Sandia National Laboratories

Sandia National Laboratories, New Mexico (SNL/NM)

Environmental Restoration Project

A Department of Energy Environmental Cleanup Program

CONSOLIDATED
Quarterly Report

November-December-January

March 2009

United States Department of Energy
Sandia Site Office

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

CONSOLIDATED
QUARTERLY REPORT

March 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: November 2008 – January 2009.

SECTION II

Chemical Waste Landfill Progress Report, reporting period: November 2008 – January 2009.

SECTION III

Perchlorate Screening Quarterly Report, reporting period: October – December 2008

Sandia National Laboratories

Environmental Restoration Project Consolidated Quarterly Report

Section I

Environmental Restoration Project Quarterly Report

March 2009

United States Department of Energy
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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
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
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, are outlined below. In this Section, the Quarter refers to the November 2008 through January 2009 quarterly reporting period.

2.0 Work Completed in This Quarter

2.1 Mixed Waste Landfill (MWL)

- On November 12 and 26, 2008, routine neutron moisture logging of the MWL vadose zone was conducted to continue to obtain baseline data regarding moisture content profiles with depth beneath the landfill.
- On December 10, 2008, The Department of Energy and Sandia Corporation (DOE/Sandia) submitted Responses to the New Mexico Environmental Department (NMED) Notice of Disapproval (NOD) (received October 10, 2008): Mixed Waste Landfill (MWL) Corrective Measures Implementation (CMI) Plan. The NOD listed 9 items that required clarification, further information, or required DOE/Sandia to revise proposed trigger levels and add constituents to the sampling program.
- On December 22, 2008 (received January 7, 2008), NMED issued a Conditional Approval on the MWL CMI Plan. Items in Part 1 of the NMED Conditional Approval letter (conditions g, h, and i) are to implement changes to the CMI Plan, specifically. Other items in the NMED Conditional Approval letter (conditions Part 1a, b, c, d, e, f, and Part 2) are to be addressed in the Long-Term Monitoring and Maintenance Plan at a later date.
- On January 15, 2009 NMED issued a Notice of Approval for the "Summary Report for Mixed Waste Landfill Monitoring Well Plug and Abandonment and Installation Decommissioning of Groundwater Monitoring Wells MWL-MW1, MWL-MW2, and MWL-MW3 and Installation of Groundwater Monitoring Wells MWL-MW7, MWL-MW8, MWL-MW9."
- In January 2009, quarterly groundwater sampling took place at four MWL monitoring wells. Groundwater monitoring wells MWL-BW2, -MW7, -MW8, and -MW9 were sampled for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, nitrate plus nitrite, major anions, total alkalinity, total dissolved solids, perchlorate, radionuclides by gamma spectroscopy, gross alpha and beta, and tritium. This sampling event represents the fourth consecutive quarterly sampling for MWL-BW2 and the third quarterly sampling for MWL-MW7, -MW8, and -MW9. The results will be reported in the SNL/NM Groundwater Protection Program (GWPP) Annual Report and the MWL Annual Groundwater Sampling Report (both anticipated to be published in the spring of 2010).

- MWL Groundwater monitoring results for fiscal year 2008 are currently being compiled and summarized into the MWL Annual Groundwater Sampling Report and the GWPP Annual Report (both anticipated to be published in the spring of 2009).
- DOE/Sandia anticipates receiving bids in March for the installation of the vegetative soil cover as specified in the approved CMI Plan. Anticipated start date for the installation of the cover is the spring of 2009.

MWL Documents submitted to NMED pending regulatory review and approval

- Long-term Monitoring and Maintenance Plan (LTMMP) was submitted September 2007 and the extended NMED public review and comment period ended January 31, 2008.

2.2 Project Management Site Closure

Operable units with only regulatory and administrative closure activities remaining will be managed under project management. The following two permit modification requests are currently in progress with the New Mexico Environment Department (NMED):

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. The DOE/Sandia public review and comment period ended on March 14, 2008. DOE/Sandia received no public comments. 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 November and December 2008. Results will be reported in the SNL GWPP Annual Groundwater Monitoring Report.
- On November 4, 2008, NMED issued a Notice of Approval for the "Summary Report for Technical Area V Monitoring Well Plug and Abandonment and Installation, Decommissioning of Groundwater Monitoring Well TAV-MW1, Installation of Groundwater Monitoring Well TAV-MW10, June 2008."
- DOE/Sandia continued to progress on a response to the Notice of Deficiency (NOD) on the TAV Corrective Measures Evaluation Report (submitted in July 2005) and meet with the NMED to resolve outstanding issues with the TAV investigation.

Burn Site Groundwater (BSGW)

- No Groundwater sampling was performed during this reporting period.

Tijeras Arroyo Groundwater (TAG)

- Groundwater sampling was performed in November 2008. Results will be reported in the SNL GWPP Annual Groundwater Monitoring Report (Spring 2009).
- DOE/Sandia continue to address the Notice of Deficiency (NOD) on the TAG Continuing Investigation Report (submitted in November 2005).

Mixed Waste Landfill Groundwater (MWL)

- Groundwater sampling was performed in January 2008. Results from the 2009 MWL sampling events will be reported in the 2010 MWL Annual Groundwater Monitoring Report.

Chemical Waste Landfill Groundwater (CWL)

- CWL Groundwater sampling was performed in October and December 2008. Sampling results are reported in the Chemical Waste Landfill Quarterly Progress Report in Section II of this report. In addition, groundwater data collected from October 1, 2007 through December 31, 2008 will be summarized in the 2009 SNL/NM Annual Groundwater Monitoring 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 GW (BSGW) Interim Measures Work Plan, submitted May 2005.

- BSGW Current Conceptual Model of Groundwater Flow and Contaminant Transport, submitted April 2008.

- BSGW CME Work Plan, submitted April 2008.

2.4 Corrective Action Management Unit (CAMU)

CAMU Post-Closure Care Operations

- Vadose-zone monitoring, leachate removal, and post-closure inspections continued as required in the permit. Activities included 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 (December 2008), including containment cell cover, storm water diversion structures, security fences, gates, signs, and benchmarks. Approximately 10 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 January 16, 2009. A loose PVC conduit at location VSA-6 was repaired on January 27, 2009.
  - Quarterly monitoring of the Vadose Zone Monitoring System (VZMS) was conducted in December 2008. 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 December 9, 2008.

CAMU Waste Management Activities

For this Reporting Period

- Waste stored on site at the beginning of this period:
  - 52 gallons of leachate.
  - 2 lb PPE.
- Waste generated on-site during the period:
  - 199 gallons of leachate.
  - 2 gallons of rinsate.
  - 6 lbs PPE, paper wipes, plastic drum pump.
- Waste removed from site by the Hazardous Waste Management Facility:
  - 142 gallons of leachate on December 17, 2008.
  - 2 gallons of rinsate on December 17, 2008.
  - 5 lbs PPE, paper wipes, plastic drum pump on December 17, 2008.
- Waste remaining on site at the end of this period:
  - 109 gallons of leachate.
  - 3 1bs PPE.

CAMU Regulatory Activities

- An NMED audit was conducted on January 6, 2009. There were no findings reported by NMED.

2.5 Suspected Solid Waste Management Unit

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

- Anticipated delivery date to NMED for the Investigation Report and Proposal for Corrective Action Complete for LTES Site 1/Cable Debris Site is March 2009.

Sandia National Laboratories

Environmental Restoration Project Consolidated Quarterly Report

Section II

Chemical Waste Landfill Quarterly Closure Progress Report

March 2009

United States Department of Energy
Sandia Site Office

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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). This section documents activities at the CWL for the time period of November 2008 through January 2009. Sampling results from October were not received in time for the December 2008 Quarterly Report and are therefore included with data from this reporting period.

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 (SNL/NM 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 to resolve remaining comments on the Draft Post-Closure Permit, including preparation of a CWL Closure Plan Amendment, that address the replacement of wells MW-4 and BW-4A with new wells MW9 and BW5. Resolution of final comments is ongoing and documented by NMED, DOE, and Sandia through tracked change revisions to the Draft Permit. Several meetings were held this quarter between NMED, DOE and Sandia to work out technical issues associated with the Draft Permit.

3.0 Water Monitoring Assessment

CWL semi-annual groundwater monitoring activities were performed in October and December 2008. Groundwater samples were collected from nine monitoring wells and analyzed for Appendix IX volatile organic compounds and Appendix IX metals plus iron. In addition, data collected through December 31, 2008 will be summarized in the SNL/NM Groundwater Protection Program Annual Groundwater Monitoring Report (anticipated to be published in the spring of 2009).

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

Revision 2 to the Draft Permit was finalized this quarter and DOE/Sandia continue to review NMED revisions to the Draft Permit and provide comments to NMED. The final revised draft version of the permit will be provided by the NMED to DOE/Sandia for a final review in February 2009. Providing final comments to NMED on the final revised Draft Permit will be a high priority next reporting quarter, as will submittal of the CWL Closure Plan Amendment that addresses replacement of monitoring wells CWL-MW4 and CWL-BW4A.

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 2003. “Chemical Waste Landfill – Landfill Excavation Voluntary Corrective Measure – Final Report,” Sandia National Laboratories, Albuquerque, New Mexico.

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.

Appendix A

CHEMICAL WASTE LANDFILL
SEMI-ANNUAL GROUNDWATER MONITORING
ASSESSMENT REPORT
November 2008 – January 2009

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

March 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 NMED dated January 2009, this and all future quarterly reports will graphically present groundwater data for CWL contaminants of concern detected above minimum detection limits along with corresponding measured groundwater elevations. 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) between October 16 and December 17, 2008. The reporting period for this Consolidated Quarterly Report is November 2008 through January 2008. CWL groundwater monitoring results for October 2008 were not received in time to be included in the previous, December 2008 Consolidated Quarterly Report and are therefore presented with the December monitoring results in this Section.

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 New Mexico Environment Department (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 first FY09 semi-annual groundwater assessment monitoring period. In October and December 2008, samples were collected from monitoring wells (MW) (CWL-MW2BL, CWL-MW2BU, 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 October and December 2008 sampling of all CWL monitoring wells are included in this report.

During October and December 2008, groundwater samples were not collected from background monitoring (BW) wells CWL-BW3 and BW-4A, and monitoring wells CWL-MW1A and CWL-MW3A. CWL-BW3 and CWL-BW4A could not be sampled due to lack of groundwater volume. Both wells purged dry prior to groundwater reaching the surface. 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/M 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 October 2008, 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 presents complete field measurement information. Plots A1 to A-9, graphically display water level measurements collected during CWL groundwater sampling events from February 2002 through December 2008.

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. were 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-MW2BU, 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. CWL-MW2BU was purged to dryness then sampled. A total of 0.38 gallons of water was purged from CWL-MW2BU. Based upon historical sampling events, CWL-MW2BU will purge dry between 0.13 and 0.66 gallons per each purging event.

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-MW2BU, 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. One sample was collected and analyzed prior to

sampling CWL-MW5U, and one sample prior to purging activities a CWL-BW4A. EB 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 summarizes all analytes detected in samples collected from CWL groundwater monitoring wells during the first FY09 semi-annual sampling event. A plot was generated for CWL contaminants for concern (COC) detected above laboratory MDLs during October and December 2008, as shown in Plots A-10 through A-25. The CWL COCs include trichloroethene (TCE), chromium, and nickel. These plots display historical values for the period November 1998 through December 2008. 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 and TCE. Chloroform detected below the laboratory practical quantitation limit in CWL-MW2BL at a concentration of 0.401 microgram per liter (μg/L). TCE was detected below the MCL of 5.0 μg/L in the groundwater samples from CWL-MW2BU, CWL-MW5L, CWL-MW5U, CWL-MW5U duplicate sample, and CWL-MW6U at concentrations of 1.47 μg/L, 0.707 μg/L, 1.25 μg/L, 1.23 μg/L, and 0.315 μg/L, respectively. Table A-8 summarizes detected VOCs, and Plots A-10 to A-13 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 samples from CWL-MW2BL, CWL-MW2BU, CWL-MW4, CWL-MW5L, and CWL-MW6U. Detected chromium concentrations ranged from 0.00226 mg/L at CWL-MW5L to 0.0127 mg/L at CWL-MW2BU. Nickel was detected above the laboratory MDL in all environmental groundwater samples. Detected nickel concentrations ranged from 0.00233 mg/L at CWL-MW6L to 0.168

mg/L at CWL-MW4. There in not an established MCL for nickel. In general, chromium and nickel results from CWL-MW2BU and CWL-MW4 groundwater samples correlate to increased field turbidity measurements. Table A-9 summarizes the total metal concentrations for all groundwater samples collected during the first FY09 semi-annual sampling event at the CWL. Plots A-14 to A-25 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, carbon disulfide, dibromochloromethane, chromium, iron, thallium, and zinc. 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. Chromium was qualified as not detected in CWL-MW5U 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

A duplicate environmental sample was collected and analyzed for all parameters in order to determine the overall reproducibility of the sampling and analysis process. The duplicate sample was collected at CWL-MW5U 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

One FB sample was 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-MW5L 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 bromodichloromethane, cholorform, and dibromochloromethane. No corrective action was necessary for bromodichloromethane and dibromochloromethane, since these compounds were not detected in associated environmental samples. Chlorofrom was detected at 0.274 μg/L. Since the associated environmental sample result was detected less than five times the blank contamination, chloroform in CWL-MW5L was qualified during data validation as not detected.

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 nine TBs were submitted with the samples discussed in this report. No VOCs were detected above laboratory MDLs in any TB sample, except for tetrachloroethene. Tetrachloroethene was detected in TB samples associated with the groundwater samples from CWL-MW2BL, CWL-MW6U, and both equipment blank samples. Tetrachloroethene results in associated samples were qualified as not detected during data validation, since results in all samples were at concentrations less than five times the blank contamination.

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 first 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 lowered a water level meter to verify that these wells are dry.

- During October 2008 a groundwater sample could not be collected from CWL-MW6L because the air line on the dedicated sampling system ruptured. SNL/NM replaced tubing on the CWL-MW6L dedicated sampling system, and collected groundwater samples in December 2008.

- No samples were collected from CWL-BW3 and CWL-BW4A. In October 2008, both wells did not produce enough water to collect a representative sample. NMED was notified by SNL/NM.

- CWL-MW2BU, 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-MW2BU, CWL-MW5L, and CWL-MW6L were sampled using dedicated sampling systems manufactured by QED Environmental Systems, Inc.

- Water levels and COCs detected above minimum detection limits are presented in graphical form per the NMED (Bearzi December, 2008).

- The New Mexico Environment Department, Department of Energy Oversight Bureau was on-site and collected sample splits at monitoring well CWL-MW4. Results from sample splits are not included in this report.

5.0 Summary

In October and December 2008, samples were collected from monitoring wells (CWL-MW2BL, CWL-MW2BU, 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

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SNL/NM, see Sandia National Laboratories/New Mexico.

FIGURES

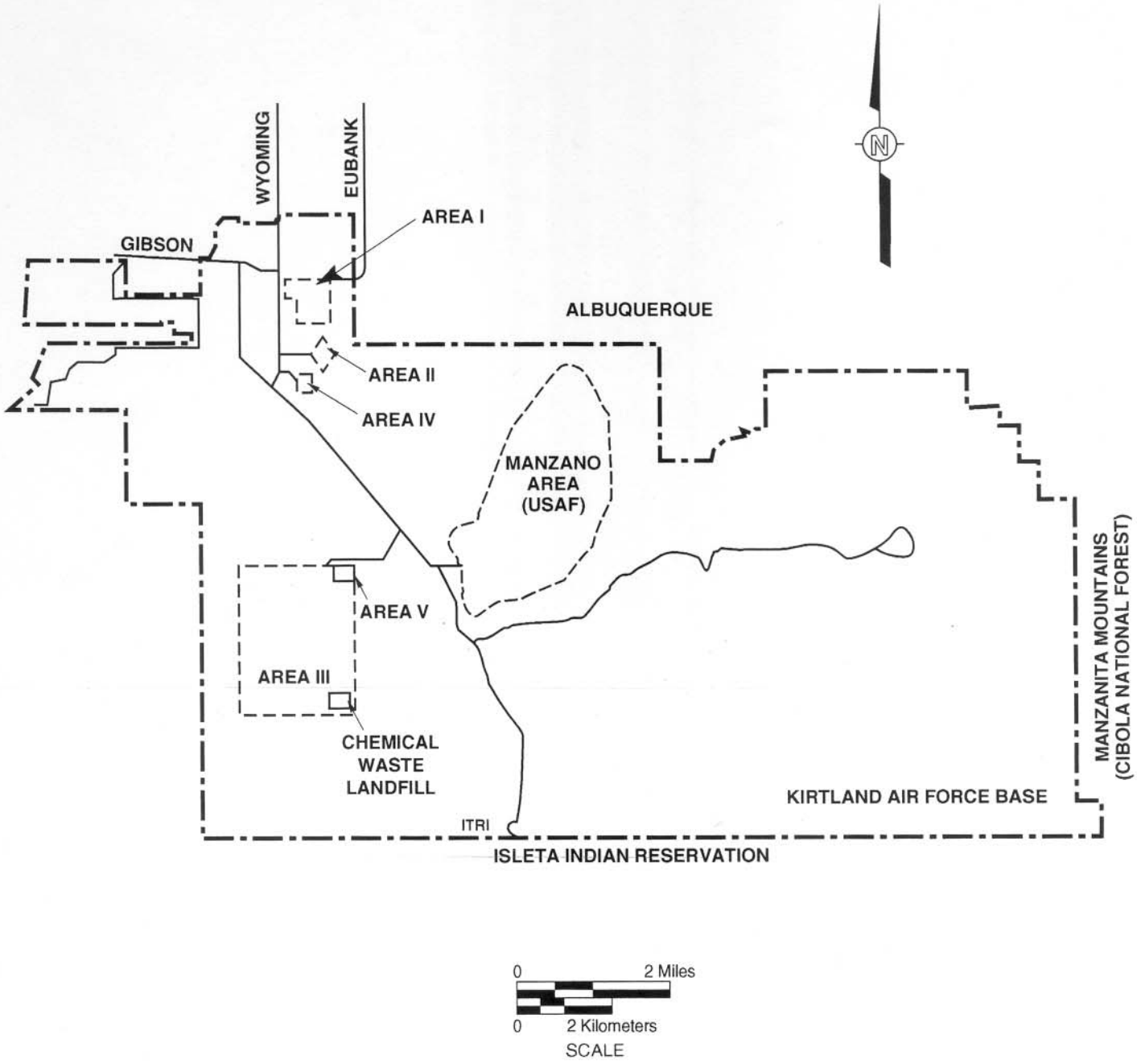


Figure A -1
Location of the Chemical Waste Landfill
Sandia National Laboratories/New Mexico

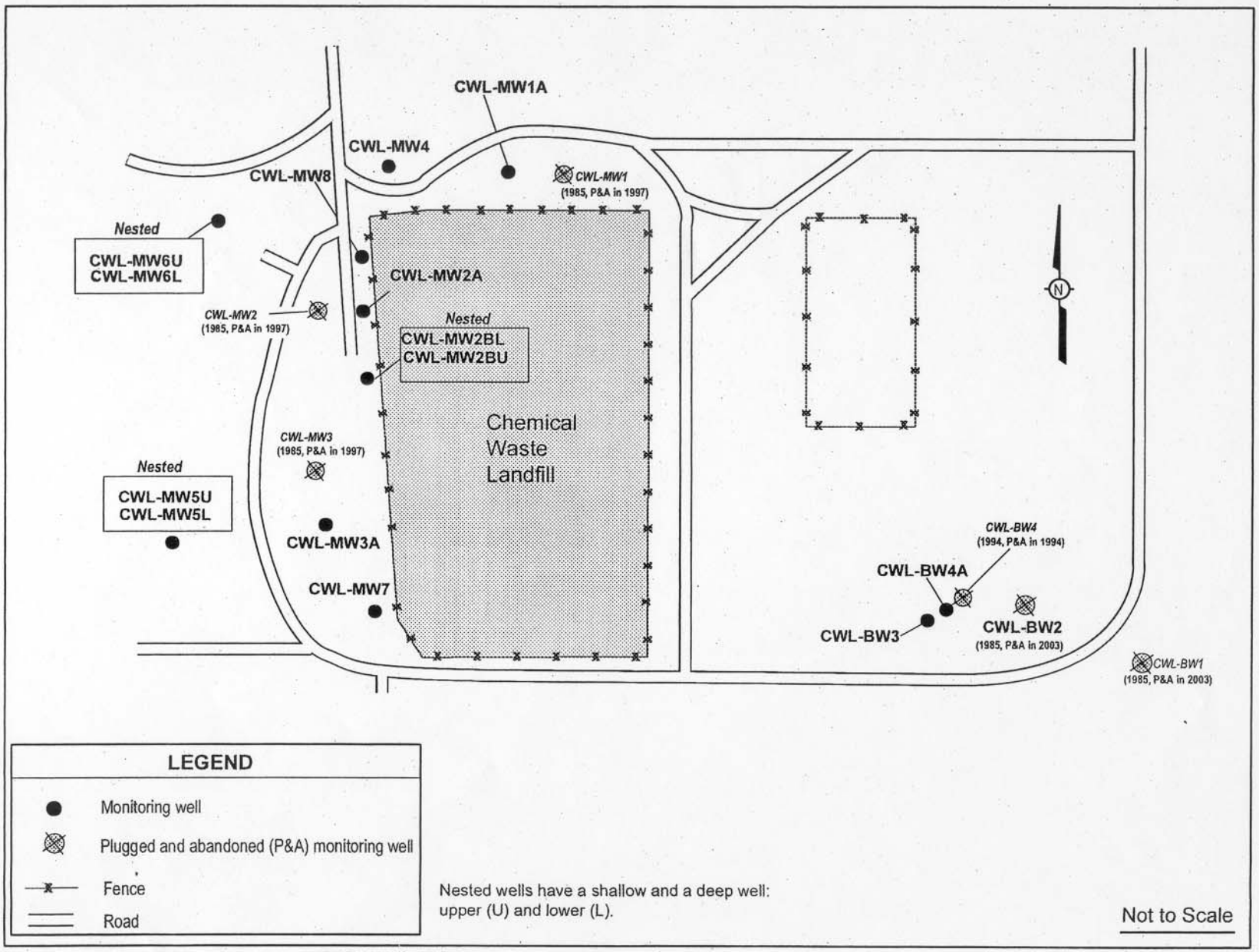


Figure A-2

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, October - December 2008

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	503.66	4926.57	507.48	4921.05	5.52
CWL-BW4A	5431.36	504.25	4927.11	510.00	4919.24	7.88
CWL-MW1A	5421.49	NA	NA	495.00	4925.41	Dry
CWL-MW2BL	5419.39	498.12	4921.27	557.50	4859.87	61.41
CWL-MW2BU	5419.42	493.59	4925.83	501.00	4916.37	9.47
CWL-MW3A	5417.78	NA	NA	492.00	4924.39	Dry
CWL-MW4	5420.33	497.13	4923.20	503.00	4915.38	7.82
CWL-MW5L	5415.80	495.13	4920.67	558.00	4856.02	64.65
CWL-MW5U	5416.01	489.94	4926.07	502.00	4912.02	14.05
CWL-MW6L	5417.13	496.60	4920.53	564.00	4850.65	69.88
CWL-MW6U	5416.78	490.23	4926.55	502.00	4912.65	13.90

[a]Measurements transcribed from Groundwater Sample Collection Logs.
[b]Derived from well completion logs.
[c]Calculated 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.
NC = Not calculated.
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, October - December 2008

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	226	296	0.76	No
CWL-MW2BU	0.38	35	0.01	Yes
CWL-MW4	26	113	0.23	No
CWL-MW5L	3.70	64	0.06	No
CWL-MW5U	12	58	0.21	Yes
CWL-MW6L	3.70	113	0.03	No
CWL-MW6U	12	43	0.28	Yes

[a]Volume 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, October - December 2008

Well Number	Measurement Period[a]	pH	Temperature °C	SC (µmhos/cm)	Turbidity (NTU)
CWL-MW2BL	Purge measurements:	6.78 6.78 6.78	21.71 21.59 21.55	1,224 1,223 1,224	0.73 0.68 0.72
CWL-MW2BU	Purge measurements:	8.16 8.18 8.34	15.06 14.03 16.91	776 783 852	145.0 35.5 7.56
CWL-MW4	Purge measurements:	6.94 6.95 6.94	18.27 18.29 18.26	1,069 1,068 1,069	5.64 5.80 5.68
CWL-MW5L	Purge measurements:	6.84 6.84 6.84	17.27 17.14 17.19	1,190 1,191 1,190	0.54 0.51 0.43
CWL-MW5U	Purge measurements:	7.14 6.98 6.99	18.68 17.81 18.41	930 1,054 1,049	0.82 0.85 0.89
CWL-MW6L	Purge measurements:	7.03 7.04 7.05	15.07 15.09 15.05	1,155 1,150 1,152	1.00 0.98 0.95
CWL-MW6U	Purge measurements:	7.01 7.00 7.00	19.26 14.53 14.59	1,022 1,016 1,017	0.89 2.81 2.62

[a]Last 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.
NM = Not measured.
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, October - December 2008

Sample Identification	ARCOC[a]	Sample Number	Date Sampled	Laboratory	Sample Type
CWL-MW2BL	612027	086835	10-20-08	GEL	Environmental Sample
CWL-MW2BU	612032	086846	10-30-08	GEL	Environmental Sample
CWL-MW4	612029	086839	10-27-08	GEL	Environmental Sample
CWL-MW5L	612031	086843	10-28-08	GEL	Environmental Sample
CWL-MW5U	612033	086848	10-24-08	GEL	Environmental Sample
CWL-MW5U	612033	086849	10-24-08	GEL	Duplicate Sample
CWL-MW6L	612034	086851	12-17-08	GEL	Environmental Sample
CWL-MW6U	612028	086837	10-22-08	GEL	Environmental Sample
CWL-EB1(prior to CWL-BW4A)	612024	086827	10-16-08	GEL	Equipment Blank
CWL-EB2(prior to CWL-MW5U)	612030	086841	10-22-08	GEL	Equipment Blank
CWL-FB2	612031	086844	10-28-08	GEL	Field Blank
CWL-TB1	612024	086828	10-16-08	GEL	Trip Blank
CWL-TB4	612027	086836	10-20-08	GEL	Trip Blank
CWL-TB5	612028	086838	10-22-08	GEL	Trip Blank
CWL-TB6	612029	086840	10-27-08	GEL	Trip Blank
CWL-TB7	612030	086842	10-22-08	GEL	Trip Blank
CWL-TB8	612031	086845	10-28-08	GEL	Trip Blank
CWL-TB9	612032	086847	10-30-08	GEL	Trip Blank
CWL-TB10	612033	086850	10-24-08	GEL	Trip Blank
CWL-TB11	612034	086852	12-17-08	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, October - December 2008

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]

[a]U.S. Environmental Protection Agency, November 1986. "Test Methods for Evaluating Solid, Physical/Chemical Methods," 3rd ed., (and updates), *SW-846*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.
[b]Holding time for mercury is 28 days; all other metals are 180 days.
HCl = Hydrochloric acid.
HNO_3 = 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, October - December 2008

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	0.250 – 0.300	NE	Carbon tetrachloride	0.250 – 0.260	5.0
1,1,1-Trichloroethane	0.300 – 0.325	200	Chlorobenzene	0.250	100
1,1,2,2-Tetrachloroethane	0.250	NE	Chloroethane	0.300 - 0.500	NE
1,1,2-Trichloroethane	0.250	5.0	Chloroform	0.250	NE
1,1-Dichloroethane	0.300	NE	Chloromethane	0.300 - 0.500	NE
1,1-Dichloroethene	0.300	7.0	Chloroprene	0.300	NE
1,2,3-Trichloropropane	0.300	NE	Dibromochloromethane	0.250 - 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 – 50.0	NE
4-methyl-, 2-Pentanone	1.25	NE	Methacrylonitrile	1.00	NE
Acetone	3.50 – 15.0	NE	Methyl methacrylate	1.00	NE
Acetonitrile	6.25	NE	Methylene chloride	2.00 – 5.00	5.0
Acrolein	1.25 - 3.00	NE	Pentachloroethane	1.00	NE
Acrylonitrile	1.00	NE	Styrene	0.250	100
Allyl chloride	1.50 - 3.70	NE	Tetrachloroethene	0.250 – 0.450	5.0
Benzene	0.300 – 1.00	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, October - December 2008

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)	0.250 – 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	1,1,2-Trichloro-1,2,2-trifluoroethane	1.00	NE
trans-1,2-Dichloroethene	0.300	100			

[a]U.S. Environmental Protection Agency November 1986. "Test Methods for Evaluating Solid, Physical/Chemical Methods," 3rd ed., (and updates), *SW-846*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.
[b]Title 40 Code of Federal Regulations (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, October - December 2008

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	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

[a]Title 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.

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

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, October - December 2008

			ARCOC No.: 612027 Sample No.: 086835 Well No.: CWL-MW2BL Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 10-20-08	612032 086846 CWL-MW2BU Environmental QED Pump GEL 10-30-08	612029 086839 CWL-MW4 Environmental Bennett Pump GEL 10-27-08	612031 086843 CWL-MW5L Environmental QED Pump GEL 10-28-08
Parameter	**Method**	**MCL**	**All results in μg/L**			
Chloroform	8260	NE	0.401 (1.00) J	ND (0.250)	ND (0.250)	ND (1.00)
Trichloroethene	8260	5	ND (0.250)	1.47	ND (0.250)	0.707 (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, October - December 2008

			ARCOC No.:	612033	612033	612034	612028
			Sample No.:	086848	086849	086851	086837
			Well No.:	CWL-MW5U	CWL-MW5U	CWL-MW6L	CWL-MW6U
			Sample Type:	Environmental	Duplicate	Environmental	Environmental
			Sample Method:	Bennett Pump	Bennett Pump	QED Pump	Bennett Pump
			Laboratory:	GEL	GEL	GEL	GEL
			Date Sampled:	10-24-08	10-24-08	12-17-08	10-22-08
Parameter	**Method**	**MCL**	**All results in μg/L**				
Chloroform	8260	NE	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	
Trichloroethene	8260	5	1.25	1.23	ND (0.250)	0.315 (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, October - December 2008

			ARCOC No.: 612027 Sample No.: 086835 Well No.: CWL-MW2BL Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 10-20-08	ARCOC No.: 612032 Sample No.: 086846 Well No.: CWL-MW2BU Sample Type: Environmental Sample Method: QED Pump Laboratory: GEL Date Sampled: 10-30-08	ARCOC No.: 612029 Sample No.: 086839 Well No.: CWL-MW4 Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 10-27-08	ARCOC No.: 612031 Sample No.: 086843 Well No.: CWL-MW5L Sample Type: Environmental Sample Method: QED Pump Laboratory: GEL Date Sampled: 10-28-08
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 (0.014)	ND (0.014)
Barium	6020	2.0	0.0626	0.0550	0.0596	0.0554
Beryllium	6020	0.004	ND (0.0001)	0.000106 (0.0005) J	ND (0.0001)	ND (0.0001)
Cadmium	6020	0.005	ND (0.00011)	ND (0.00011)	0.000356 (0.0005) J	ND (0.00011)
Chromium	6020	0.1	0.00229 (0.003) J	0.0127	0.0101	0.00226 (0.003) J
Cobalt	6020	NE	0.000402 (0.001) J	ND (0.00057)	0.00217	ND (0.00057)
Copper	6020	NE	0.00127	0.0032	0.00243	0.000815 (0.001) J
Iron	6020	NE	0.546	1.11	0.639	0.427
Lead	6020	NE	ND (0.0005)	0.0015 (0.002) J	ND (0.0005)	ND (0.0005)
Mercury	7470A	0.002	ND (0.000067)	ND (0.000067) UJ	ND (0.000067) UJ	ND (0.000067) UJ
Nickel	6020	NE	0.00293	0.0391	0.168	0.00238
Selenium	6020	0.05	0.00139 (0.005) J	ND (0.001)	ND (0.001)	ND (0.001)
Silver	6020	NE	ND (0.0002)	0.0011	ND (0.0002)	ND (0.0002)
Thallium	6020	0.002	ND (0.0003)	ND (0.0003)	ND (0.0066)	ND (0.0003)
Tin	6020	NE	ND (0.001)	0.00356 (0.005) J	0.00198 (0.005) J	ND (0.001)
Vanadium	6020	NE	ND (0.003)	ND (0.019)	ND (0.019)	ND (0.019)
Zinc	6020	NE	ND (0.0026)	0.0267	ND (0.016)	ND (0.016)

Table A-9 *(Continued)*

Summary of Total Metal Parameters
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, October - December 2008

			ARCOC No.: 612033 Sample No.: 086848 Well No.: CWL-MW5U Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 10-24-08	ARCOC No.: 612033 Sample No.: 086849 Well No.: CWL-MW5U Sample Type: Duplicate Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 10-24-08	ARCOC No.: 612034 Sample No.: 086851 Well No.: CWL-MW6L Environmental Sample Type: QED Pump Sample Method: GEL Laboratory: 12-17-08 Date Sampled:	ARCOC No.: 612028 Sample No.: 086837 Well No.: CWL-MW6U Sample Type: Environmental Sample Method: Bennett Pump Laboratory: GEL Date Sampled: 10-22-08
Parameter	**Method**	**MCL**	**All results in mg/L**			
Antimony	6020	0.006	ND (0.003)	ND (0.003)	ND (0.0005)	ND (0.0005)
Arsenic	6020	0.01	ND (0.014)	ND (0.014)	0.00169 (0.005) J	ND (0.0015)
Barium	6020	2.0	0.0696	0.0693	0.0556	0.0802
Beryllium	6020	0.004	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Cadmium	6020	0.005	0.000169 (0.001) J	0.000118 (0.001) J	ND (0.00011)	ND (0.00011)
Chromium	6020	0.1	ND (0.013)	ND (0.013)	ND (0.0015)	0.00429
Cobalt	6020	NE	ND (0.00057)	ND (0.00057)	0.000162 (0.001) J, J+	0.000317 (0.001) J
Copper	6020	NE	0.00186	0.00185	0.000982 (0.001) J, J+	0.0034
Iron	6020	NE	0.375	ND (0.058)	0.296	0.563
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	0.00261	0.00265	0.00233 J+	0.00454
Selenium	6020	0.05	ND (0.001)	ND (0.001)	0.00127 (0.005) J	0.00116 (0.005) 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 (0.0003)	ND (0.0003)
Tin	6020	NE	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Vanadium	6020	NE	ND (0.019)	ND (0.019)	0.00331 (0.010) J	ND (0.003)
Zinc	6020	NE	ND (0.0026)	0.0350	ND (0.0026)	0.0118

Table A-9 *(Concluded)*

Summary of Total Metal Parameters
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, October - December 2008

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.
J+ = The associated numerical value is an estimated quantity with a suspected positive 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, October - December 2008

			ARCOC No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled:	612024 086827 Prior to CWL-BW4A Equipment Blank Bennett Pump GEL 10-16-08	612030 086841 Prior to CWL-MW5U Equipment Blank Bennett Pump GEL 10-22-08
Parameter	**Method**	**MCL**	**All results in mg/L (unless otherwise specified)**		
Bromodichloromethane (in µg/L)	8260	NE		0.257 (1.00) J	0.312 (1.00) J
Carbon disulfide (in µg/L)	8260	NE		ND (1.25)	3.12 (5.00) J
Dibromochloromethane (in µg/L)	8260	NE		0.391 (1.00) J	0.365 (1.00) J
Chromium	6020	0.1		0.00229 (0.003) J	0.00249 (0.003) J
Iron	6020	NE		0.016 (0.025) J	0.0115 (0.025) J
Thallium	6020	0.002		0.000446 (0.001) J	ND (0.0003)
Zinc	6020	NE		0.00277 (0.010) J	ND (0.0026)

If result detected below laboratory practical quantitation limit, then practical quantitation limit is indicated in parenthesis.
ARCOC = 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, October - December 2008

Parameter	Environmental Sample Results (R_1) (mg/L, unless indicated)	Duplicate Sample Results (R_2) (mg/L, unless indicated)	RPD
CWL-MW5U			
Trichloroethene (µg/L)	1.25	1.23	2
Barium	0.0696	0.0693	< 1
Cadmium	0.000169 J	0.000118 J	NC
Copper	0.00186	0.00185	1
Iron	0.375	ND (0.058)	NC
Nickel	0.00261	0.00265	2
Zinc	0.0365	0.0350	4

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

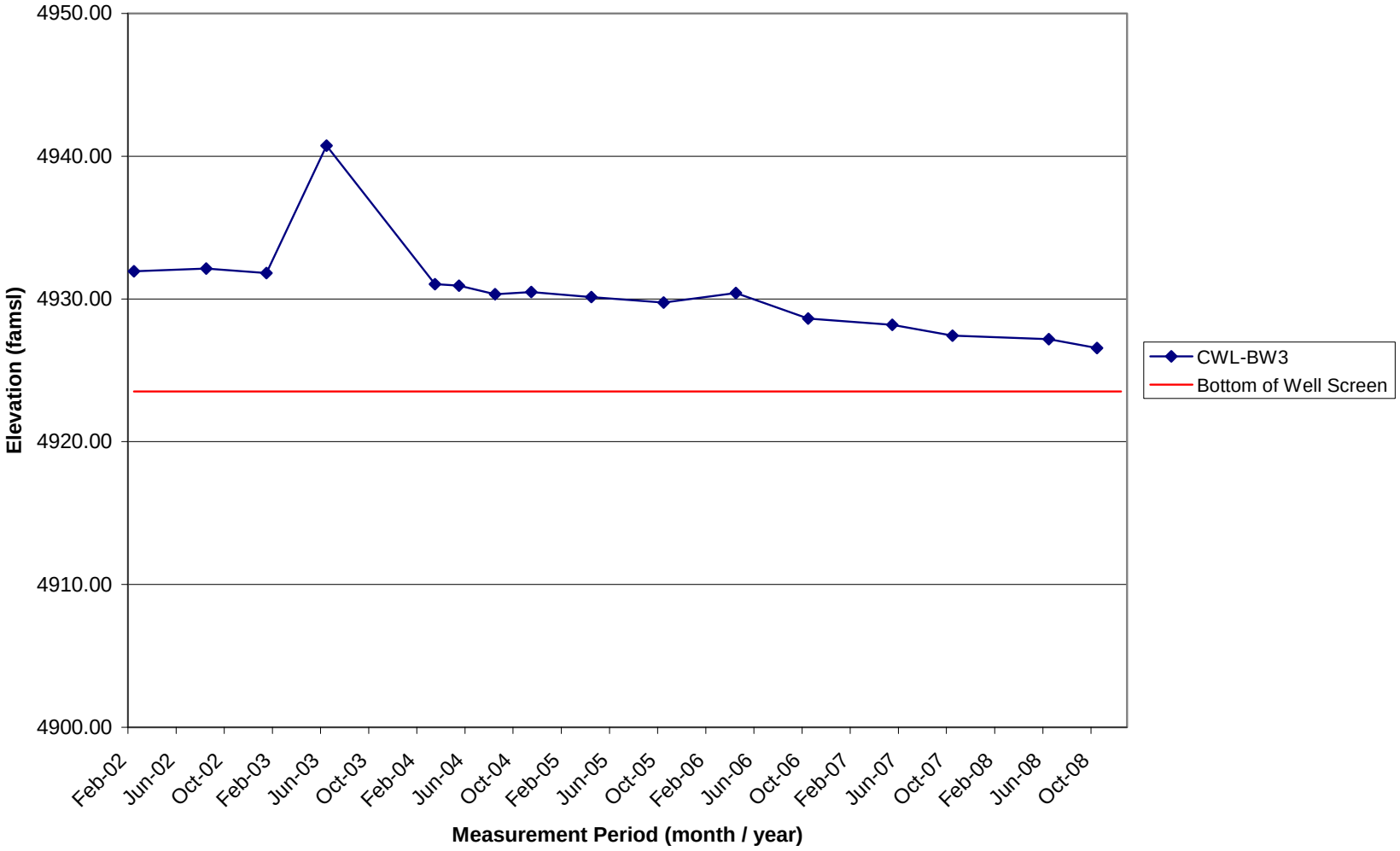
$$RPD = \frac{\left|R_1 - R_2\right|}{[(R_1 + R_2)/2]} \times 100$$

where: R_1 = analysis result.

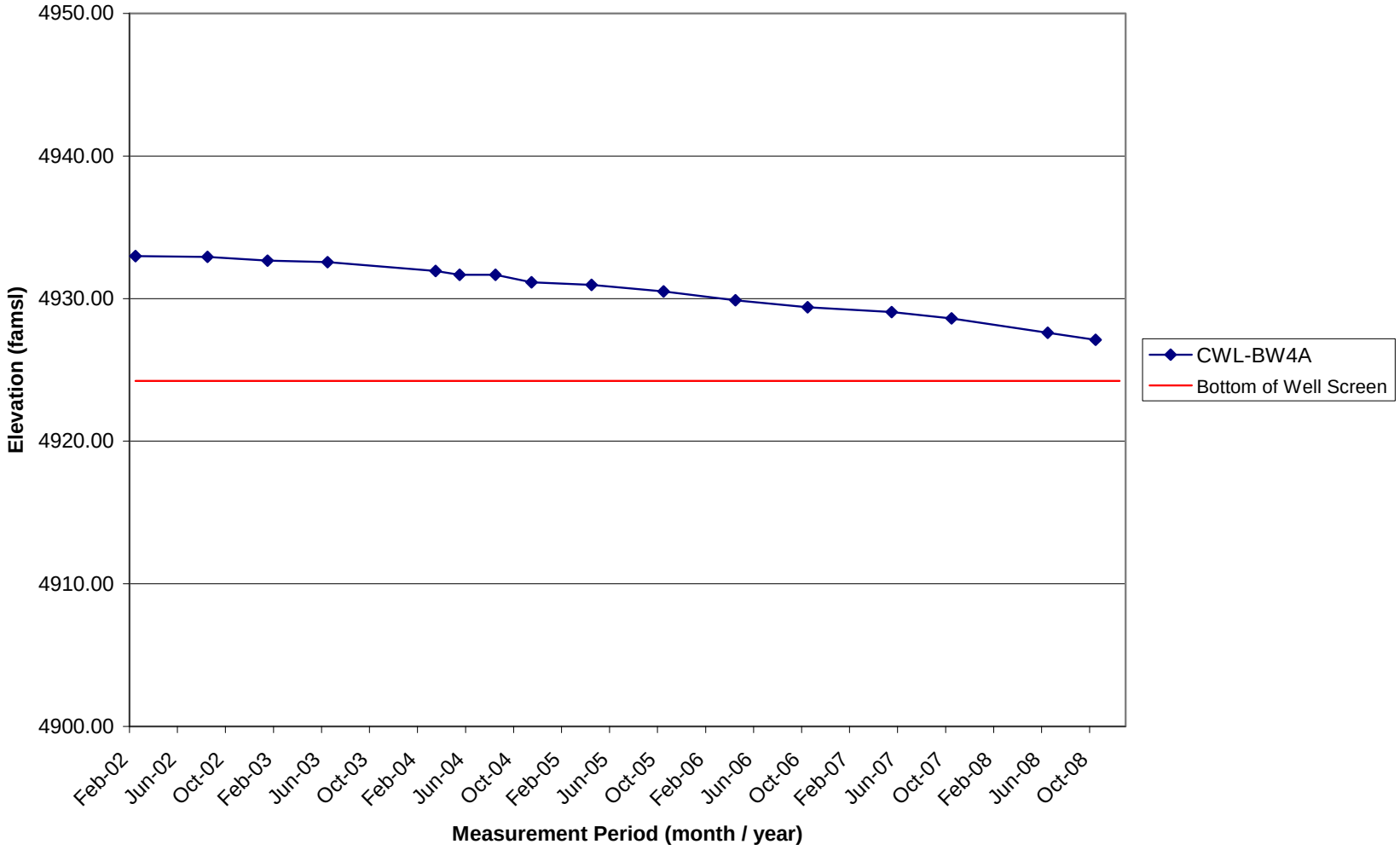
R_2 = duplicate analysis result.

PLOTS

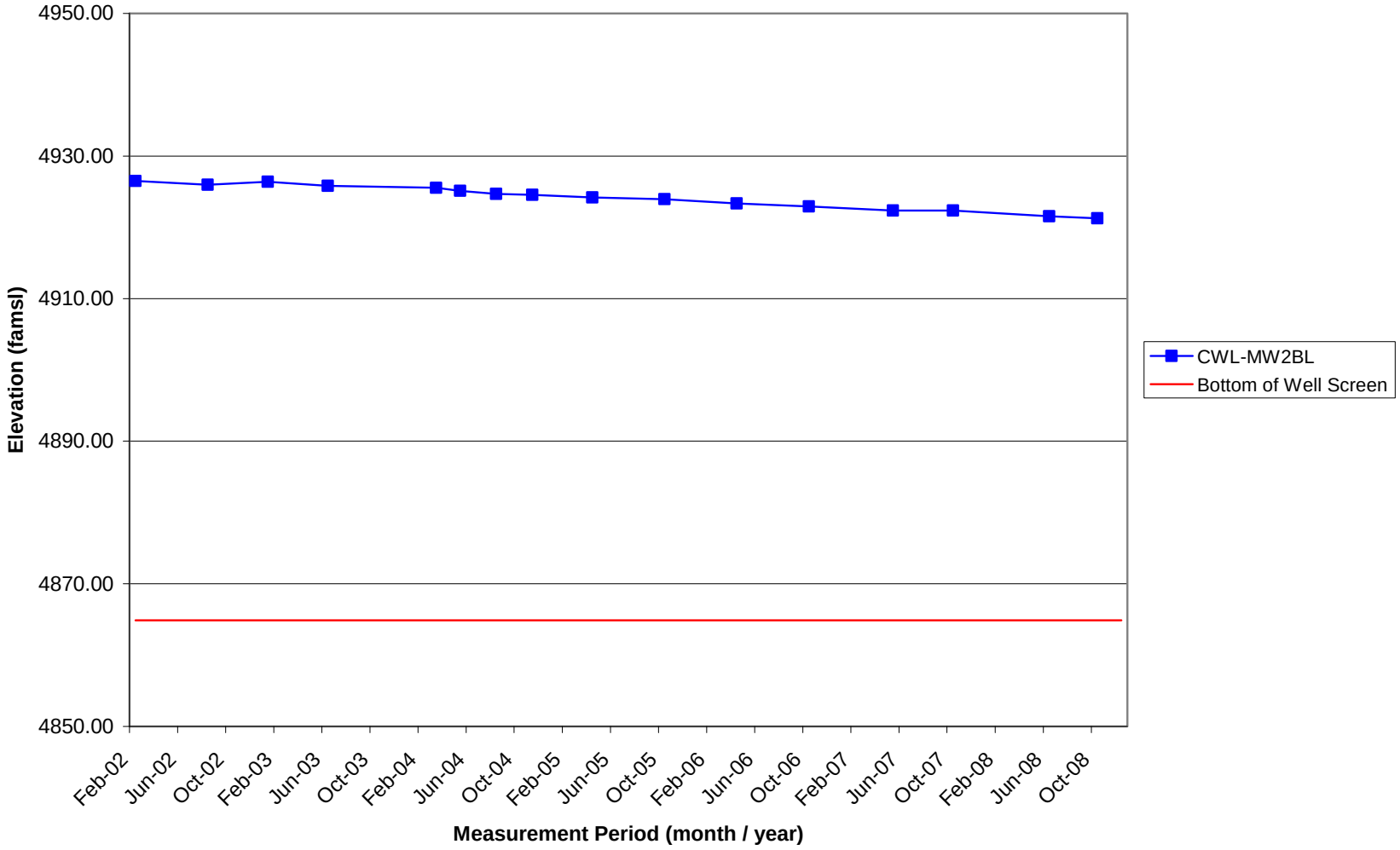
Plot A-1. Water Level Elevation, CWL-BW3



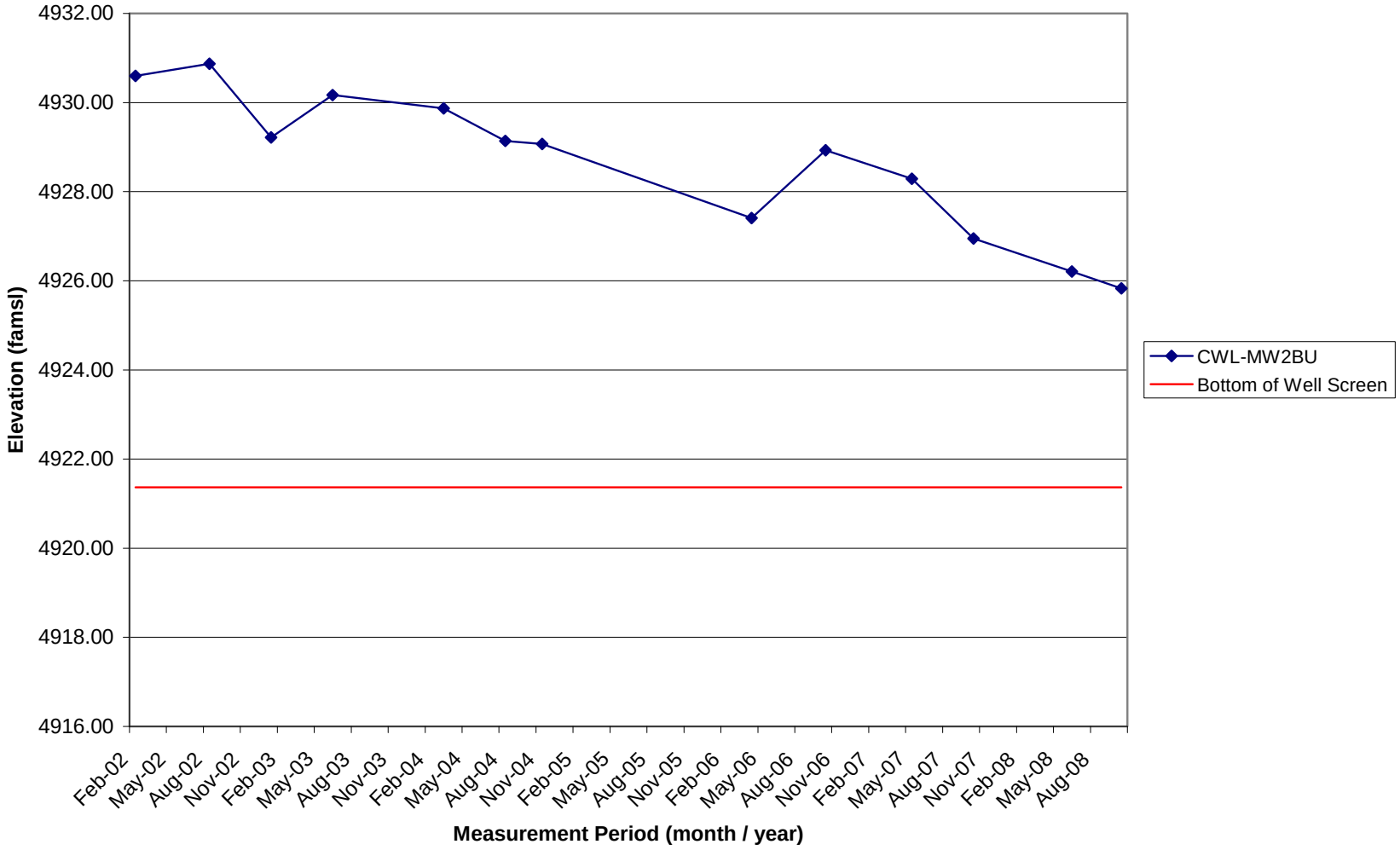
Plot A-2. Water Level Elevation, CWL-BW4A



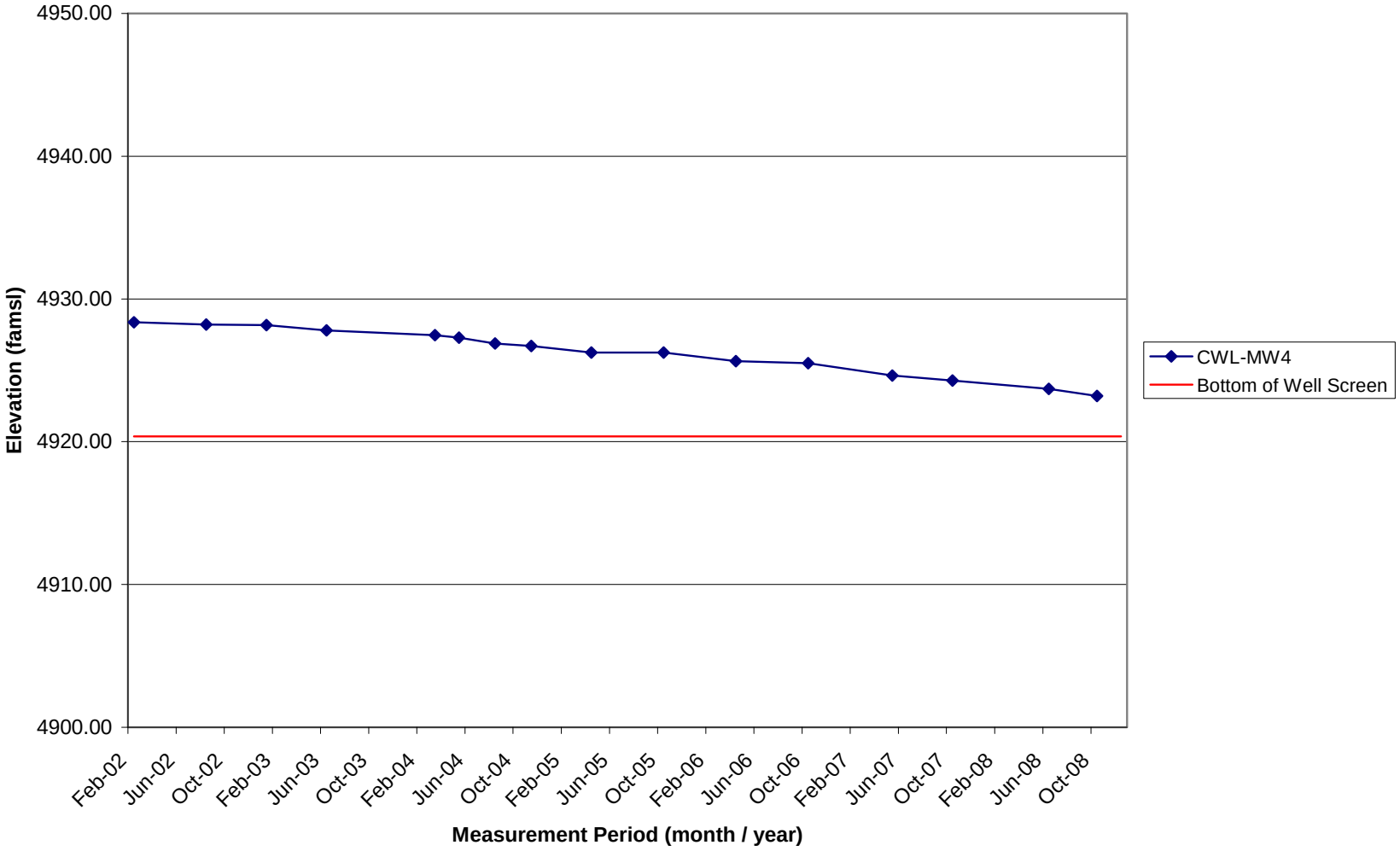
Plot A-3. Water Level Elevation, CWL-MW2BL



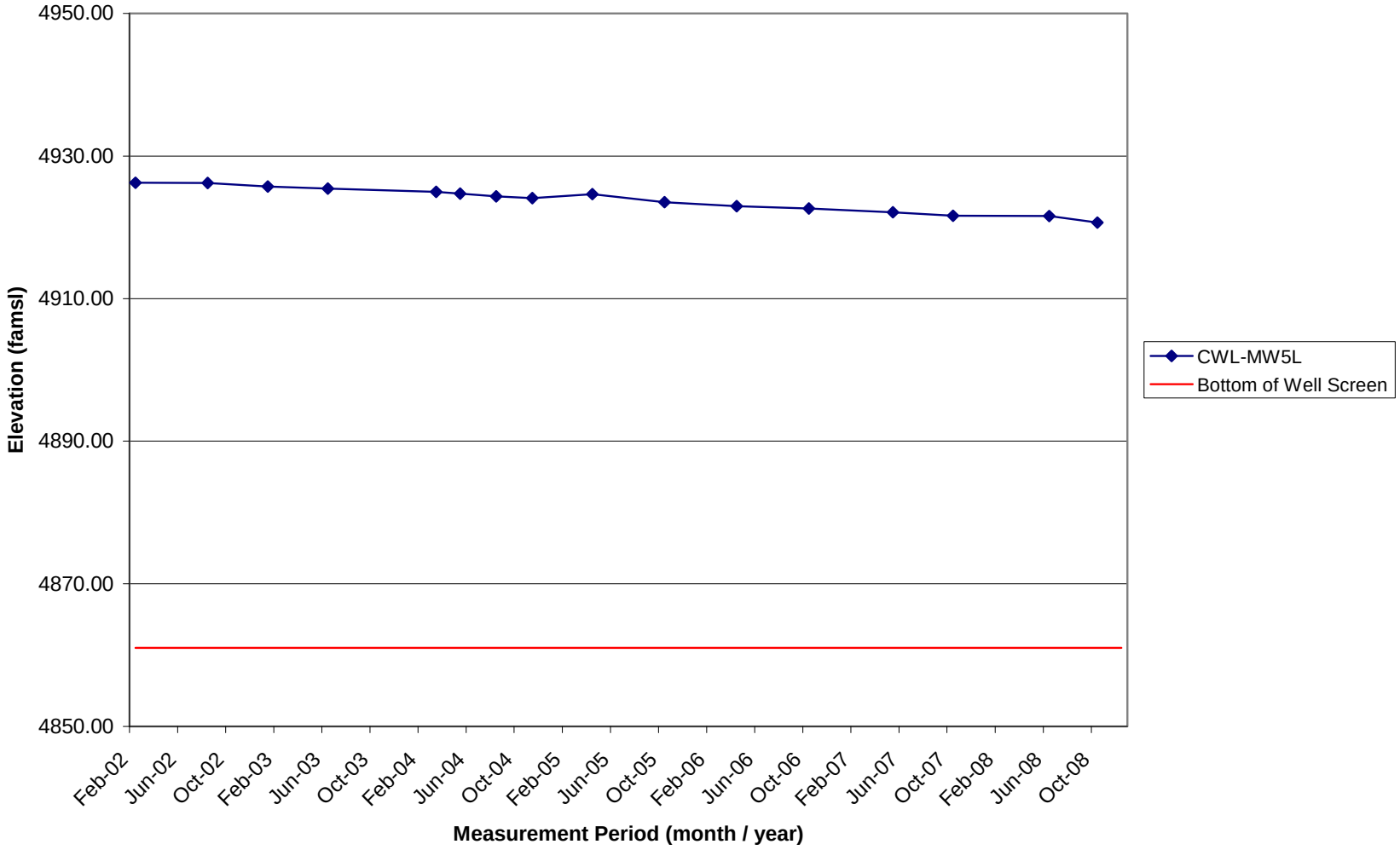
Plot A-4. Water Level Elevation, CWL-MW2BU



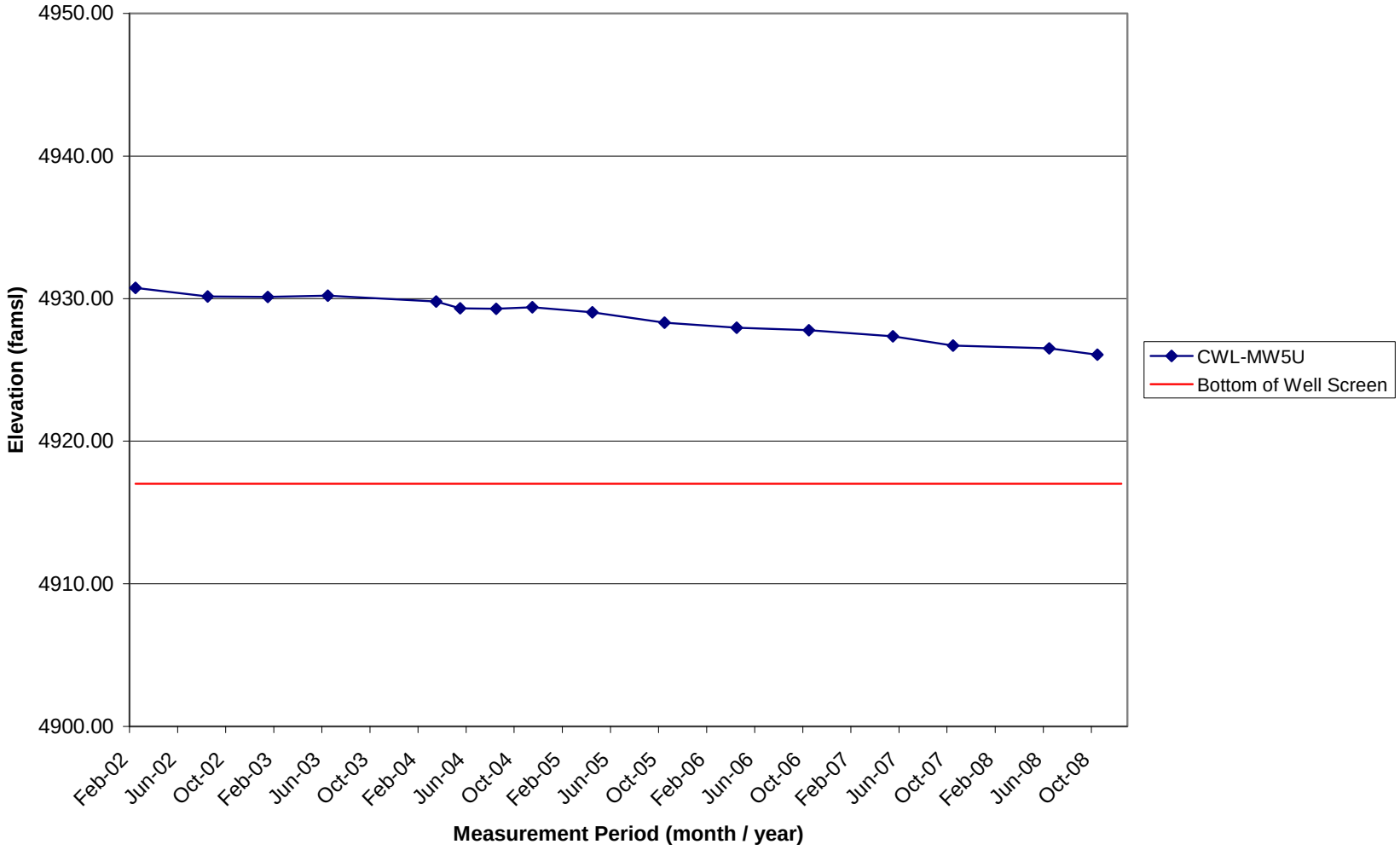
Plot A-5. Water Level Elevation, CWL-MW4



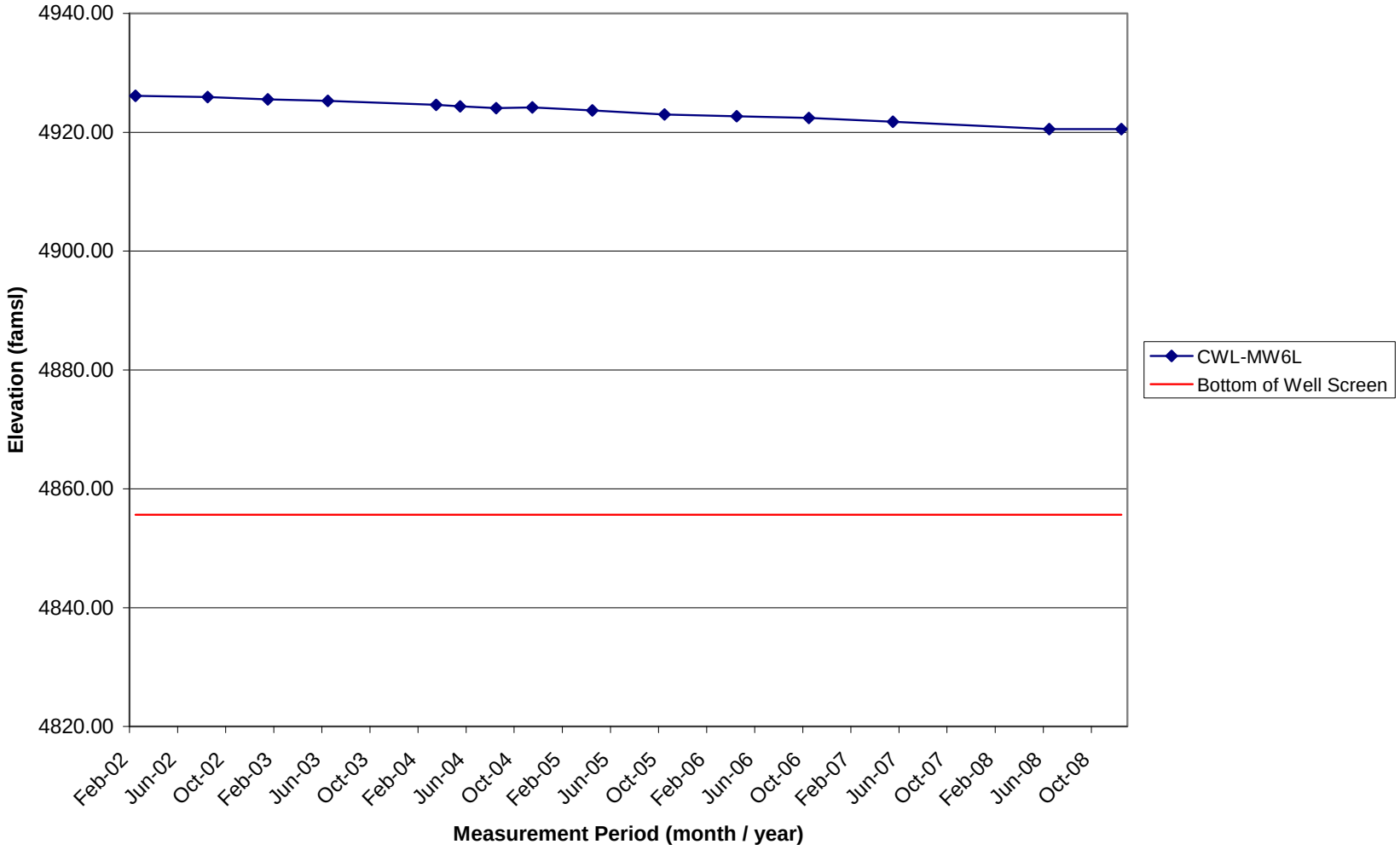
Plot A-6. Water Level Elevation, CWL-MW5L



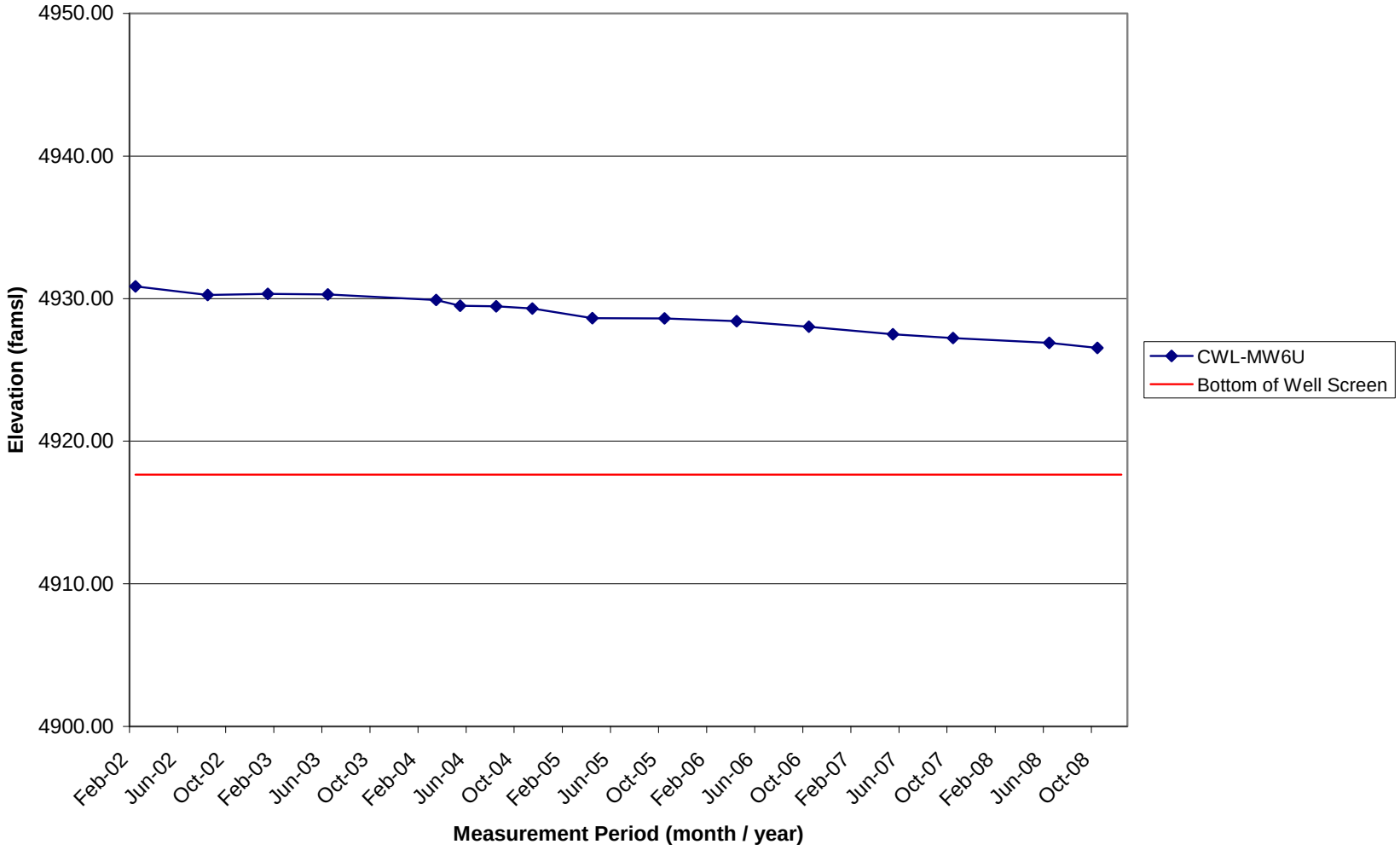
Plot A-7. Water Level Elevation, CWL-MW5U



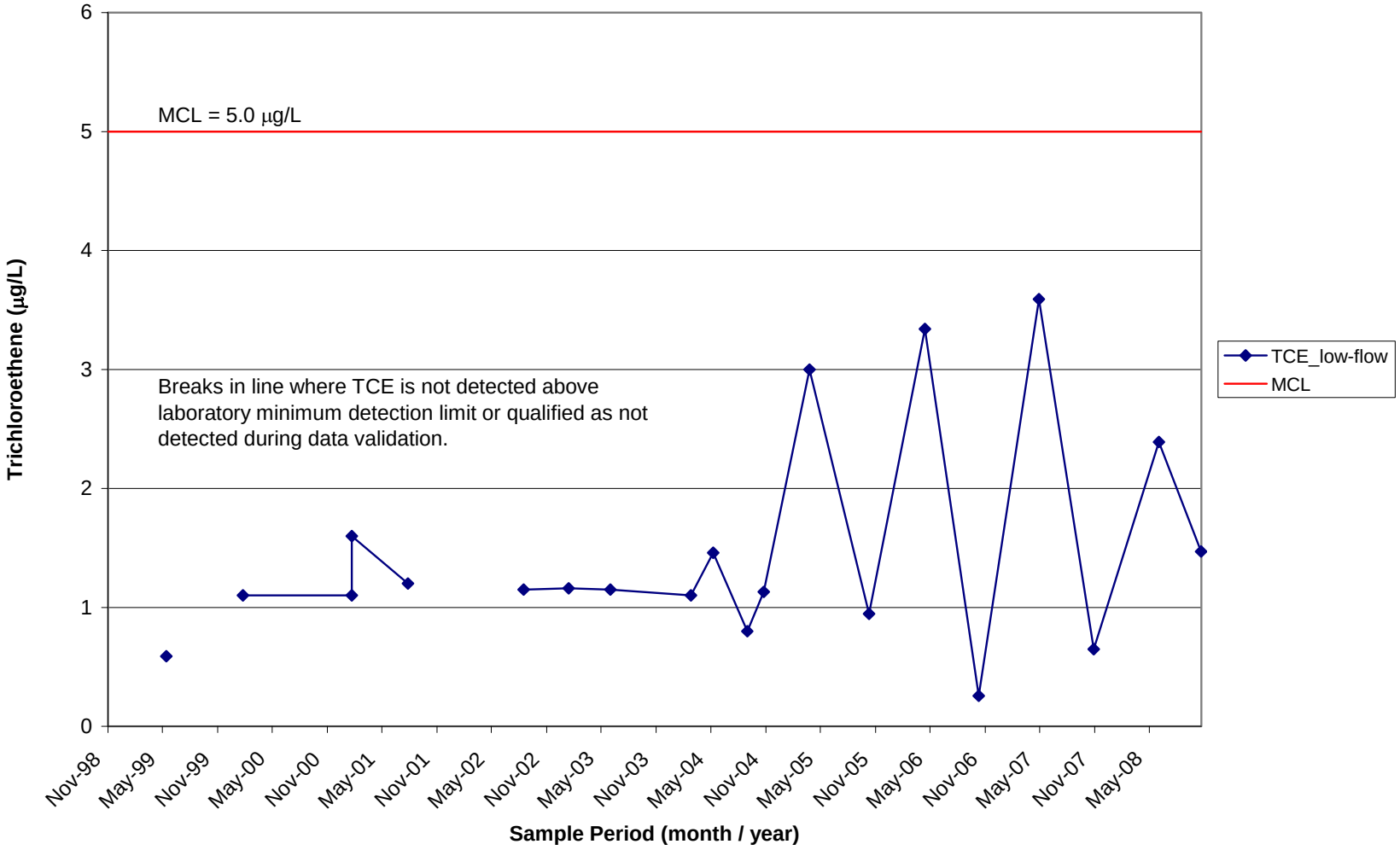
Plot A-8. Water Level Elevation, CWL-MW6L



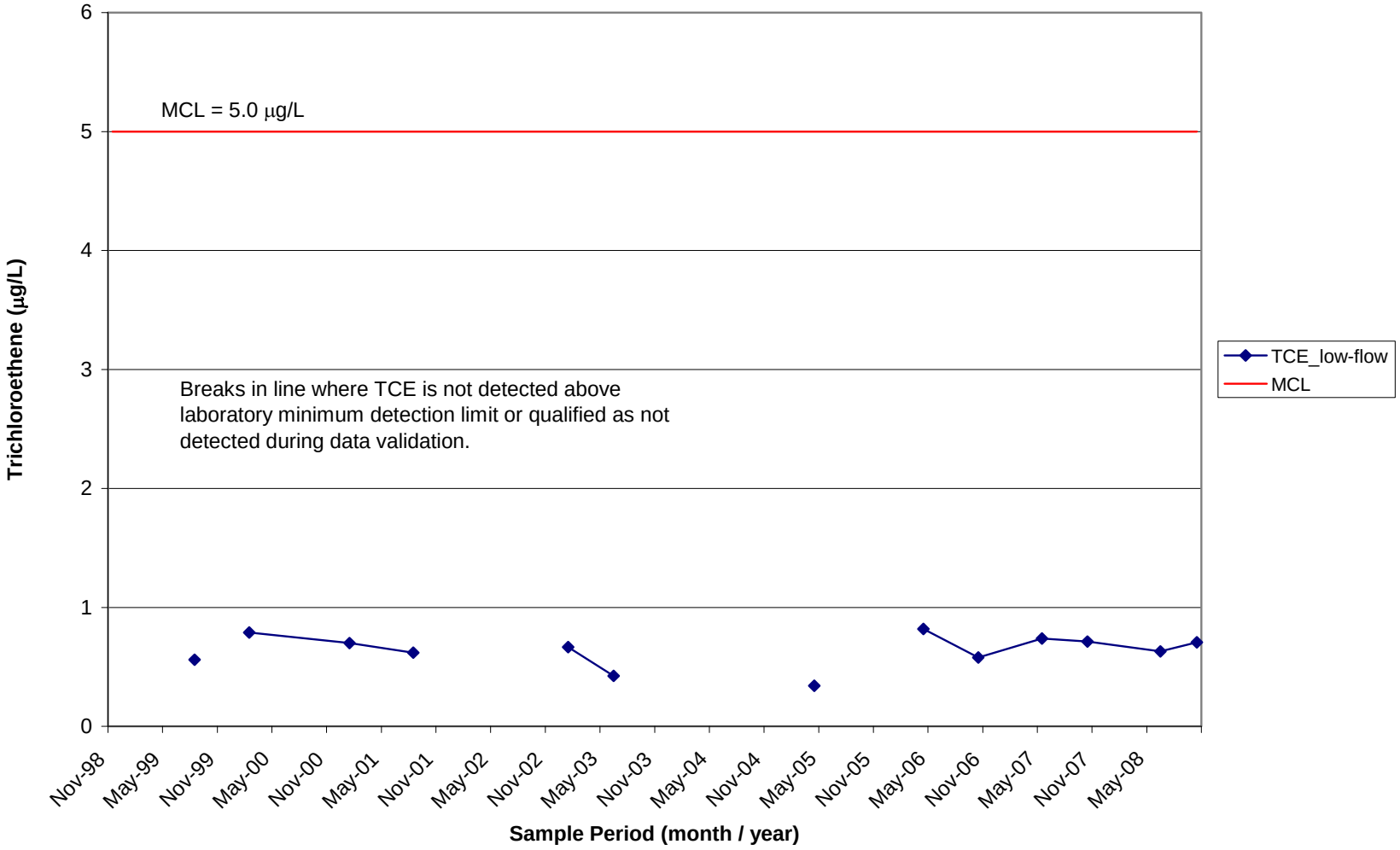
Plot A-9. Water Level Elevation, CWL-MW6U



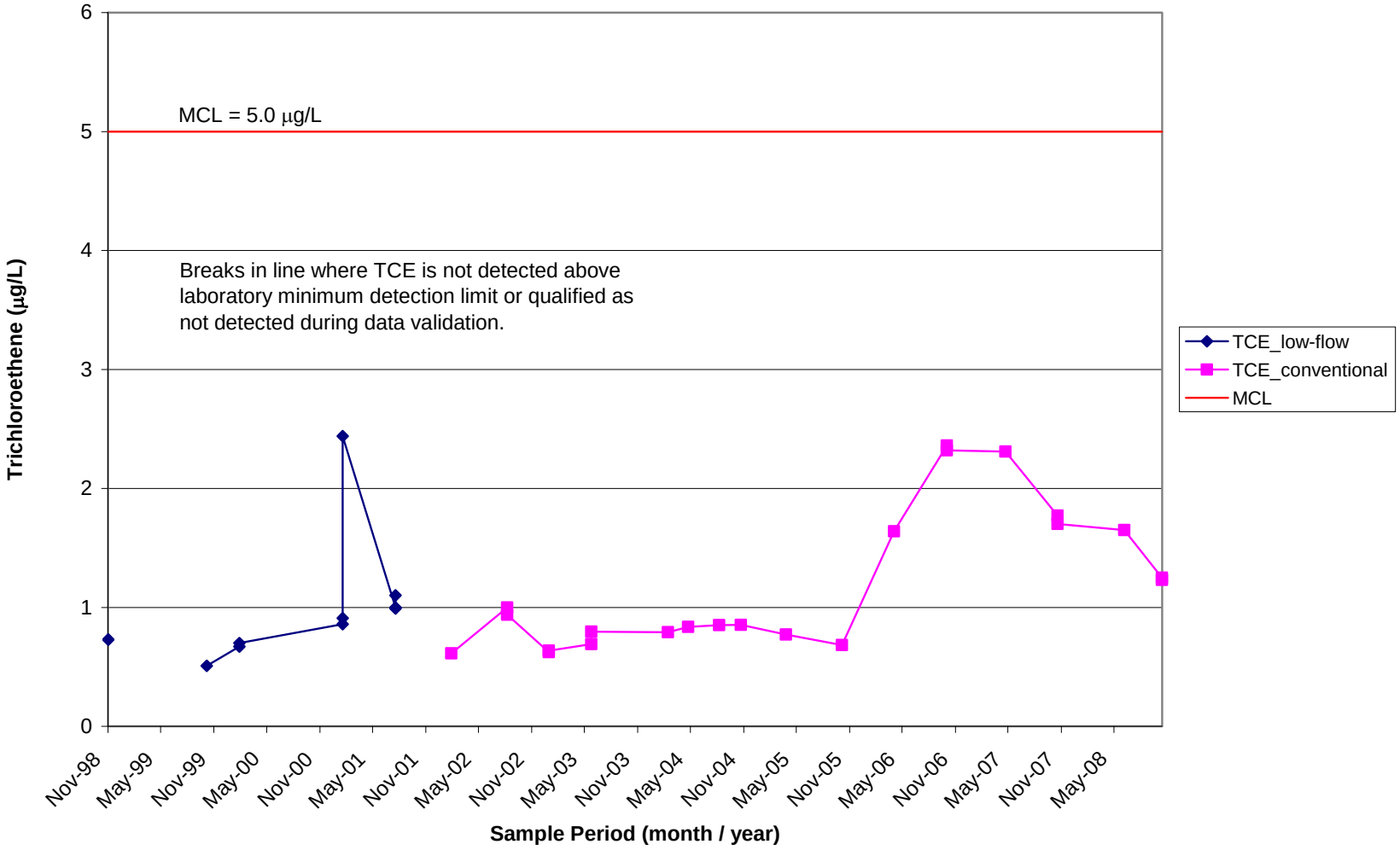
Plot A-10. Trichloroethene Concentrations, CWL-MW2BU



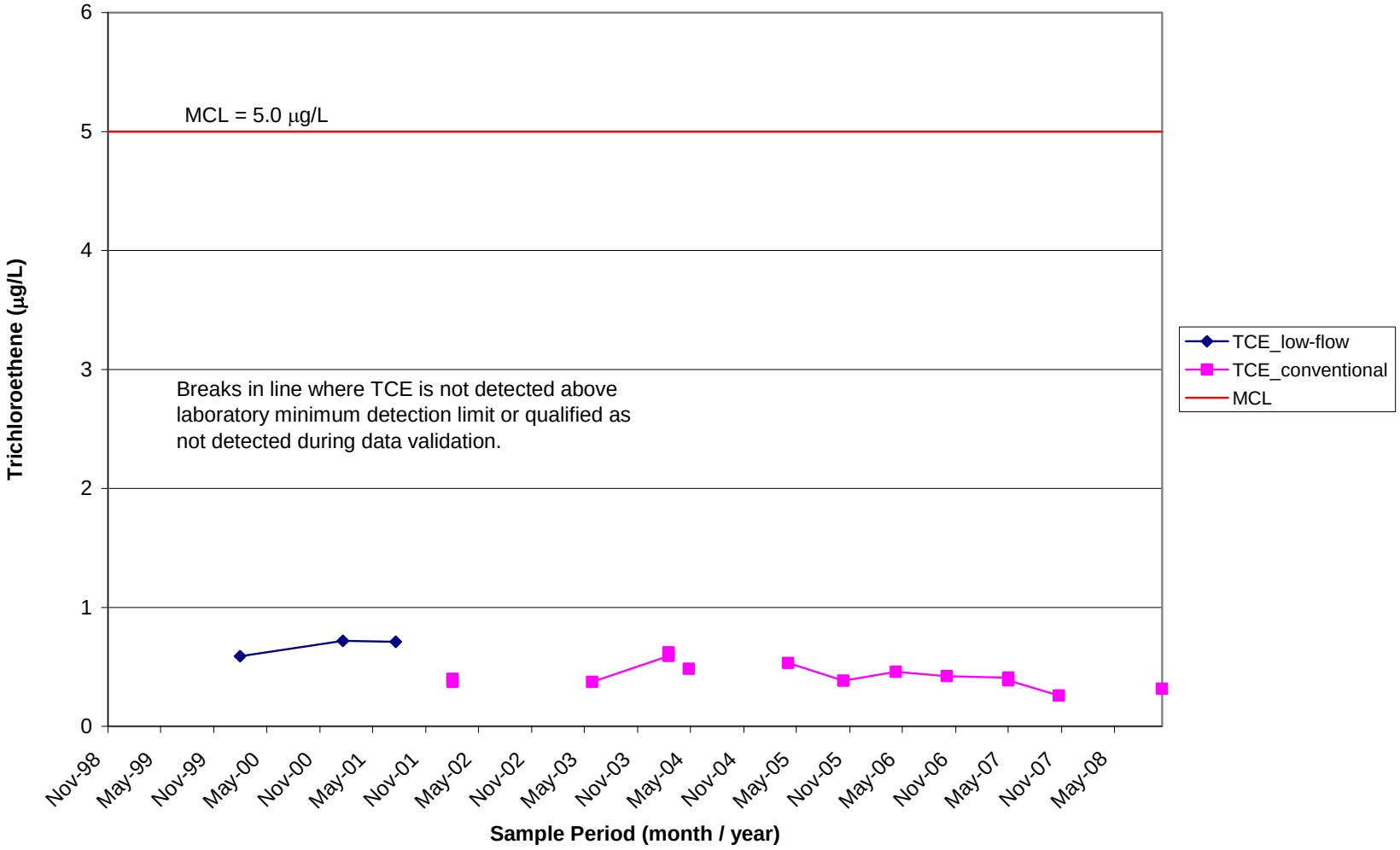
Plot A-11. Trichloroethene Concentration, CWL-MW5L



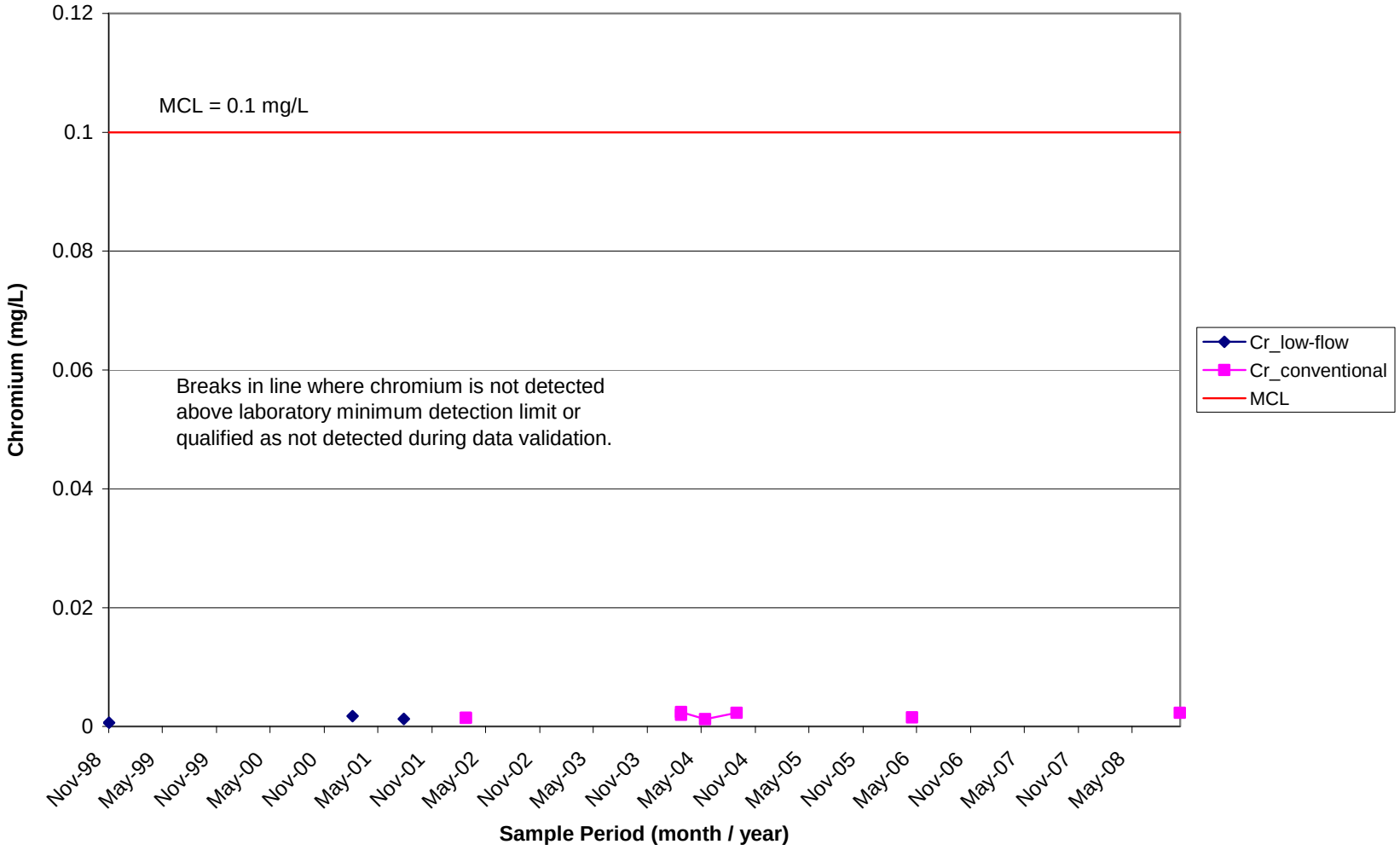
Plot A-12. Trichloroethene Concentrations, CWL-MW5U



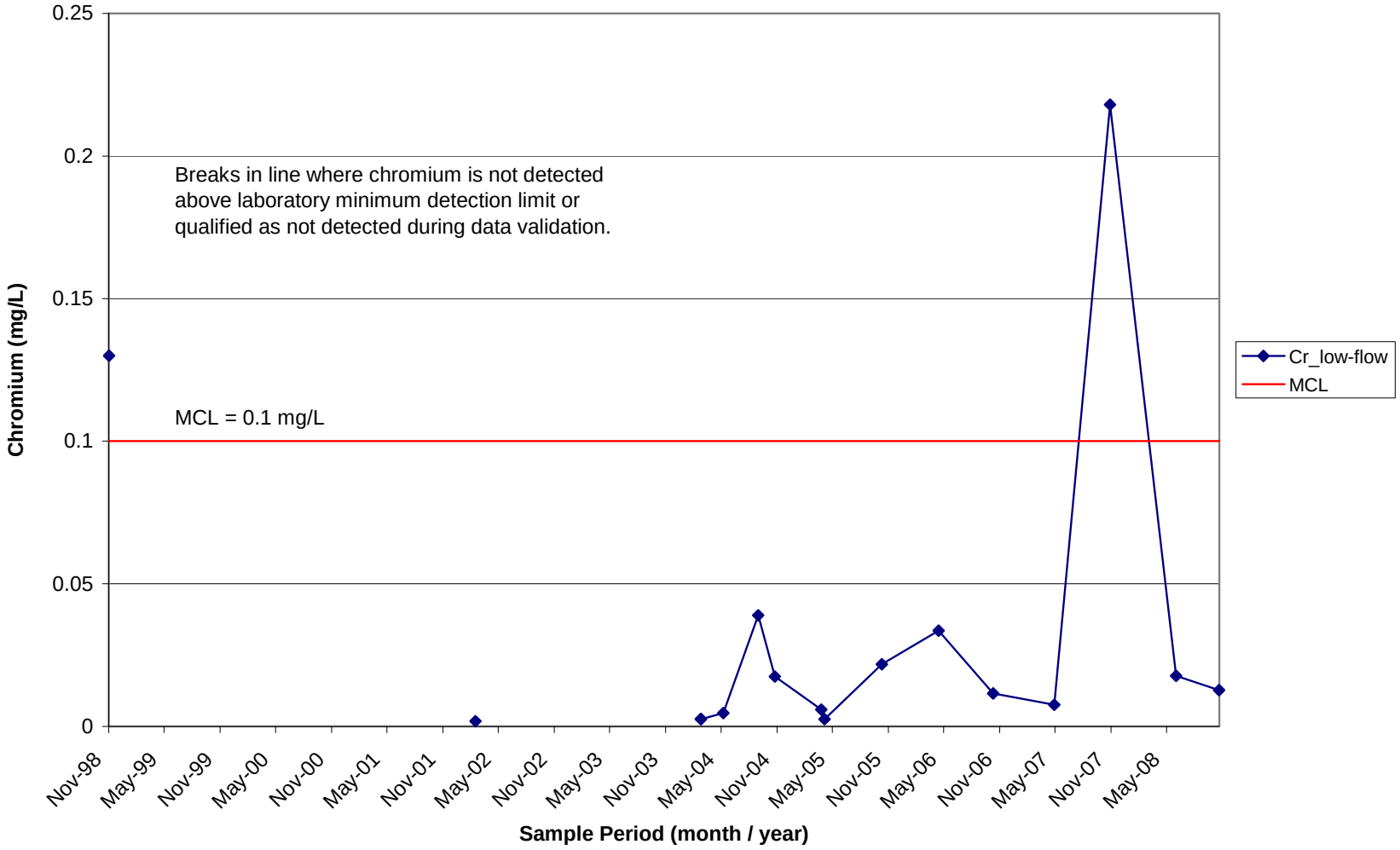
Plot A-13. Trichloroethene Concentrations, CWL-MW6U



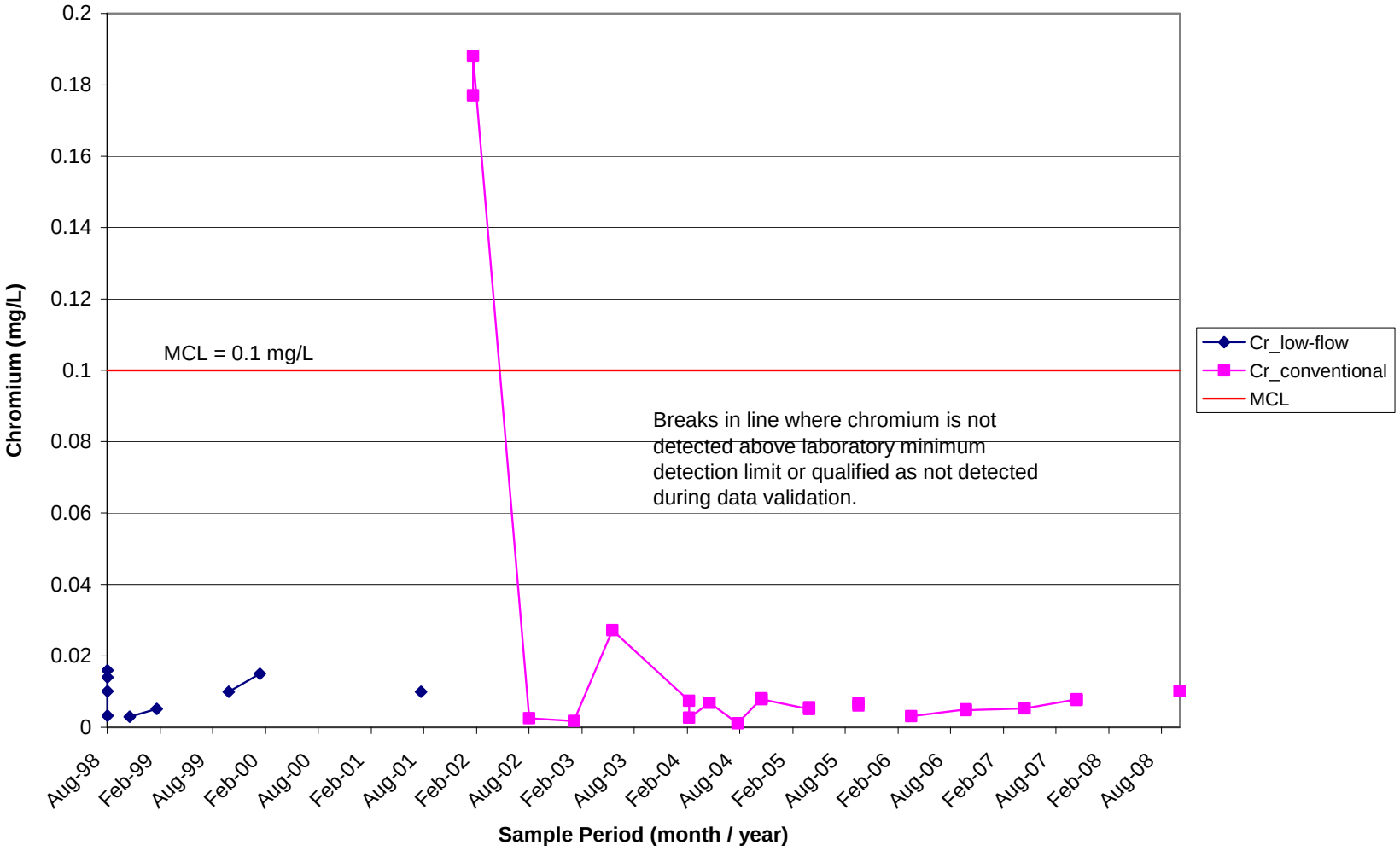
Plot A-14. Chromium Concentrations, CWL-MW2BL



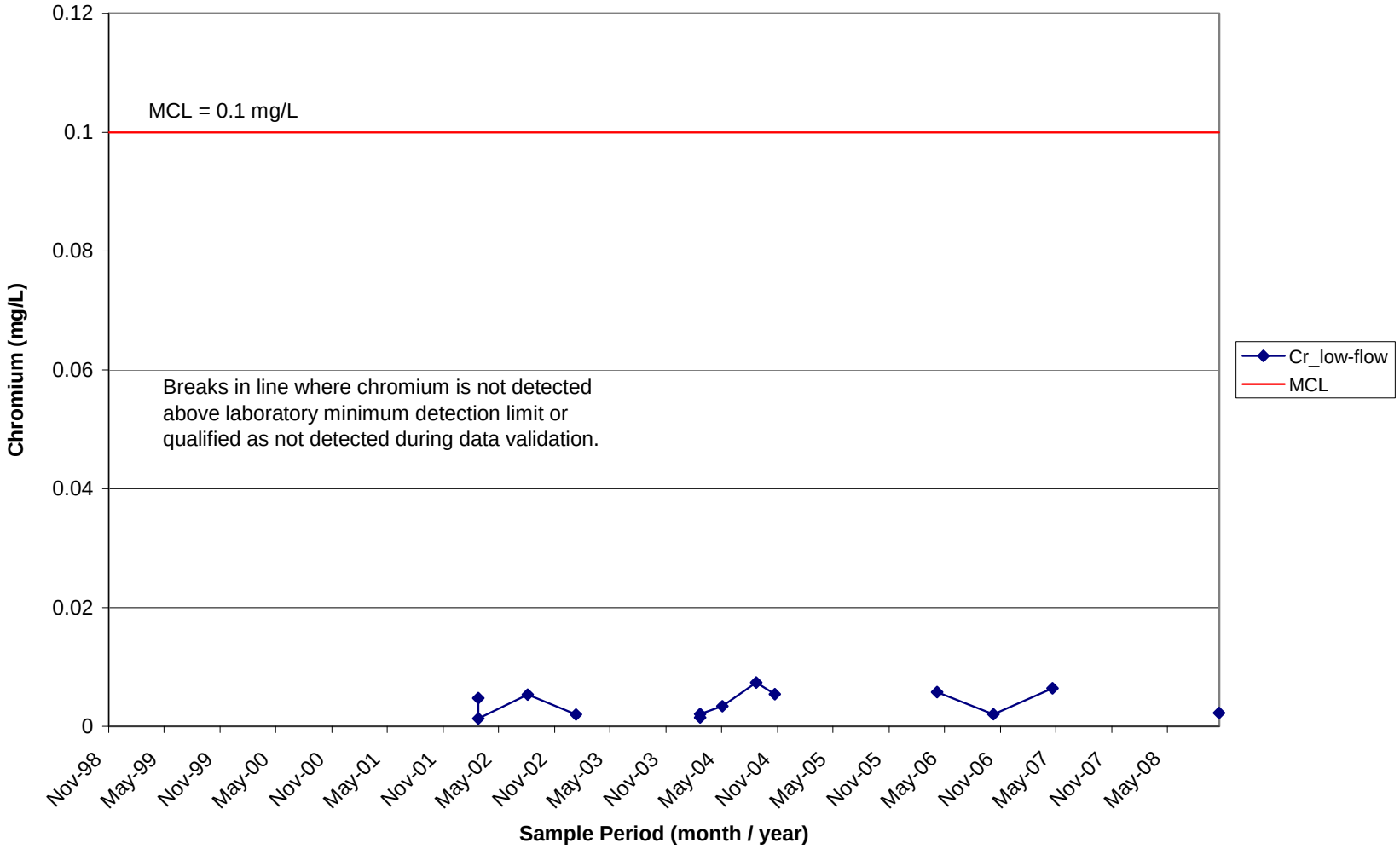
Plot A-15. Chromium Concentrations, CWL-MW2BU



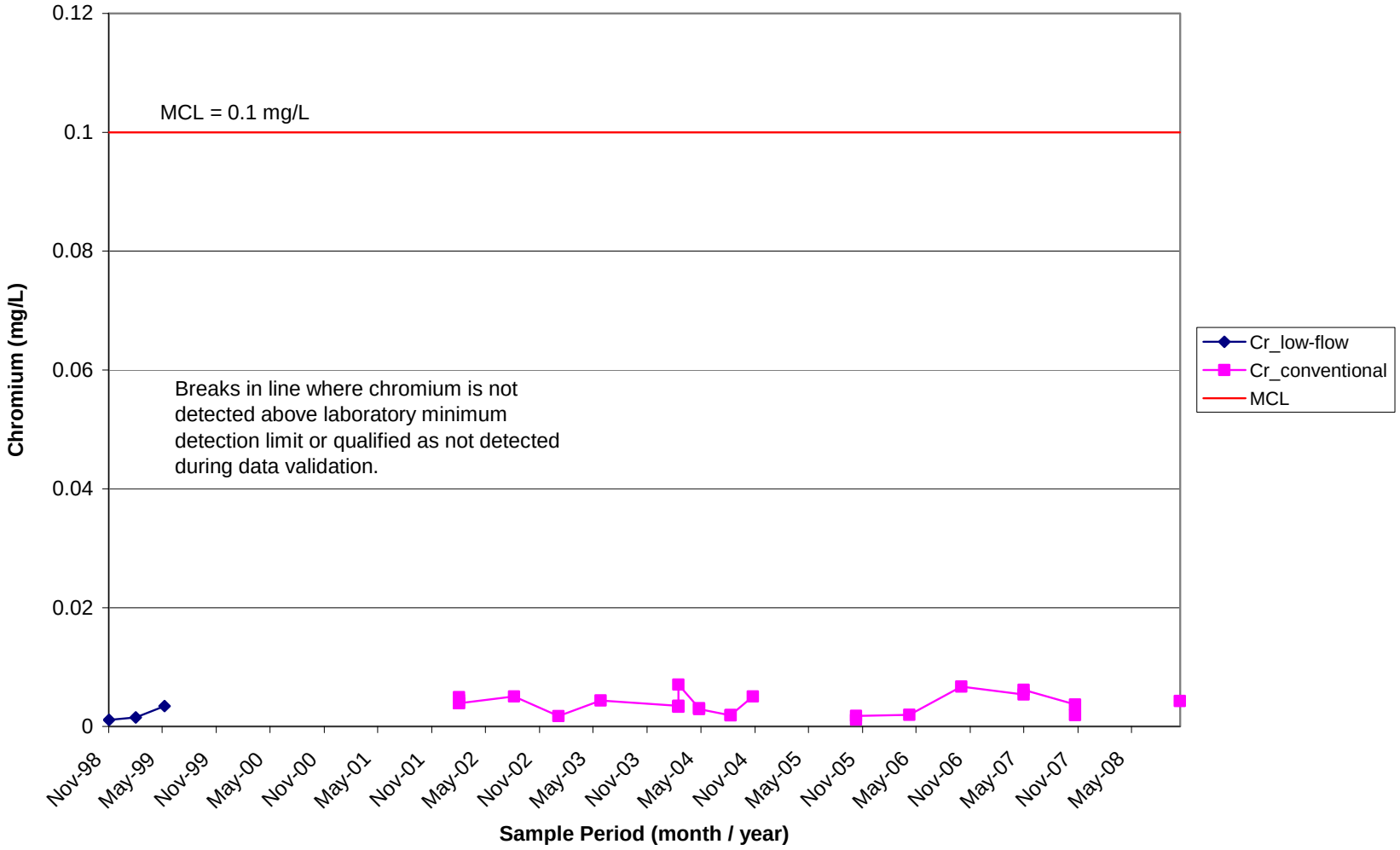
Plot A-16. Chromium Concentrations, CWL-MW4



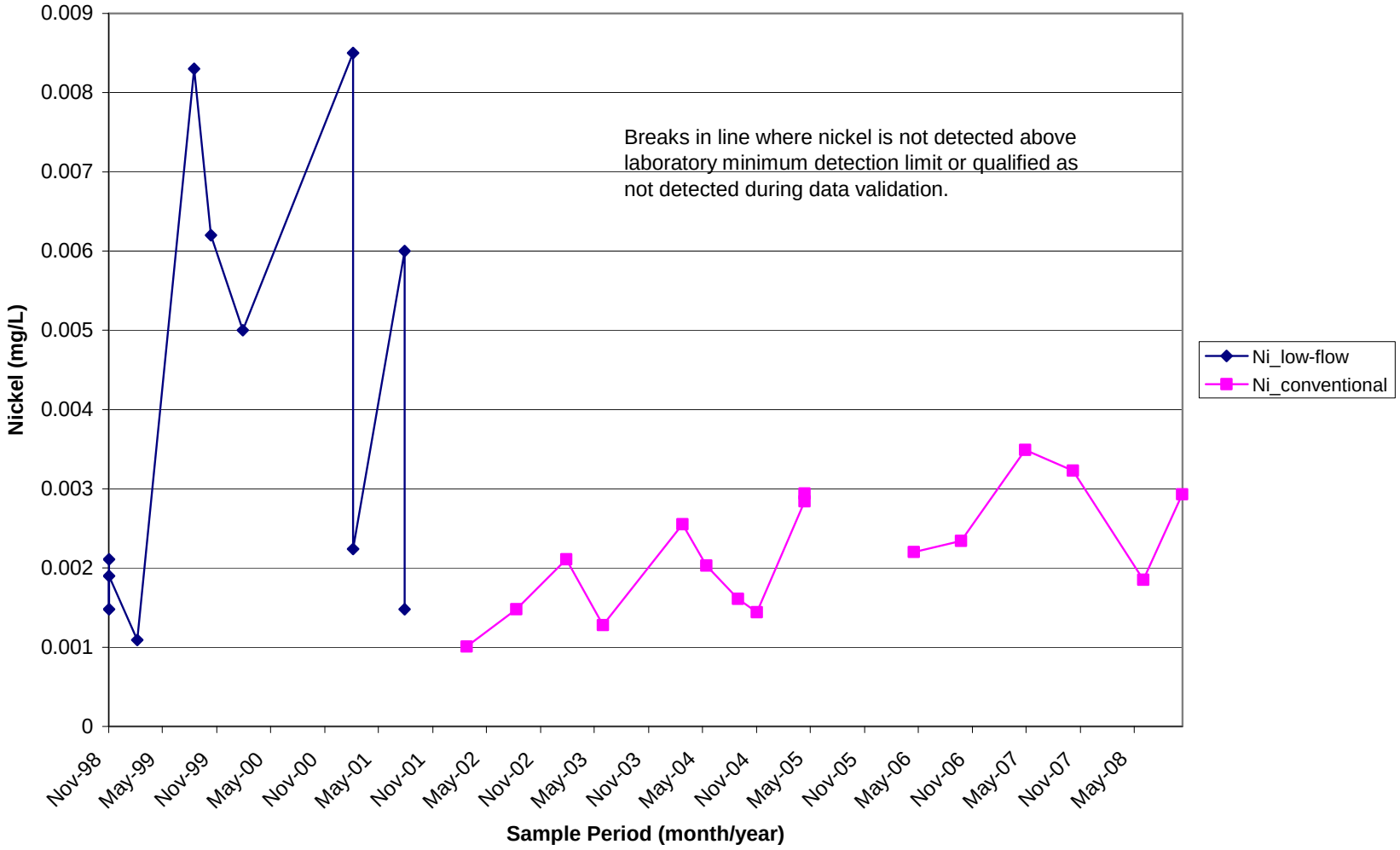
Plot A-17. Chromium Concentrations, CWL-MW5L



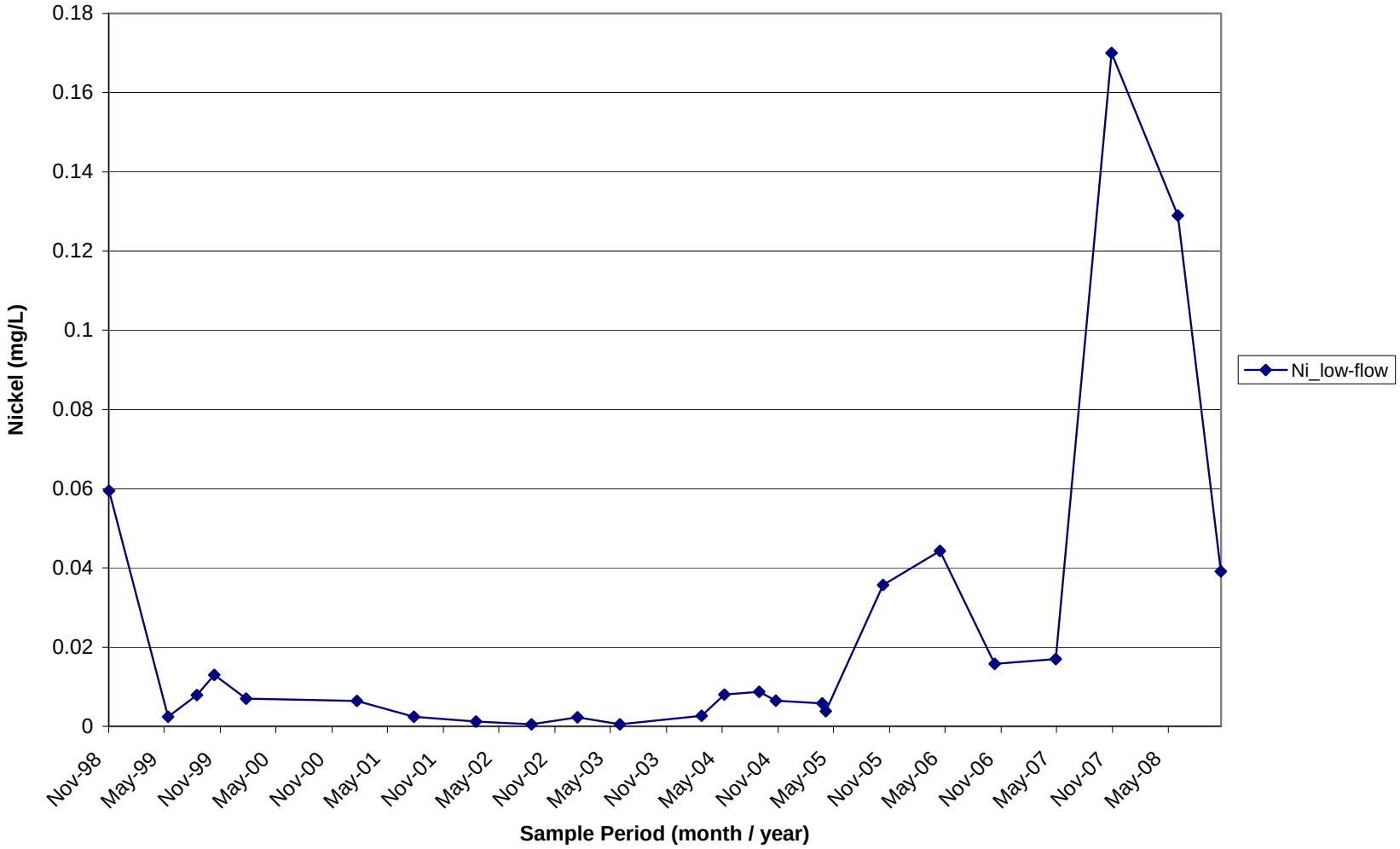
Plot A-18. Chromium Concentrations, CWL-MW6U



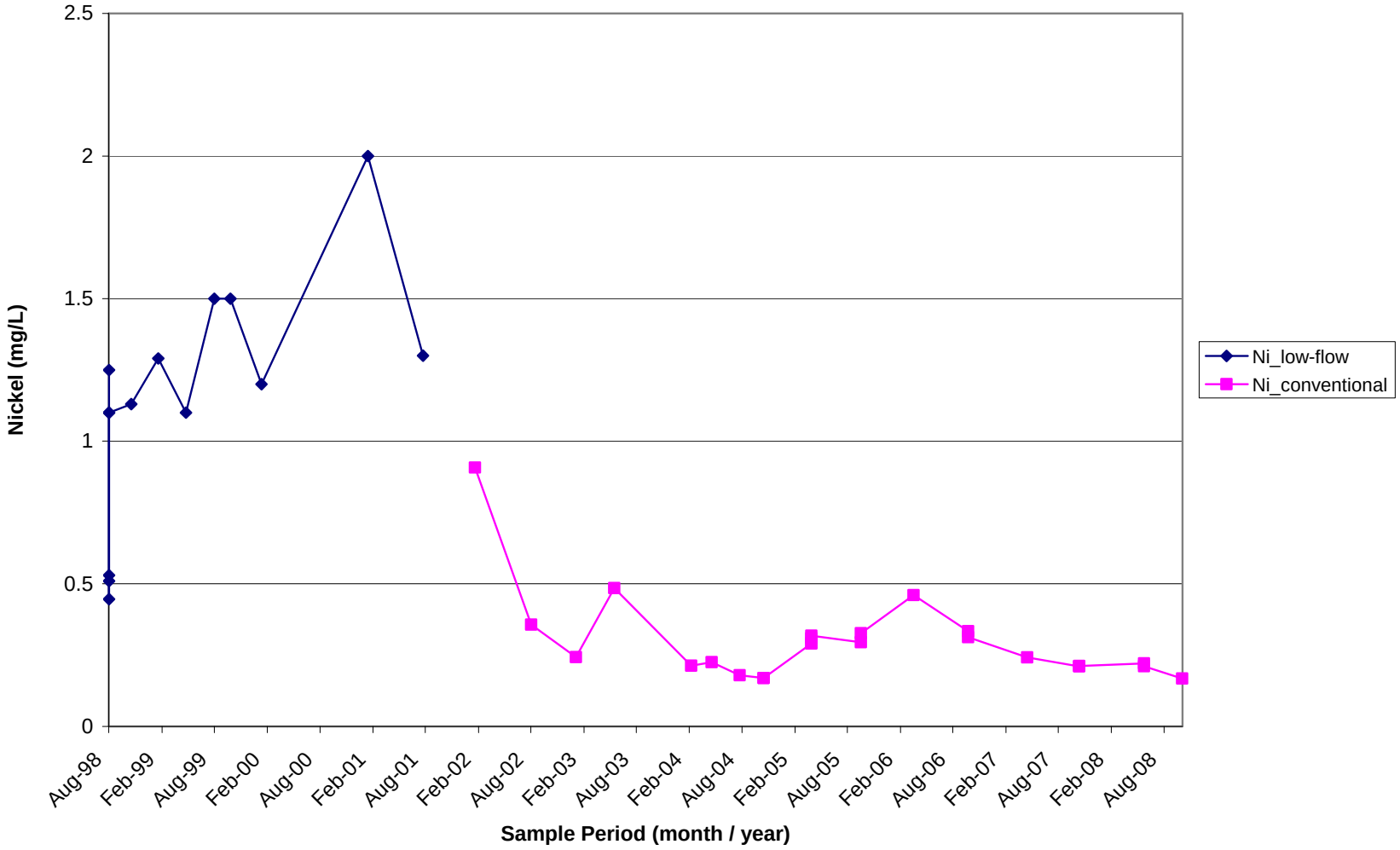
Plot A-19. Nickel Concentrations, CWL-MW2BL



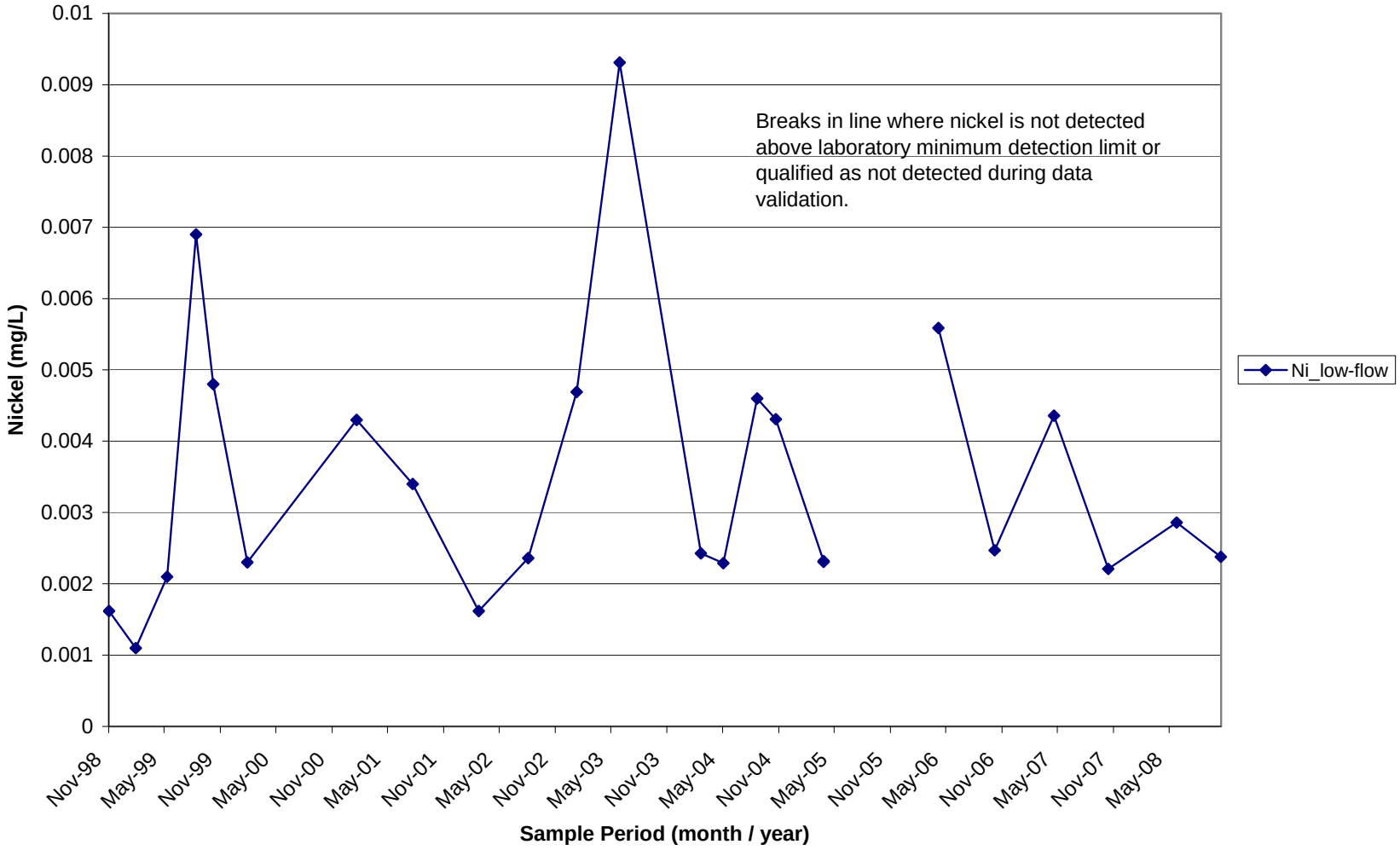
Plot A-20. Nickel Concentrations, CWL-MW2BU



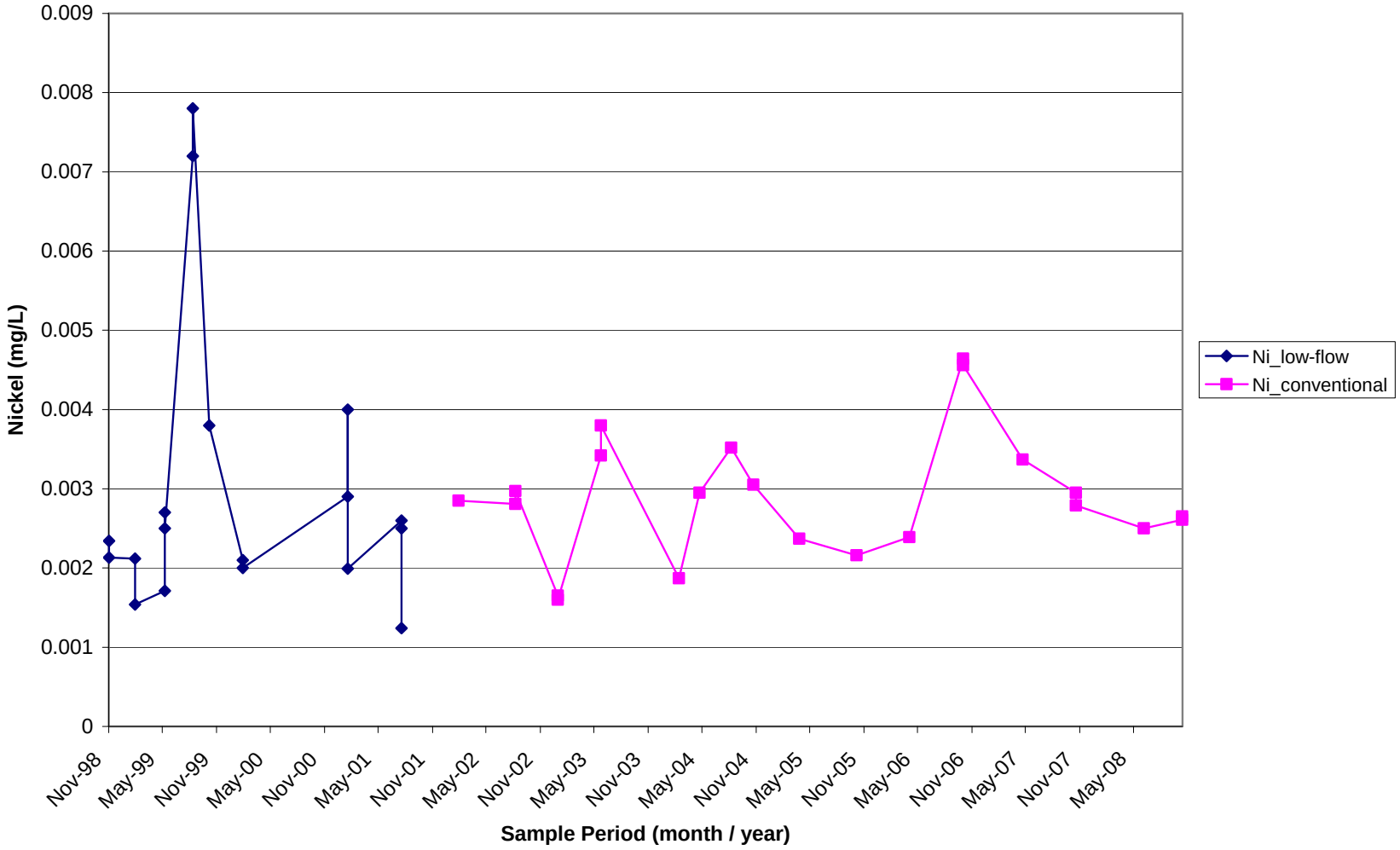
Plot A-21. Nickel Concentrations, CWL-MW4



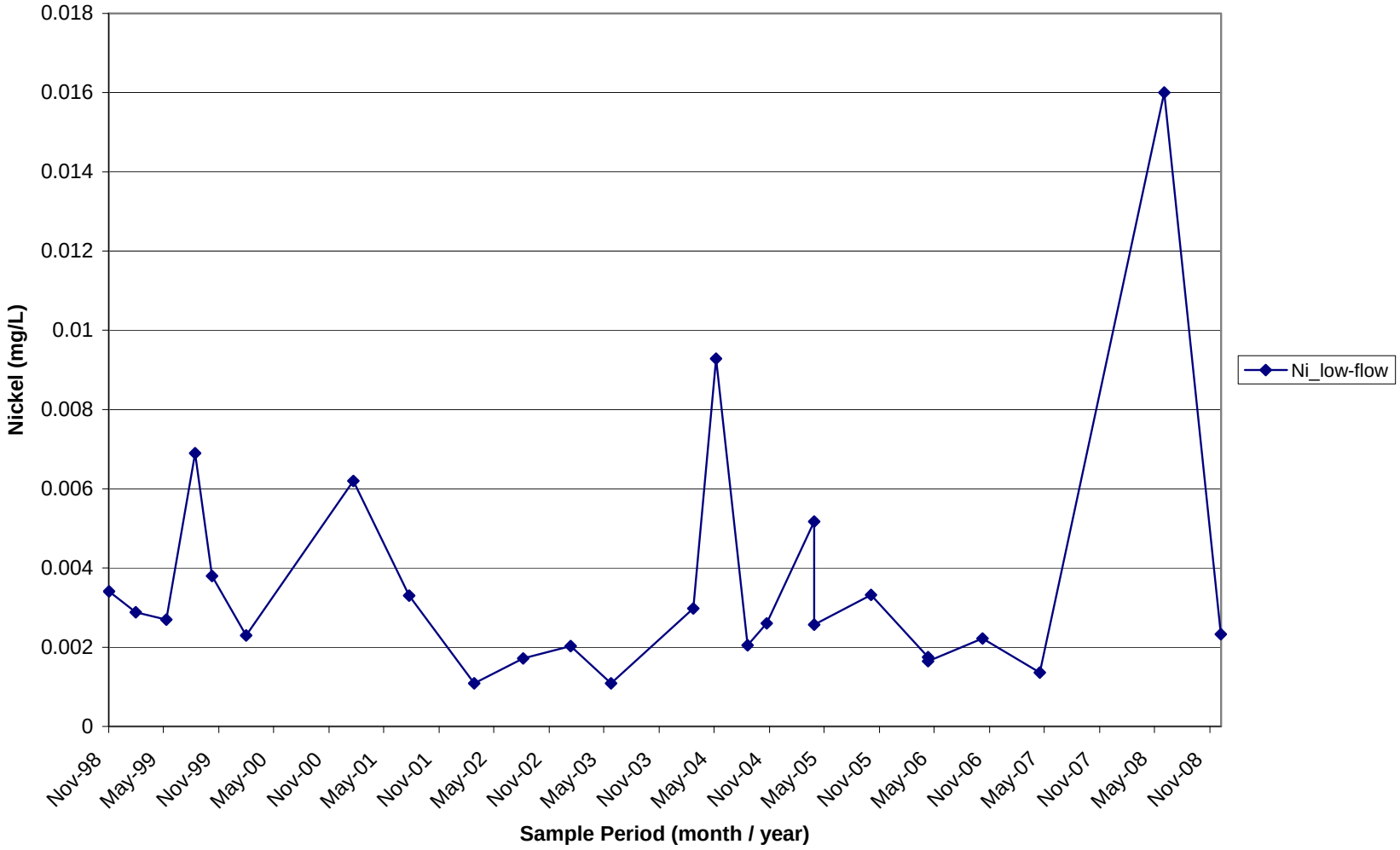
Plot A-22. Nickel Concentrations, CWL-MW5L



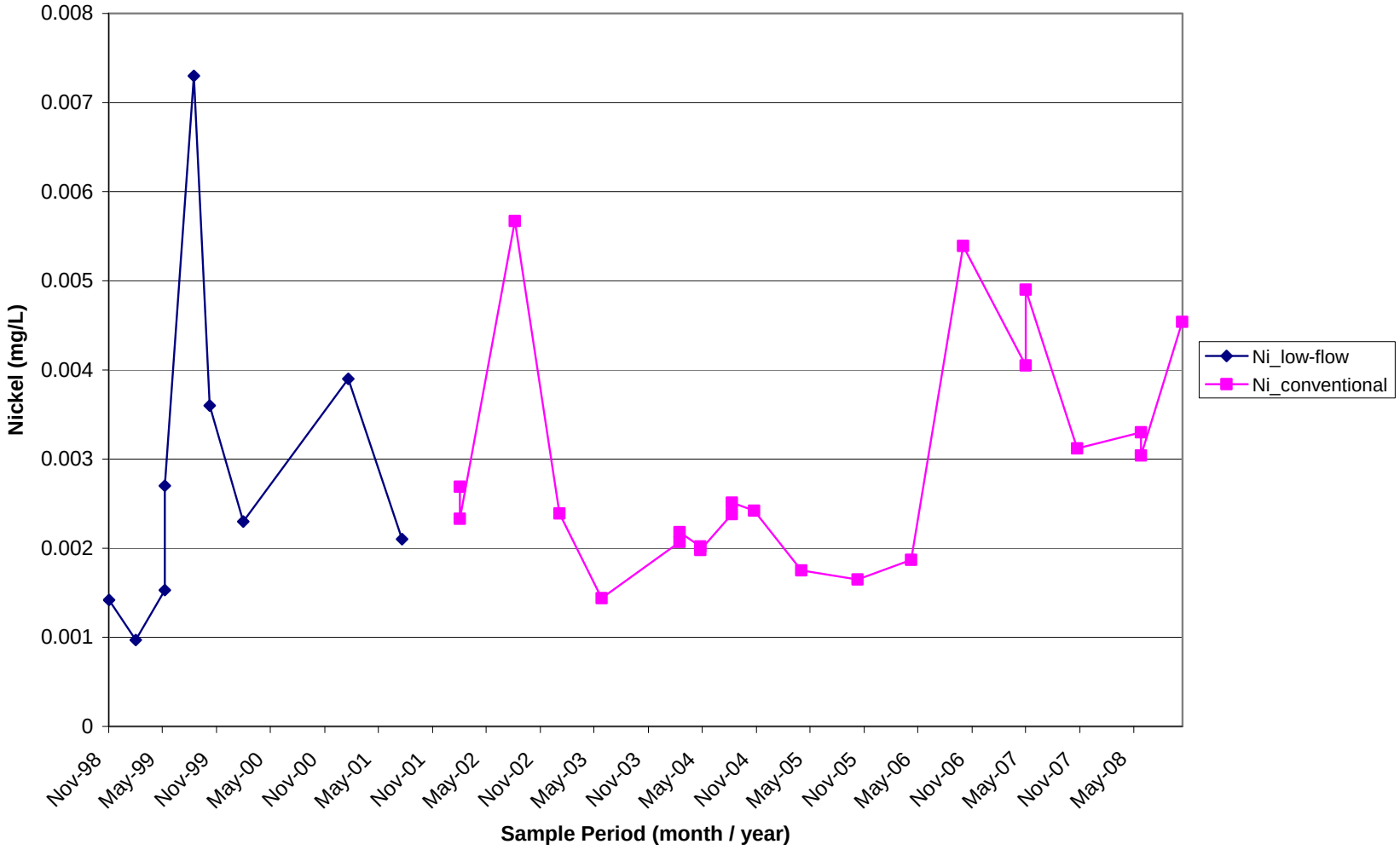
Plot A-23. Nickel Concentrations, CWL-MW5U



Plot A-24. Nickel Concentrations, CWL-MW6L



Plot A-25. Nickel Concentrations, CWL-MW6U



ATTACHMENT A

FIELD MEASUREMENT LOGS AND DOCUMENTATION

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name:	Project No.:
Well I.D.: CWL-BW3	Date: 10-31-08
Weather	
Method: X Portable pump _____ Dedicated pump	Pump depth: 506.2

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~~
503.66	0931		START							
505.95	3 gals of DIW / no groundwater to surface									
COC number(s):										
Sample number(s):										

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: 2 1.6 ml/ft X____ (length of tubing)) = _____ milliliters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL-	Project No.:
Well I.D.: CWL-BW4A	Date: 10-17-08
Weather	
Method: X Portable pump _____ Dedicated pump	Pump depth:

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~~
504.25	0824	/ + START			—					
506.35	0840	Well Dry			still in DI water					
COC number(s):										
Sample number(s):										

~4.00 gals. purged from tubing

3 gal purge before dry

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

Project Name:	Project No.:
Well I.D.: CWL-mw23L	Date: 10-20-08
Weather	
Method: X Portable pump _____ Dedicated pump	Pump depth: 544.5'

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~~
498.12	0845	/	START	—	—	—	—	—	—	—
498.32	0944	50	20.59	1222	192.2	6.79		0.89	77.1	6.92
498.32	1045	100	20.66	1231	190.4	6.79		1.13	75.4	6.74
498.32	1153	150	22.02	1224	191.3	6.78		0.94	74.9	6.53
498.31	1249	200	21.68	1223	192.4	6.78		0.73	74.0	6.49
498.31	1309	210	21.78	1224	190.4	6.77		0.84	75.1	6.74
498.31	13:18	215	22.15	1224	191.1	6.78		0.78	75.4	6.74
498.31	13:28	220	21.71	1224	190.9	6.78		0.73	76.1	6.69
498.31	13:39	225	21.59	1223	191.5	6.78		0.68	76.6	6.73
498.31	13:41	226	21.55	1224	192.3	6.78		0.72	76.4	6.71
	13:42	Sample.								

COC number(s): 612027

Sample number(s): 086835

Purge Volume Calculations

~4.00 gals purged from tubing 0852

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!: 2 1.6 ml/ft X____ (length of tubing)) = _____ millileters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL-MW2BU	Date: 10-16-08 10-30-08
Weather	
Method: _____ Portable pump ___X___ Dedicated pump	Pump depth: ~491.

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~~
493.59	0846	/	START	—	—	—	—	—	—	—
493.90	0857	0.4	15.08	849	65.2	8.18		27.8	85.3	8.60
494.36	0902	0.75	15.06	776	75.1	8.16		145.0	89.2	8.89
NA	0910	1.1	14.03	783	86.4	8.18		35.5	85.7	8.80
	0912	well	DRY	—	—	—	—	—	—	—
10/30/08										
493.53	0838	/	START	—	—	—	—	—	—	—
493.87	0849	.350	16.91	852	142.1	8.34		7.56	80.2	7.77
	0850	/	sampling	—	—	—	—	—	—	—
								X		

COC number(s): 612032

Sample number(s): 086846

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

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL-MW4	Date: 10-27-08
Weather	
Method: X Portable pump ____ Dedicated pump	Pump depth: 499.5'

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~~
497.13	0832	/	START	—	—	—	—	—	—	—
498.51	0904	5	17.13	1049	17.2	6.67		6.27	6.5	0.63
498.53	0922	10	17.61	1065	44.3	6.91		20.20	37.3	3.56
498.57	0942	15	17.64	1067	84.4	6.94		46.1	54.6	5.20
498.61	0949	17	17.73	1066	93.8	6.96		24.9	56.5	5.36
498.61	0957	19	17.90	1068	98.8	6.95		15.9	58.0	5.48
498.64	1006	21	18.00	1068	104.9	6.95		11.8	58.7	5.54
498.65	1013	23	18.15	1069	107.0	6.95		7.42	59.2	5.57
498.65	1017	24	18.27	1069	111.9	6.94		5.64	59.8	5.61
498.63	1021	25	18.29	1068	110.2	6.95		5.80	59.4	5.58
498.59	1025	26	18.26	1069	110.3	6.94		5.68	59.6	5.59
	1026	/	Sampling	—	—	—	—	—	—	—

COC number(s): 612029

Sample number(s): 086839

~4.00 gals purged from tubing. 0846

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" ODl: 2 1.6 ml/ft X____ (length of tubing)) = _____ millileters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL- MW5L	Date: 10-29-08
Weather	
Method: _____ Portable pump ___X___ Dedicated pump	Pump depth: 543'

PURGE MEASUREMENTS

DO mg/L

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~~
495.13	0840		START							
495.20	0853	2	16.66	882	147.0	7.84		1.97	80.2	7.78
495.18	0900	4	16.99	887	153.6	7.54		1.08	78.2	7.54
495.20	0909	6	17.11	1068	175.5	7.19		0.99	71.3	6.85
495.20	0917	8	17.20	1186	187.5	7.09		1.35	73.7	7.05
495.20	0925	10	17.14	1189	192.2	7.05		0.67	75.5	7.25
495.19	0930	11	17.25	1190	194.0	6.85		0.70	75.7	7.26
495.20	0934	12	17.27	1190	196.0	6.84		0.54	75.8	7.26
495.20	0939	13	17.14	1191	196.1	6.84		0.51	75.6	7.26
495.20	0944	14	17.19	1190	196.4	6.84		0.43	75.8	7.27
	0945		SAMPLING							

COC number(s): 61203 1

Sample number(s): 086843

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

80% = 492.67

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL-MW5U	Date: 10-23-08 10-24-08
Weather	
Method: X Portable pump ____ 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~~
489.94	0854		START	—	—	—	—	—	—	
495.19	0917	2	17.72	930	200.5	7.10		0.95	73.5	6.98
496.02	0920	3	18.21	932	196.4	7.12		0.89	73.6	6.92
496.82	0923	4	18.42	930	194.6	7.13		0.83	74.2	6.94
497.81	0926	5	18.56	928	192.3	7.14		0.87	74.3	6.93
498.63	0929	6	18.68	930	191.2	7.14		0.82	74.5	6.93
498.64	0929	well	DRY	—	—	—	—	—	—	—
491.41	0836		Start	—	—	—	—	—	—	—
495.88	0855	1	17.81	1054	181.7	6.98		0.85	66.5	6.28
496.88	0859	2	18.41	1049	180.4	6.99		0.89	58.8	5.50
	0900		SAMPLING	—	—	—	—	—	—	—

COC number(s): 612033

Sample number(s): 086848, 086849

~4.00 gals purged from tubing 0911

10-24-08 0851

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" ODl: 2 1.6 ml/ft X____ (length of tubing)) = _____ millileters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL-MW6L	Date: 12-17-08
Weather	
Method: _____ Portable pump ___X___ Dedicated pump	Pump depth: 543'

PURGE MEASUREMENTS

DO mg/L

Depth to Water (FT)	Time 24 hr	Vol. (L) ~~(gal)~~	Temp °C	Ec µmho	ORP MV	pH	Flow L gls	Turb NTU	DO %	~~Color and appearance~~
496.60	0800	/	START	—	—	—	—	—	—	—
496.61	0821	2	13.37	809	150.3	7.50		14.9	60.4	6.68
496.61	0837	4	14.01	820	158.7	7.50		14.1	63.1	6.87
496.61	0853	6	14.04	837	169.0	7.48		12.7	67.6	6.94
496.61	0908	8	14.87	1154	181.5	7.03		2.14	74.3	7.48
496.76	0923	10	15.06	1156	186.7	7.02		1.33	50.0	5.02
496.74	0930	11	15.00	1156	188.4	7.03		1.09	52.6	5.28
496.62	0938	12	15.07	1155	188.4	7.03		1.00	51.4	5.19
496.61	0946	13	15.09	1150	187.8	7.04		0.98	51.9	523
496.61	0953	14	15.05	1152	187.1	7.05		0.95	52.1	5.21
	0954	/	SAMPLING	—	—	—	—	—	—	—

COC number(s): 612034

Sample number(s): 086857

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) = _____ milliileters

3/8" OD: 9.7 ml/ft X____ (length of tubing) = _____ milliileters

1/2" OD!: 2 1.6 ml/ft X____ (length of tubing)) = _____ milliileters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name:	CWL	Project No.:	125778.10.11.01
Well I.D.:	CWL-MW6U	Date:	10-21-08 | 10/22/08
Weather	Clear & Cool		
Method:	X Portable pump	____ Dedicated pump	Pump depth: 498.6

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~~
490.23	0830	—	start							
495.88	0842	2	18.93	1019	212.5	7.00		0.85	58.8	5.44
497.57	0847	4	19.36	1020	207.4	7.00		0.96	57.2	5.25
497.70	0852	5	19.42	1021	205.7	7.01		0.91	55.1	5.16
498.60	0856	6	19.26	1022	204.6	7.01		0.89	55.8	5.13
498.60	0856	WELL	DRY	—	—	—	—	—	—	—
10/22 490.34	0934 ~~0838~~	/	START							
494.95	0947	1	14.53	1016	169.8	7.00		2.81	68.5	6.96
498.52	0951	2	1459	1017	159.7	7.00		2.62	69.4	6.96
	0952	/	sampling							

COC number(s): 612028
Sample number(s): 086837

Purge Volume Calculations

2 4.00 gal. purge prior to measurement
0837
10/22/08
0943

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) = _____ milliileters
3/8" OD: 9.7 ml/ft X____ (length of tubing) = _____ milliileters
1/2" ODl: 2 1.6 ml/ft X____ (length of tubing)) = _____ milliileters

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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: 0706	4.01	19.7	7.00	19.7	10.01	19.7
2. Time: 1021	4.00	20.2	6.99	20.2	10.01	20.2
3. Time: 0704	4.02	19.8	7.01	19.8	9.99	19.8
4. Time: 1008	4.00	20.2	6.99	20.2	10.00	20.2
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0704	1277	19.7	
2. Time: 1017	1277	20.2	
3. Time: 0656	1280	19.9	
4. Time: 1001	1279	20.2	

Comments:	
Calibration Done by: RL RL	Date: 10-16-08 10-30-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0702	200.1	19.8	
2. Time: 1018	200.4	20.1	
3. Time: 0700	200.0	19.9	
4. Time 1004	200.4	20.2	

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No. A5265				
1. Time 0804	.09	20.0	101	802
2. Time 0930	.10	19.9	102	801
3. Time 0801	.10	19.8	100	799
4. Time 0904	.09	19.9	101	798

Comments:

Calibration Done By: RL RL	Date: 10-16-08 10-30-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0700	82.1	7.27	24.60
2. Time: 1015	81.8	7.31	24.59
3. Time: 0655	81.6	7.52	24.53
4. Time: 1000	81.4	7.50	24.53

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge= NA

Calibration done by:	Date:
RL RL	10-16-08 10-30-08

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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	4.02	19.4	7.00	19.4	9.99	19.4
2. Time:						
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0658	1277	19.4	
2. Time:			
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 10-17-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0655	200.2	19.4	
2. Time:			
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	19.9	101	799
2. Time				
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 10-17-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0750	83.0 / 7.85	24.86
2. Time:		
3. Time:		
4. Time:		

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge=NA

Calibration done by:	Date:
	10-17-08

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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:	4.02	18.7	6.99	18.7	10.00	18.7
2. Time:	4.01	19.4	7.00	19.4	10.01	19.4
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time:	1277	18.7	
2. Time:	1279	19.4	
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 10-20-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0647	200.1	18.7	
2. Time: 1430	200.4	19.4	
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 0800	.10	19.8	100	797
2. Time 1351	.11	19.9	101	799
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 10-20-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0643	81.5	7.16	24.49
2. Time: 1427	81.7	7.21	24.45
3. Time:			
4. Time:			

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge= NA

Calibration done by: RL	Date: 10-20-08

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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: 0655	4.01	19.9	7.01	19.9	9.99	19.9
2. Time: 1030	4.02	20.2	7.00	20.2	10.00	20.2
3. Time: 0758	4.00	17.6	6.99	17.6	9.99	17.6
4. Time: 1111	4.01	18.3	6.98	18.3	10.02	18.3
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0651	1277	19.8	
2. Time: 1026	1279	20.2	
3. Time: 0752	1278	17.6	
4. Time: 1106	1276	18.3	

Comments:

Calibration Done by: RL RL	Date: 10-21-08 10-22-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0652	200.4	19.9	
2. Time: 1027	200.2	20.2	
3. Time: 0754	201.0	17.5	
4. Time 1107	200.2	18.3	

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No. A5265				
1. Time 0800	.09	19.9	101	799
2. Time 0906	.10	20.0	101	798
3. Time 0821	.08	19.7	100	797
4. Time 1014	.09	19.9	102	798

Comments:

Calibration Done By: RL RL	Date: 10-21-08 10-22-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0649	81.5	7.47	24.44
2. Time: 1024	81.3	7.44	24.46
3. Time: 0750	81.6	7.40	24.52
4. Time: 1104	81.5	7.42	24.51

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge=

Calibration done by: RL RL	Date: 10-21-08 10-22-08

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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: 0734	4.02	19.4	7.01	19.4	9.99	19.4
2. Time: 1007	4.03	19.7	7.00	19.7	10.00	19.7
3. Time: 0756	4.00	18.8	7.01	18.8	9.99	18.8
4. Time: 1012	4.00	19.2	7.00	19.2	9.98	19.2
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0730	1276	19.4	
2. Time: 1003	1277	19.7	
3. Time: 0751	1275	18.8	
4. Time: 1009	1276	19.20	

Comments:	
Calibration Done by: RL RL	Date: 10-23-08 10-24-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0731	200.1	19.4	
2. Time: 1004	200.4	19.7	
3. Time: 0752	200.2	18.8	
4. Time 1010	200.4	19.2	

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No. A5265				
1. Time 0804	.09	19.8	99.9	798
2. Time 0940	.09	19.9	100	799
3. Time 0820	.10	20.0	101	797
4. Time 0918	.11	20.1	100	798

Comments:	
Calibration Done By: RL RL	Date: 10-23-08 10-24-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0728	81.8 / 7.47	24.48
2. Time: 1000	81.8 / 7.46	24.48
3. Time: 0750	81.5 / 7.88	24.41
4. Time: 1007	81.3 / 7.80	24.41

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge=

Calibration done by: RL RL	Date: 10-23-08 10-24-08

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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	4.00	20.1	7.01	20.1	10.00	20.1
2. Time: 1115	4.02	21.1	7.00	21.0	9.99	21.1
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0655	1279	20.1	
2. Time: 1111	1281	21.0	
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 10-27-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0654	199.8	20.1	
2. Time: 1112	199.9	21.0	
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	100	802
2. Time 1039	.10	20.0	102	801
3. Time				
4. Time				

Comments:

Calibration Done By: RL	Date: 10-27-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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	7.35	24.81
2. Time: 1109	81.8	7.33	24.76
3. Time:			
4. Time:			

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge= NA

Calibration done by: RL	Date: 10-27-08

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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: 0730	3.99	18.7	7.00	18.7	9.99	18.7
2. Time: 1050	4.00	19.3	6.99	19.3	10.00	19.3
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0723	1275	18.7	
2. Time: 1045	1276	19.3	
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 10-28-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0724	200.1	18.7	
2. Time: 1047	200.4	19.3	
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 0810	.09	19.8	99.9	801
2. Time 0950	.10	19.9	101	803
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 10-28-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0720	82.2 / 7.66	24.67
2. Time: 1044	81.6 / 7.60	24.64
3. Time:		
4. Time:		

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge= NA

Calibration done by: RL	Date: 10-28-08

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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: 0716	4.01	20.1	7.01	20.1	9.99	20.1
2. Time:						
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0713	1279	20.1	
2. Time:			
3. Time:			
4. Time:			

Comments:	
Calibration Done by: TL	Date: 10-31-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0714	200.2	20.1	
2. Time:			
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 0805	.10	20.1	102	800
2. Time				
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 10-31-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0710	82.0	7.63	24.66
2. Time:			
3. Time:			
4. Time:			
Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration. DO Charge=			
Calibration done by: RL		Date: 10-31-08	

ATTACHMENT A-1

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			SNL/NM Project No.: 121515.02.01			
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: 0654	3.99	18.2	7.00	18.2	9.99	18.2
2. Time: 1109	4.01	18.6	6.99	18.6	10.00	18.6
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 08G 100421
Reference Value: 1278 @ 20C			Standard Lot #: 1710737
	Value	Temp	Expiration Date:12/ 2008
1. Time: 0651	1274	18.2	
2. Time: 1106	1276	18.6	
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 12-17-08

ATTACHMENT A-2

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL			Project No.: 121515.02.01
ORP Probe Model No.: YSI 6565			Serial No.: YSI 6565 03A
Reference value: 200.0			Standard Lot No. A6349
	Value	Temp	Expiration Date: 12/2008
1. Time: 0650	199.7	18.2	
2. Time: 1108	198.9	18.6	
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 0759	.09	19.9	100	802
2. Time 1006	.09	20.0	99.8	801
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 12-17-08

ATTACHMENT A-3

WATER-SAMPLE-COLLECTION FIELD EQUIPMENT CHECK LOG

SNL/NM Project Name: CWL	SNL/NM Project No.: 121515.02.01
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: 0648	81.1	7.64	24.25
2. Time: 1104	81.0	7.63	24.27
3. Time:			
4. Time:			

Comments: Nova Lynx Digital Barometer/ Altimeter S# 986870-T3 used in calibration.

DO Charge=

Calibration done by: RL	Date: 12-17-08

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	**Monitoring Well ID # CWL-BW4A**	**Date:** 10/17/08

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

Pump and Tubing Bundle ID #: Pump 1	**Water Level Indicator ID#:** 43908
Personnel Performing Decontamination: Print Name: Alfred Santillanes _____ Initial: Print Name: William Gibson WJG Initial:	**Personnel Performing Decontamination:** Print Name: Alfred Santillanes _____ Initial: Print Name William Gibson WJG Initial

Condition of Equipment

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

List of Decontamination Materials

Distilled or **Deionized** (circle one)	HNO_3
Source: Crystal Springs	**Grade:** Reagent
Lot Number: 09-24-08	**UN #:** 2031
	Manufacture: Fisher
	Lot Number: 002735

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	**Monitoring Well ID #** CWL-MW2BL	**Date:** 10/21/08

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

Pump and Tubing Bundle ID #: Pump 1	**Water Level Indicator ID#:** 43908
Personnel Performing Decontamination: Print Name: Alfred Santillanes Initial: Print Name: William Gibson Initial:	**Personnel Performing Decontamination:** Print Name: Alfred Santillanes Initial: Print Name William Gibson Initial

Condition of Equipment

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

List of Decontamination Materials

Distilled or **Deionized** (circle one) **Source:** Crystal Springs **Lot Number:** 09-24-08	HNO_3 **Grade:** Reagent **UN #:** 2031 **Manufacture:** Fisher **Lot Number:** 002735

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	**Monitoring Well ID # CWL-MW6U**	**Date:** 10/22/08

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

Pump and Tubing Bundle ID #: Pump 1	**Water Level Indicator ID#:** 43908
Personnel Performing Decontamination: Print Name: Alfred Santillanes _____ Initial: Print Name: William Gibson WJG Initial:	**Personnel Performing Decontamination:** Print Name: Alfred Santillanes _____ Initial: Print Name William Gibson WJG Initial

Condition of Equipment

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

List of Decontamination Materials

Distilled or **Deionized** (circle one) **Source:** Crystal Springs **Lot Number: 09-24-08** **EB-2; CoC 612030 taken prior to CWL-MW5U purge.**	**HNO_3** **Grade:** Reagent **UN #:** 2031 **Manufacture:** Fisher **Lot Number:** 002735

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	**Monitoring Well ID #** CWL-MW5U	**Date:** 10/24/08

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

Pump and Tubing Bundle ID #: Pump 1	**Water Level Indicator ID#:** 43908
Personnel Performing Decontamination: Print Name: Alfred Santillanes _____ Initial: Print Name: Robert Lynch RL Initial:	**Personnel Performing Decontamination:** Print Name: Alfred Santillanes _____ Initial: Print Name Robert Lynch RL Initial

Condition of Equipment

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

List of Decontamination Materials

Distilled or **Deionized** (circle one)	HNO_3
Source: Crystal Springs	**Grade:** Reagent
Lot Number: 09-24-08	**UN #:** 2031
	Manufacture: Fisher
	Lot Number: 002735

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	**Monitoring Well ID # CWL-MW4**	**Date:** 10/27/08

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

Pump and Tubing Bundle ID #: Pump 1	**Water Level Indicator ID#:** 43908
Personnel Performing Decontamination: Print Name: Alfred Santillanes _____ Initial: Print Name: William Gibson _____ Initial:	**Personnel Performing Decontamination:** Print Name: Alfred Santillanes _____ Initial: Print Name William Gibson _____ Initial

Condition of Equipment

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

List of Decontamination Materials

Distilled or **Deionized** (circle one) **Source:** Crystal Springs **Lot Number:** 09-24-08	HNO_3 **Grade:** Reagent **UN #:** 2031 **Manufacture:** Fisher **Lot Number:** 002735

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	**Monitoring Well ID #** CWL-MW3	**Date:** 10/31/08

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

Pump and Tubing Bundle ID #: Pump 1	**Water Level Indicator ID#:** 43908
Personnel Performing Decontamination: Print Name: Robert Lynch RL Initial: Print Name: William Gibson _____ Initial:	**Personnel Performing Decontamination:** Print Name: Robert Lynch RL Initial: Print Name William Gibson _____ Initial

Condition of Equipment

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

List of Decontamination Materials

Distilled or **Deionized** (circle one) **Source:** Crystal Springs **Lot Number:** 09-25-08	HNO_3 **Grade:** Reagent **UN #:** 2031 **Manufacture:** Fisher **Lot Number:** 002735

ER WASTE GENERATION LOG

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

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

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

Container I.D. # (site-date-sequence)	CWL-101608-QED		CWL-101608-PPE		CWL-101708	
Container Certification # (i.e.SNL/NM######)	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 (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Purge water		~~Decon Water~~ T1 Solid Waste		Decon Water	
Container Type / Vol (always use Certified containers)	CHPD	55gal.	Poly Tote	25 gal.	CHPD	55gal.
Volume of Waste	12 gals		20-Gals T1		35 gals	
Total Container Weight	12 lbs.		20 lbs.		350 lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 612032, 612033 / SMO#086846, 086848, 086849		COC# 612032, 612033 SMO#086846, 086848, 086849		COC# SMO#	
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 10/16/08 Full 11/05/08		Start 10/16/08 Full 11/05/08		Start 10/17/08 Full 10/17/08	
Date Moved to Waste Accumulation Area	11/05/08		11/05/08		10/17/08	
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments			PPE, Wipes from CWL-project, Tubing bundle from CWL-MW6L		Decon after CWL-BW3 Purge, well went dry before required purge obtained	

(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. # (site-date-sequence)	CWL-MW2BL-102008-01		CWL-MW2BL-102008-02		CWL-MW2BL-102008-03	
Container Certification # (i.e.SNL/NM######)	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 (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Purge water		Purge water		Purge water	
Container Type / Vol (always use Certified containers)	CHPD	55gal.	CHPD	55gal.	CHPD	55gal.
Volume of Waste	40 gals		40 gals		40 gals	
Total Container Weight	400 lbs.		400 lbs.		400lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) SMO Hazardous [ ]	COC# 612027 SMO# 086835		COC# 612027 SMO# 086835		COC# 612027 SMO# 086835	
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 10/20/08 Full 10/20/08		Start 10/20/08 Full 10/20/08		Start 10/20/08 Full 10/20/08	
Date Moved to Waste Accumulation Area	010/20/08		010/20/08		010/20/08	
Accumulation Area Name	9925		9925		9925	
ERwm Memo #						
Comments						

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

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

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. # (site-date-sequence)	CWL-MW2BL-102008-04		CWL-MW2BL-102008-05		CWL-MW2BL-102008-06	
Container Certification # (i.e.SNL/NM######)	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 (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Purge water		Purge water		Purge water	
Container Type / Vol (always use Certified containers)	CHPD	55gal.	CHPD	55gal.	CHPD	55gal.
Volume of Waste	40 gals		40 gals		26 gals	
Total Container Weight	400 lbs.		400 lbs.		260lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 612027 SMO# 086835		COC# 612027 SMO# 086835		COC# 612027 SMO# 086835	
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 10/20/08 Full 10/20/08		Start 10/20/08 Full 10/20/08		Start 10/20/08 Full 10/20/08	
Date Moved to Waste Accumulation Area	010/20/08		010/20/08		010/20/08	
Accumulation Area Name	9925		9925		9925	
ERwm Memo #						
Comments						

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

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

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. # (site-date-sequence)	CWL-102108		CWL-MW6U-102108		CWL-102208	
Container Certification # (i.e.SNL/NM######)	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 (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Decon water		Purge water		Decon water	
Container Type / Vol (always use Certified containers)	CHPD	55gal.	CHPD	55gal.	CHPD	55gal.
Volume of Waste	35 gals		16 gals		35 gals	
Total Container Weight	350 lbs.		160 lbs.		350lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 612027 SMO# 086835		COC# 612028 SMO# 086837		COC# 612028 SMO# 086837	
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 10/20/08 Full 10/20/08		Start 10/21/08 Full 10/22/08		Start 10/22/08 Full 10/22/08	
Date Moved to Waste Accumulation Area	010/20/08		010/22/08		010/22/08	
Accumulation Area Name	9925		9925		9925	
ERwm Memo #						
Comments	Decon pump after CWL-MW2BL purge, CoC 612027				EB-2; CoC 612030 taken prior to CWL-MW4 purge, Decon pump after CWL-MW6U purge, CoC 612028	

(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. # (site-date-sequence)	CWL-MW5U-102308		CWL-102408			
Container Certification # (i.e.SNL/NM######)	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 (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Purge water		Decon Water			
Container Type / Vol (always use Certified containers)	CHPD	55gal.	CHPD	55gal.		
Volume of Waste	20 gals		35 gals			
Total Container Weight	200 lbs.		350 lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) SMO Hazardous [ ]	COC# 612033 SMO# 086848		COC# 612033 SMO# 086848		COC# SMO#	
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 10/23/08 Full 10/24/08		Start 10/24/08 Full 10/24/08		Start Full	
Date Moved to Waste Accumulation Area	010/24/08		010/24/08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments	EB-2; CoC 612030 taken prior to CWL-MW5U purge		Decon after CWL-MW5U Purge, CoC 612033.			

(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: _____ To the best of my knowledge this information is correct & accurate.

Container I.D. # (site-date-sequence)	CWL-MW4-102708		CWL-102708		CWL-103108	
Container Certification # (i.e.SNL/NM######)	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	Non-Reg		Non-Reg		Non-Reg	
Waste Matrix (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Purge water		Decon Water		Decon Water	
Container Type / Vol (always use Certified containers)	CHPD	55gal.	CHPD	55gal.	CHPD	55gal.
Volume of Waste	30 gals		35 gals		35 gals	
Total Container Weight	300 lbs.		350 lbs.		350 lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 612029 SMO# 086839		COC# 612029 SMO# 086839		COC# 612029 SMO# 086839	
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 10/27/08 Full 10/27/08		Start 10/27/08 Full 10/27/08		Start 10/27/08 Full 10/27/08	
Date Moved to Waste Accumulation Area	010/27/08		010/27/08		010/27/08	
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments			Decon after CWL-MW4 Purge, CoC 612029		Decon after CWL-BW3 purge. No sample taken prior well dry 3 gal.	

(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:** 844-5130 **Task Leader:** Don Schofield

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

Container I.D. # (site-date-sequence)	CWL-MW6L-QED-121708		CWL-PPE-121708			
Container Certification # (i.e.SNL/NM######)	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	Haz-Waste		Haz-Waste			
Waste Matrix (i.e. Water, Cuttings, Soil, Samples, Metal, etc.)	Purge water		PPE and wipes			
Container Type / Vol (always use Certified containers)	CHPD	55gal.	Poly Bucket	5gal.		
Volume of Waste	4 gals					
Total Container Weight	35 lbs.		7 lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 612034 SMO# 086851		COC# 612034 SMO# 086851			
SMO Radioactive [ ]	NA		NA		NA	
ERCL Haz [ ] Rad [ ]	NA		NA		NA	
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA		NA	
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:		Survey: NA Swipes:	
Accumulation Date	Start 12/17/08 Full 12/17/08		Start 12/17/08 Full 12/17/08		Start Full	
Date Moved to Waste Accumulation Area	12-17-08		12-17-08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments			Contains PPE and wipes from CWL sampling.			

(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.

ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/16/08 10/30/08 Sheet ___of___

ER Site #(s): CWL -GWM Well=CWL-MW2BU 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: William Gibson SIGNATURE: William J Gibson
NAME PRINTED: William Gibson SIGNATURE: William J Gibson
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____

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

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ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/17/08 Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-BW4A 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: William Gibson SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

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

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ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/20/08 Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-MW2BL 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: Alfred Stula

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

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

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ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/21/08 10/22/08 Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-MW6U 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: _____
10/22 NAME PRINTED: ALFRED SANTILLANES SIGNATURE: _____
NAME PRINTED: William Gibson SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____

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

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ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/23/08 10/24/08 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 Rob Lynch

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 SANTILLANOS SIGNATURE: Alfred Santillanos
NAME PRINTED: William Gibson SIGNATURE: William Gibson
10/24/08 NAME PRINTED: William Gibson SIGNATURE: William Gibson
NAME PRINTED: ALFRED SANTILLANOS SIGNATURE: Alfred Santillanos
NAME PRINTED: _____ SIGNATURE: _____

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

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ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/27/08 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: ALFRED SANTILLAN SIGNATURE: _____
NAME PRINTED: William Gibson SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____

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

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ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/28/08 Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-MW5L 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: _____
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____

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

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ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 10/31/08 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: William Gibson SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

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

FOP 94-01
Rev. 1
Attachment

ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 12/17/08 Sheet ___ of ___

ER Site #(s): CWL -GWM Well=CWL-MW6L 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: _____ 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

Internal Lab

Batch No. N/A

SMO Use

AR/COC 612027

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:	10-22-08	Project/Task No. 125778.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185	500 BOTTLES ORDER	☑ 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				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086835-001	CWL-MW2BL	544.5	N/A	102008/1342	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086835-010	CWL-MW2BL	544.5	↓	102008/1343	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APP XI	
086836-001	CWL-TB4	NA	↓	102008/1342	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day (☑ 30 Day)

Return Samples By:

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

☐ Negotiated TAT QC inits:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

***Send report to:**

Tim Jackson/Org 4133/MS 1089/505-284-2547

Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes	Alfred Santillanes		Weston/4133/844-4013/228-0710
	Robert Lynch	Robert Lynch	RL	Weston/4133/844-4013/250-7090
	William J Gibson	William J Gibson	WJG	Weston/4133/844-4013/239-7367

1.Relinquished by	Robert Lynch	Org. 4133	Date 10/22/08	Time 1015	4.Relinquished by		Org.	Date	Time
1. Received by	Edie Kent	Org. 4133	Date 10/22/08	Time 1015	4. Received by		Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by		Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab | Page 1 of 1

Batch No. | SMO Use | AR/COC 612032

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:		Project/Task No. 125778.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-09	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086846-001	CWL-MW2BU	491		103008/0850	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086846-010	CWL-MW2BU	491		103008/0854	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APP IX	
086847-001	CWL-TB9	NA		103008/0850	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy):

Entered by: QC Inits.

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4133/MS 1089/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson		WJG	Weston/4133/844-4013/239-7367
	Gilbert Quintana		GQ	Shaw/4133/284-3307

1.Relinquished by		Org. 4133	Date 10/30/08	Time 1010	4.Relinquished by	Org.	Date Time
1. Received by		Org. 4134	Date 10/30/08	Time 1010	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

Page 1 of 1

Internal Lab

Batch No. N/A

SMO Use

AR/COC 612029

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:	10-27-08	Project/Task No.	125778.10.14.01
Project/Task Manager:	John Cochran	Carrier/Waybill No.	95351	SMO Authorization:	
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #:	PO 691436
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		SEE BOTTLE ORDER
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		
Location	Tech Area				
Building	Room				

☐ **Waste Characterization**
-Send preliminary/copy report to:

☐ **Released by COC No.:** _____
☑ **Validation Required**

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

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086839-001	CWL-MW4	499.5	N/A	102708/1026	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086839-010	CWL-MW4	499.5		102708/1027	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APP IX	
086840-001	CWL-TB6	NA		102708/1026	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA ☐ Yes ☑ No Ref. No.
Sample Disposal ☐ Return to Client ☑ Disposal by lab
Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day
☐ Negotiated TAT QC inits.

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

Special Instructions/QC Requirements
EDD ☑ Yes ☐ No
Level D Package ☐ Yes ☑ No

*Send report to:
Tim Jackson/Org 4133/MS 1089/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Return Samples By:

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	Alfred Santillanes			Weston/4133/844-4013/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/844-4013/239-7367

1.Relinquished by		Org. 4133	Date 10/27/08	Time 1045	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4133	Date 10/27/08	Time 1045	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

Page 1 of 1

Internal Lab

Batch No. N/A

SMO Use

AR/COC 612031

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:	10/28/08	Project/Task No. 125778.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	☐ Released by COC No.:_____
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☑ Validation Required
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		Bill To:Sandia National Labs (Accounts Payable)
Service Order No.	CF 025-09	Send Report to SMO:	Lorraine Herrera/505-844-3199		P.O. Box 5800 MS 0154
Location	Tech Area				Albuquerque, NM 87185-0154
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086843-001	CWL-MW5L	543	N/A	102808/0945	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086843-010	CWL-MW5L	543	↓	102808/0946	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APP IX	
086844-001	CWL-FB2	NA	↓	102808/0928	DIW	G	3x40ml	HCL	G	FB	VOC (SW846-8260) APP IX	
086845-001	CWL-TB8	NA	↓	102808/0945	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

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

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4133/MS 1089/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4133/844-4013/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson		WJG	Weston/4133/844-4013/239-7367

1.Relinquished by		Org.	4133	Date	10/28/08	Time	1015	4.Relinquished by	Org. Date Time
1. Received by	SMO	Org.	4133	Date	10/28/08	Time	1015	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

Page 1 of 1

Internal Lab

Batch No. N/A

SMO Use

AR/COC 612033

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:	10-27-08	Project/Task No. 125778.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.	95351	SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	SEE BOTTLE ORDER	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-09	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086848-001	CWL-MW5U	498.5	N/A	102408/0900	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086848-010	CWL-MW5U	498.5		102408/0901	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APP IX	
086849-001	CWL-MW5U	498.5		102408/0900	GW	G	3x40ml	HCL	G	DU	VOC (SW846-8260) APP IX	
086849-010	CWL-MW5U	498.5		102408/0901	GW	P	500ml	HNO3	G	DU	Metals+Fe (SW846-6020/7470) APP IX	
086850-001	CWL-TB10	NA		102408/0900	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA	☐ Yes ☑ No Ref. No.	Sample Tracking Smo Use	Special Instructions/QC Requirements
Sample Disposal	☐ Return to Client ☑ Disposal by lab	Date Entered(mm/dd/yy)	EDD ☑ Yes ☐ No
Turnaround Time	☐ 7 Day ☐ 15 Day ☑ 30 Day	Entered by:	Level D Package ☐ Yes ☑ No
Return Samples By:	☐ Negotiated TAT	QC inits	*Send report to: Tim Jackson/Org 4133/MS 1089/505-284-2547

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4133/844-4013/228-0710
	Robert Lynch			Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/844-4013/239-7367

*Please list as separate report.

1.Relinquished by		Org. 4133	Date 10/27/08	Time 1050	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4133	Date 10/27/08	Time 1050	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. SMO Use

AR/COC 612034

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:		Project/Task No. 125778.10.11.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-09	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable) P.O. Box 5800 MS 0154 Albuquerque, NM 87185-0154
Location	Tech Area				
Building	Room	**Reference LOV(available at SMO)**			

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086851-001	CWL-MW6L	549		121708/0955	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086851-010	CWL-MW6L	549		121708/0956	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APP IX	
086852-001	CWL-TB11	NA		121708/0955	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT QC inits.

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

***Send report to:**

Tim Jackson/Org 4133/MS 1089/505-284-2547

***Please list as separate report.**

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes		AS	Weston/4133/844-4013/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	~~William J Gibson~~			~~Weston/4133/844-4013/239-7367~~

1.Relinquished by		Org. 4133	Date 12-17-8	Time 1005	4.Relinquished by		Org.	Date	Time
1. Received by		Org. 4133	Date 12-17-8	Time 1005	4. Received by		Org.	Date	Time
2.Relinquished by		Org. 4133	Date 12-17-08	Time 1025	5.Relinquished by		Org.	Date	Time
2. Received by		Org. 4139	Date 12-17-08	Time 1025	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab | Page 1 of 1

Batch No. N/A | SMO Use | AR/COC 612028

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:	10-22-08	Project/Task No. 125778.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.		SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185	SUB BOTTLE ORDER	☑ 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				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086837-001	CWL-MW6U	498.6	N/A	102208/0952	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086837-010	CWL-MW6U	498.6	↓	102208/0953	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APP XI	
086838-001	CWL-TB5	NA	↓	102208/0952	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by: QC inits.

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4133/MS 1089/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes		AS	Weston/4133/844-4013/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson		WJG	Weston/4133/844-4013/239-7367

1.Relinquished by		Org. 4133	Date 10/22/08	Time 1020	4.Relinquished by		Org.	Date	Time
1. Received by		Org. 4133	Date 10/22/08	Time 1020	4. Received by		Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by		Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

Prior to start of CWL GWM

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 1

Internal Lab

Batch No. N/A

SMO Use

AR/COC 612024

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:	10/16/08	Project/Task No. 125778.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No		SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL	SEE BOTTLE ORDER	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-09	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086827-001	CWL-EB1	NA	N/A	10/16/08 1000	DIW	G	3x40ml	HCL	G	EB	VOC (SW846-8260) APP IX	
086827-010	CWL-EB1	NA	↓	10/16/08 1001	DIW	P	500ml	HNO3	G	EB	Metals+Fe (SW846-6020/7470) APP XI	
086828-001	CWL-TB1	NA	↓	10/16/08 1000	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Return Samples By: ☐ Negotiated TAT QC inits:

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4133/MS 1089/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4133/844-4013/228-0710
	Robert Lynch			Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/844-4013/239-7367

1.Relinquished by		Org. 4133	Date 10/16/08	Time 1025	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4133	Date 10/16/08	Time 1025	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

Prior to CWL-MW5 U

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 612030

Dept. No./Mail Stop:	6765/0719	Date Samples Shipped:	10-23-08	Project/Task No. 125778.10.11.01	☐ Waste Characterization
Project/Task Manager:	John Cochran	Carrier/Waybill No.	75287	SMO Authorization:	-Send preliminary/copy report to:
Project Name:	CWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	
Record Center Code:	ER/1267 074/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-09	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room				Albuquerque, NM 87185-0154

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086841-001	CWL-EB2	NA	NA	10/22/08 1100	DIW	G	3x40ml	HCL	G	EB	VOC (SW846-8260) APP IX	
086841-010	CWL-EB2	NA		10/22/08 1101	DIW	P	500ml	HNO3	G	EB	Metals+Fe (SW846-6020/7470) APP IX	
086842-001	CWL-TB7	NA		10/22/08 1100	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260) APP IX	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☐ 15 Day ☑ 30 Day

Return Samples By: ☐ Negotiated TAT QC Inits.

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☐ Yes ☑ No

*Send report to:

Tim Jackson/Org 4133/MS 1089/505-284-2547

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4133/844-4013/228-0710
	Robert Lynch			Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/844-4013/239-7367

1.Relinquished by		Org. 4133	Date 10/23/08	Time 1010	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4133	Date 10/23/08	Time 1010	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 November 2008 – January 2009

Sample Findings Summary

Site: CWL GWM **AR/COC:** 612024, 612027, 612028, 612030 **Data Type:** Organic & Metals

	VOC	78-83-1 (isobutyl alcohol)	127-18-4 (tetrachloroethylene)												
086827-001 CWL-EB1		UJ,I4,C3	1.0U,B												
086828-001 CWL-TB1		UJ,I4,C3	1.0U,B												
086835-001 CWL-MW2BL		UJ,I4,C3	1.0U,B												
086836-001 CWL-TB4		UJ,I4,C3	1.0U,B												
086837-001 CWL-MW6U		UJ,I4,C3	1.0U,B												
086838-001 CWL-TB5		UJ,I4,C3	1.0U,B												
086841-001 CWL-EB2		UJ,I4,C3	1.0U,B												
086842-001 CWL-TB7		UJ,I4,C3	1.0U,B												

Metals analyses met QC acceptance criteria. No data should be qualified.

Validated By:

Kevin A. Lambert

Kevin A. Lambert

Date: 12/02/08

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Memorandum

Date: December 2, 2008

To: File

From: Kevin Lambert

Subject: GC/MS Organic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612024, 612027, 612028, and 612030
SDG: 217751
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

Eight 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.

VOC:
The initial calibration response factor (RF) for isobutyl alcohol was <0.05 but ≥0.01 and the calibration verification percent difference was >20% but ≤40% with negative bias. All associated sample results were non-detects and will be **qualified "UJ, I4, C3."**

Tetrachloroethylene was detected in the method blank (MB) at a concentration > the method detection limit (MDL) but < the practical quantitation limit (PQL). All associated sample results were detects <5X the MB concentration and < the PQL and will be **qualified "1.0U, B"** 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.

VOC:
The calibration verification percent difference for acetone was >20% with a positive bias (see VOC Organic Worksheet). All associated sample results were non-detects and should not be qualified for the calibration infraction.

The calibration verification percent difference for 10 target analytes were >20% but ≤40% with negative bias (see VOC Organic Worksheet). 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.

VOC:
Bis(2-chloroisopropyl)ether was detected in the MB at a concentration > the MDL but < the PQL. All associated sample results were non-detects and will not be qualified

Tetrachloroethylene was detected in the trip blanks (TBs) at concentrations > the MDL but < the PQL. However, it should be noted that all associated sample results have already been qualified non-detect at the value of the PQL due to MB contamination and, thus will not be further qualified.

No other target analytes were detected in the blanks.

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 equipment blanks (EBs) were submitted on the AR/COC(s). It should be noted that the EBs are associated with SNL samples in other SDGs.

No other specific issues that affect data quality were identified.

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Memorandum

Date: December 2, 2008

To: File

From: Kevin Lambert

Subject: Inorganic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612024, 612027, 612028, and 612030
SDG: 217751
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. Data are evaluated using SNL/NM SMO AOP 00-03 Rev 2.

Summary

Four samples were prepared and analyzed with approved procedures using methods EPA 6020 (ICP-MS) and EPA 7470A (CVAA mercury). 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.

ICP-MS Instrument Tune

All instrument tune requirements were met.

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 follows.

~~2.~~ ICP-MS metals:

The calibration blank results for Sb were ≥ the method detection limit (MDL) but < the practical quantitation limit (PQL). All associated sample results were non-detects and will not be qualified.

No other target analytes were detected in the blanks.

ICP-MS Internal Standards

All internal standards met QC acceptance criteria.

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. The samples were not 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

Equipment blanks (EBs) were submitted on the AR/COC(s). It should be noted that the EBs are associated with SNL samples in other SDGs.

No other specific issues that affect data quality were identified.

Sample Findings Summary

Site: CWL GWM **AR/COC:** 612029, 612031, 612032, 612033 **Data Type:** Organic & Metals

	VOC	75-05-8 (acetonitrile)	107-12-0 (propionitrile)	107-02-8 (acrolein)	67-66-3 (chloroform)										
086839-001 CWL-MW4		UJ,I4	UJ,I4	UJ,I4,C3											
086840-001 CWL-TB6		UJ,I4	UJ,I4	UJ,I4,C3											
086848-001 CWL-MW5U		UJ,I4	UJ,I4	UJ,I4,C3											
086849-001 CWL-MW5U		UJ,I4	UJ,I4	UJ,I4,C3											
086850-001 CWL-TB10		UJ,I4	UJ,I4	UJ,I4,C3											
086843-001 CWL-MW5L		UJ,I4	UJ,I4	UJ,I4,C3	1.0U,B2										
086844-001 CWL-FB2		UJ,I4	UJ,I4	UJ,I4,C3											
086845-001 CWL-TB8		UJ,I4	UJ,I4	UJ,I4,C3											
086846-001 CWL-MW2BU		UJ,I4	UJ,I4	UJ,I4,C3											
086847-001 CWL-TB9		UJ,I4	UJ,I4	UJ,I4,C3											

Validated By:

Kevin A. Lambert

Kevin A. Lambert

Date: 01/20/09

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616 Maxine NE
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Phone: 505-299-5201
Fax: 505-299-6744
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Memorandum

Date: January 20, 2009

To: File

From: Kevin Lambert

Subject: GC/MS Organic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612029, 612031,612032, and 612033
SDG: 218294
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

Ten samples were prepared and analyzed with accepted procedures using method EPA 8260B (VOCs). It should be noted that amended data was reported for 2-hexanone and isobutyl alcohol due to poor initial calibration. The amended data was evaluated in accordance with the client's data validation procedure. Problems were identified with the data package that result in the qualification of data.

1. The initial calibration response factor (RF) for acetonitrile and propionitrile were <0.05 but ≥0.01. All associated sample results were non-detects and will be qualified "UJ, I4."

2. The initial calibration RF for acrolein was <0.05 but ≥0.01 and the calibration verification percent difference was >20% but ≤40% with negative bias. All associated sample results were non-detects and will be qualified "UJ, I4, C3."

3. Chloroform was detected in the field blank (FB) at a concentration > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated sample result was a detect <5X the FB concentration and < the PQL and will be qualified "1.0U, B2." 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 initial calibration RF for isobutyl alcohol was <0.01. All associated sample results were originally reported as non-detects with an MDL of 12.5ug/L and PQL of 50ug/L. However, due to poor instrument response for isobutyl alcohol, the non-detect sample results can only be verified at the PQL, which is at the level of the lowest calibration standard. The client requested that amended isobutyl alcohol data be reported as non-detects with both the MDL and PQL at 50ug/L. Therefore, the associated sample results will not be qualified.

The initial calibration for 2-hexanone was originally reported with a linear curve and did not meet QC acceptance criteria. The client requested that 2-hexanone be re-evaluated and amended data be reported using an average RF calibration curve. The percent relative standard deviation for 2-hexanone was >15% but ≤40%. All associated sample results were non-detects, and no other calibration infractions occurred for this analyte. Therefore, the associated sample results will not be qualified.

The calibration verification percent difference for 2-chloro-1,3-butadiene was >20% but ≤40% with negative bias (see VOC Organic Worksheet). All associated sample results were non-detects, and no other calibration infractions occurred for this analyte. 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.

In one or more of the blanks bromodichloromethane, carbon disulfide, dibromochloromethane, tetrachloroethylene, and 1,2,4-trichlorobenzene were detected at concentrations > the MDL but < the PQL. All associated sample results were non-detects and will not be qualified.

No other target analytes were detected in the blanks.

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

Trip blanks, an FB, and field duplicate pair were submitted on the AR/COC(s). There are no "required" review criteria for field duplicate analyses comparability; no data should be qualified as a result. It should be noted that an equipment blank was submitted in SDG# 217751 on AR/COC# 612030 and is associated with SNL samples in this SDG on AR/COC# 612033.

No other specific issues that affect data quality were identified.

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616 Maxine NE
Albuquerque, NM 87123
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Memorandum

Date: December 9, 2008

To: File

From: Kevin Lambert

Subject: Inorganic Data Review and Validation – SNL
Site: CWL GWM
AR/COC: 612029, 612031,612032, and 612033
SDG: 218294
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. Data are evaluated using SNL/NM SMO AOP 00-03 Rev 2.

Summary

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

1. ICP-MS Metals:
   As, Co, V, and Zn were detected in the method blank (MB) at concentrations ≥ the method detection limit (MDL) but < the practical quantitation limit (PQL). All As and V results were detects <5X the MB result and will be qualified "0.014U, B"and "0.019U, B" respectively at 5X the MB values. The Co results for samples 218294-005, -007, -010, and -014 were detects <5X the MB result and will be qualified "0.00057U, B" at 5X the MB value. The Zn results for samples -002 and -010 were detects <5X the MB result and will be qualified "0.016U, B" at 5X the MB value. All other associated sample results were non-detects or detects >5X the MB results and will not be qualified.

   Sb was detected in a calibration blank at concentrations ≥ the MDL but < the PQL. The Sb result for sample -005 was a detect <5X the calibration blank result and will be qualified "0.003U,B3" at 5X the calibration blank value. All other associated sample results were non-detects or detects >5X the calibration blank result and will not be qualified.

   Tl was detected in the MB and calibration blanks at concentrations > the MDL but < the PQL. The Tl result for sample -002 was a detect <5X the MB result and <5X the highest calibration blank result and will be qualified "0.0066U, B, B3" at 5X the calibration blank value (highest blank value). All other associated sample results were non-detects and will not be qualified.

   Fe was detected in the MB and equipment blank (EB) at concentrations > the MDL but < the PQL. The Fe result for sample -007 was a detect <5X the MB result and <5X the EB result and will be qualified "0.058U, B, B2" at 5X the EB value (highest blank value). All other associated sample results were detects >5X the MB/EB results and will not be qualified.

Cr was detected in the EB at a concentration > the MDL but < the PQL. The Cr results for samples -005 and -007 were detects <5X the EB result and will be qualified "0.013U, B2" at 5X the EB value.

2. CVAA mercury:
   Hg was detected in the calibration blank at negative concentrations 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.

ICP-MS Instrument Tune

All instrument tune requirements were met.

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.

ICP-MS Internal Standards

All internal standards met QC acceptance criteria.

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. The samples were not 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

A field duplicate pair was submitted on the AR/COC(s). There are no "required" review criteria for field duplicate analyses comparability; no data should be qualified as a result. It should be noted that an equipment blank was submitted in SDG# 217751 on AR/COC# 612030 and is associated with SNL samples in this SDG on AR/COC# 612033.

No other specific issues that affect data quality were identified.

Sample Findings Summary

Site: CWL GWM **AR/COC:** 612034 **Organic, Metals**

Sample ID	EPA8260B (VOCs):	78-83-1 (isobutyl alcohol)	75-05-8 (acetonitrile)	107-12-0 (propionitrile)	EPA6020 (ICP-MS):	7440-48-4 (Co)	7440-50-8 (Cu)	7440-02-0 (Ni)	EPA7470A (CVAA):
086851-001 CWL-MW6L		UJ,I4	UJ,I4	UJ,I4					All Acceptance criteria met. No sample data will be qualified.
086851-010 CWL-MW6L						J+,CK2	J+,CK2	J+,CK2	
086852-001 CWL-TB11		UJ,I4	UJ,I4	UJ,I4					

Validated By: David Schwartz **Date:** 01/21/09

Analytical Quality Associates, Inc.
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Albuquerque, NM 87123
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Email: minteer@aol.com

Memorandum

DATE: January 20, 2009

TO: File

FROM: David Schwent

SUBJECT: Organic GC/MS Data Review and Validation - SNL
Site: CWL GWM
AR/COC: 612034
SDG: 221452
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 response factor (RF) of isobutyl alcohol was <0.05 but ≥0.01. All associated sample results were non-detects (NDs) and will be qualified "UJ,I4."

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."

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

Holding Times/Preservation

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

Instrument Tune

All instrument tune requirements were met.

Calibration

All initial and continuing calibration QC acceptance criteria were met, except as noted above in the summary section and the following. The initial calibration verification (ICV) and/or continuing calibration

verification (CCV) percent differences (%Ds) of nine analytes were >20% with positive bias (see Data Validation Worksheets). However, all associated sample results were NDs and will not be qualified. The ICV and/or CCV %Ds of three analytes were >20% but <40% with negative bias (see Data Validation Worksheets). 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, except the following. The LCS percent recoveries (%Rs) of isobutyl alcohol and 4-methyl-2-pentanone were > QC acceptance criteria. However, all associated sample results were NDs and will not be qualified. 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) or field duplicates (FDs) were submitted on the AR/COC.

No other specific issues were identified that affect data quality.

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Memorandum

DATE: January 21, 2009

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL GWM
AR/COC: 612034
SDG: 221452
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:

ICS A: For sample 221452-002, the sample Ca concentration was > the associated ICS A Ca concentration and the ICS A result for Co was > the method detection limit (MDL). The associated Co result was a detect <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For sample 221452-002, the sample Ca concentration was > the associated ICS A Ca concentration and the ICS A result for Cu was > the MDL. The associated Cu result was a detect <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For sample 221452-002, the sample Ca concentration was > the associated ICS A Ca concentration and the ICS A result for Ni was > the MDL. The associated Ni result was a detect <50X the ICS A result and will be qualified "J+,CK2."

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

Holding Times/Preservation

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

ICP-MS Instrument Tune

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

Calibration

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

Reporting Limit Verification

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

Blanks

ICP-MS Analysis: No target analytes were detected in the blanks, except the following. Sb and Tl were detected in the initial calibration blank (ICB) and/or continuing calibration blank (CCB) at concentrations > the MDL but < the practical quantitation limit (PQL). However, all associated sample results were non-detects (NDs) and will not be qualified. Fe was detected in the method blank (MB) at a concentration > the MDL but < the PQL. However, the associated sample result was >5X the 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 and PS 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 detection limits were properly reported. The sample did not 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 sample 221452-002, the sample Ca concentration was > the associated ICS A Ca concentration and the ICS A result for Ba > the MDL. However, the associated sample result was a detect >50X the ICS A result and will not be qualified. For sample -002, the sample Ca concentration was > the associated ICS A Ca concentration and the ICS A results for Cd, Cr, Pb, and Zn were > the MDL. However, all associated sample results were NDs 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), field blanks (FBs), or field duplicates (FDs) were submitted on the AR/COC.

No other specific issues were identified that affect data quality.

Sandia National Laboratories

Environmental Restoration Project Consolidated Quarterly Report

Section III

Perchlorate Screening Quarterly Monitoring Report Fourth Quarter of the Calendar Year 2008

March 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 III:
Perchlorate Screening Quarterly Monitoring Report, Fourth Quarter of Calendar Year 2008 (October – December, 2008)

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). DOE/Sandia recently received approval from NMED to discontinue quarterly reporting of perchlorate data and proceed to semiannual reporting (NMED November 2008); therefore, no perchlorate screening results are presented in this Environmental Restoration Project (ER) Consolidated Quarterly Report.

Although no analytical results are reported in this quarterly report, groundwater monitoring for perchlorate was performed at MWL-BW2, MWL-MW7, MWL-MW8, and MWL-MW9 during this reporting period. Perchlorate screening monitoring well sample results from the fourth quarter of 2008 and the first quarter of 2009 will be presented in the June 2009 ER Consolidated Quarterly Report.