------------------------|-------|------|-------------------------------------|------|-------|-------|------|
| SNL/NM Project Name: CWL | | | SNL/NM Project No.: 125778.10.11.01 | | | | |
| Contractor Project Name: | | | Contractor Project No.: | | | | |
| pH, TEMPERATURE Meter | | | | | | | |
| Make & Model: YSI 6920 V2 | | | Serial No.: 08H 100031 | | | | |
| PH Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | | | | |
| 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: | 0800 | 4.01 | 20.4 | 7.00 | 20.4 | 9.99 | 20.4 |
| 2. Time: | 0921 | 4.01 | 20.4 | 7.00 | 20.4 | 10.00 | 20.4 |
| 3. Time: | | | | | | | |
| 4. Time: | | | | | | | |
| Standard Lot No.: 031187 | | | | | | | |
| Expiration Date: 12/2009 | | | | | | | |
| Ec Probe Model No.: YSI6560 | | | Serial No.: 08G 100421 | | | | |
| Reference Value: 1278 @ 20C | | | Standard Lot #: 1710737 | | | | |
| | Value | Temp | Expiration Date: 12/ 2009 | | | | |
| 1. Time: | 0754 | 1279 | 20.4 | | | | |
| 2. Time: | 0916 | 1277 | 20.4 | | | | |
| 3. Time: | | | | | | | |
| 4. Time: | | | | | | | |
| Comments: | | | | | | | |
| Calibration Done by: | | | Date: | | | | |
| RL | | | 4-15-09 | | | | |

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | |
|-------------------------------|------------|------|------------------------------|-----|
| SNL/NM Project Name: CWL | | | Project No.: 125778.10.11.01 | |
| ORP Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | |
| Reference value: 200.0 | | | Standard Lot No. A6349 | |
| | Value | Temp | Expiration Date: 12/2009 | |
| 1. Time: | 0757 200.2 | 20.4 | | |
| 2. Time: | 0918 200.1 | 20.4 | | |
| 3. Time: | | | | |
| 4. Time | | | | |
| TURBIDIMETER | | | | |
| Make & Model No.: HACH 2100P | | | Serial No.: 030900032367 | |
| Reference Value | .1 | 20 | 100 | 800 |
| Standard Lot No. A5265 | | | | |
| 1. Time | 0827 .10 | 19.9 | 101 | 800 |
| 2. Time | 0855 .11 | 19.9 | 100 | 798 |
| 3. Time | | | | |
| 4. Time | | | | |
| Comments: | | | | |
| Calibration Done By: RL | | | Date: 4-15-09 | |

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | |
|--------------------------|-------------------------------------|
| SNL/NM Project Name: CWL | SNL/NM Project No.: 125778.10.11.01 |
| Contractor Project Name: | Contractor Project No.: |

ORGANIC VAPOR DETECTOR

| | | | |
|-----------------------|-------------|---------------|--|
| Make & Model: | | Serial No.: | |
| Cal. Gas: Isobutylene | Conc., ppm: | Bulb, eV: | |
| 1. Time: | Value: | Span Setting: | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

DISSOLVED OXYGEN METER

| | | | |
|--|--|----------------------------|-------|
| Make & Model: YSI 6920 V2 | | Serial No.: YSI 6150 ROX | |
| DO Probe Serial No.: 08G101297 | | | |
| Calibration value: | 81% Air Saturation @ 5200 ft./ DO mg/L | Atmospheric Pressure in/Hg | |
| 1. Time: 0753 | 80.7 | 7.22 | 24.13 |
| 2. Time: 0915 | 80.8 | 7.21 | 24.14 |
| 3. Time: | | | |
| 4. Time: | | | |
| Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. | | | |
| Calibration done by: RL | | Date: 4-15-09 | |

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | | | |
|------------------------------|-------|------|-------------------------------------|------|-------|-------|
| SNL/NM Project Name: CWL | | | SNL/NM Project No.: 125778.10.11.01 | | | |
| Contractor Project Name: | | | Contractor Project No.: | | | |
| pH, TEMPERATURE Meter | | | | | | |
| Make & Model: YSI 6920 V2 | | | Serial No.: 08H 100031 | | | |
| PH Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | | | |
| 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: | 0657 | 4.01 | 18.8 | 6.99 | 18.8 | 10.00 |
| 2. Time: | 1049 | 4.02 | 19.2 | 6.99 | 19.2 | 9.99 |
| 3. Time: | | | | | | |
| 4. Time: | | | | | | |
| Standard Lot No.: 031187 | | | | | | |
| Expiration Date: 12/2009 | | | | | | |
| Ec Probe Model No.: YSI6560 | | | Serial No.: 08G 100421 | | | |
| Reference Value: 1278 @ 20C | | | Standard Lot #: 1710737 | | | |
| | Value | Temp | Expiration Date:12/ 2009 | | | |
| 1. Time: | 0652 | 1275 | 18.8 | | | |
| 2. Time: | 1046 | 1277 | 19.2 | | | |
| 3. Time: | | | | | | |
| 4. Time: | | | | | | |
| Comments: | | | | | | |
| Calibration Done by: | | | Date: | | | |

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | |
|-------------------------------|---------------|------|------------------------------|-----|
| SNL/NM Project Name: CWL | | | Project No.: 125778.10.11.01 | |
| ORP Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | |
| Reference value: 200.0 | | | Standard Lot No. A6349 | |
| | Value | Temp | Expiration Date: 12/2009 | |
| 1. Time: | 0654 199.8 | 18.8 | | |
| 2. Time: | 1047 200.1 | 19.2 | | |
| 3. Time: | | | | |
| 4. Time | | | | |
| TURBIDIMETER | | | | |
| Make & Model No.: HACH 2100P | | | Serial No.: 030900032367 | |
| Reference Value | .1 | 20 | 100 | 800 |
| Standard Lot No. A5265 | | | | |
| 1. Time | 0758 .09 | 19.8 | 100 | 799 |
| 2. Time | 0950 .10 | 19.9 | 101 | 798 |
| 3. Time | | | | |
| 4. Time | | | | |
| Comments: | | | | |
| Calibration Done By: | | | Date: | |
| RL | | | 4-16-09 | |

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | |
|--------------------------|-------------------------------------|
| SNL/NM Project Name: CWL | SNL/NM Project No.: 125778.10.11.01 |
| Contractor Project Name: | Contractor Project No.: |

ORGANIC VAPOR DETECTOR

| | | | |
|-----------------------|-------------|---------------|--|
| Make & Model: | | Serial No.: | |
| Cal. Gas: Isobutylene | Conc., ppm: | Bulb, eV: | |
| 1. Time: | Value: | Span Setting: | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

DISSOLVED OXYGEN METER

| | | | |
|--|---------------------------------------|--------------------------|----------------------------|
| Make & Model: YSI 6920 V2 | | Serial No.: YSI 6150 ROX | |
| DO Probe Serial No.: 08G101297 | | | |
| Calibration value: | 81% Air Saturation @ 5200 ft/ DO mg/L | | Atmospheric Pressure in/Hg |
| 1. Time: | 0650 | 81.7 | 7.57 |
| 2. Time: | 1044 | 81.6 | 7.59 |
| 3. Time: | | | |
| 4. Time: | | | |
| Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. | | | |
| Calibration done by: | | Date: | |
| RL | | 4-16-09 | |

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | | | |
|------------------------------|-------|------|-------------------------------------|------|-------|-------|
| SNL/NM Project Name: CWL | | | SNL/NM Project No.: 125778.10.11.01 | | | |
| Contractor Project Name: | | | Contractor Project No.: | | | |
| pH, TEMPERATURE Meter | | | | | | |
| Make & Model: YSI 6920 V2 | | | Serial No.: 08H 100031 | | | |
| PH Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | | | |
| 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: | 0711 | 4.01 | 18.1 | 7.01 | 18.1 | 10.00 |
| 2. Time: | 1117 | 4.02 | 18.1 | 7.00 | 18.1 | 9.99 |
| 3. Time: | | | | | | |
| 4. Time: | | | | | | |
| Standard Lot No.: 031187 | | | | | | |
| Expiration Date: 12/2009 | | | | | | |
| Ec Probe Model No.: YSI6560 | | | Serial No.: 08G 100421 | | | |
| Reference Value: 1278 @ 20C | | | Standard Lot #: 1710737 | | | |
| | Value | Temp | Expiration Date:12/ 2009 | | | |
| 1. Time: | 0706 | 1276 | 18.2 | | | |
| 2. Time: | 1112 | 1275 | 18.1 | | | |
| 3. Time: | | | | | | |
| 4. Time: | | | | | | |
| Comments: | | | | | | |
| Calibration Done by: | | | Date: | | | |
| PL | | | 4-17-09 | | | |

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | |
|-------------------------------|------------|------|----------------------------------|-----|
| SNL/NM Project Name: CWL | | | Project No.: 125778.10.11.01 | |
| ORP Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | |
| Reference value: 200.0 | | | Standard Lot No. A6349 | |
| | Value | Temp | Expiration Date: 12/2009 | |
| 1. Time: | 0708 199.7 | 18.2 | | |
| 2. Time: | 1114 200.1 | 18.1 | | |
| 3. Time: | | | | |
| 4. Time | | | | |
| TURBIDIMETER | | | | |
| Make & Model No.: HACH 2100P | | | Serial No.: 030900032367 | |
| Reference Value | .1 | 20 | 100 | 800 |
| Standard Lot No. A5265 | | | | |
| 1. Time | 0801 .09 | 19.8 | 99.9 | 797 |
| 2. Time | 1000 .10 | 19.9 | 100 | 798 |
| 3. Time | | | | |
| 4. Time | | | | |
| Comments: | | | | |
| Calibration Done By: RL | | | Date: 4-17-09 4-17-09 | |

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | |
|--------------------------|-------------------------------------|
| SNL/NM Project Name: CWL | SNL/NM Project No.: 125778.10.11.01 |
| Contractor Project Name: | Contractor Project No.: |

ORGANIC VAPOR DETECTOR

| | | | |
|-----------------------|-------------|---------------|--|
| Make & Model: | | Serial No.: | |
| Cal. Gas: Isobutylene | Conc., ppm: | Bulb, eV: | |
| 1. Time: | Value: | Span Setting: | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

DISSOLVED OXYGEN METER

| | | | |
|--|--|--------------------------|----------------------------|
| Make & Model: YSI 6920 V2 | | Serial No.: YSI 6150 ROX | |
| DO Probe Serial No.: 08G101297 | | | |
| Calibration value: | 81% Air Saturation @ 5200 ft./ DO mg/L | | Atmospheric Pressure in/Hg |
| 1. Time: 0704 | 81.6 | 7.99 | 24.44 |
| 2. Time: 1110 | 81.6 | 7.89 | 24.42 |
| 3. Time: | | | |
| 4. Time: | | | |
| Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. | | | |
| Calibration done by: PL | | Date: 4-17-09 | |

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | | | | |
|------------------------------|-------|------|-------------------------------------|------|-------|-------|------|
| SNL/NM Project Name: CWL | | | SNL/NM Project No.: 125778.10.11.01 | | | | |
| Contractor Project Name: | | | Contractor Project No.: | | | | |
| pH, TEMPERATURE Meter | | | | | | | |
| Make & Model: YSI 6920 V2 | | | Serial No.: 08H 100031 | | | | |
| PH Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | | | | |
| 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: | 0701 | 4.01 | 19.4 | 7.01 | 19.4 | 10.00 | 19.4 |
| 2. Time: | 1026 | 4.02 | 20.1 | 7.02 | 20.1 | 10.01 | 20.1 |
| 3. Time: | 0711 | 4.03 | 20.4 | 7.01 | 20.4 | 10.02 | 20.4 |
| 4. Time: | 1035 | 4.02 | 20.6 | 7.01 | 20.6 | 10.01 | 20.6 |
| Standard Lot No.: 031187 | | | | | | | |
| Expiration Date: 12/2009 | | | | | | | |
| Ec Probe Model No.: YSI6560 | | | Serial No.: 08G 100421 | | | | |
| Reference Value: 1278 @ 20C | | | Standard Lot #: 1710737 | | | | |
| | Value | Temp | Expiration Date: 12/ 2009 | | | | |
| 1. Time: | 0655 | 1277 | 19.4 | | | | |
| 2. Time: | 1023 | 1279 | 20.1 | | | | |
| 3. Time: | 0708 | 1282 | 20.4 | | | | |
| 4. Time: | 1026 | 1282 | 20.6 | | | | |
| Comments: | | | | | | | |
| Calibration Done by: | | | Date: | | | | |
| RL JL | | | 4-20-09 4-21-09 | | | | |

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | |
|-------------------------------|------------|------|------------------------------|-----|
| SNL/NM Project Name: CWL | | | Project No.: 125778.10.11.01 | |
| ORP Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | |
| Reference value: 200.0 | | | Standard Lot No. A6349 | |
| | Value | Temp | Expiration Date: 12/2009 | |
| 1. Time: | 0657 199.8 | 19.4 | | |
| 2. Time: | 1024 201.1 | 20.1 | | |
| 3. Time: | 0710 201.4 | 20.4 | | |
| 4. Time | 1027 201.6 | 20.6 | | |
| TURBIDIMETER | | | | |
| Make & Model No.: HACH 2100P | | | Serial No.: 030900032367 | |
| Reference Value | .1 | 20 | 100 | 800 |
| Standard Lot No. A5265 | | | | |
| 1. Time | 0755 .09 | 19.8 | 99.9 | 797 |
| 2. Time | 0912 .10 | 19.9 | 99.7 | 796 |
| 3. Time | 0826 .09 | 19.9 | 100 | 798 |
| 4. Time | 0911 .09 | 20.0 | 99.9 | 799 |
| Comments: | | | | |
| Calibration Done By: | | | Date: | |
| RL RL | | | 4-20-09 4-21-09 | |

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | |
|--------------------------|-------------------------------------|
| SNL/NM Project Name: CWL | SNL/NM Project No.: 125778.10.11.01 |
| Contractor Project Name: | Contractor Project No.: |

ORGANIC VAPOR DETECTOR

| | | |
|-----------------------|-------------|---------------|
| Make & Model: | | Serial No.: |
| Cal. Gas: Isobutylene | Conc., ppm: | Bulb, eV: |
| 1. Time: | Value: | Span Setting: |
| 2. | | |
| 3. | | |
| 4. | | |

DISSOLVED OXYGEN METER

| | | | |
|--|---------------------------------------|----------------------------|-------|
| Make & Model: YSI 6920 V2 | | Serial No.: YSI 6150 ROX | |
| DO Probe Serial No.: 08G101297 | | | |
| Calibration value: | 81% Air Saturation @ 5200 ft/ DO mg/L | Atmospheric Pressure in/Hg | |
| 1. Time: 0653 | 82.9 | 7.92 | 24.80 |
| 2. Time: 1020 | 82.6 | 7.89 | 24.76 |
| 3. Time: 0707 | 81.8 | 7.30 | 24.49 |
| 4. Time: 1025 | 81.6 | 7.29 | 24.48 |
| Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. | | | |
| Calibration done by: RL RL | | Date: 4-20-09 4-21-09 | |

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | | | | |
|------------------------------|-------|------|-------------------------------------|------|-------|-------|------|
| SNL/NM Project Name: CWL | | | SNL/NM Project No.: 125778.10.11.01 | | | | |
| Contractor Project Name: | | | Contractor Project No.: | | | | |
| pH, TEMPERATURE Meter | | | | | | | |
| Make & Model: YSI 6920 V2 | | | Serial No.: 08H 100031 | | | | |
| PH Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | | | | |
| 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: | 0700 | 4.01 | 19.6 | 7.01 | 19.6 | 10.01 | 19.6 |
| 2. Time: | 1034 | 4.02 | 20.2 | 7.02 | 20.2 | 10.01 | 20.2 |
| 3. Time: | 0724 | 4.03 | 19.8 | 7.00 | 19.8 | 10.00 | 19.8 |
| 4. Time: | 1045 | 4.03 | 19.9 | 7.01 | 19.9 | 10.02 | 19.9 |
| Standard Lot No.: 031187 | | | | | | | |
| Expiration Date: 12/2009 | | | | | | | |
| Ec Probe Model No.: YSI6560 | | | Serial No.: 08G 100421 | | | | |
| Reference Value: 1278 @ 20C | | | Standard Lot #: 1710737 | | | | |
| | Value | Temp | Expiration Date: 12/ 2009 | | | | |
| 1. Time: | 0658 | 1279 | 19.6 | | | | |
| 2. Time: | 1031 | 1281 | 20.2 | | | | |
| 3. Time: | 0721 | 1280 | 19.8 | | | | |
| 4. Time: | 1042 | 1280 | 19.9 | | | | |
| Comments: | | | | | | | |
| Calibration Done by: | | | Date: | | | | |
| RL RL | | | 4-22-09 4-23-09 | | | | |

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | |
|-------------------------------|--|------|------------------------------|-----|
| SNL/NM Project Name: CWL | | | Project No.: 125778.10.11.01 | |
| ORP Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | |
| Reference value: 200.0 | | | Standard Lot No. A6349 | |
| | Value | Temp | Expiration Date: 12/2009 | |
| 1. Time: | 0656 199.9 | 19.6 | | |
| 2. Time: | 1032 ^{RL} 0722 200.6 | 20.2 | | |
| 3. Time: | 0722 201.1 | 19.8 | | |
| 4. Time | 1044 201.2 | 19.9 | | |
| TURBIDIMETER | | | | |
| Make & Model No.: HACH 2100P | | | Serial No.: 030900032367 | |
| Reference Value | .1 | 20 | 100 | 800 |
| Standard Lot No. A5265 | | | | |
| 1. Time | 0804 .11 | 20.1 | 101 | 799 |
| 2. Time | 0914 .10 | 20.1 | 102 | 800 |
| 3. Time | 0811 .11 | 20.2 | 101 | 801 |
| 4. Time | 0900 .11 | 20.1 | 102 | 800 |
| Comments: | | | | |
| Calibration Done By: | | | Date: | |
| RL RL | | | 4-22-09 4-23-09 | |

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | |
|--------------------------|-------------------------------------|
| SNL/NM Project Name: CWL | SNL/NM Project No.: 125778.10.11.01 |
| Contractor Project Name: | Contractor Project No.: |

ORGANIC VAPOR DETECTOR

| | | | |
|-----------------------|-------------|---------------|--|
| Make & Model: | | Serial No.: | |
| Cal. Gas: Isobutylene | Conc., ppm: | Bulb, eV: | |
| 1. Time: | Value: | Span Setting: | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

DISSOLVED OXYGEN METER

| | | | |
|--|---------------------------------------|----------------------------|-------|
| Make & Model: YSI 6920 V2 | | Serial No.: YSI 6150 ROX | |
| DO Probe Serial No.: 08G101297 | | | |
| Calibration value: | 81% Air Saturation @ 5200 ft/ DO mg/L | Atmospheric Pressure in/Hg | |
| 1. Time: 0652 | 81.4 | 7.44 | 24.37 |
| 2. Time: 1029 | 81.5 | 7.47 | 24.38 |
| 3. Time: 0718 | 81.1 | 7.22 | 24.28 |
| 4. Time: 1040 | 81.2 | 7.22 | 24.28 |
| Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. | | | |
| Calibration done by: RL RL | | Date: 4-22-09 4-23-09 | |

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | | | | |
|------------------------------|-------|------|-------------------------------------|------|-------|-------|------|
| SNL/NM Project Name: CWL | | | SNL/NM Project No.: 125778.10.11.01 | | | | |
| Contractor Project Name: | | | Contractor Project No.: | | | | |
| pH, TEMPERATURE Meter | | | | | | | |
| Make & Model: YSI 6920 V2 | | | Serial No.: 08H 100031 | | | | |
| PH Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | | | | |
| 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: | 0713 | 4.03 | 20.8 | 7.01 | 20.8 | 10.01 | 20.8 |
| 2. Time: | 1056 | 4.02 | 21.1 | 7.00 | 21.1 | 10.01 | 21.1 |
| 3. Time: | | | | | | | |
| 4. Time: | | | | | | | |
| Standard Lot No.: 031187 | | | | | | | |
| Expiration Date: 12/2009 | | | | | | | |
| Ec Probe Model No.: YSI6560 | | | Serial No.: 08G 100421 | | | | |
| Reference Value: 1278 @ 20C | | | Standard Lot #: 1710737 | | | | |
| | Value | Temp | Expiration Date: 12/ 2009 | | | | |
| 1. Time: | 0710 | 1281 | 20.8 | | | | |
| 2. Time: | 1052 | 1282 | 21.1 | | | | |
| 3. Time: | | | | | | | |
| 4. Time: | | | | | | | |
| Comments: | | | | | | | |
| Calibration Done by: | | | Date: | | | | |
| RL | | | 4-24-09 | | | | |

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | |
|-------------------------------|------------|------|------------------------------|-----|
| SNL/NM Project Name: CWL | | | Project No.: 125778.10.11.01 | |
| ORP Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | |
| Reference value: 200.0 | | | Standard Lot No. A6349 | |
| | Value | Temp | Expiration Date: 12/2009 | |
| 1. Time: | 0711 200.7 | 20.8 | | |
| 2. Time: | 1034 200.9 | 21.1 | | |
| 3. Time: | | | | |
| 4. Time | | | | |
| TURBIDIMETER | | | | |
| Make & Model No.: HACH 2100P | | | Serial No.: 030900032367 | |
| Reference Value | .1 | 20 | 100 | 800 |
| Standard Lot No. A5265 | | | | |
| 1. Time | 0808 .09 | 19.9 | 101 | 802 |
| 2. Time | 0947 .10 | 20.1 | 102 | 800 |
| 3. Time | | | | |
| 4. Time | | | | |
| Comments: | | | | |
| Calibration Done By: | | | Date: | |
| BL | | | 4-24-09 | |

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | |
|--------------------------|-------------------------------------|
| SNL/NM Project Name: CWL | SNL/NM Project No.: 125778.10.11.01 |
| Contractor Project Name: | Contractor Project No.: |

ORGANIC VAPOR DETECTOR

| | | | |
|-----------------------|-------------|---------------|--|
| Make & Model: | | Serial No.: | |
| Cal. Gas: Isobutylene | Conc., ppm: | Bulb, eV: | |
| 1. Time: | Value: | Span Setting: | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

DISSOLVED OXYGEN METER

| | | | |
|--|---------------------------------------|----------------------------|-------|
| Make & Model: YSI 6920 V2 | | Serial No.: YSI 6150 ROX | |
| DO Probe Serial No.: 08G101297 | | | |
| Calibration value: | 81% Air Saturation @ 5200 ft/ DO mg/L | Atmospheric Pressure in/Hg | |
| 1. Time: 6.708 | 81.1 | 7.24 | 29.29 |
| 2. Time: 10.50 | 81.4 | 7.26 | 24.31 |
| 3. Time: | | | |
| 4. Time: | | | |
| Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. | | | |
| Calibration done by: FL | | Date: 4-24-09 | |

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | | | |
|------------------------------|-------|------|-------------------------------------|------|-------|-------|
| SNL/NM Project Name: CWL | | | SNL/NM Project No.: 125778.10.11.01 | | | |
| Contractor Project Name: | | | Contractor Project No.: | | | |
| pH, TEMPERATURE Meter | | | | | | |
| Make & Model: YSI 6920 V2 | | | Serial No.: 08H 100031 | | | |
| PH Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | | | |
| 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: | 0659 | 4.03 | 17.7 | 7.00 | 17.7 | 9.99 |
| 2. Time: | 1351 | 4.02 | 19.2 | 7.01 | 19.2 | 10.01 |
| 3. Time: | | | | | | |
| 4. Time: | | | | | | |
| Standard Lot No.: 031187 | | | | | | |
| Expiration Date: 12/2009 | | | | | | |
| Ec Probe Model No.: YSI6560 | | | Serial No.: 08G 100421 | | | |
| Reference Value: 1278 @ 20C | | | Standard Lot #: 1710737 | | | |
| | Value | Temp | Expiration Date:12/ 2009 | | | |
| 1. Time: | 0652 | 1275 | 17.7 | | | |
| 2. Time: | 1348 | 1278 | 19.2 | | | |
| 3. Time: | | | | | | |
| 4. Time: | | | | | | |
| Comments: | | | | | | |
| Calibration Done by: | | | Date: | | | |
| RL | | | 4-27-09 | | | |

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | | | | |
|-------------------------------|------------|------|------------------------------|-----|
| SNL/NM Project Name: CWL | | | Project No.: 125778.10.11.01 | |
| ORP Probe Model No.: YSI 6565 | | | Serial No.: YSI 6565 03A | |
| Reference value: 200.0 | | | Standard Lot No. A6349 | |
| | Value | Temp | Expiration Date: 12/2009 | |
| 1. Time: | 0654 199.8 | 17.7 | | |
| 2. Time: | 1349 200.4 | 19.2 | | |
| 3. Time: | | | | |
| 4. Time | | | | |
| TURBIDIMETER | | | | |
| Make & Model No.: HACH 2100P | | | Serial No.: 030900032367 | |
| Reference Value | .1 | 20 | 100 | 800 |
| Standard Lot No. A5265 | | | | |
| 1. Time | 0755 .09 | 19.9 | 100 | 801 |
| 2. Time | 1231 .10 | 20.1 | 102 | 801 |
| 3. Time | | | | |
| 4. Time | | | | |
| Comments: | | | | |
| Calibration Done By: PL | | | Date: 4-27-09 | |

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

| | |
|--------------------------|-------------------------------------|
| SNL/NM Project Name: CWL | SNL/NM Project No.: 125778.10.11.01 |
| Contractor Project Name: | Contractor Project No.: |

ORGANIC VAPOR DETECTOR

| | | | |
|-----------------------|-------------|---------------|--|
| Make & Model: | | Serial No.: | |
| Cal. Gas: Isobutylene | Conc., ppm: | Bulb, eV: | |
| 1. Time: | Value: | Span Setting: | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

DISSOLVED OXYGEN METER

| | | | |
|--|--|----------------------------|-------|
| Make & Model: YSI 6920 V2 | | Serial No.: YSI 6150 ROX | |
| DO Probe Serial No.: 08G101297 | | | |
| Calibration value: | 81% Air Saturation @ 5200 ft./ DO mg/L | Atmospheric Pressure in/Hg | |
| 1. Time: 0650 | 81.2 | 7.73 | 24.32 |
| 2. Time: 1345 | 81.4 | 7.75 | 24.38 |
| 3. Time: | | | |
| 4. Time: | | | |
| Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. | | | |
| Calibration done by: RL | | Date: 4-27-09 | |

ER WASTE GENERATION LOG

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

Form Generator: William Gibson **Phone:** 844-5130 **Task Leader:** Don Schofield

Signature: *William Gibson* To the best of my knowledge this information is correct & accurate.

| | | | |
|---|--|-----------------------|-----------------------|
| Container I.D. # <small>(site-date-sequence)</small> | CWL-QED-041509 | | |
| Container Certification # <small>(i.e. SNL/NM#####)</small> | NA | | |
| Project Name | CWL-GWM | | |
| Site Number | NA | | |
| Waste Mgt. Case # | 121515.02.01 125778.10.11.01 <i>wjg</i> | | |
| Initial Label Type | Haz-Waste | | |
| Waste Matrix <small>(i.e. Water, Cuttings, Soil, Samples, Metal, etc.)</small> | Purge water | | |
| Container Type / Vol <small>(always use Certified containers)</small> | CHPD | 55gal. | |
| Volume of Waste | 7 gals | | |
| Total Container Weight | 65 lbs. | | |
| Waste Char. Samples <small>(COC#: Sample#-Fraction)</small> | COC# 612160 , 612161, 612165 <i>ra</i> SMO# 087339 , 087341, 087342, 087350 | | |
| SMO Hazardous [] | | | |
| SMO Radioactive [] | NA | NA | NA |
| ERCL Haz [] Rad [] | NA | NA | NA |
| RPSD Rad [] <small>(Amir's on-site Rad Lab)</small> | 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 04/15/09 Full 04/17/09 | Start Full | Start Full |
| Date Moved to Waste Accumulation Area | 04-17-09 | | |
| Accumulation Area Name | 9925 | 9925 | |
| ERwm Memo # | | | |
| Comments | Purge water from <i>ra</i> cwl - mw 5L, mw 6L | | |

(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.

ER WASTE GENERATION LOG

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

Form Generator: William Gibson Phone: 284-5232 Task Leader: Don Schofield

Signature: *William J. Gibson* To the best of my knowledge this information is correct & accurate.

| | | | |
|--|---------------------------------|---|-----------------------|
| Container I.D. # <small>(site-date-sequence)</small> | CWL-MW5U-042009 | CWL-042109 | |
| Container Certification # <small>(i.e. SNL/NM#####)</small> | NA | NA | |
| Project Name | CWL-GWM | CWL-GWM | |
| Site Number | NA | NA | |
| Waste Mgt. Case # | 125778.10.11.01 | 125778.10.11.01 | |
| Initial Label Type | Non-Reg | Non-Reg | |
| Waste Matrix <small>(i.e. Water, Cuttings, Soil, Samples, Metal, etc.)</small> | Purge water | Decon Water | |
| Container Type / Vol <small>(always use Certified containers)</small> | CHPD | 55gal. | CHPD 55gal. |
| Volume of Waste | 20 gals | 35 gals | |
| Total Container Weight | 200 lbs. | 350 lbs. | |
| Waste Char. Samples <small>(COC#: Sample#-Fraction)</small> | COC# 612163 SMO# 087346 | COC# 612163 SMO# 087346 | COC# SMO# |
| SMO Hazardous [] | | | |
| SMO Radioactive [] | NA | NA | NA |
| ERCL Haz [] Rad [] | NA | NA | NA |
| RPSD Rad [] <small>(Amir's on-site Rad Lab)</small> | 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 04/20/09 Full 04/21/09 | Start 04/21/09 Full 04/21/09 | Start Full |
| Date Moved to Waste Accumulation Area | 04/21/09 | 04/21/09 | |
| Accumulation Area Name | 9925 | 9925 | |
| ERwm Memo # | | | |
| Comments | | Decon after CWL-MW5U Purge, CoC 612163. EB-1; CoC 612164 taken prior to CWL-MW6U purge. | |

(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.

ER WASTE GENERATION LOG

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

Form Generator: William Gibson Phone: 284-5232 Task Leader: Don Schofield

Signature: William Gibson To the best of my knowledge this information is correct & accurate.

| | | | |
|---|--------------------------------------|---|-----------------------|
| Container I.D. # <small>(site-date-sequence)</small> | CWL-MW6U-042209 <small>6U</small> | CWL-042309 | |
| Container Certification # <small>(i.e. SNL/NM#####)</small> | NA | NA | |
| Project Name | CWL-GWM | CWL-GWM | |
| Site Number | NA | NA | |
| Waste Mgt. Case # | 125778.10.11.01 | 125778.10.11.01 | |
| Initial Label Type | Non-Reg | Non-Reg | |
| Waste Matrix <small>(i.e. Water, Cuttings, Soil, Samples, Metal, etc.)</small> | Purge water | Decon Water | |
| Container Type / Vol <small>(always use Certified containers)</small> | CHPD | 55gal. | CHPD 55gal. |
| Volume of Waste | 20 gals | 35 gals | |
| Total Container Weight | 200 lbs. | 350 lbs. | |
| Waste Char. Samples <small>(COC#: Sample#-Fraction)</small> | COC# 612166 SMO# 087353, 087354 | COC# 612166 SMO# 087353, 087354 | COC# SMO# |
| SMO Hazardous [] | | | |
| SMO Radioactive [] | NA | NA | NA |
| ERCL Haz [] Rad [] | NA | NA | NA |
| RPSD Rad [] <small>(Amir's on-site Rad Lab)</small> | 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 04/22/09 Full 04/23/09 | Start 04/23/09 Full 04/23/09 | Start Full |
| Date Moved to Waste Accumulation Area | 04/23/09 | 04/23/09 | |
| Accumulation Area Name | 9925 | 9925 | |
| ERwm Memo # | | | |
| Comments | | Decon after CWL-MW6U Purge, CoC 612166. EB-2; CoC 612167 taken prior to CWL-MW4 purge. | |

(OHSB)= 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.

ER WASTE GENERATION LOG

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

Form Generator: William Gibson Phone: 284-5232 Task Leader: Don Schofield

Signature: *William Gibson* To the best of my knowledge this information is correct & accurate.

| | | | |
|---|--------------------------------------|--|-----------------------|
| Container I.D. # <small>(site-date-sequence)</small> | CWL-MW4-042409 | CWL-042409 | |
| Container Certification # <small>(i.e.SNL/NM#####)</small> | NA | NA | |
| Project Name | CWL-GWM | CWL-GWM | |
| Site Number | NA | NA | |
| Waste Mgt. Case # | 125778.10.11.01 | 125778.10.11.01 | |
| Initial Label Type | Non-Reg | Non-Reg | |
| Waste Matrix <small>(i.e. Water, Cuttings, Soil, Samples, Metal, etc.)</small> | Purge water | Decon Water | |
| Container Type / Vol <small>(always use Certified containers)</small> | CHPD | 55gal. | CHPD 55gal. |
| Volume of Waste | 30 gals | | 35 gals |
| Total Container Weight | 300 lbs. | | 350 lbs. |
| Waste Char. Samples <small>(COC#: Sample#-Fraction)</small> | COC# 612168 <i>71</i> SMO# 087358 | COC# 612168 <i>71</i> SMO# 087358 | COC# SMO# |
| SMO Hazardous [] | | | |
| SMO Radioactive [] | NA | NA | NA |
| ERCL Haz [] Rad [] | NA | NA | NA |
| RPSD Rad [] <small>(Amir's on-site Rad Lab)</small> | 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 04/24/08 Full 04/24/08 | Start 04/24/08 Full 04/24/08 | Start Full |
| Date Moved to Waste Accumulation Area | 04/24/08 | 04/24/09 | |
| Accumulation Area Name | 9925 | 9925 | |
| ERwm Memo # | | | |
| Comments | | Decon after CWL-MW4 Purge, CoC 612168 | |

(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.

ER WASTE GENERATION LOG

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

Form Generator: William Gibson Phone: 284-5232 Task Leader: Don Schofield

Signature: William Gibson To the best of my knowledge this information is correct & accurate.

| | | | |
|---|---|---|---|
| Container I.D. # <small>(site-date-sequence)</small> | CWL ₇ 2BL-042709-01 <small>Mr. 79</small> | CWL ₇ 2BL-042709-02 <small>Mr. 79</small> | CWL ₇ 2BL-042709-03 <small>Mr. 79</small> |
| Container Certification # <small>(i.e. SNL/NM#####)</small> | NA | NA | NA |
| Project Name | CWL-GWM | CWL-GWM | CWL-GWM |
| Site Number | NA | NA | NA |
| Waste Mgt. Case # | 125778.10.11.01 | 125778.10.11.01 | 125778.10.11.01 |
| Initial Label Type | HAZ - Waste | HAZ - Waste | HAZ - Waste |
| Waste Matrix <small>(i.e. Water, Cuttings, Soil, Samples, Metal, etc.)</small> | Purge water | Purge water | Purge water |
| Container Type / Vol <small>(always use Certified containers)</small> | CHPD 55gal. | CHPD 55gal. | CHPD 55gal. |
| Volume of Waste | 50 gals | 50 gals | 50 gals |
| Total Container Weight | 450 lbs. | 450 lbs. | 450lbs. |
| Waste Char. Samples <small>(COC#: Sample#-Fraction)</small> | COC# 612162 SMO# 086344 | COC# 612162 SMO# 086344 | COC# 612162 SMO# 086344 |
| SMO Hazardous [] | | | |
| SMO Radioactive [] | NA | NA | NA |
| ERCL Haz [] Rad [] | NA | NA | NA |
| RPSD Rad [] <small>(Amir's on-site Rad Lab)</small> | 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 04/27/09 Full 04/27/09 | Start 04/27/09 Full 04/27/09 | Start 04/27/09 Full 04/27/09 |
| Date Moved to Waste Accumulation Area | 04/27/09 | 04/27/09 | 04/27/09 |
| Accumulation Area Name | 9925 | 9925 | 9925 |
| ERwm Memo # | | | |
| Comments | | | |

(OHS) = 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.

ER WASTE GENERATION LOG

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

Form Generator: William Gibson **Phone:** 284-5232 **Task Leader:** Don Schofield

Signature: William Gibson To the best of my knowledge this information is correct & accurate.

| | | | |
|---|---------------------------------|---------------------------------|---|
| Container I.D. # <small>(site-date-sequence)</small> | CWL-2BL-042709-04 | CWL-2BL-042709-05 | CWL-042709 |
| Container Certification # <small>(i.e. SNL/NM#####)</small> | NA | NA | NA |
| Project Name | CWL-GWM | CWL-GWM | CWL-GWM |
| Site Number | NA | NA | NA |
| Waste Mgt. Case # | 125778.10.11.01 | 125778.10.11.01 | 125778.10.11.01 |
| Initial Label Type | HAZ - Waste | HAZ - Waste | HAZ - Waste |
| Waste Matrix <small>(i.e. Water, Cuttings, Soil, Samples, Metal, etc.)</small> | Purge water | Purge water | Decon Water |
| Container Type / Vol <small>(always use Certified containers)</small> | CHPD 55gal. | CHPD 55gal. | CHPD 55gal. |
| Volume of Waste | 50 gals | 25 gals | 36 30 gals |
| Total Container Weight | 450 lbs. | 250 lbs. | 300lbs. |
| Waste Char. Samples <small>(COC#: Sample#-Fraction)</small> | COC# 612162 SMO# 086344 | COC# 612162 SMO# 086344 | COC# 612162 SMO# 086344 |
| SMO Hazardous [] | | | |
| SMO Radioactive [] | NA | NA | NA |
| ERCL Haz [] Rad [] | NA | NA | NA |
| RPSD Rad [] <small>(Amir's on-site Rad Lab)</small> | 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 04/27/09 Full 04/27/09 | Start 04/27/09 Full 04/27/09 | Start 04/27/09 Full 04/27/09 |
| Date Moved to Waste Accumulation Area | 04/27/09 | 04/27/09 | 04/27/09 |
| Accumulation Area Name | 9925 | 9925 | 9925 |
| ERwm Memo # | | | |
| Comments | | | Decon after CWL-MW2L purge, CoC 612162 |

(CHSD) = open head steel drum; (CHSD) = closed head steel drum; (CHPD) = closed head poly drum; (OHPD) = open head poly drum;
(OHFB) = open head poly bucket; (RI-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.

ER WASTE GENERATION LOG

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

Form Generator: William Gibson Phone: 284-5232 Task Leader: Don Schofield

Signature: William Gibson To the best of my knowledge this information is correct & accurate.

| | | | |
|---|--|---|---------------------------------|
| Container I.D. # <small>(site-date-sequence)</small> | CWL-BW4A-042809 | CWL-BW3-042909 | CWL-101608-PPE |
| Container Certification # <small>(i.e.SNL/NM#####)</small> | NA | NA | NA |
| Project Name | CWL-GWM | CWL-GWM | CWL-GWM |
| Site Number | NA | NA | NA |
| Waste Mgt. Case # | 125778.10.11.01 | 125778.10.11.01 | 125778.10.11.01 |
| Initial Label Type | Haz-Waste | Haz-Waste | Haz-Waste |
| Waste Matrix <small>(i.e. Water, Cuttings, Soil, Samples, Metal, etc.)</small> | Purge/Decon water | Purge/Decon Water | PPE gloves & wipes |
| Container Type / Vol <small>(always use Certified containers)</small> | CHPD 55gal. | CHPD 55gal. | Bucket 5 gal. |
| Volume of Waste | 35 gals | 35 gals | |
| Total Container Weight | 350 lbs. | 350 lbs. | 5 lbs. |
| Waste Char. Samples <small>(COC#: Sample#-Fraction)</small> | COC# 612169 SMO# 087361 | COC# 612169 SMO# 087363 | COC# SMO# |
| SMO Hazardous [] | | | |
| SMO Radioactive [] | NA | NA | NA |
| ERCL Haz [] Rad [] | NA | NA | NA |
| RPSD Rad [] <small>(Amir's on-site Rad Lab)</small> | 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 04/28/09 Full 04/28/09 | Start 04/29/09 Full 04/29/09 | Start 10/16/08 Full 04/29/09 |
| Date Moved to Waste Accumulation Area | 04/28/09 | 04/29/09 | 04/29/09 |
| Accumulation Area Name | 9925 | 9925 | 9925 |
| ERwm Memo # | 4 | | |
| Comments | Decon after CWL-BW4A 7/1 purge, CoC 612169, Well dry at 3 gal. | Decon after CWL-BW3 Purge, CoC 612169, Well dry at 4 gal. | |

(CHSD)= 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.

**ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM**

Date: 04/20/09 4/21/09

Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-MW5U

Operable Units(s) _____

Applicable documentation:

Site Work Plan: PHS :9631246780-010, HASP 222696

FOP's : 94-01,94-25,94-26,94-28,94-30,94-34,94-46,94-47,94-48,95-02

MEETING CONDUCTED BY: Robert Lynch
NAME PRINTED


SIGNATURE

SAFETY TOPICS PRESENTED

Protective Cloting/Equipment: Level-D, when sampling

Chemical Hazards: Acids in Sample containers, safety glasses and latex gloves when sampling

Radiological Hazards: None

Physical Hazards: Elements, slip, trip, falls, possible biological

Emergency Procedures: Aide, Call, Transport

Hospital/Clinic: Sandia Medical Phone: () 844-0911/911 Paramedic Phone: () 911

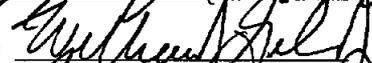
Hospital Address: 7th & F street

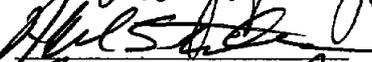
Special Equipment: Sampling pumps

Other: _____

ATTENDEES

NAME PRINTED: ALFRED SANTILLANES SIGNATURE: 

NAME PRINTED: William Gibson SIGNATURE: 

4/21/09 - NAME PRINTED: ALFRED SANTILLANES SIGNATURE: 

NAME PRINTED: William Gibson SIGNATURE: 

NAME PRINTED: _____ SIGNATURE: _____

UNK: Unknown: NA: Not applicable: ND: Not done.

ENVIRONMENTAL RESTORATION TAILGATE SAFETY MEETING FORM

Date: 04/24/09

Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-MW4

Operable Units(s) _____

Applicable documentation:

Site Work Plan: PHS :9631246780-010, HASP 222696

FOP's : 94-01,94-25,94-26,94-28,94-30,94-34,94-46,94-47,94-48,95-02

MEETING CONDUCTED BY: Robert Lynch
NAME PRINTED


SIGNATURE

SAFETY TOPICS PRESENTED

Protective Cloting/Equipment: Level-D, when sampling

Chemical Hazards: Acids in Sample containers, safety glasses and latex gloves when sampling

Radiological Hazards: None

Physical Hazards: Elements, slip, trip, falls, possible biological

Emergency Procedures: Aide, Call, Transport

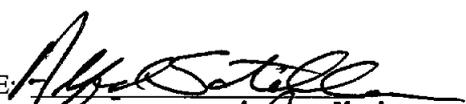
Hospital/Clinic: Sandia Medical Phone: () 844-0911/911 Paramedic Phone: () 911

Hospital Address: 7th & F street

Special Equipment: Sampling pumps

Other: _____

ATTENDEES

NAME PRINTED: ALFREDO SANTILLANES SIGNATURE: 

NAME PRINTED: William Gibson SIGNATURE: 

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

UNK: Unknown: NA: Not applicable: ND: Not done.

ENVIRONMENTAL RESTORATION TAILGATE SAFETY MEETING FORM

Date: 04/29/09

Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-BW3

Operable Units(s) _____

Applicable documentation:

Site Work Plan: PHS :9631246780-010, HASP 222696

FOP's : 94-01,94-25,94-26,94-28,94-30,94-34,94-46,94-47,94-48,95-02

MEETING CONDUCTED BY: Robert Lynch
NAME PRINTED


SIGNATURE

SAFETY TOPICS PRESENTED

Protective Cloting/Equipment: Level-D, when sampling

Chemical Hazards: Acids in Sample containers, safety glasses and latex gloves when sampling

Radiological Hazards: None

Physical Hazards: Elements, slip, trip, falls, possible biological

Emergency Procedures: Aide, Call, Transport

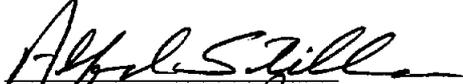
Hospital/Clinic: Sandia Medical Phone: () 844-0911/911 Paramedic Phone: () 911

Hospital Address: 7th & F street

Special Equipment: Sampling pumps

Other: _____

ATTENDEES

NAME PRINTED: ALFRED SANTILLANO SIGNATURE: 

NAME PRINTED: William Gibson SIGNATURE: 

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

UNK: Unknown: NA: Not applicable: ND: Not done.

ATTACHMENT B
ANALYSIS REQUEST/CHAIN-OF-CUSTODY FORMS

CONTRACT LABORATORY ANALYSIS REQUEST AND CHAIN OF CUSTODY

AR/COC

612162

Internal Lab

Batch No. *N/A*

SMO Use

| | | | | | |
|-----------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|---|
| Dept. No./Mail Stop: | 6765/0719 | Date Samples Shipped: | 4/27/09 | Project/Task No. 125778.10.11.01 | <input type="checkbox"/> Waste Characterization |
| Project/Task Manager: | John Cochran | Carrier/Waybill No.: | 100802 | SMO Authorization: <i>[Signature]</i> | -Send preliminary/copy report to: |
| Project Name: | CWL GWM | Lab Contact: | Edie Kent/803-556-8174 | Contract #: PO 691436 | |
| Record Center Code: | ER/1267 074/DAT | Lab Destination: | GEL | | <input type="checkbox"/> Released by COC No.: |
| Logbook Ref. No.: | ER 049 | SMO Contact/Phone: | Pam Puissant/505-844-3185 | | <input checked="" type="checkbox"/> Validation Required |
| Service Order No.: | CF 025-09 | Send Report to SMO: | Lorraine Herrera/505-844-3199 | | Bill To: Sandia National Labs (Accounts Payable) |

| | | | | | | | | | | | |
|----------|-----------|--|--|--|--|--|--|--|--|--|--|
| Location | Tech Area | Reference LOV(available at SMO) | | | | | | | | | |
| 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 | | Preserv- ative | Collection Method | Sample Type | Parameter & Method Requested | Lab Sample ID |
|---------------------|---|--------------------|----------------|----------------------------|------------------|-----------|--------|-------------------|----------------------|----------------|------------------------------------|------------------|
| | | | | | | Type | Volume | | | | | |
| 087344-001 | CWL-MW2BL | 544.5 | <i>N/A</i> | 042709/1213 | GW | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) APP IX | |
| 087344-010 | CWL-MW2BL | 544.5 | <i>↓</i> | 042709/1214 | GW | P | 500ml | HNO3 | G | SA | Metals+Fe (SW846-6020/7470) APP IX | |
| 087345-001 | CWL-TB2 | NA | <i>↓</i> | 042709/1213 | DIW | G | 3x40ml | HCL | G | TB | VOC (SW846-8260) APP IX | |
| | | | | | | | | | | | | |
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| RMMA <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ref. No. | Sample Tracking SMO Use Date Entered(mm/dd/yy) Entered by: | Special Instructions/QC Requirements EDD <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Level D Package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No *Send report to: Tim Jackson/Org 4133/MS 1089/505-284-2547 | Abnormal Conditions on Receipt Lab Use | | | | | | | | | | | | | | | | |
|---|---|--|--|------|-----------|------|-------------------------------------|--------------------|--------------------|---------------|-------------------------------|--------------|--------------------|---------------|-------------------------------|------------------|--------------------|---------------|-------------------------------|
| Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by lab Turnaround Time <input type="checkbox"/> 7 Day <input type="checkbox"/> 15 Day <input checked="" type="checkbox"/> 30 Day Return Samples By: <input type="checkbox"/> Negotiated TAT <input type="checkbox"/> QC inits. | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Name</th> <th>Signature</th> <th>Init</th> <th>Company/Organization/Phone/Cellular</th> </tr> </thead> <tbody> <tr> <td>Alfred Santillanes</td> <td><i>[Signature]</i></td> <td><i>[Init]</i></td> <td>Weston/4133/844-4013/228-0710</td> </tr> <tr> <td>Robert Lynch</td> <td><i>[Signature]</i></td> <td><i>[Init]</i></td> <td>Weston/4133/844-4013/250-7090</td> </tr> <tr> <td>William J Gibson</td> <td><i>[Signature]</i></td> <td><i>[Init]</i></td> <td>Weston/4133/844-4013/239-7367</td> </tr> </tbody> </table> | | | Name | Signature | Init | Company/Organization/Phone/Cellular | Alfred Santillanes | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/228-0710 | Robert Lynch | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/250-7090 | William J Gibson | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/239-7367 |
| Name | Signature | Init | Company/Organization/Phone/Cellular | | | | | | | | | | | | | | | | |
| Alfred Santillanes | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/228-0710 | | | | | | | | | | | | | | | | |
| Robert Lynch | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/250-7090 | | | | | | | | | | | | | | | | |
| William J Gibson | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/239-7367 | | | | | | | | | | | | | | | | |

| | | | | | | | |
|---------------------------------------|-----------|--------------|-----------|--------------------|------|------|------|
| 1. Relinquished by <i>[Signature]</i> | Org. 4133 | Date 4/27/09 | Time 1355 | 4. Relinquished by | Org. | Date | Time |
| 1. Received by <i>[Signature]</i> | Org. 4133 | Date 4/27/09 | Time 1355 | 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

612166

| | | |
|-------------------------------------|---|---------------------------------------|
| Dept. No./Mail Stop: 6765/0719 | Date Samples Shipped: <i>4/23/09</i> | Project/Task No. 125778.10.11.01 |
| Project/Task Manager: John Cochran | Carrier/Waybill No. <i>100696</i> | SMO Authorization: <i>[Signature]</i> |
| Project Name: CWL GWM | Lab Contact: Edie Kent/803-556-8171 | Contract #: PO 691436 |
| Record Center Code: ER/1267 074/DAT | Lab Destination: GEL | <i>See</i> |
| Logbook Ref. No.: ER 049 | SMO Contact/Phone: Pam Puissant/505-844-3185 | |
| Service Order No. CF 025-09 | Send Report to SMO: Lorraine Herrera/505-844-3199 | |

| |
|---|
| <input type="checkbox"/> Waste Characterization -Send preliminary/copy report to: |
| <input type="checkbox"/> Released by COC No.: _____ |
| <input checked="" type="checkbox"/> Validation Required |
| Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154 |

| Location | | Reference LOV (available at SMO) | | | | | | | | | | Parameter & Method Requested | | Lab Sample ID |
|----------|-----------|--|-----------------|-------------|--------------------------|---------------|-----------|--------|--------------|-------------------|-------------|------------------------------------|--|---------------|
| Building | Tech Area | ER Sample ID or Sample Location Detail | Pump Depth (ft) | ER Site No. | Date/Time (hr) Collected | Sample Matrix | Container | | Preservative | Collection Method | Sample Type | | | |
| | | | | | | | Type | Volume | | | | | | |
| | | 087353-001 CWL-MW6U | 498.6 | <i>N/A</i> | 042309/0844 | GW | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) APP IX | | |
| | | 087353-010 CWL-MW6U | 498.6 | | 042309/0846 | GW | P | 500ml | HNO3 | G | SA | Metals+Fe (SW846-6020/7470) APP IX | | |
| | | 087354-001 CWL-MW6U | 498.6 | | 042309/0844 | GW | G | 3x40ml | HCL | G | DU | VOC (SW846-8260) APP IX | | |
| | | 087354-010 CWL-MW6U | 498.6 | | 042309/0846 | GW | P | 500ml | HNO3 | G | DU | Metals+Fe (SW846-6020/7470) APP IX | | |
| | | 087355-001 CWL-TB6 | NA | ↓ | 042309/0844 | DIW | G | 3x40ml | HCL | G | TB | VOC (SW846-8260) APP IX | | |
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| RMMA <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ref. No. | Sample Tracking SMO Use | Special Instructions/QC Requirements | Abnormal Conditions on Receipt | | | | | | | | | | | | | | | | |
|--|---|---|---------------------------------------|------|-------------------------------------|--------------------|--------------------|--|-------------------------------|--------------|--------------------|----|-------------------------------|-------------------|--------------------|--|-------------------------------|----------------------------------|--|
| Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by lab | Date Entered (mm/dd/yy) | EDD <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Lab Use | | | | | | | | | | | | | | | | |
| Turnaround Time <input type="checkbox"/> 7 Day <input type="checkbox"/> 15 Day <input checked="" type="checkbox"/> 30 Day | Entered by: | Level D Package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | | | | | | | | | | | | | |
| Return Samples By: | <input type="checkbox"/> Negotiated TAT <input type="checkbox"/> QC Inits. | *Send report to: Tim Jackson/Org 4133/MS 1089/505-284-2547 | | | | | | | | | | | | | | | | | |
| Sample Team Members | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Name</th> <th>Signature</th> <th>Init</th> <th>Company/Organization/Phone/Cellular</th> </tr> </thead> <tbody> <tr> <td>Alfred Santillanes</td> <td><i>[Signature]</i></td> <td></td> <td>Weston/4133/844-4013/228-0710</td> </tr> <tr> <td>Robert Lynch</td> <td><i>[Signature]</i></td> <td>RL</td> <td>Weston/4133/844-4013/250-7090</td> </tr> <tr> <td>William J. Gibson</td> <td><i>[Signature]</i></td> <td></td> <td>Weston/4133/844-4013/239-7367</td> </tr> </tbody> </table> | Name | Signature | Init | Company/Organization/Phone/Cellular | Alfred Santillanes | <i>[Signature]</i> | | Weston/4133/844-4013/228-0710 | Robert Lynch | <i>[Signature]</i> | RL | Weston/4133/844-4013/250-7090 | William J. Gibson | <i>[Signature]</i> | | Weston/4133/844-4013/239-7367 | *Please list as separate report. | |
| Name | Signature | Init | Company/Organization/Phone/Cellular | | | | | | | | | | | | | | | | |
| Alfred Santillanes | <i>[Signature]</i> | | Weston/4133/844-4013/228-0710 | | | | | | | | | | | | | | | | |
| Robert Lynch | <i>[Signature]</i> | RL | Weston/4133/844-4013/250-7090 | | | | | | | | | | | | | | | | |
| William J. Gibson | <i>[Signature]</i> | | Weston/4133/844-4013/239-7367 | | | | | | | | | | | | | | | | |

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|---------------------------------------|------------------|---------------------|------------------|--------------------|------|------|------|
| 1. Relinquished by <i>[Signature]</i> | Org. <i>4133</i> | Date <i>4/23/09</i> | Time <i>1012</i> | 4. Relinquished by | Org. | Date | Time |
| 1. Received by <i>[Signature]</i> | Org. <i>4133</i> | Date <i>4/23/09</i> | Time <i>1012</i> | 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. <i>N/A</i> | SMO Use <i>4/29/09</i> | Project/Task No. 121515.02.01 | AR/COC 612169 |
| Dept. No./Mail Stop: 6765/0719 | Date Samples Shipped: <i>4/29/09</i> | SMO Authorization: <i>[Signature]</i> | <input checked="" type="checkbox"/> Waste Characterization -Send preliminary/copy report to: Tim Jackson |
| Project/Task Manager: John Cochran | Carrier/Waybill No.: | Contract #: PO 691436 | <input type="checkbox"/> Released by COC No.: _____ |
| Project Name: CWL GWM | Lab Contact: Edie Kent/803-556-8171 | | <input type="checkbox"/> Validation Required |
| Record Center Code: ER/1267 074/DAT | Lab Destination: GEL | | Bill To: Sandia National Labs (Accounts Payable) |
| Logbook Ref. No.: ER 049 | SMO Contact/Phone: Pam Puissant/505-844-3185 | | P.O. Box 5800 MS 0154 |
| Service Order No. CF 025-09 | Send Report to SMO: Lorraine Herrera/505-844-3199 | | Albuquerque, NM 87185-0154 |

| Location | | Reference LOV (available at SMO) | | | | | | | | | | | | |
|-----------|------|----------------------------------|--|-----------------|-------------|--------------------------|---------------|-----------|--------|--------------|-------------------|-------------|------------------------------------|---------------|
| Tech Area | | Sample No.-Fraction | ER Sample ID or Sample Location Detail | Pump Depth (ft) | ER Site No. | Date/Time (hr) Collected | Sample Matrix | Container | | Preservative | Collection Method | Sample Type | Parameter & Method Requested | Lab Sample ID |
| Building | Room | | | | | | | Type | Volume | | | | | |
| | | 087361-001 | CWL-BW4A | 506.6 | | 04/28/09 1002 | WW | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) APP IX | |
| | | 087361-010 | CWL-BW4A | 506.6 | | 04/28/09 1003 | WW | P | 500ml | HNO3 | G | SA | Metals+Fe (SW846-6020/7470) APP IX | |
| | | 087362-001 | CWL-TB9 | NA | | 04/28/09 1002 | DIW | G | 3x40ml | HCL | G | TB | VOC (SW846-8260) APP IX | |
| | | 087363-001 | CWL-BW3 | 506.2 | | 04/29/09 0850 | WW | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) APP IX | |
| | | 087363-010 | CWL-BW3 | 506.2 | | 04/29/09 0851 | WW | P | 500ml | HNO3 | G | SA | Metals+Fe (SW846-6020/7470) APP IX | |
| | | 087364-001 | CWL-TB10 | NA | | 04/29/09 0850 | DIW | G | 3x40ml | HCL | G | TB | VOC (SW846-8260) APP IX | |

| RMMA <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ref. No. | Sample Tracking SMO Use Date Entered (mm/dd/yy) Entered by: | Special Instructions/QC Requirements EDD <input type="checkbox"/> Yes <input type="checkbox"/> No Level D Package <input type="checkbox"/> Yes <input type="checkbox"/> No *Send report to: Tim Jackson/Org 4133/MS 1089/505-284-2547 | Abnormal Conditions on Receipt Lab Use | | | | | | | | | | | | | | | | |
|--|---|--|--|------|-----------|------|-------------------------------------|--------------------|--------------------|---------------|-------------------------------|--------------|--------------------|---------------|-------------------------------|------------------|--------------------|---------------|-------------------------------|
| Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by lab Turnaround Time <input type="checkbox"/> 7 Day <input type="checkbox"/> 15 Day <input checked="" type="checkbox"/> 30 Day Return Samples By: <input type="checkbox"/> Negotiated TAT <input type="checkbox"/> QC inits. | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Name</th> <th>Signature</th> <th>Init</th> <th>Company/Organization/Phone/Cellular</th> </tr> </thead> <tbody> <tr> <td>Alfred Santillanes</td> <td><i>[Signature]</i></td> <td><i>[Init]</i></td> <td>Weston/4133/844-4013/228-0710</td> </tr> <tr> <td>Robert Lynch</td> <td><i>[Signature]</i></td> <td><i>[Init]</i></td> <td>Weston/4133/844-4013/250-7090</td> </tr> <tr> <td>William J Gibson</td> <td><i>[Signature]</i></td> <td><i>[Init]</i></td> <td>Weston/4133/844-4013/239-7367</td> </tr> </tbody> </table> | | | Name | Signature | Init | Company/Organization/Phone/Cellular | Alfred Santillanes | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/228-0710 | Robert Lynch | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/250-7090 | William J Gibson | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/239-7367 |
| Name | Signature | Init | Company/Organization/Phone/Cellular | | | | | | | | | | | | | | | | |
| Alfred Santillanes | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/228-0710 | | | | | | | | | | | | | | | | |
| Robert Lynch | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/250-7090 | | | | | | | | | | | | | | | | |
| William J Gibson | <i>[Signature]</i> | <i>[Init]</i> | Weston/4133/844-4013/239-7367 | | | | | | | | | | | | | | | | |

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|---------------------------------------|-----------|--------------|-----------|--------------------|------|------|------|
| 1. Relinquished by <i>[Signature]</i> | Org. 4133 | Date 4/29/09 | Time 0955 | 4. Relinquished by | Org. | Date | Time |
| 1. Received by <i>[Signature]</i> | Org. 4133 | Date 4/29/09 | 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 |

ATTACHMENT C
DATA VALIDATION REPORTS FOR
GROUNDWATER ANALYTICAL RESULTS
January – July 2009

Sample Findings Summary

Site: CWL GWM

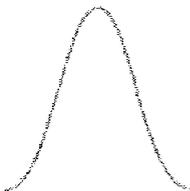
AR/COC: 612161 and 612165

Organic, Metals

| Sample ID | EPA8260B (VOCs): | | | | | | EPA6020 (ICP-MS): | | | | | | | | | | EPA7470A (CVAAs): | | |
|---------------------|---------------------|------------------------|--------------------------|----------------------------|---------------------|--|-------------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|-------------------|---|--|
| | 107-02-8 (acrolein) | 75-05-8 (acetonitrile) | 107-12-0 (propionitrile) | 78-83-1 (isobutyl alcohol) | 75-25-2 (bromoform) | | 7440-36-0 (Sb) | 7440-28-0 (Tl) | 7440-38-2 (As) | 7440-47-3 (Cr) | 7440-62-2 (V) | 7440-66-6 (Zn) | 7440-43-9 (Cd) | 7440-48-4 (Co) | 7440-50-8 (Cu) | 7440-02-0 (Ni) | | 7782-49-2 (Se) | |
| 087341-001 CWL-MW5L | UJ,I4,C3 | UJ,I4 | UJ,I4 | UJ,I4 | UJ,I4 | | | | | | | | | | | | | | |
| 087341-010 CWL-MW5L | | | | | | | | 0.0016 U,B3 | 0.014 U,B | 0.010 U,B | 0.042 U,B | 0.014 U,B | J+, CK2 | J+, CK2 | J+, CK2 | J+, CK2 | J-, CK3 | All Acceptance criteria met. No sample data will be qualified. | |
| 087342-001 CWL-MW5L | UJ,I4,C3 | UJ,I4 | UJ,I4 | UJ,I4 | UJ,I4 | | | | | | | | | | | | | | |
| 087342-010 CWL-MW5L | | | | | | | 0.0029 U,B3 | 0.014 U,B | 0.010 U,B | 0.042 U,B | 0.014 U,B | | J+, CK2 | J+, CK2 | J+, CK2 | J-, CK3 | | | |
| 087343-001 CWL-TB1 | UJ,I4,C3 | UJ,I4 | UJ,I4 | UJ,I4 | UJ,I4 | | | | | | | | | | | | | | |
| 087350-001 CWL-MW6L | UJ,I4,C3 | UJ,I4 | UJ,I4 | UJ,I4 | UJ,I4 | | | | | | | | | | | | | | |
| 087350-010 CWL-MW6L | | | | | | | | 0.014 U,B | 0.010 U,B | 0.042 U,B | 0.014 U,B | | J+, CK2 | J+, CK2 | J+, CK2 | J-, CK3 | | | |
| 087351-001 CWL-FB1 | UJ,I4,C3 | UJ,I4 | UJ,I4 | UJ,I4 | UJ,I4 | | | | | | | | | | | | | | |
| 087352-001 CWL-TB5 | UJ,I4,C3 | UJ,I4 | UJ,I4 | UJ,I4 | UJ,I4 | | | | | | | | | | | | | | |
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Validated By: David Schwartz

Date: 06/02/09



Memorandum

DATE: May 29, 2009
TO: File
FROM: David Schwent
SUBJECT: Organic GC/MS Data Review and Validation - SNL
Site: CWL GWM
AR/COC: 612161 and 612165
SDG: 228162
Laboratory: GEL
Project/Task No: 125778.10.11.01

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 EPA8260B (VOCs). Problems were identified with the data package that result in the qualification of data.

Calibration: The initial calibration slope of acrolein was <0.05 but ≥ 0.01 and the continuing calibration verification (CCV) percent (%D) was $>20\%$ but $\leq 40\%$ with negative bias. All associated sample results were non-detects (NDs) and will be qualified "UJ,I4,C3."

Calibration: The initial calibration RF of acetonitrile was <0.05 but ≥ 0.01 . All associated sample results were NDs and will be qualified "UJ,I4."

Calibration: The initial calibration RF of propionitrile was <0.05 but ≥ 0.01 . All associated sample results were NDs and will be qualified "UJ,I4."

Calibration: The initial calibration RF of isobutyl alcohol was <0.05 but ≥ 0.01 . All associated sample results were NDs and will be qualified "UJ,I4."

Calibration: The initial calibration RF of bromoform was <0.05 but ≥ 0.01 . All associated sample results were 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 intercept values of 1,2-dibromo-3-chloropropane and acrolein were >3X the method detection limit (MDL). However, all associated sample results were NDs and will not be qualified. The initial calibration verification (ICV) and/or CCV %Ds of acetonitrile, iodomethane, carbon disulfide, methylene chloride, and dichlorodifluoromethane were >20% with positive bias. However, all associated sample results were NDs and will not be qualified. The ICV and/or CCV %Ds of chloromethane, acetone, 2-butanone and allyl chloride were >20% but ≤40% with negative bias. However, 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.

Blanks

No target analytes were detected in the blanks.

Internal Standards (ISs)

All IS area and RT QC acceptance criteria were met.

Surrogates

All surrogate recovery and retention time QC acceptance criteria were met.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

All LCS QC acceptance criteria were met. No LCSD analysis was performed. The MSD (PSD) analysis was used as a measure of laboratory precision. No sample data will be qualified as a result.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS/MSD (PS/PSD) QC acceptance criteria were met.

Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not requested.

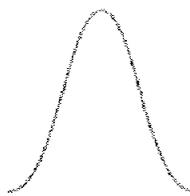
Detection Limits/Dilutions

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

Other QC

No equipment blanks (EBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicate (FD) (sample 228162-003) were <30%. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified that affect data quality.



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

Memorandum

DATE: June 2, 2009
TO: File
FROM: David Schwent
SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL GWM
AR/COC: 612161 and 612165
SDG: 228162
Laboratory: GEL
Project/Task No: 125778.10.11.01

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 EPA6020 (ICP-MS) and EPA7470A (CVAA). Problems were identified with the data package that result in the qualification of data.

ICP-MS Analysis:

Blanks: Sb was detected in the initial calibration blank (ICB) at a concentration > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated result of sample 228162-004 was a detect <5X the ICB concentration and will be qualified "0.0029U,B3" at 5X the value of the ICB.

Blanks: Tl was detected in the ICB and continuing calibration blank (CCB) at concentrations > the MDL but < the PQL. The associated result of sample 228162-002 was a detect <5X the highest calibration blank (the CCB) concentration and will be qualified "0.0016U,B3" at 5X the value of the CCB.

Blanks: As was detected in the method blank (MB) at a concentration > the MDL but < the PQL. All associated sample results were detects <5X the MB concentration and will be qualified "0.014U,B" at 5X the value of the MB.

Blanks: Cr was detected in the MB at a concentration > the MDL but < the PQL. All associated sample results were detects <5X the MB concentration and will be qualified "0.010U,B" at 5X the value of the MB.

Blanks: V was detected in the MB at a concentration > the MDL but < the PQL. All associated sample results were detects <5X the MB concentration and will be qualified "0.042U,B" at 5X the value of the MB.

Blanks: Zn was detected in the MB at a concentration > the MDL but < the PQL. All associated sample results were detects <5X the MB concentration and will be qualified "0.014U,B" at 5X the value of the MB.

ICS A: For Sample 228162-002, the sample Ca concentration was > the ICS A Ca concentration and the ICS A result for Cd was > the MDL. The associated Cd result was a detect <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Samples 228162-002, -004, and -007, the sample Ca concentrations were > the ICS A Ca concentration and the ICS A result for Co was > the MDL. All associated Co results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Samples 228162-002, -004, and -007, the sample Ca concentrations were > the ICS A Ca concentration and the ICS A result for Cu was > the MDL. All associated Cu results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Samples 228162-002, -004, and -007, the sample Ca concentrations were > the ICS A Ca concentration and the ICS A result for Ni was > the MDL. All associated Ni results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For samples 228162-002, -004, and -007, the sample Ca concentration was > the ICS A Ca concentration and the ICS A result for Se was negative with and absolute value > the MDL but <2X the MDL. All associated Se results were detects <50X the absolute value of the ICS A result and will be qualified "J-,CK3."

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

ICP-MS Analysis: All CRI recoveries met QC acceptance criteria.

CVAA Analysis: All CRA recoveries met QC acceptance criteria.

Blanks

ICP-MS Analysis: No target analytes were detected in the blanks, except as noted above in the summary section and the following. Sb, Tl, and Fe were detected in one or more of the blanks at concentrations > the MDL but < the PQL. However, all associated sample results, except the results qualified above in the summary section, were either NDs or detects >5X the highest calibration blank and/or MB concentration and will not be qualified.

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

ICP-MS Internal Standards

ICP-MS Analysis: All ICP-MS internal standards intensities met QC acceptance criteria.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All Analyses: All MS QC acceptance criteria were met. No MSD analyses were performed. No sample data will be qualified as a result.

Laboratory Replicate

All Analyses: All replicate QC acceptance criteria were met.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

All Analyses: All LCS QC acceptance criteria were met. No LCSD analyses were performed. The laboratory replicate analyses were used as measures of laboratory precision. No sample data will be qualified as a result.

Detection Limits/Dilutions

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

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 samples 228162-002, -004, and -007, the sample Ca concentrations were > the ICS A Ca concentration and the ICS A results for Sb, Ba, Cd, and Zn were > the MDL. However, all associated sample results, except the results qualified above in the summary section, were either non-detects (NDs), qualified "U" (ND) by blank contamination, or detects >50X the ICS A result and will not be qualified.

ICP Serial Dilution

ICP-MS Analysis: The serial dilution analysis met all QC acceptance criteria.

Other QC

No equipment blanks (EBs) or field blanks (FBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicate (FD) (sample 228162-004) were <20%, with the exception of the RPD for V. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues that affect data quality were identified.

Memorandum

Date: June 9, 2009

To: File

From: Kevin Lambert

Subject: GC/MS Organic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612162 and 612168
SDG: 228621
Laboratory: GEL
Project/Task: 125778.10.11.01
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

Five 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 factor (RF) for isobutyl alcohol was <0.05 but ≥ 0.01 . All associated sample results were non-detects and will be **qualified "UJ, I4."**
2. Dibromochloromethane was detected in the equipment blank (EB) associated with samples 228621-004 and -006 at a concentration $>$ the practical quantitation limit (PQL). The dibromochloromethane result for sample -006 was a detect $<5X$ the EB concentration and $<$ the PQL and will be **qualified "1.0U, B2"** at the value of the PQL. The other associated sample result was a non-detect and will not be qualified.

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 initial calibration intercept for bromoform was positive and >3X the method detection limit (MDL). The associated sample results were non-detects and will not be qualified.

The calibration verification percent differences for isobutyl alcohol, 2,-chloro-1,3-butadiene, acrolein, allyl chloride, and trichlorofluoromethane were >20% with a positive bias (see VOC Organic Worksheet). The associated sample results were non-detects and will not be qualified for the calibration infraction.

The calibration verification percent differences for 2-butanone and acetone were >20% but ≤40% with negative bias. All associated sample results were non-detects, and no other calibration infractions occurred for these analytes. Therefore, the associated sample results will not be qualified.

Blanks

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

Carbon disulfide was detected in the trip blank (TB) associated with sample 228621-001 at a concentration > the MDL but < the PQL. The associated sample result was a non-detect and will not be qualified.

Bromodichloromethane, bromoform, and chloroform were detected in the EB associated with samples -004 and -006 at concentrations > the PQLs. All associated sample results were non-detects and will not be qualified.

Carbon disulfide was detected in the field blank (FB) associated with sample -004 at a concentration > the MDL but < the PQL. The associated sample result was a non-detect 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.

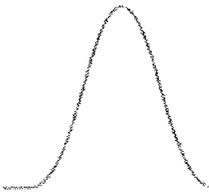
Tentatively Identified Compounds (TICs)

TIC reports were not required.

Other QC

TBs and an FB were submitted on the AR/COC(s). It should be noted that the EB is from another SNL SDG on AR/COC# 612167 and is associated with samples on AR/COC# 612168.

No other specific issues that affect data quality were identified.



Memorandum

Date: June 9, 2009
To: File
From: Kevin Lambert
Subject: Inorganic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612162 and 612168
SDG: 228621
Laboratory: GEL
Project/Task: 125778.10.11.01
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

Two 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. Zn was detected in the method blank (MB) at a concentration \geq the method detection limit (MDL) but $<$ the practical quantitation limit (PQL). All associated sample results were detects $<5X$ the MB result and will be **qualified “0.0146U, B”** at 5X the MB value.
2. Cu was detected in the equipment blank (EB) associated with sample 228621-005 at a concentration \geq the MDL but $<$ the PQL. The associated sample result was a detect $<5X$ the EB result and will be **qualified “0.0054U, B2”** at 5X the EB value.
3. Hg was detected in the calibration blank at negative concentration with an absolute value $>$ the MDL but $<$ the PQL. All Hg results were non-detects and will be **qualified “UJ, B4.”**

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.

TI was detected in the initial calibration blank (ICB) at a concentration \geq the MDL but $<$ the PQL. The associated sample results were non-detects and will not be qualified.

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.

ICP Interference Check Sample (ICS A and AB)

The results of the ICS A and AB analyses were not evaluated because the concentrations of Al, Ca, Fe, and Mg in the samples were $<$ those in the ICS solutions. No sample data will be qualified as a result.

ICP Serial Dilution

The serial dilution analyses met all QC acceptance criteria.

Other QC

It should be noted that the EB is from another SNL SDG on AR/COC# 612167 and is associated with the sample on AR/COC# 612168.

No other specific issues that affect data quality were identified.

Sample Findings Summary

Site: CWL GWM

AR/COC: 612163, 612164, 612166, 612167

Data Type: Organic & Metals

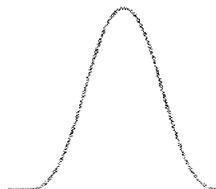
| | VOC | 75-05-8 (acetonitrile) | 78-83-1 (isobutyl alcohol) | 75-15-0 (carbon disulfide) | ICP-MS metals | 7440-28-0 (thallium) | 7440-50-8 (copper) | | | | | | |
|---|-------|------------------------|----------------------------|----------------------------|---------------|----------------------|--------------------|--|--|--|--|--|--|
| 087346-001 CWL-MW5U | UJ,I4 | UJ,I4 | | | | | | | | | | | |
| 087347-001 CWL-TB3 | UJ,I4 | UJ,I4 | | | | | | | | | | | |
| 087348-001 CWL-EB1 | UJ,I4 | UJ,I4 | | | | | | | | | | | |
| 087353-001 CWL-MW6U | UJ,I4 | UJ,I4 | | | | | | | | | | | |
| 087354-001 CWL-MW6U | UJ,I4 | UJ,I4 | | | | | | | | | | | |
| 087355-001 CWL-TB6 | UJ,I4 | UJ,I4 | | | | | | | | | | | |
| 087356-001 CWL-EB2 | UJ,I4 | UJ,I4 | 5.0U,B1 | | | | | | | | | | |
| 087346-010 CWL-MW5U | | | | | | 0.0018U,B3 | | | | | | | |
| 087353-010 CWL-MW6U | | | | | | | 0.0047U,B2 | | | | | | |
| 087354-010 CWL-MW6U | | | | | | | 0.0047U,B2 | | | | | | |
| CVAA Hg analyses met QC acceptance criteria. No data should be qualified. | | | | | | | | | | | | | |
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Validated By:

Kevin A. Lambert

Kevin A. Lambert

Date: 05/29/09



Memorandum

Date: May 29, 2009
To: File
From: Kevin Lambert
Subject: GC/MS Organic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612163, 612164, 612166, and 612167
SDG: 228358
Laboratory: GEL
Project/Task: 125778.10.11.01
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

Seven 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 factor (RF) for acetonitrile and isobutyl alcohol were <0.05 but ≥ 0.01 . All associated sample results were non-detects and will be **qualified “UJ, I4.”**
2. Carbon disulfide was detected in the trip blank (TB) associated with sample 228358-011 at a concentration $>$ the method detection limit (MDL) but $<$ the practical quantitation limit (PQL). The carbon disulfide result was a detect $<5X$ the TB concentration and $<$ the PQL and will be **qualified “5.0U, B1”** at the value of the PQL.

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 allyl chloride was >20% with a positive bias (see VOC Organic Worksheet). The associated sample results were non-detects and will not be qualified for the calibration infraction.

Blanks

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

In the method blank, bis(2-chloroisopropyl)ether and trans-1,4-dichloro-2-butene were detected at concentrations > the MDLs but < the PQLs. All associated sample results were non-detects and will not be qualified.

In the equipment blank (EB) associated with samples -006 and -008, bromoform and chloroform were detected at concentrations > the MDLs but < the PQLs, and carbon disulfide, bromodichloromethane, and dibromochloromethane were detected at concentrations > the PQLs. 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

TBs, 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. It should be noted that the EB on AR/COC# 612167 is associated with SNL samples in another SDG on AR/COC# 612168.

No other specific issues that affect data quality were identified.



Memorandum

Date: May 29, 2009
To: File
From: Kevin Lambert
Subject: Inorganic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612163, 612164, 612166, and 612167
SDG: 228358
Laboratory: GEL
Project/Task: 125778.10.11.01
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

Five 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. Tl was detected in the continuing calibration blank (CCB) at a concentration \geq the method detection limit (MDL) but $<$ the practical quantitation limit (PQL). The Tl result for sample 228358-002 was a detect $<5X$ the CCB result and will be **qualified “0.0018U, B3”** at 5X the CCB value. The other associated sample results were non-detects and will not be qualified.
2. Cu was detected in the equipment blank (EB) associated with samples -007 and -009 at a concentration \geq the MDL but $<$ the PQL. The associated sample results were detects $<5X$ the EB result and will be **qualified “0.0047U, B2”** at 5X the EB value.

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.

Sb was detected in the CCB at a concentration \geq the MDL but $<$ the PQL. All associated sample results were non-detects and will not be qualified.

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.

ICP Interference Check Sample (ICS A and AB)

The results of the ICS A and AB analyses were not evaluated because the concentrations of Al, Ca, Fe, and Mg in the samples were $<$ those in the ICS solutions. No sample data will be qualified as a result.

ICP Serial Dilution

The serial dilution analyses met all QC acceptance criteria.

Other QC

EBs and a 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. It should be noted that the EB on AR/COC# 612167 is associated with SNL samples in another SDG on AR/COC# 612168.

No other specific issues that affect data quality were identified.



Environmental Restoration Project Consolidated Quarterly Report

Section III

Perchlorate Screening Semiannual Monitoring Report Second Quarter of Calendar Year 2009 (April, May and June 2009)

September 2009



United States Department of Energy
Sandia Site Office

Sandia is a multiprogram laboratory managed and operated by Sandia Corporation, a wholly-owned subsidiary of Lockheed Martin Corporation, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000

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 second quarter of Calendar Year 2009 (CY2009) (April, May, and June 2009) in response to the requirements of the Order. During the second quarter of CY2009, groundwater samples were collected from LWDS-MW1, MWL-MW7, MWL-MW8, and MWL-MW9.

MWL-MW7, MWL-MW8, and MWL-MW9 are the recently installed (May 2008) downgradient wells at the Mixed Waste Landfill. The Order requires that new wells be sampled for perchlorate for a minimum of four quarters. During this reporting period MWL-MW7, MWL-MW8, and MWL-MW9 were sampled for the fourth time. LWDS-MW1 is in the Technical Area V Groundwater Investigation study area and was sampled for the first time for perchlorate based on requirements stipulated in an April 2009 letter from the NMED (NMED April 2009). All samples were submitted to General Engineering Laboratories (GEL) for perchlorate analysis using U.S. Environmental Protection Agency (EPA) Method 314.0 (EPA November 1999).

No perchlorate was detected in the environmental samples from LWDS-MW1, MWL-MW7, MWL-MW8, or MWL-MW9 at a method detection limit of 4 micrograms per liter ($\mu\text{g/L}$).

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Section III: Perchlorate Screening Quarterly Monitoring Report Second Quarter of Calendar Year 2009 (April, May, and June 2009)

1.0 Introduction

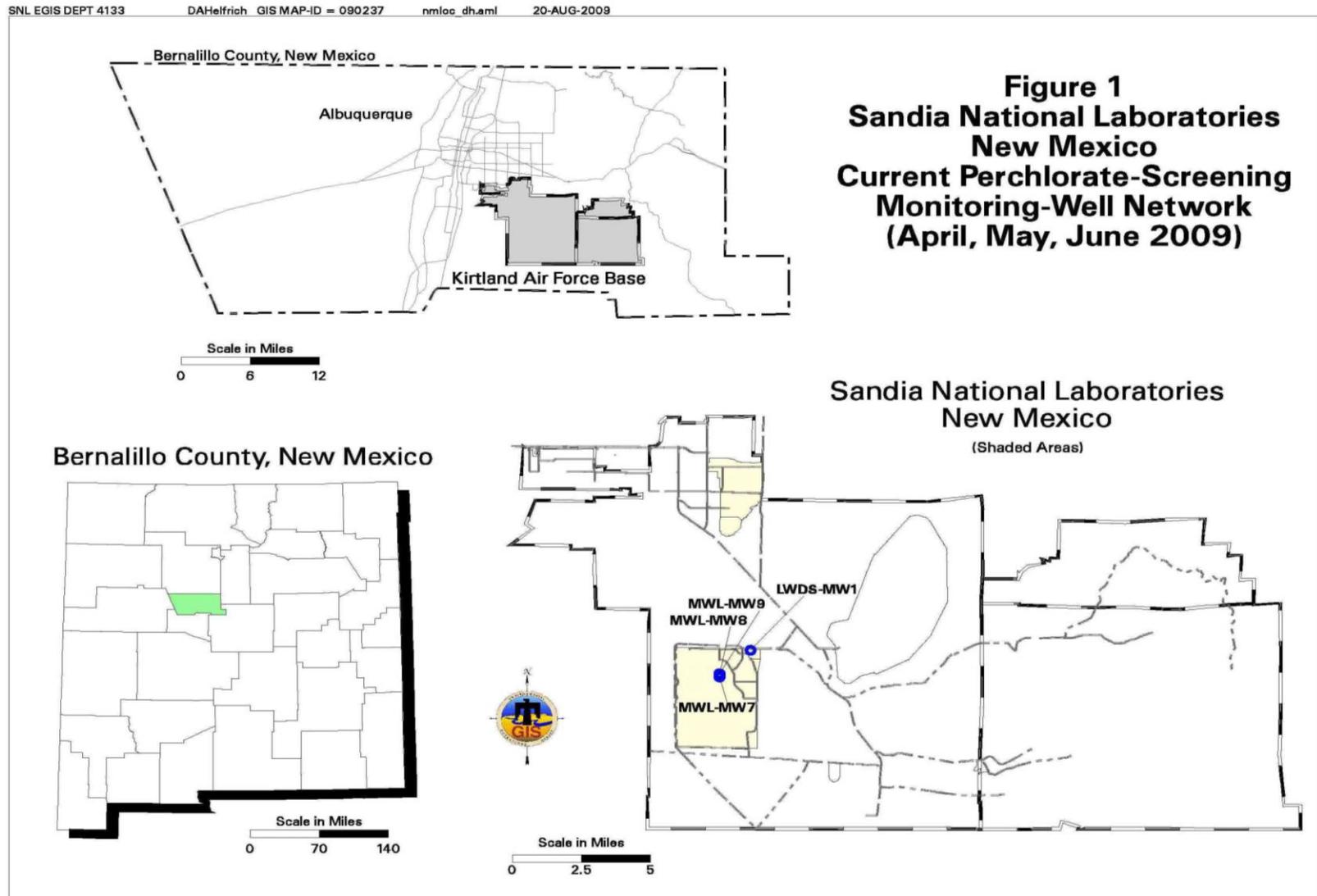
Section IV.B of the Compliance Order on Consent (the Order), between the New Mexico Environment Department (NMED), the U.S. Department of Energy (DOE), and Sandia Corporation (Sandia) for Sandia National Laboratories/New Mexico (SNL/NM), effective on April 29, 2004, stipulates that a select group of groundwater monitoring wells be sampled for perchlorate at SNL/NM (NMED April 2004). This report summarizes the perchlorate screening monitoring completed during the second quarter of Calendar Year 2009 (CY2009) (April, May, and June 2009) 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 that 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. Per the letter report, quarterly reports will be submitted for wells actively in the perchlorate-screening monitoring-well network. Based on 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 NMED to proceed to semiannual reporting (NMED November 2008), and then upon further consideration NMED once more required quarterly reporting (NMED April 2009).

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

Groundwater monitoring wells MWL-MW7, MWL-MW8, and MWL-MW9 (in the Mixed Waste Landfill study area) have now been sampled during four consecutive quarters; and LWDS-MW1 has been sampled one quarter. 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 a groundwater monitoring well remains in the perchlorate-screening monitoring well network unless negotiated otherwise with NMED.

Figure 1. Sandia National Laboratories New Mexico Current Perchlorate-Screening Monitoring-Well Network (April, May, and June 2009)



2.0 Scope of Activities

This report provides perchlorate screening results from the second quarter of CY2009 (April, May, and June 2009) for the wells currently active in the perchlorate screening program as shown on Figure 1 and listed in Table 1. It should be noted that CYN-MW6 is currently being sampled on a semi-annual basis and there are no analytical results to report for this quarter. Per the requirements of Table XI-1 of the Order, a well with four consecutive quarters of non-detect results at the screening level/method detection limit (MDL) of 4 micrograms per liter ($\mu\text{g/L}$) is removed from the requirement of continued monitoring for perchlorate. Data from several wells identified in the Order have satisfied this requirement and, therefore, these wells have been removed from the perchlorate screening program. Data for these wells were provided in previous reports, and are not discussed in this current report. Wells discussed in previous perchlorate screening reports include: CYN-MW1D, CYN-MW5, CYN-MW7, CYN-MW8, MRN-2, MRN-3D, MWL-BW1, MWL-BW2, MWL-MW1, NWT3-MW2, and SWTA3-MW4.

Table 1
Current Perchlorate-Screening Monitoring-Well Network
Second Quarter of CY2009
(April, May, and June 2009)

| Well | Date Sampled | Number of Consecutive Sampling Events ^a | Remaining Number of Sampling Events ^b | Sampling Method |
|----------|--------------|--|--|-----------------|
| LWDS-MW1 | 10-JUN-2009 | 1 | 3 | Bennett™ Pump |
| MWL-MW7 | 08-APR-2009 | 4 | 0 | Bennett™ Pump |
| MWL-MW8 | 07-APR-2009 | 4 | 0 | Bennett™ Pump |
| MWL-MW9 | 09-APR-2009 | 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 $\mu\text{g/L}$. 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.

DOE/Sandia performed groundwater sampling at four wells on the dates listed in Table 1. Three of these wells were installed after the Order was finalized and are required to be sampled for perchlorate as “new” wells; the fourth well was specifically required by NMED’s April 2009 letter (NMED April 2009). Groundwater sampling activities were conducted in conformance with procedures outlined in the investigation-specific sampling and analysis plans (SAP) entitled:

- ♦ “Mixed Waste Landfill Groundwater Monitoring Mini-SAP for FY09, 3rd Quarter Sampling, April 2009” (SNL/NM March 2009); and
- ♦ “TA-V Groundwater Monitoring Mini-SAP for Third Quarter, Fiscal Year 2009” (SNL/NM April 2009).

As described in the Mini-SAPs, groundwater sampling was performed in conformance with current Sandia 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). Well MWL-MW7 was purged a minimum of one saturated screen volume before sampling in conformance with FOP 05-01, “LTES Groundwater Monitoring Well Sampling and Field Analytical Measurements” (SNL/NM August 2007b). Wells LWDS-MW1, MWL-MW8, and MWL-MW9 are low-yield monitoring wells, and these wells were purged dry and allowed to recover before sampling to ensure the most representative groundwater sample possible.

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. Ground-water 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 was considered acceptable when measurements were within 10 percent or less than 5 nephelometric turbidity units for turbidity, 0.1 pH units, 1.0 degree Celsius, and SC within 5 percent. Field Measurement Logs documenting details of well purging and water quality measurements were submitted to the Sandia Customer-Funded Records Center.

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

Table 2
Sample Details for the Second Quarter of CY2009 Perchlorate Sampling

| Well | Sample Identification | ARCOC Number | Date Shipped |
|-------------|------------------------------|---------------------|---------------------|
| LWDS-MW1 | 087464-020 | 612210 | 10-JUN-09 |
| MWL-MW7 | 087165-020 | 612157 | 08-APR-09 |
| MWL-MW8 | 087161-020 | 612155 | 07-APR-09 |
| MWL-MW9 | 087167-020 | 612158 | 09-APR-09 |

Notes

ARCOC = Analysis request and chain of custody.

3.0 Regulatory Criteria

In a given monitoring well, four consecutive non-detects (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, 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, the DOE/Sandia will evaluate the nature and extent of perchlorate contamination, based on a screening level/MDL of 4 µg/L, and requires that the results of this evaluation be incorporated into a Corrective Measures Evaluation (CME). Section VII.C of the Order clarifies that the CME process will be initiated where there was a release to the environment and where corrective measures are necessary to protect human health or the environment.

In April 2009, NMED issued a letter requiring DOE/Sandia to determine the nature and extent of the contamination for the perchlorate-impacted groundwater in the vicinity of CYN-MW6 (NMED April 2009). In addition, DOE/Sandia were required to monitor the groundwater on a quarterly basis at six monitoring wells: TA1-W-03, TA1-W-06, TA1-W-08, TA2-W-01, TA2-W-27, and LWDS-MW1 (NMED April 2009). Based on quarterly sampling schedules, only one of these six wells (LWDS-MW1) was sampled during this reporting period. Future reports will include data for all six of these wells.

4.0 Monitoring Results

Table 3 summarizes current and historical perchlorate results for LWDS-MW1, MWL-MW7, MWL-MW8, and MWL-MW9. The analytical laboratory COA for the second quarter of CY2009 perchlorate data is included as Appendix A.

**Table 3
Summary of Perchlorate Screening Analytical Results for the
Current Monitoring-Well Network, as of Second Quarter CY2009.**

| Well ID | Sample Date | ARCO 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 |
|-----------|-------------|------------|------------|---|----------------------------|----------------------------|----------------------------|-----------------------------------|-----------------------------------|--------------------------------|------------------|
| LWDS-MW1 | 10-Jun-09 | 612210 | 087464-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| MWL-MW7 | 16-Jul-08 | 611954 | 086362-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | | | 086363-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | Duplicate sample |
| | 06-Oct-08 | 612018 | 086815-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | 06-Jan-09 | 612074 | 086946-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | 08-Apr-09 | 612157 | 087165-20 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| MWL-MW8 | 14-Jul-08 | 611955 | 086365-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | 07-Oct-08 | 612019 | 086817-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | 07-Jan-09 | 612076 | 086950-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | | | 086951-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | Duplicate sample |
| 07-Apr-09 | 612155 | 087161-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | | |
| MWL-MW9 | 15-Jul-08 | 611956 | 086367-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | 08-Oct-08 | 612020 | 086820-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | 08-Jan-09 | 612077 | 086953-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |
| | 09-Apr-09 | 612158 | 087167-020 | ND | 4.0 | 12 | NE | U | | EPA 314.0 | |

Notes

LWDS-MW1 was installed in May 1993; and MWL-MW7, MWL-MW8, MWL-MW9 were installed in May 2008. This table presents all perchlorate data collected at these wells.

^aResult

Values in **bold** exceed the screening level/MDL.

ND not detected (at method detection limit).

µg/L

micrograms per liter.

^bMDL

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.

^cPQL

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

Table 3 (concluded)
Summary of Perchlorate Screening Analytical Results for the
Current Monitoring-Well Network, as of Second Quarter CY2009.

Notes (continued)

^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 the New Mexico Environmental Improvement Board in Title 20, Chapter 7, Part 1 of the New Mexico Administrative Code (20MAC 7.1).

NE not established.

^e**Lab Qualifier**

U Analyte is absent or below the method detection limit.

^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).

Perchlorate was not detected above the screening level in LWDS-MW1, MWL-MW7, MWL-MW8, or MWL-MW9. 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.

The analytical data were reviewed and qualified in accordance with AOP 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 the qualification of the data as unusable. The data are acceptable and reported quality control 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 March 2009 and SNL/NM April 2009) were identified during the second quarter of CY2009 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 sample from groundwater monitoring wells LWDS-MW1, MWL-MW7, MWL-MW8, and MWL-MW9 at a screening level/MDL of 4 µg/L.
- Since June 2004 (the start of sampling required by the Order), perchlorate has only been detected above the screening level/MDL (4 µg/L) in one of the wells (CYN-MW6) in the perchlorate-screening monitoring-well network. CYN-MW6 is currently being sampled on a semi-annual basis and there are no analytical results to report for this quarter.

Due to four consecutive quarters of non-detects, DOE/Sandia will discontinue quarterly monitoring of perchlorate in MWL-MW7, MWL-MW8, and MWL-MW9. DOE/Sandia will continue quarterly monitoring of perchlorate in LWDS-MW1 and the five other monitoring wells identified in the April 2009 NMED letter: TA1-W-03, TA1-W-06, TA1-W-08, TA2-W-01, and TA2-W-27.

6.0 References

EPA (see US Environmental Protection Agency).

New Mexico Environment Department (NMED) April 2004. "Compliance Order on Consent Pursuant to the New Mexico Hazardous Waste Act 74-4-10: Sandia National Laboratories Consent Order," New Mexico Environment Department, April 24, 2004.

New Mexico Environment Department (NMED) January 2006. "RE: Monitoring Groundwater for Perchlorate, Report of November 22, 2005. Sandia National Laboratories EPA ID# NM5890110518." Letter to Patty Wagner (SSO/NNSA) and Peter Davies (SNL/NM) from James Bearzi. January 27, 2006.

Table 4
Perchlorate Screening Groundwater Monitoring
Field Water Quality Measurements^a, Second Quarter of CY2009

| Well ID | Sample Date | Temperature (°C) | Specific Conductivity (µmho/cm) | Oxidation Reduction Potential (mV) | pH | Turbidity (NTU) | Dissolved Oxygen (% Sat) | Dissolved Oxygen (mg/L) |
|----------|-------------|------------------|---------------------------------|------------------------------------|------|-----------------|--------------------------|-------------------------|
| LWDS-MW1 | 10-Jun-09 | 17.10 | 806 | 46.1 | 7.31 | 0.37 | 75.7 | 7.27 |
| MWL-MW7 | 08-Apr-09 | 19.99 | 630 | 165.2 | 7.50 | 1.03 | 43.0 | 3.90 |
| MWL-MW8 | 07-Apr-09 | 19.48 | 626 | 119.9 | 7.53 | 0.97 | 60.5 | 5.55 |
| MWL-MW9 | 09-Apr-09 | 19.92 | 629 | 116.9 | 7.50 | 6.82 | 44.0 | 4.00 |

Notes

- a Field measurements made immediately before the groundwater sample was collected.
- °C degrees Celsius.
- % Sat percent saturation.
- µmho/cm micromhos per centimeter.
- mg/L milligrams per liter.
- mV millivolts.
- NTU nephelometric turbidity units.
- pH potential of hydrogen (negative logarithm of the hydrogen ion concentration).

New Mexico Environment Department (NMED) November 2008. "RE: Perchlorate Issues" Personal Communication (electronic mail) to John Cochran (SNL/NM) from Sid Brandwein (NMED/HWB). November 07, 2008.

New Mexico Environment Department (NMED) April 2009. RE: Perchlorate Contamination in Groundwater, Sandia National Laboratories, EPA ID# NM5890110518." Letter to Kimberly Davis (SSO/NNSA) and Francis Nimick (SNL/NM) from James Bearzi. April 30, 2009.

Sandia National Laboratories, New Mexico (SNL/NM) November 2005. To James Bearzi (NMED), "Letter Report on the Status of Perchlorate Screening in Groundwater at Sandia Monitoring Wells" Sandia National Laboratories, New Mexico Environmental Restoration Project. November 22, 2005.

Sandia National Laboratories, New Mexico (SNL/NM) February 2006. "Perchlorate Screening Quarterly Monitoring Report, Fourth Quarter of Calendar Year 2005 (October, November, and December 2005)". Sandia National Laboratories, New Mexico Environmental Restoration Project. February 24, 2006.

Sandia National Laboratories, New Mexico (SNL/NM) June 2006. "Perchlorate Screening Quarterly Monitoring Report, First Quarter of Calendar Year 2006 (January, February, and March 2006)". Sandia National Laboratories, New Mexico Environmental Restoration Project. June 7, 2006.

Sandia National Laboratories, New Mexico (SNL/NM) September 2006. "Perchlorate Screening Quarterly Monitoring Report, Second Quarter of Calendar Year 2006 (April, May, and June 2006)". Sandia National Laboratories, New Mexico Environmental Restoration Project. September 20, 2006.

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Sandia National Laboratories, New Mexico (SNL/NM) June 2007. "Consolidated Quarterly Report, Section III: Perchlorate Screening Quarterly Monitoring Report, First Quarter of Calendar Year 2007 (January, February, and March 2007)". Sandia National Laboratories, New Mexico Environmental Restoration Project. June 27, 2007.

Sandia National Laboratories, New Mexico (SNL/NM) July 2007. Sandia Administrative Operating Procedure 00-03, Revision 2, "Data Validation Procedure for Chemical and Radiochemical Data." Sandia National Laboratories, New Mexico Sample Management Office. July 16, 2007.

Sandia National Laboratories, New Mexico (SNL/NM) August 2007a. Sandia Field Operating Procedure 05-03, Revision 02 “LTES Groundwater Sampling Equipment Decontamination,” Sandia National Laboratories, New Mexico Long Term Environmental Stewardship, Environmental Management Department. August 16, 2007.

Sandia National Laboratories, New Mexico (SNL/NM) August 2007b. Sandia Field Operating Procedure 05-01, Revision 02 “LTES Groundwater Monitoring Well Sampling and Field Analytical Measurements,” Sandia National Laboratories, New Mexico Long Term Environmental Stewardship, Environmental Management Department. August 16, 2007.

Sandia National Laboratories, New Mexico (SNL/NM) September 2007. “Consolidated Quarterly Report, Section III: Perchlorate Screening Quarterly Monitoring Report, Second Quarter of Calendar Year 2007 (April, May, and June 2007)”. Sandia National Laboratories, New Mexico Environmental Restoration Project. September 26, 2007.

Sandia National Laboratories, New Mexico (SNL/NM) December 2007. “Consolidated Quarterly Report, Section III: Perchlorate Screening Quarterly Monitoring Report, Third Quarter of Calendar Year 2007 (July, August, and September 2007)”. Sandia National Laboratories, New Mexico Environmental Restoration Project. December 27, 2007.

Sandia National Laboratories, New Mexico (SNL/NM) March 2008. “Consolidated Quarterly Report, Section III: Perchlorate Screening Quarterly Monitoring Report, Fourth Quarter of Calendar Year 2007 (October, November, and December 2007)”. Sandia National Laboratories, New Mexico Environmental Restoration Project. March 26, 2008.

Sandia National Laboratories, New Mexico (SNL/NM) June 2008. “Consolidated Quarterly Report, Section III: Perchlorate Screening Quarterly Monitoring Report, First Quarter of Calendar Year 2008 (January, February, and March 2008)”. Sandia National Laboratories, New Mexico Environmental Restoration Project. June 27, 2008.

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Sandia National Laboratories, New Mexico (SNL/NM) March 2009. “Mixed Waste Landfill Groundwater Monitoring, Mini-Sampling and Analysis Plan (SAP) for FY09 3rd Quarter Sampling, April 2009”. Sandia National Laboratories, New Mexico Environmental Restoration Project. March 12, 2009.

Sandia National Laboratories, New Mexico (SNL/NM) April 2009. “TA-V Groundwater Monitoring, Mini-Sampling and Analysis Plan (SAP) for Third Quarter Fiscal Year 2009”. Sandia National Laboratories, New Mexico Environmental Restoration Project. April 19, 2009.

Sandia National Laboratories, New Mexico (SNL/NM) June 2009. "Consolidated Quarterly Report, Section III: Perchlorate Screening Quarterly Monitoring Report, Fourth Quarter of Calendar Year 2008 and First Quarter of Calendar Year 2009 (October 2008 through March 2009)". Sandia National Laboratories, New Mexico Environmental Restoration Project. June 18, 2009.

U.S. Environmental Protection Agency (EPA) November 1999, "Perchlorate in Drinking Water Using Ion Chromatography," EPA 815/R-00-014. November 1999.

Appendix A

Analytical Laboratory Certificates of Analysis for the Perchlorate Data

20090448207

CONTRACT LABORATORY ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

| Batch No. N/A | | SMO Use | | AR/COC | | 612155 | | | | | | |
|-----------------------------------|--|---|-------------|--|---------------|-------------------------------------|---------|---|-------------------|---|--|---------------|
| Dept. No./Mail Stop: 6765/MS-1089 | | Date Samples Shipped: 4-7-09 | | Project/Task NO. 98026_01_08 | | Waste Characterization | | | | | | |
| Project Manager: John Cochran | | Carrier/Waybill No. 100193 | | SMO Authorization: <i>Edie Kent</i> | | -Send preliminary/copy report to: | | | | | | |
| Project Name: MWL GWM | | Lab Contact: Edie Kent/803-556-8171 | | Contract # 691436 | | | | | | | | |
| Record Center Code: ER076/DAT | | Lab Destination: GEL | | S08 BOTU ERBOL | | Released by COC No.: | | | | | | |
| Logbook Ref. No.: ER 032 | | SMO Contact/Phone: Pam Pujesant/505-844-3185 | | Lorraine Herrera/505-844-3199 | | Validation Required | | | | | | |
| Service Order No.: CF 001-09 | | Send Report to SMO: | | Bill To: Sandia National Labs (Accounts Payable) | | P.O. Box 5600 MS 0154 | | | | | | |
| Tech Area | | Room | | Abuquerque, NM 87185-0154 | | 227450% | | | | | | |
| Reference LOV (available at SMO) | | | | | | | | | | | | |
| Sample No. - Fraction | ER Sample ID or Sample Location Detail | Pump Depth (ft) | ER Site No. | Date/Time Collected | Sample Matrix | Container Type | Volume | Preservative | Collection Method | Sample Type | Parameter & Method Requested | Lab Sample ID |
| 087161-001 | MWL-MWB | 496.5 | 76 | 040709/1121 | GW | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) | 018 |
| 087161-002 | MWL-MWB | 496.5 | 76 | 040709/1125 | GW | AG | 3x1L | 4C | G | SA | SVOC (SW846-8270) | 019 |
| 087161-009 | MWL-MWB | 496.5 | 76 | 040709/1123 | GW | P | 500 ml | HNO3 | G | SA | Total TAL Metals+Total U (SW846-6020/7470) | 020 |
| 087161-010 | MWL-MWB | 496.5 | 76 | 040709/1131 | FGW | P | 500 ml | HNO3 | G | SA | TAL Metals+Total U (SW846-6020/7470) | 021 |
| 087161-016 | MWL-MWB | 496.5 | 76 | 040709/1130 | GW | P | 500 ml | 4C | G | SA | Major Anions (SW846-9056) + Alkaline (SM23208) | 022 |
| 087161-018 | MWL-MWB | 496.5 | 76 | 040709/1127 | GW | P | 250 ml | H2SO4 | G | SA | NPN (353.2) | 023 |
| 087161-020 | MWL-MWB | 496.5 | 76 | 040709/1128 | GW | P | 250 ml | 4C | G | SA | Perchlorate (314.0) | 024 |
| 087161-033 | MWL-MWB | 496.5 | 76 | 040709/1133 | GW | P | 1 Liter | HNO3 | G | SA | Gamma Spec (short list 901.1) | 025 |
| 087161-034 | MWL-MWB | 496.5 | 76 | 040709/1135 | GW | P | 1 Liter | HNO3 | G | SA | Gross Alpha/Beta (900.0) | 026 |
| 087161-036 | MWL-MWB | 496.5 | 76 | 040709/1129 | GW | AG | 250 ml | 4C | G | SA | Tritium (906.0) | 027 |
| RMMA | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | Sample Tracking | | Smo Use | | Special Instructions/QC Requirements | | Abnormal Conditions on Receipt | | |
| Sample Disposal | | <input type="checkbox"/> Return to Client | | Date Entered (mm/dd/yy) | | Date Entered (mm/dd/yy) | | EDD <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Level D Package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| Turnaround Time | | <input type="checkbox"/> 7 Day <input checked="" type="checkbox"/> 15 Day <input type="checkbox"/> 30 Day | | Negotiated TAT | | QC Inits. | | *Send report to: | | Tim Jackson/Org 4133/RMS 1089/505-284-2547 | | Lab Use |
| Return Samples By: | | Signature | | Init | | Company/Organization/Phone/Cellular | | Tim Jackson/Org 4133/RMS 1089/505-284-2547 | | If Perchlorate detected verify by using SW846-6850M | | |
| Sample Team | | Robert Lynch | | Weston/4133/844-4013/250-7090 | | Weston/4133/844-5130/228-0710 | | Major Anions (Br, Cl, F, I, SO4) | | EGW (filtered in field w/40 micron filter.) | | |
| Members | | Alfred Santillanes | | Weston/4133/844-5130/228-0710 | | Weston/4133/284-4013/239-7367 | | *Please list as separate report. | | | | |
| | | William Gibson | | Weston/4133/284-4013/239-7367 | | Gram/4133/284-2547 | | | | | | |
| | | Tim Jackson | | Gram/4133/284-2547 | | | | | | | | |
| 1. Relinquished by | | Org. 4133 | | Date 4/7/09 | | Time 1200 | | 4. Relinquished by | | Date | | Time |
| 1. Received by | | Org. 4133 | | Date 4/2/09 | | Time 1200 | | 4. Received by | | Date | | Time |
| 2. Relinquished by | | Org. 4133 | | Date 4/2/09 | | Time 1300 | | 5. Relinquished by | | Date | | Time |
| 2. Received by | | Org. 666 | | Date 4/8/09 | | Time 0815 | | 5. Received by | | Date | | Time |
| 3. Relinquished by | | Org. | | Date | | Time | | 6. Relinquished by | | Date | | Time |
| 3. Received by | | Org. | | Date | | Time | | 6. Received by | | Date | | Time |

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Sandia National Laboratories
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**

Report Date: May 1, 2009

Client Sample ID: 087161-020
Sample ID: 227450024
Matrix: AQUEOUS
Collect Date: 07-APR-09 11:28
Receive Date: 08-APR-09
Collector: Client

Project: SNLSGWater
Client ID: SNLS003

Client Desc.: MWL-MW8

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|--------------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | |
| <i>EPA 314.0 Perchlorate by IC "As Received"</i> | | | | | | | | | | |
| Perchlorate | U | ND | 0.004 | 0.012 | mg/L | 1 | MAR104/20/09 | 2103 | 857777 | 1 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|------------------|------------------|
| 1 | EPA 314.0 DOE-AL | |

20090448207

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

| Batch No. N/A | | AR/COC | | 612157 | | | | | | | | |
|---------------------------------------|--|---|-------------|--|---------------|---|---------|---|-------------------|--------------------------------|---|---------------|
| Dept. No./Mail Stop: 6765/MS 1089 | | Project/Task NO. 98026_01_98 | | Waste Characterization | | | | | | | | |
| Project/Task Manager: John Cochran | | SMO Authorization: <i>[Signature]</i> | | -Send preliminary/copy report to: | | | | | | | | |
| Record Name: MWL GWM | | Carrier/Waybill No. 100235 | | Released by COC No.: | | | | | | | | |
| Record Center Code: ER/076/DAT | | Lab Contact: Edie Kent/803-556-8171 | | <input type="checkbox"/> Validation Required | | | | | | | | |
| Logbook Ref. No.: ER 032 | | SMO Contact/Phone: Pam Pulisani/505-844-3185 | | Bill To: Sandia National Labs (Accounts Payable) | | | | | | | | |
| Service Order No. CF 001-09 | | Send Report to SMO: Lorraine Herrera/505-844-3199 | | P.O. Box 9600 MS 0154 | | | | | | | | |
| Tech Area | | | | Albuquerque, NM 87185-0154 | | | | | | | | |
| Room | | | | 2274508 | | | | | | | | |
| 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 | Volume | Preservative | Collection Method | Sample Type | Parameter & Method Requested | Lab Sample ID |
| | | | | | | | | | | | | |
| 087165-001 | MWL-MW7 | 493 | 76 | 040809/0923 | GW | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) | 029 |
| 087165-002 | MWL-MW7 | 493 | 76 | 040809/0925 | GW | AG | 3x1L | 4C | G | SA | SVOC (SW846-8270) | 030 |
| 087165-009 | MWL-MW7 | 493 | 76 | 040809/0926 | GW | P | 500 ml | HNO3 | G | SA | Total TAL Metals+Total U(SW846-6020/7470) | 031 |
| 087165-010 | MWL-MW7 | 493 | 76 | 040809/0927 | FGW | P | 500 ml | HNO3 | G | SA | TAL Metals+Total U(SW846-6020/7470) | 032 |
| 087165-016 | MWL-MW7 | 493 | 76 | 040809/0928 | GW | P | 500 ml | 4C | G | SA | Major Anions(SW846-9056)+ Alkalini(SM2320B) | 033 |
| 087165-018 | MWL-MW7 | 493 | 76 | 040809/0929 | GW | P | 250 ml | H2SO4 | G | SA | NPN (353.2) | 034 |
| 087165-020 | MWL-MW7 | 493 | 76 | 040809/0930 | GW | P | 250 ml | 4C | G | SA | Perchlorate (314.0) | 035 |
| 087165-033 | MWL-MW7 | 493 | 76 | 040809/0931 | GW | P | 1 Liter | HNO3 | G | SA | Gamma Spec (short list 901.1) | 036 |
| 087165-034 | MWL-MW7 | 493 | 76 | 040809/0932 | GW | P | 1 Liter | HNO3 | G | SA | Gross Alpha/Beta (900.0) | 037 |
| 087165-036 | MWL-MW7 | 493 | 76 | 040809/0933 | GW | AG | 250 ml | 4C | G | SA | Tritium (906.0) | 038 |
| RMMA | | | | | | Special Instructions/QC Requirements | | | | | | |
| Sample Disposal | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | Sample Tracking | | Smop Use | | EDD <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Abnormal Conditions on Receipt | | |
| Turnaround Time | | <input type="checkbox"/> 7 Day <input type="checkbox"/> 15 Day <input checked="" type="checkbox"/> 30 Day | | Sample Tracking | | Date Entered (mm/dd/yy) | | Level D Package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | |
| Return Samples By: | | <input type="checkbox"/> Negotiated TAT | | QC Hills | | | | *Send report to: | | | | |
| Name | | Signature | | Company/Organization/Phone/Cellular | | | | Tim Jackson/Org. 4133/MS 1089/505-284-2547 | | | | |
| Robert Lynch | | <i>[Signature]</i> | | Weston/4133/844-4013/250-7090 | | | | If Perchlorate detected verify by using SW846-6850M | | | | |
| Alfred Santillanes | | <i>[Signature]</i> | | Weston/4133/844-5130/228-0710 | | | | Major Anions(Br,Cl,Fl,SO4) | | | | |
| William Gibson | | <i>[Signature]</i> | | Weston/4133/284-4013/239-7367 | | | | FGW (filtered in field w/40 micron filter.) | | | | |
| 1. Relinquished by <i>[Signature]</i> | | Date 4/21/09 | | Time 0950 | | 4. Relinquished by | | Date | | Time | | |
| 2. Relinquished by <i>[Signature]</i> | | Date 4/21/09 | | Time 0950 | | 5. Relinquished by | | Date | | Time | | |
| 3. Relinquished by <i>[Signature]</i> | | Date 4/21/09 | | Time 1010 | | 6. Relinquished by | | Date | | Time | | |
| 4. Relinquished by <i>[Signature]</i> | | Date 4/21/09 | | Time 1010 | | | | Date | | Time | | |
| 5. Relinquished by <i>[Signature]</i> | | Date 4/21/09 | | Time 1125 | | | | Date | | Time | | |
| 6. Relinquished by <i>[Signature]</i> | | Date 4/21/09 | | Time 0850 | | | | Date | | Time | | |

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Certificate of Analysis

Company : Sandia National Laboratories
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**

Report Date: May 1, 2009

Client Sample ID: 087165-020
Sample ID: 227450035
Matrix: AQUEOUS
Collect Date: 08-APR-09 09:30
Receive Date: 09-APR-09
Collector: Client
Project: SNLSGWater
Client ID: SNLS003
Client Desc.: MWL-MW7

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|--------------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | |
| <i>EPA 314.0 Perchlorate by IC "As Received"</i> | | | | | | | | | | |
| Perchlorate | U | ND | 0.004 | 0.012 | mg/L | 1 | MAR104/20/09 | 2153 | 857777 | 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

| Batch No. 612158 | AR/COC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Dept. No./Mail Stop: 6765/MS 1089 | Project/Task NO. 98026_01_08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project/Task Manager: John Cochran | SMO Authorization: [Signature] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Record Name: MWL GWM | Contract # 681436 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Record Center Code: ER/076/DAT | Released by COC No.: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Logbook Ref. No.: ER 032 | <input checked="" type="checkbox"/> Validation Required | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Service Order No. CF 001-09 | Bill To: Sandia National Labs (Accounts Payable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P.O. Box 5800 MS 0154 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Albuquerque, NM 87185-0154 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Lab Sample ID 2274501 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Reference LOV (available at SMO)</p> <table border="1"> <thead> <tr> <th rowspan="2">Sample No.-Fraction</th> <th rowspan="2">ER Site</th> <th rowspan="2">Pump Depth (ft)</th> <th rowspan="2">Date/Time (hr)</th> <th colspan="2">Container</th> <th rowspan="2">Preserv-ative</th> <th rowspan="2">Collection Method</th> <th rowspan="2">Sample Type</th> <th rowspan="2">Parameter & Method Requested</th> <th rowspan="2">Lab Sample ID</th> </tr> <tr> <th>Type</th> <th>Volume</th> </tr> </thead> <tbody> <tr> <td>087167-001</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1310</td> <td>G</td> <td>3x40ml</td> <td>HCL</td> <td>G</td> <td>SA</td> <td>VOC (SW846-8260)</td> <td>051</td> </tr> <tr> <td>087167-002</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1311</td> <td>AG</td> <td>3x1L</td> <td>4C</td> <td>G</td> <td>SA</td> <td>SVOC (SW846-8270)</td> <td>052</td> </tr> <tr> <td>087167-009</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1313</td> <td>P</td> <td>500 ml</td> <td>HNO3</td> <td>G</td> <td>SA</td> <td>Total TAL Metals+Total U(SW846-6020/7470)</td> <td>053</td> </tr> <tr> <td>087167-010</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1314</td> <td>P</td> <td>500 ml</td> <td>HNO3</td> <td>G</td> <td>SA</td> <td>TAL Metals+Total U(SW846-6020/7470)</td> <td>054</td> </tr> <tr> <td>087167-016</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1315</td> <td>P</td> <td>500 ml</td> <td>4C</td> <td>G</td> <td>SA</td> <td>Major Anions(SW846-9056)+ Alkalini(SM2320B)</td> <td>055</td> </tr> <tr> <td>087167-018</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1316</td> <td>P</td> <td>250 ml</td> <td>H2SO4</td> <td>G</td> <td>SA</td> <td>NPN (353.2)</td> <td>056</td> </tr> <tr> <td>087167-020</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1317</td> <td>P</td> <td>250 ml</td> <td>4C</td> <td>G</td> <td>SA</td> <td>Perchlorate (314.0)</td> <td>057</td> </tr> <tr> <td>087167-033</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1318</td> <td>P</td> <td>1 Liter</td> <td>HNO3</td> <td>G</td> <td>SA</td> <td>Gamma Spec (short list 901.1)</td> <td>058</td> </tr> <tr> <td>087167-034</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1319</td> <td>P</td> <td>1 Liter</td> <td>HNO3</td> <td>G</td> <td>SA</td> <td>Gross Alpha/Beta (900.0)</td> <td>059</td> </tr> <tr> <td>087167-036</td> <td>MWL-MW9</td> <td>497</td> <td>040909/1320</td> <td>AG</td> <td>250 ml</td> <td>4C</td> <td>G</td> <td>SA</td> <td>Tritium (906.0)</td> <td>060</td> </tr> </tbody> </table> | | | Sample No.-Fraction | ER Site | Pump Depth (ft) | Date/Time (hr) | Container | | Preserv-ative | Collection Method | Sample Type | Parameter & Method Requested | Lab Sample ID | Type | Volume | 087167-001 | MWL-MW9 | 497 | 040909/1310 | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) | 051 | 087167-002 | MWL-MW9 | 497 | 040909/1311 | AG | 3x1L | 4C | G | SA | SVOC (SW846-8270) | 052 | 087167-009 | MWL-MW9 | 497 | 040909/1313 | P | 500 ml | HNO3 | G | SA | Total TAL Metals+Total U(SW846-6020/7470) | 053 | 087167-010 | MWL-MW9 | 497 | 040909/1314 | P | 500 ml | HNO3 | G | SA | TAL Metals+Total U(SW846-6020/7470) | 054 | 087167-016 | MWL-MW9 | 497 | 040909/1315 | P | 500 ml | 4C | G | SA | Major Anions(SW846-9056)+ Alkalini(SM2320B) | 055 | 087167-018 | MWL-MW9 | 497 | 040909/1316 | P | 250 ml | H2SO4 | G | SA | NPN (353.2) | 056 | 087167-020 | MWL-MW9 | 497 | 040909/1317 | P | 250 ml | 4C | G | SA | Perchlorate (314.0) | 057 | 087167-033 | MWL-MW9 | 497 | 040909/1318 | P | 1 Liter | HNO3 | G | SA | Gamma Spec (short list 901.1) | 058 | 087167-034 | MWL-MW9 | 497 | 040909/1319 | P | 1 Liter | HNO3 | G | SA | Gross Alpha/Beta (900.0) | 059 | 087167-036 | MWL-MW9 | 497 | 040909/1320 | AG | 250 ml | 4C | G | SA | Tritium (906.0) | 060 |
| Sample No.-Fraction | ER Site | Pump Depth (ft) | | | | | Date/Time (hr) | Container | | | | | | Preserv-ative | Collection Method | Sample Type | Parameter & Method Requested | Lab Sample ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Type | Volume | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-001 | MWL-MW9 | 497 | 040909/1310 | G | 3x40ml | HCL | G | SA | VOC (SW846-8260) | 051 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-002 | MWL-MW9 | 497 | 040909/1311 | AG | 3x1L | 4C | G | SA | SVOC (SW846-8270) | 052 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-009 | MWL-MW9 | 497 | 040909/1313 | P | 500 ml | HNO3 | G | SA | Total TAL Metals+Total U(SW846-6020/7470) | 053 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-010 | MWL-MW9 | 497 | 040909/1314 | P | 500 ml | HNO3 | G | SA | TAL Metals+Total U(SW846-6020/7470) | 054 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-016 | MWL-MW9 | 497 | 040909/1315 | P | 500 ml | 4C | G | SA | Major Anions(SW846-9056)+ Alkalini(SM2320B) | 055 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-018 | MWL-MW9 | 497 | 040909/1316 | P | 250 ml | H2SO4 | G | SA | NPN (353.2) | 056 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-020 | MWL-MW9 | 497 | 040909/1317 | P | 250 ml | 4C | G | SA | Perchlorate (314.0) | 057 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-033 | MWL-MW9 | 497 | 040909/1318 | P | 1 Liter | HNO3 | G | SA | Gamma Spec (short list 901.1) | 058 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-034 | MWL-MW9 | 497 | 040909/1319 | P | 1 Liter | HNO3 | G | SA | Gross Alpha/Beta (900.0) | 059 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 087167-036 | MWL-MW9 | 497 | 040909/1320 | AG | 250 ml | 4C | G | SA | Tritium (906.0) | 060 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>RMMA</p> <p>Sample Disposal: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Turnaround Time: <input type="checkbox"/> 7 Day <input type="checkbox"/> 15 Day <input checked="" type="checkbox"/> 30 Day</p> <p>Return Samples By: <input type="checkbox"/> Negotiated TAT</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Special Instructions/QC Requirements</p> <p>EDD <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Level D Package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>*Send report to: Tim Jackson/Org 4133/MS 1089/505-284-2547 If Perchlorate detected verify by using SW846-6850M Major Anions/Br,Cl,Fl,SO4 FGW (filtered in field w/40 micron filter) *Please list as separate report.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Abnormal Conditions on Receipt</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Sample Team</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Signature</th> <th>Init</th> <th>Company/Organization/Phone/Cellular</th> </tr> </thead> <tbody> <tr> <td>Robert Lynch</td> <td>[Signature]</td> <td></td> <td>Weston/4133/844-4013/250-7090</td> </tr> <tr> <td>Alfred Santillanes</td> <td>[Signature]</td> <td></td> <td>Weston/4133/844-5130/228-0710</td> </tr> <tr> <td>William Gibson</td> <td>[Signature]</td> <td></td> <td>Weston/4133/284-4013/239-7367</td> </tr> <tr> <td>Tim Jackson</td> <td>[Signature]</td> <td></td> <td>Gram/4133/24-2547</td> </tr> </tbody> </table> | | | Name | Signature | Init | Company/Organization/Phone/Cellular | Robert Lynch | [Signature] | | Weston/4133/844-4013/250-7090 | Alfred Santillanes | [Signature] | | Weston/4133/844-5130/228-0710 | William Gibson | [Signature] | | Weston/4133/284-4013/239-7367 | Tim Jackson | [Signature] | | Gram/4133/24-2547 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | Signature | Init | Company/Organization/Phone/Cellular | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Robert Lynch | [Signature] | | Weston/4133/844-4013/250-7090 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alfred Santillanes | [Signature] | | Weston/4133/844-5130/228-0710 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| William Gibson | [Signature] | | Weston/4133/284-4013/239-7367 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tim Jackson | [Signature] | | Gram/4133/24-2547 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Chain of Custody</p> <table border="1"> <thead> <tr> <th>Relinquished by</th> <th>Org.</th> <th>Date</th> <th>Time</th> <th>Relinquished by</th> <th>Org.</th> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1. Relinquished by Tim Jackson</td> <td>Org. 4133</td> <td>Date 9/10/99</td> <td>Time 13:39</td> <td>4. Relinquished by</td> <td>Org.</td> <td>Date</td> <td>Time</td> </tr> <tr> <td>1. Received by Robert Lynch</td> <td>Org. 4133</td> <td>Date 9/10/99</td> <td>Time 13:39</td> <td>4. Received by</td> <td>Org.</td> <td>Date</td> <td>Time</td> </tr> <tr> <td>2. Relinquished by Robert Lynch</td> <td>Org. 4133</td> <td>Date 9/10/99</td> <td>Time 14:05</td> <td>5. Relinquished by</td> <td>Org.</td> <td>Date</td> <td>Time</td> </tr> <tr> <td>2. Received by William Gibson</td> <td>Org. 4133</td> <td>Date 9/10/99</td> <td>Time 14:00</td> <td>5. Received by</td> <td>Org.</td> <td>Date</td> <td>Time</td> </tr> <tr> <td>3. Relinquished by William Gibson</td> <td>Org. 4133</td> <td>Date 9/10/99</td> <td>Time 14:00</td> <td>6. Relinquished by</td> <td>Org.</td> <td>Date</td> <td>Time</td> </tr> <tr> <td>3. Received by</td> <td>Org.</td> <td>Date</td> <td>Time</td> <td>6. Received by</td> <td>Org.</td> <td>Date</td> <td>Time</td> </tr> </tbody> </table> | | | Relinquished by | Org. | Date | Time | Relinquished by | Org. | Date | Time | 1. Relinquished by Tim Jackson | Org. 4133 | Date 9/10/99 | Time 13:39 | 4. Relinquished by | Org. | Date | Time | 1. Received by Robert Lynch | Org. 4133 | Date 9/10/99 | Time 13:39 | 4. Received by | Org. | Date | Time | 2. Relinquished by Robert Lynch | Org. 4133 | Date 9/10/99 | Time 14:05 | 5. Relinquished by | Org. | Date | Time | 2. Received by William Gibson | Org. 4133 | Date 9/10/99 | Time 14:00 | 5. Received by | Org. | Date | Time | 3. Relinquished by William Gibson | Org. 4133 | Date 9/10/99 | Time 14:00 | 6. Relinquished by | Org. | Date | Time | 3. Received by | Org. | Date | Time | 6. Received by | Org. | Date | Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Relinquished by | Org. | Date | Time | Relinquished by | Org. | Date | Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 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
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**

Report Date: May 1, 2009

Client Sample ID: 087167-020 Project: SNLSGWater
Sample ID: 227450057 Client ID: SNLS003
Matrix: AQUEOUS
Collect Date: 09-APR-09 13:17
Receive Date: 10-APR-09 Client Desc.: MWL-MW9
Collector: Client

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|--------------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | |
| <i>EPA 314.0 Perchlorate by IC "As Received"</i> | | | | | | | | | | |
| Perchlorate | U | ND | 0.004 | 0.012 | mg/L | 1 | MAR104/21/09 | 1015 | 857777 | 1 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|------------------|------------------|
| 1 | EPA 314.0 DOE-AL | |

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1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: Level C, Groundwater Monitoring

Report Date: June 30, 2009

Client Sample ID: 087464-020
Sample ID: 231262014
Matrix: AQUEOUS
Collect Date: 10-JUN-09 08:34
Receive Date: 11-JUN-09
Collector: Client
Project: SNLSGWater
Client ID: SNLS003
Client Desc.: LWDS-MW1
Vol. Recv.:

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|--------------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | |
| <i>EPA 314.0 Perchlorate by IC "As Received"</i> | | | | | | | | | | |
| Perchlorate | U | ND | 0.004 | 0.012 | mg/L | 1 | MAR106/17/09 | 1228 | 877058 | 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



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

Memorandum

DATE: May 27, 2009
TO: File
FROM: David Schwent
SUBJECT: General Chemistry Data Review and Validation - SNL
Site: MWL GWM
AR/COC: 612154, 612155, 612156, 612157, and 612158
SDG: 227450
Laboratory: GEL
Project/Task No: 98026.01.08

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 EPA314.0 (perchlorate), EPA353.2 (nitrate/nitrite by Cd reduction), EPA9056 (anions), and SM2320B (alkalinity). 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

Anions Analysis: No target analytes were detected in the blanks, except the following. Chloride and sulfate were detected in the equipment blank (EB) (sample 227250-024) and the EB (sample 227450-044) at concentrations > the method detection limit (MDL) but < the practical quantitation limit (PQL). However, all associated sample results were detects >5X the EB concentration and will not be qualified. It should be noted that the results of the EB (sample 227250-024) only apply to samples on COC 612154 and the results of the EB (sample 227450-044) only apply to the samples on COC 612157.

Perchlorate/Nitrate/nitrite Analyses: No target analytes were detected in the blanks.

Total Alkalinity Analysis: Blanks are not evaluated for total alkalinity.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

All Analyses: All LCS QC acceptance criteria were met. No LCSD analyses were performed. No sample data will be qualified as a result.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All Analyses: All MS (PS) QC acceptance criteria were met. No MSD (PSD) analyses were performed. The replicate analyses were used as measures of laboratory precision. No sample data will be qualified as a result.

Replicates

All Analyses: All replicate QC acceptance criteria were met.

Detection Limits/Dilutions

Anions Analysis: All detection limits were properly reported. Samples 227450-022, -033, and -055 were diluted 5X for chlorate and samples -002 and -012 were diluted 10X for chloride and sulfate due to high concentrations of the target analytes. All associated batch QC samples were analyzed at dilution factors that resulted in relative dilution factors to the samples that were $\leq 5X$. No sample data will be qualified as a result.

Nitrate/nitrite Analysis: All detection limits were properly reported. Samples 227450-005, -010, -013, -023, and -056 were diluted 10X for nitrate/nitrite due to high concentration 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 $\leq 5X$. No sample data will be qualified as a result.

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

Other QC

All Analyses: No field blanks (FBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicates (FDs) (samples 227450-012 and -013) were $< 20\%$. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified that affect data quality.

Sample Findings Summary

Site: MWL GWM

AR/COC: 612154, 612155, 612156, 612157, and 612158

Organic, Metals, Gen Chem, Rad

| Sample ID | EPA8260B (VOCs): | 67-64-1 (acetone) | 591-78-6 (2-hexanone) | 78-93-3 (2-butanone) | EPA8270C (SVOCs): | 105-67-9 (2,4-dimethylphenol) | 100-02-7 (4-nitrophenol) | 106-47-8 (4-chloroaniline) | 91-94-1 (3,3'-dichlorobenzidine) | 77-47-4 (hexachlorocyclopentadiene) | 99-09-2 (m-nitroaniline) | 100-01-6 (p-nitroaniline) | EPA6020 (ICP-MS): | 7440-70-2 (Ca) | 7440-36-0 (Sb) | 7440-38-2 (As) | 7440-66-6 (Zn) | 7440-50-8 (Cu) | 7429-90-5 (Al) | 7440-62-2 (V) |
|--------------------|------------------|-------------------|-----------------------|----------------------|-------------------|-------------------------------|--------------------------|----------------------------|----------------------------------|-------------------------------------|--------------------------|---------------------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------------|
| 087158-001 MWL-MW6 | UJ,C3 | 8.25U,B | J-C3 | | | | | | | | | | | | | | | | | |
| 087158-009 MWL-MW6 | | | | | | | | | | | | | | | | | | | | |
| 087158-010 MWL-MW6 | | | | | | | | | | | | | | | | | | | | |
| 087159-001 MWL-MW6 | UJ,C3 | 5.00U,B | | | | | | | | | | | | | | | | | | 0.023U,B2 0.023U,B2 |
| 087159-009 MWL-MW6 | | | | | | | | | | | | | | | | | | | | |
| 087159-010 MWL-MW6 | | | | | | | | | | | | | | | | | | | | 0.023U,B2 0.023U,B2 |
| 087160-001 MWL-TB4 | UJ,C3 | 5.00U,B | | | | | | | | | | | | | | | | | | |
| 087161-001 MWL-MW8 | UJ,C3 | | | | | | | | | | | | | | | | | | | |
| 087161-002 MWL-MW8 | | | | | | | | | | | | | | | | | | | | |
| 087161-009 MWL-MW8 | | | | | | | | | | | | | | | | | | | | |
| 087161-010 MWL-MW8 | | | | | | | | | | | | | | | | | | | | |
| 087162-001 MWL-TB5 | UJ,C3 | | | | | | | | | | | | | | | | | | | |
| 087165-001 MWL-MW7 | UJ,C3 | | | | | | | | | | | | | | | | | | | |
| 087165-002 MWL-MW7 | | | | | | | | | | | | | | | | | | | | |
| 087165-009 MWL-MW7 | | | | | | | | | | | | | | | | | | | | |
| 087165-010 MWL-MW7 | | | | | | | | | | | | | | | | | | | | |
| 087166-001 MWL-TB7 | UJ,C3 | | | | | | | | | | | | | | | | | | | |
| 087163-001 MWL-EB2 | UJ,C3 | | | | | | | | | | | | | | | | | | | |
| 087163-002 MWL-EB2 | | | | | | | | | | | | | | | | | | | | |
| 087163-009 MWL-EB2 | | | | | | | | | | | | | | | | | | | | |
| 087163-010 MWL-EB2 | | | | | | | | | | | | | | | | | | | | |
| 087164-001 MWL-TB6 | UJ,C3 | | | | | | | | | | | | | | | | | | | |
| 087167-001 MWL-MW9 | UJ,C3 | | | | | | | | | | | | | | | | | | | |
| 087167-002 MWL-MW9 | | | | | | | | | | | | | | | | | | | | |
| 087167-009 MWL-MW9 | | | | | | | | | | | | | | | | | | | | |
| 087167-010 MWL-MW9 | | | | | | | | | | | | | | | | | | | | |
| 087168-001 MWL-TB8 | UJ,C3 | | | | | | | | | | | | | | | | | | | |

David Schwandt

Validated By:

Date: 05/27/09

Memorandum

Date: July 17, 2009

To: File

From: Kevin Lambert

Subject: Inorganic Data Review and Validation – SNL
Site: TAV GWM
AR/COC: 612207, 612208, 612209, and 612210
SDG: 231262
Laboratory: GEL
Project/Task: 125778.10.11.01
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

Six samples were prepared and analyzed with accepted procedures using method EPA 353.2 (nitrate/nitrite by Cd reduction). One sample was prepared and analyzed with accepted procedures using method EPA 314.0 (perchlorate). Data were reported for all required analytes. No problems were identified with the data package that result 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. Samples 231262-002, -004, -007, and -013 were diluted 25X for nitrate/nitrite due to high concentrations for this analysis.

Other QC

Equipment blank and a 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.

