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Sandia National Laboratories, New Mexico (SNL/NM)

Environmental Restoration Project

A Department of Energy Environmental Cleanup Program

CONSOLIDATED
Quarterly Report

May-June-July

September 2008

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

September 2008

SANDIA NATIONAL LABORATORIES/NEW MEXICO (SNL/NM)

ENVIRONMENTAL RESTORATION PROJECT

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 Quarterly Report, reporting period: May-July 2008.

SECTION II

Chemical Waste Landfill Quarterly Closure Progress Report, reporting period: May-July 2008.

SECTION III

Perchlorate Screening Quarterly Report, reporting period: April-June 2008.

SECTION I: ENVIRONMENTAL RESTORATION 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 also included.

2.0 Work Completed in This Quarter (May through July 2008)

2.1 Mixed Waste Landfill (MWL)

- DOE/Sandia completed the MWL Soil-Vapor Sampling and Analysis. Field activities were conducted in April and May, 2008. Samples were collected at 20 locations in and near the landfill and analyzed for radon, tritium, volatile organic compounds, and methane. In general, results indicated that radon emissions have not changed since the 1997 sampling event. Tritium concentrations in the 2008 samples, taken inside the landfill boundaries, are higher than those in the 1995 samples, which were collected at landfill margins. VOC concentrations are lower than 1994 samples. There were six drums of waste generated as a result of this sampling effort. The waste consists of soil cuttings, personnel protective equipment, and debris. The waste has been characterized and is considered low-level radioactive waste and is in the process of being shipped off-site for disposal. The final report, dated August 26, 2008, was delivered to the New Mexico Environmental Department (NMED).

- On May 1, 2008, routine neutron moisture logging of the MWL vadose zone was conducted to obtain baseline data regarding moisture content profiles with depth beneath the landfill.

- In May and June, DOE/Sandia completed drilling activities at the MWL for the approved plugging and abandoning of three groundwater monitoring wells and the installation of three new groundwater monitoring wells. These activities began in April 2008 with the plugging of monitoring wells MWL-MW1, -MW2, and -MW3 in situ. The installation of the three new wells (MWL-MW7, -MW8, and -MW9) began in late April and continued into May, 2008. The three new wells were developed (by bailing and pumping) in May and June, 2008. A report summarizing the drilling activities is in progress (due date September 2008).

- In July, quarterly groundwater sampling took place at the four newly installed wells at MWL. Four groundwater monitoring wells (MWL-BW2 [installed in January 2008], -MW7, -MW8, and -MW9) were sampled for volatile organic constituents (VOCs), semivolatile organic constituents (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 second consecutive quarterly sampling for MWL-BW2 and the first quarterly sampling for MWL-MW7, -MW8, and -MW9. The results will be reported in the Groundwater Protection Program Annual Report (Spring 2009) and the MWL Annual Groundwater Sampling Report (Spring 2009).

MWL Documents submitted to NMED pending regulatory review and approval:

- Corrective Measure Implementation Plan (CMIP), submitted November 2005; CMIP Notice of Disapproval (NOD) Part 1 response, submitted December 15, 2006; CMIP NOD Part 2 response submitted January 19, 2007.

- Long-term Monitoring and Maintenance Plan (LTMMP) submitted September 2007; 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. 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 for final regulatory approval of CAC in March 2006, including 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 final regulatory approval of CAC in a permit modification request in January 2008. The Sandia/DOE public review and comment period ended on March 14, 2008; Sandia/DOE 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), the Tijeras Groundwater Investigation AOC, 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

- Quarterly sampling was completed in May. Results will be reported in the SNL Groundwater Protection Program (GWPP) Annual Groundwater Monitoring Report.

Burn Site Groundwater

- Quarterly sampling was performed in June. Results will be reported in the SNL GWPP Annual Groundwater Monitoring Report. Perchlorate results are reported in the quarterly Perchlorate Screening Quarterly Monitoring Report in Section III of this report.

Tijeras Arroyo Groundwater

- Groundwater sampling was performed in May. Results will be reported in the SNL GWPP Annual Groundwater Monitoring Report.

Mixed Waste Landfill Groundwater

- Groundwater sampling was performed in July. Results from the 2008 MWL sampling events will be reported in the next Mixed Waste Landfill Annual Groundwater Monitoring Report.

Chemical Waste Landfill Groundwater

- Groundwater sampling was performed between May and June. Sampling results are presented in the CWL Quarterly Progress Report in Section II of this report.

Groundwater Documents submitted to the NMED pending regulatory review and approval:

- Technical Area V (TA-V) Groundwater (GW) 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 (IMWP), submitted May 2005.
- Well Plug and Abandonment Plan, Decommissioning of Environmental Restoration Project Soil-Vapor Monitoring Wells, submitted December 2007.
- 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 (June 2008), including containment cell cover, storm water diversion structures, security fences, gates, and signs, and benchmarks. Approximately 40 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 July15, 2008.
    - Quarterly monitoring of the VZMS was conducted in June 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 May 13, 2008 and July 22, 2008.

CAMU Waste Management Activities

For this Quarter (May through July, 2008),

- Waste stored on site at the beginning of this period:
    - 122 gallons of leachate.
    - 1 lb PPE.
- Waste generated on-site during the period:
    - 162 gallons of leachate.
    - 4 gallons of rinsate.
    - 9.5 lbs PPE, paper wipes, metal/glass flow meter.
- Waste removed from site by the Hazardous Waste Management Facility:
    - 149 gallons of leachate on May 14, 2008.
    - 2 gallons of rinsate on May 14, 2008.
    - 5 lbs PPE, paper wipes, plastic drum pump on May 14, 2008.
    - 123 gallons of leachate on June 30, 2008.
    - 2 gallons of rinsate on June 30, 2008.
    - 5 lbs PPE, paper wipes, plastic drum pump on June 30, 2008.
- Waste remaining on site at the end of this period:
    - 12 gallons of leachate.

- 0.5 1bs PPE.

CAMU Regulatory Activities

- There were no regulatory activities during this quarter.

2.5 Suspected Solid Waste Management Unit

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

- The NMED was notified in March 2008 of a suspected solid waste management unit, the Cable Debris Site, at Sandia National Laboratories, New Mexico.

- The SWMU Assessment Report for the LTES Site 1, Cable Debris was submitted to NMED in May 2008.

- The Voluntary Corrective Action Plan for LTES Site 1, Cable Debris was submitted in May 2008.

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 DOE Quarterly reporting period of May through July 2008.

1.0 Introduction

All voluntary corrective measures (VCMs) activities for the CWL have been completed. The CWL 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 VC 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 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 Corrective Measures Study 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.

3.0 Water Monitoring Assessment

CWL semi-annual groundwater monitoring activities were performed between May 28 and June 17, 2008. The activities associated with the groundwater monitoring task are summarized in Appendix A.

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

DOE and Sandia have requested a hearing on the CWL post-closure care permit. NMED has organized negotiation meetings that include the public and DOE. The first meetings are scheduled in mid-August. The intent of the meetings is to resolve stakeholder comments on the post-closure care permit and eliminate the need for a hearing.

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

CHEMICAL WASTE LANDFILL
SEMI-ANNUAL GROUNDWATER MONITORING
ASSESSMENT REPORT
May - July 2008

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

September 2008

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ABBREVIATIONS AND ACRONYMS

BW	background well
CFR	Code of Federal Regulations
CWL	Chemical Waste Landfill
EB	equipment blank
EPA	U.S. Environmental Protection Agency
FB	field blank
FOP	Field Operating Procedure
FY08	Fiscal Year 2008
MCL	maximum contaminant level
MDL	method detection limit
µg/L	microgram per liter
mL	milliliter
MW	monitoring well
NMED	New Mexico Environment Department
PCB	polychlorinated biphenyls
pH	potential of hydrogen
PQL	practical quantitation limit
QC	quality control
RPD	relative percent difference
Sandia	Sandia Corporation
SC	specific conductance
SNL/NM	Sandia National Laboratories/New Mexico
SVOC	semi-volatile organic compound
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). The activities associated with the groundwater monitoring task are summarized as follows.

Sandia Corporation (Sandia) performed Fiscal Year 2008 (FY08) semi-annual groundwater sampling at the CWL, Sandia National Laboratories/New Mexico (SNL/NM) (Figure A-1) between May 28 and June 17, 2008. No sampling was conducted in July of the reporting period for this Quarterly Report. 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 (SVOC), chlorinated herbicides, polychlorinated biphenyls (PCB), total cyanide, sulfides, dissolved chromium, and total metals plus iron.
- Semi-annual frequency (twice a year) for Appendix IX VOC and Appendix IX metals

This report describes groundwater sampling activities and presents analytical results from the second FY08 semi-annual groundwater assessment monitoring period. In May and June 2008, samples were collected from background wells (BW) (CWL-BW3 and CWL-BW4A) and 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. Additional samples were collected from monitoring well CWL-MW6L and analyzed for semi-

SVOC, chlorinated herbicides, PCBs, total cyanide, sulfides, and dissolved chromium. All analytical results from the May and June 2008 sampling of all CWL monitoring wells are included in this report.

During May and June 2008, groundwater samples were not collected from CWL-MW1A or CWL-MW3A because these wells are dry and were partially filled with sediment during the Vapor Extraction (VE) Voluntary Corrective Measure (VCM) while being used as VE wells, and cannot be restored for the purpose of compliance groundwater monitoring.

Three of the monitoring wells (CWL-MW2B, CWL-MW5, and CWL-MW6) are multi-completion wells with two separate polyvinyl chloride and screen intervals. One is screened across the water table, and the other is screened at an interval approximately 30 feet below the water table. The wells screened across the water table are designated as CWL-MW2BU, CWL-MW5U, and CWL-MW6U to indicate the upper ("U") screened well completions. The wells screened below the first water-bearing zone are designated CWL-MW2BL, CWL-MW5L, and CWL-MW6L to indicate the lower ("L") screened well completions. Further discussion of the completion of these wells is presented in the CWL Groundwater Assessment Report (SNL/NM October 1995). The following sections provide descriptions of the field methods used and a discussion of the analytical and quality control (QC) results.

2.0 Field Methods and Measurements

The field measurements collected as part of semi-annual groundwater sampling activities are in conformance with the "Sampling and Analysis Plan for Groundwater Assessment Monitoring at the Chemical Waste Landfill," Appendix G of the CWL Closure Plan (SNL/NM December 1992). Groundwater monitoring is being performed according to Appendix G, Revision 4 of the Closure Plan (SNL/NM December 1992) and updated SNL/NM Environmental Restoration Project field operating procedures (FOP) (SNL/NM November 1995, September 1996, and February 1997).

2.1 Groundwater Elevation Determinations

Groundwater elevations at the CWL wells were determined using a Solinst® water level indicator prior to purging activities. Measurements were taken in accordance with FOP 95-02, *A Technical Procedure for the Measurement of Static Water Levels* (SNL/NM November 1995)

until three replicate measurements agreed to within 0.05 foot of each other. The portion of the well sounder in contact with the groundwater was decontaminated between measurements at different wells (SNL/NM February 1997). During May and June 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.

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-BW3, CWL-BW4A, 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 0.48 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. These samples were collected and analyzed prior to sampling CWL-MW4 and CWL-MW6U, and results are discussed in section 3.0 of this report.

3.0 Analytical Results

Groundwater samples collected for analysis of VOCs, SVOCs, chlorinated herbicides, polychlorinated biphenyls, total cyanide, sulfides, dissolved chromium, and metals were submitted to General Engineering Laboratories, Inc. in Charleston, South Carolina. Tables A-6 to A-10 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-11 to A-13 summarizes all analytes detected in samples collected from

CWL groundwater monitoring wells during the second FY08 semi-annual sampling event. All chemical analytical results are compared to EPA MCLs for drinking water supplies. Table A-14 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, SVOCs, chlorinated herbicides, or polychlorinated biphenyls were detected at concentrations exceeding the associated MCL. No VOCs were detected in any sample except for acetone, chloroform, toluene, and trichloroethene (TCE). Acetone was detected below the laboratory practical quantitation limit (PQL) in CWL-MW5U at a concentration of 2.02 micrograms per liter (μg/L). Chloroform detected below the PQL in CWL-MW2BL at a concentration of 0.271 μg/L. Toluene was detected below the MCL of 1,000 μg/L in samples from CWL-BW3, CWL-BW4A, CWL-MW4, and CWL-MW5U at concentrations ranging from below the PQL at 0.383 μg/L to 1.38 μg/L. TCE was detected below the MCL of 5.0 μg/L in the groundwater samples from CWL-BW3, CWL-BW4A, CWL-MW2BU, CWL-MW5L, and CWL-MW5U at concentrations of 0.719 μg/L, 0.374 μg/L, 2.39 μg/L, 0.629 μg/L, and 1.65 μg/L, respectively. TCE in CWL-BW3, CWL-BW4A, and CWL-MW5L were detected below the laboratory PQL. No SVOCs, chlorinated herbicides, or polychlorinated biphenyls were detected above associated laboratory MDLs in CWL-MW6L. Table A-11 summarizes the detected VOCs, SVOCs, chlorinated herbicides, and polychlorinated biphenyls.

No total metal parameters were detected above established regulatory limits in any groundwater sample. In general, chromium, nickel, and iron results from CWL-BW3, CWL-MW2BU, and CWL-MW4 groundwater samples correlate to increased field turbidity measurements. Table A-12 summarizes the total metal concentrations for all groundwater samples collected during the second FY08 semi-annual sampling event at the CWL.

Table A-13 presents dissolved chromium, total cyanide, and sulfide results from groundwater samples collected at CWL-MW6L. No parameters were detected above established regulatory limits from the groundwater samples.

Table A-14 summarizes detected parameters in two EB samples. The EB samples were analyzed for VOCs and metal parameters. Detected analytes included acetone, bromodichloromethane, dibromochloromethane, toluene, TCE, copper, chromium, iron, and vanadium. 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. Toluene, TCE, and vanadium were qualified as not detected in CWL-MW6U groundwater samples. Acetone and copper were qualified as not detected in CWL-MW4 samples.

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 total of two duplicate environmental samples were collected and analyzed for all parameters in order to determine the overall reproducibility of the sampling and analysis process. Duplicate samples were collected at CWL-MW4 and CWL-MW6U immediately after the original environmental samples in order to reduce variability caused by time and/or sampling mechanics.

Relative percent difference (RPD) calculations between duplicate samples were performed for all analytes. Table A-15 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, except selenium. The RPD for selenium was calculated at 24 and 21. RPD calculations for these parameters were estimated, since associated results were reported at concentration below effective practical quantitation limits.

4.1.2 Field Blank Samples

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

water into sample containers at the CWL-MW2BL and 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 either FB sample, except bromodichloromethane, bromoform, and dibromochloromethane. No corrective action was necessary, since these compounds were not detected in associated environmental samples.

4.1.3 Trip Blanks

TB samples are submitted whenever samples are collected for VOC analysis to assess whether contamination of the samples has occurred during shipment and storage. TB samples consist of laboratory reagent grade water with hydrochloric acid preservative contained in 40-mL VOC vials prepared by the analytical laboratory, which accompany the empty sample containers supplied by the laboratory. TBs were brought to the field and accompanied each sample shipment. A total of ten TBs were submitted with the samples discussed in this report. No VOCs were detected above laboratory MDLs in any TB sample, except for toluene. Toluene was detected in the TB associated with the groundwater sample from CWL-MW5U. Toluene was detected in the CWL-MW5U sample at a concentration less than five times the blank contamination, and qualified as not detected during data validation.

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 contaminants of concern; TCE and chromium. Data validation reports associated with the second FY08 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 wells are dry.
- SNL/NM replaced tubing on the CWL-MW6L dedicated sampling system, and collected samples for Appendix IX analyses.
- CWL-BW3, CWL-BW4A, 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-MW6 were sampled using dedicated sampling systems manufactured by QED Environmental Systems, Inc.
- GEL did not report results for silver and tin in original data packages. Silver and tin results were submitted in revised data packages, or re-logged and submitted in separate data packages. All data packages have been submitted to the SNL/NM Customer Funded Records Center.

5.0 Summary

In May and June 2008, samples were collected from background wells (CWL-BW3 and CWL-BW4A) and 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. Samples from CWL-MW6L were also submitted for (Appendix IX) SVOCs, chlorinated herbicides, polychlorinated biphenyls, total cyanide, sulfides, and dissolved chromium analyses. No analytes were detected at concentrations exceeding the associated EPA MCLs, from any CWL groundwater sample.

6.0 References

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Sandia National Laboratories/New Mexico (SNL/NM), July 2007, *Data Validation Procedure for Chemical and Radiochemical Data*, AOP 00-03, Revision 2, Sandia National Laboratories, Albuquerque, New Mexico.

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

FIGURES

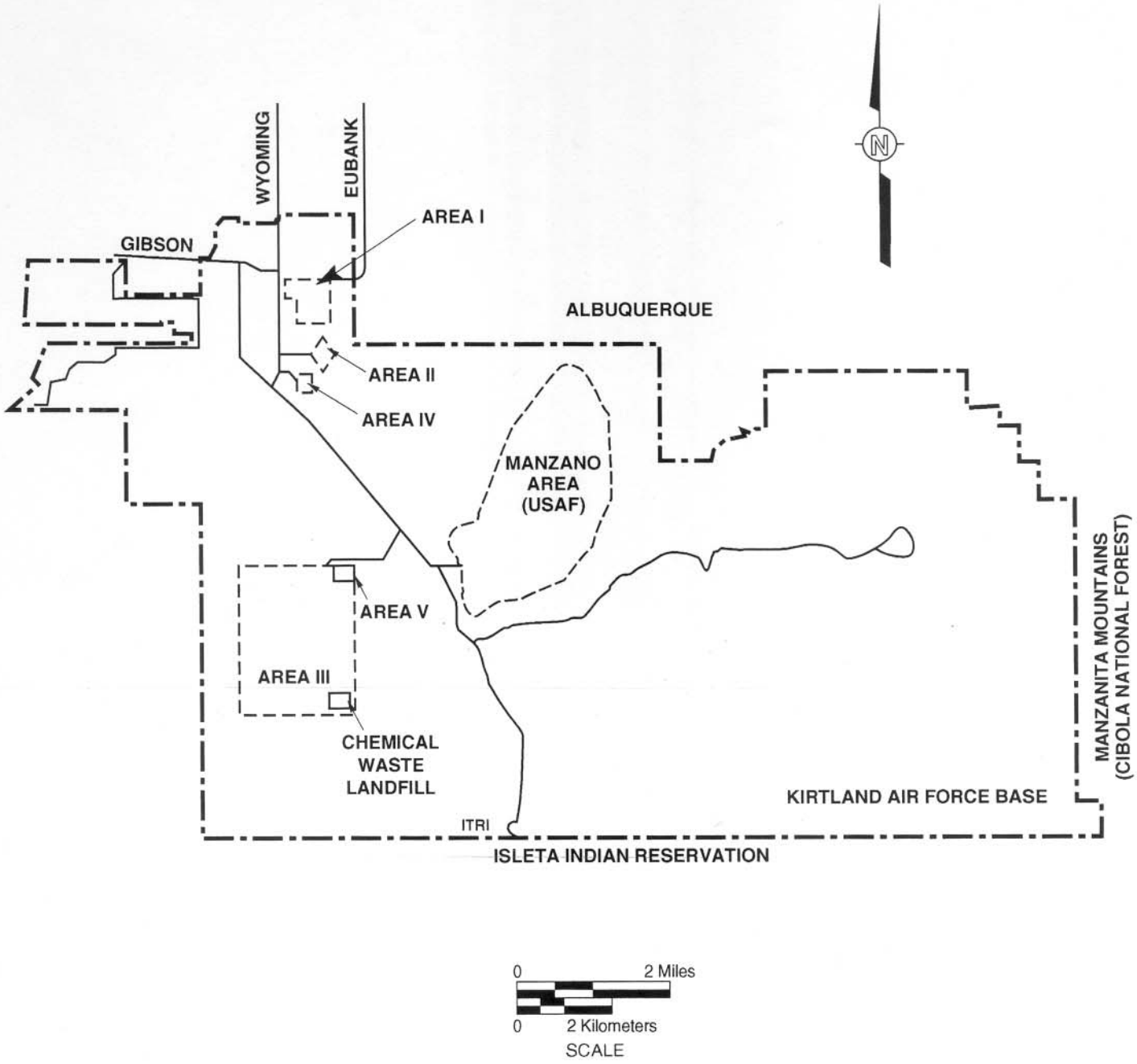

Figure A -1
Location of the Chemical Waste Landfill
Sandia National Laboratories/New Mexico

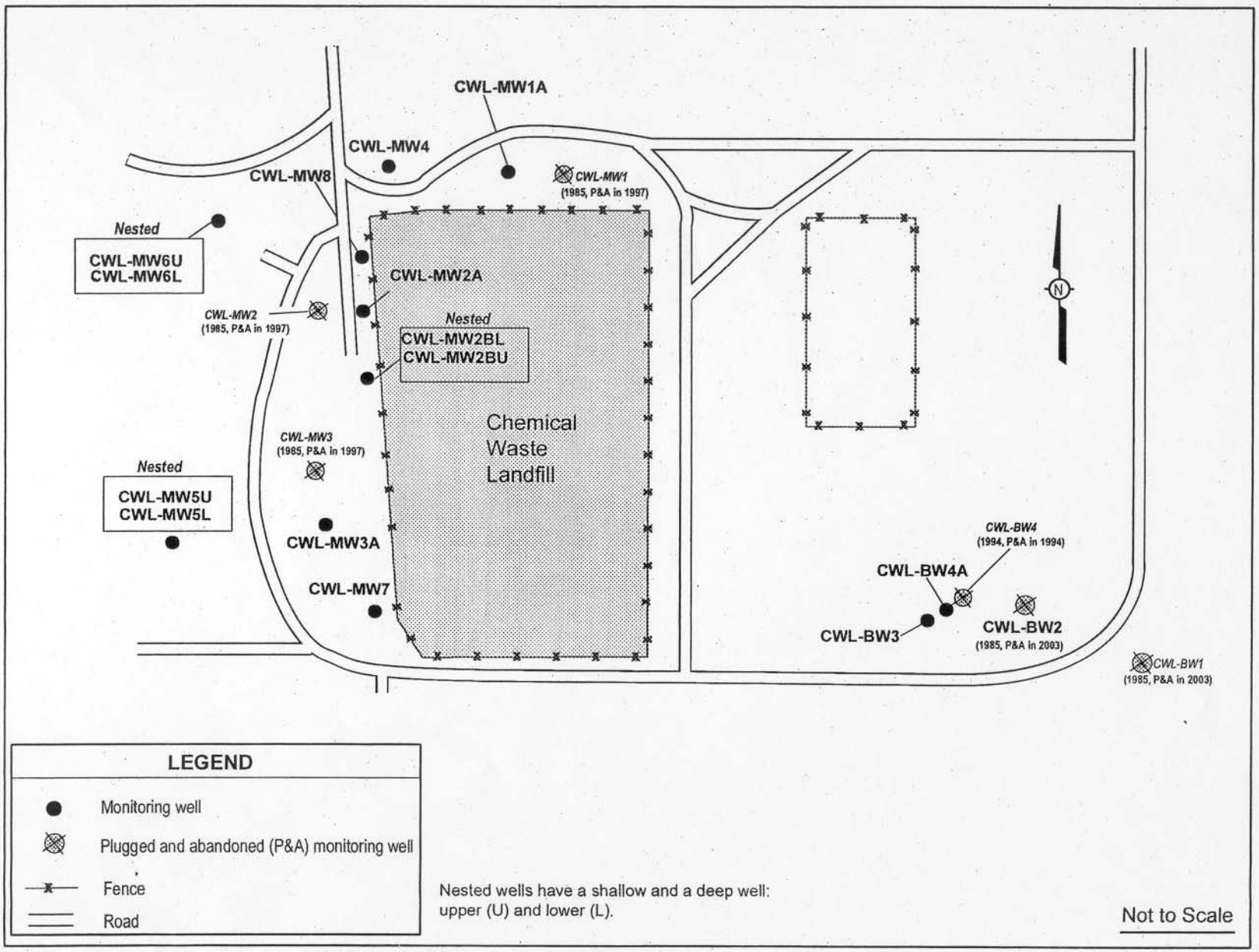

Figure A-2

Monitoring Well Locations at the Chemical Waste Landfill, Sandia National Laboratories/ New Mexico

TABLES

Table A-1

Monitoring Well Groundwater Elevations
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 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	503.05	4927.18	507.48	4921.05	6.13
CWL-BW4A	5431.36	503.76	4927.60	510.00	4919.24	8.36
CWL-MW1A	5421.49	NA	NA	495.00	4925.41	Dry
CWL-MW2BL	5419.39	497.83	4921.56	557.50	4859.87	61.69
CWL-MW2BU	5419.42	493.21	4926.21	501.00	4916.37	9.84
CWL-MW3A	5417.78	NA	NA	492.00	4924.39	Dry
CWL-MW4	5420.33	496.63	4923.70	503.00	4915.38	8.32
CWL-MW5L	5415.80	494.23	4921.57	558.00	4856.02	65.55
CWL-MW5U	5416.01	489.50	4926.51	502.00	4912.02	14.49
CWL-MW6L	5417.13	496.60	4920.53	564.00	4850.65	69.88
CWL-MW6U	5416.78	489.88	4926.90	502.00	4912.65	14.25

[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, April - June 2008

Well Number	Volume Purged[a] (gal)	Time Pumped (minutes)	Average Pump Rate (gal/minute)	Well Pumped to Dryness
CWL-BW3	6	37	0.16	Yes
CWL-BW4A	7	35	0.20	Yes
CWL-MW2BL	490	376	1.30	No
CWL-MW2BU	0.48	69	0.007	Yes
CWL-MW4	38	124	0.31	No
CWL-MW5L	3.70	54	0.07	No
CWL-MW5U	15	68	0.22	Yes
CWL-MW6L	3.70	118	0.03	No
CWL-MW6U	14	46	0.30	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.
U = Upper well completion zone.

Table A-3
Summary of Field Measurements
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

Well Number	Measurement Period[a]	pH	Temperature °C	SC (µmhos/cm)	Turbidity (NTU)
CWL-BW3	Purge measurements:	NM 7.22 7.74	NM 16.48 19.62	NM 835 847	NM 1.68 4.84
CWL-BW4A	Purge measurements:	6.63 7.03 7.05	20.14 22.03 23.32	1,029 1,045 1,059	1.54 2.05 1.52
CWL-MW2BL	Purge measurements:	6.81 6.81 6.81	23.27 23.29 23.31	1,130 1,130 1,129	0.55 0.58 0.56
CWL-MW2BU	Purge measurements:	7.96 8.39 8.17	17.20 19.39 18.87	768 848 815	> 800 29.1 31.0
CWL-MW4	Purge measurements:	6.95 6.95 6.95	22.46 23.08 22.64	986 986 986	4.14 4.19 4.15
CWL-MW5L	Purge measurements:	6.82 6.83 6.83	16.58 16.64 16.60	1,076 1,076 1,076	0.30 0.23 0.29
CWL-MW5U	Purge measurements:	6.94 6.92 6.92	22.06 22.33 22.63	958 952 949	0.86 0.19 0.20
CWL-MW6L	Purge measurements:	6.94 6.94 6.94	23.27 23.60 23.45	1,066 1,069 1,070	1.95 2.00 2.02
CWL-MW6U	Purge measurements:	6.96 6.95 6.95	20.47 20.87 20.99	932 932 932	0.31 0.37 0.31

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

BW = Background well.
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, April - June 2008

Sample Identification	ARCOC[a]	Sample Number	Date Sampled	Laboratory	Sample Type
CWL-BW3	611889	086247	06-09-08	GEL	Environmental Sample
CWL-BW4A	611890	086249	06-02-08	GEL	Environmental Sample
CWL-MW2BL	611891	086251	06-10-08	GEL	Environmental Sample
CWL-MW2BU	611892	086254	06-11-08	GEL	Environmental Sample
CWL-MW4	611894	086258	06-17-08	GEL	Environmental Sample
CWL-MW4	611894	086259	06-17-08	GEL	Duplicate Sample
CWL-MW5L	611895	086261	06-05-08	GEL	Environmental Sample
CWL-MW5U	611896	086264	06-16-08	GEL	Environmental Sample
CWL-MW6L	611897	086266	06-12-08	GEL	Environmental Sample
CWL-MW6U	611899	086270	06-04-08	GEL	Environmental Sample
CWL-MW6U	611899	086271	06-04-08	GEL	Duplicate Sample
CWL-EB1(prior to CWL-MW6U)	611893	086256	06-03-08	GEL	Equipment Blank
CWL-EB2(prior to CWL-MW4)	611898	086268	06-16-08	GEL	Equipment Blank
CWL-FB1	611891	086252	06-10-08	GEL	Field Blank
CWL-FB2	611895	086262	06-05-08	GEL	Field Blank
CWL-TB1	611889	086248	06-09-08	GEL	Trip Blank
CWL-TB2	611890	086250	06-02-08	GEL	Trip Blank
CWL-TB3	611891	086253	06-10-08	GEL	Trip Blank
CWL-TB4	611892	086255	06-11-08	GEL	Trip Blank
CWL-TB5	611893	086257	06-03-08	GEL	Trip Blank
CWL-TB6	611894	086260	06-17-08	GEL	Trip Blank
CWL-TB7	611895	086263	06-05-08	GEL	Trip Blank
CWL-TB8	611896	086265	06-16-08	GEL	Trip Blank
CWL-TB9	611897	086267	06-12-08	GEL	Trip Blank
CWL-TB11	611899	086272	06-04-08	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, April - June 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 Semi-Volatile Organic Compounds	8270C	Amber Glass; 3 x 1L; 4°C	7 days
Appendix IX Chlorinated Herbicides	8151A	Amber Glass; 3 x 1L; 4°C	7 days
Appendix IX Polychlorinated Biphenyls	8082	Amber Glass; 3 x 1L; 4°C	7 days
Total Cyanide	9012A	Polyethylene; 500 mL; NaOH, 4°C	28 days
Sulfides	9034	Nalgene; 1L; NaOH, 4°C	28 days
Appendix IX Total metals + iron	6020/7470A	Polyethylene; 500 mL; HNO_3, 4°C	28 days/180 days[b]
Dissolved Chromium	6020	Nalgene; 250 mL; HNO_3, 4°C	180 days

[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.
NaOH = Sodium Hydroxide.
HCl = Hydrochloric acid.
HNO_3 = Nitric acid.
L = Liter(s).
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, April - June 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	NE	Carbon tetrachloride	0.250	5.0
1,1,1-Trichloroethane	0.300	200	Chlorobenzene	0.250	100
1,1,2,2-Tetrachloroethane	0.250	NE	Chloroethane	0.500	NE
1,1,2-Trichloroethane	0.250	5.0	Chloroform	0.250	NE
1,1-Dichloroethane	0.300	NE	Chloromethane	0.500	NE
1,1-Dichloroethene	0.300	7.0	Chloroprene	0.300	NE
1,2,3-Trichloropropane	0.300	NE	Dibromochloromethane	0.250	NE
1,2,4-Trichlorobenzene	0.300	70	Dibromomethane	0.300	NE
1,2-Dibromo-3-chloropropane	0.500	0.2	Dichlorodifluoromethane	0.500	NE
1,2-Dibromoethane	0.250	0.05	Ethyl benzene	0.250	700
1,2-Dichloroethane	0.250	5.0	Ethyl cyanide	1.50	NE
1,2-Dichloropropane	0.250	5.0	Ethyl methacrylate	1.00	NE
2-Butanone	1.25	NE	Iodomethane	1.25	NE
2-Hexanone	1.25	NE	Isobutanol	12.5	NE
4-methyl-, 2-Pentanone	1.25	NE	Methacrylonitrile	1.00	NE
Acetone	1.25 - 5.00	NE	Methyl methacrylate	1.00	NE
Acetonitrile	6.25	NE	Methylene chloride	2.00	5.0
Acrolein	3.00	NE	Pentachloroethane	1.00	NE
Acrylonitrile	1.00	NE	Styrene	0.250	100
Allyl chloride	3.70	NE	Tetrachloroethene	0.250	5.0
Benzene	0.300	5.0	Toluene	0.250	1,000
Bromodichloromethane	0.250	NE	Trichloroethene	0.250	5.0
Bromoform	0.250	NE	Trichlorofluoromethane	0.310	NE
Bromomethane	0.500	NE	Vinyl acetate	1.50	NE
Carbon disulfide	1.25	NE	Vinyl chloride	0.500	2.0

Refer to footnotes at end of table.

Table A-6 *(Concluded)*

Chemical Parameters, MDL/MCL for Volatile Organic Compounds Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 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	10,000	trans-1,2-Dichloroethene	0.300	100
Bis(2-Chloroisopropyl)ether	1.50	NE	trans-1,3-Dichloropropene	0.250	NE
cis-1,3-Dichloropropene	0.250	NE	trans-1,4-Dichloro-2-butene	1.00	NE

[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 Parameter, MDL/MCL for Semi-Volatile Organic Compounds Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

Test Method 8270C[a] (Appendix IX List)[b]	MDL (µg/L)	MCL (µg/L)	Test Method 8270C[a] (Appendix IX List)[b]	MDL (µg/L)	MCL (µg/L)
alpha-alpha Dimethylphenethylamine	4.21	NE	2-Nitroaniline	2.11	NE
1,2,4,5-Tetrachlorobenzene	2.11	NE	2-Nitrophenol	2.11	NE
1,2,4-Trichlorobenzene	2.11	70	3,3'-Dichlorobenzidine	1.05	NE
1,2-Dichlorobenzene	2.11	600	3,3'-Dimethylbenzidine	2.11	NE
1,2-Diphenylhydrazine	2.11	NE	3-Methylcholanthrene	2.11	NE
1,3,5-Trinitrobenzene	2.11	NE	3-Nitroaniline	2.11	NE
1,3-Dichlorobenzene	2.11	NE	3-benzodioxole, 5-(2-Propenyl)-1	2.11	NE
1,3-Dinitrobenzene	2.11	NE	4-Aminobiphenyl	3.16	NE
1,4-Dichlorobenzene	2.11	75	4-Bromophenyl phenyl ether	2.11	NE
1,4-Dioxane	1.05	NE	4-Chloro-3-methylphenol	2.11	NE
1,4-Naphthoquinone	2.11	NE	4-Chlorobenzenamine	2.11	NE
1-Methylnaphthalene	0.316	NE	4-Chlorophenyl phenyl ether	2.11	NE
1-Naphthylamine	2.11	NE	4-Dimethylaminoazobenzene	2.11	NE
2,3,4,6-Tetrachlorophenol	2.11	NE	4-Nitroaniline	3.16	NE
2,4,5-Trichlorophenol	1.05	NE	4-Nitrophenol	2.11	NE
2,4,6-Trichlorophenol	2.11	NE	4-Nitroquinoline-1-oxide	3.16	NE
2,4-Dichlorophenol	2.11	NE	5-Nitro-o-toluidine	2.11	NE
2,4-Dimethylphenol	2.11	NE	7,12-Dimethylbenz(a)anthracene	2.11	NE
2,4-Dinitrophenol	10.5	NE	Acenaphthene	0.326	NE
2,4-Dinitrotoluene	2.11	NE	Acenaphthylene	0.211	NE
2,6-Dichlorophenol	2.11	NE	Acetophenone	2.11	NE
2,6-Dinitrotoluene	2.11	NE	Aniline	2.63	NE
2-Acetylaminofluorene	2.11	NE	Anthracene	0.211	NE
2-Chloronaphthalene	0.368	NE	Aramite	3.16	NE
2-Chlorophenol	2.11	NE	Benzidine	2.11	NE
2-Methylnaphthalene	0.316	NE	Benzo(a)anthracene	0.211	NE
2-Methylpyridine	2.11	NE	Benzo(a)pyrene	0.211	0.2
2-Naphthalenamine	2.11	NE	Benzo(b)fluoranthene	0.211	NE

Refer to footnotes at end of table.

Table A-7 *(Continued)*

Chemical Parameter, MDL/MCL for Semi-Volatile Organic Compounds Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill, April - June 2008

Test Method 8270C[a] (Appendix IX List)[b]	MDL (µg/L)	MCL (µg/L)	Test Method 8270C[a] (Appendix IX List)[b]	MDL (µg/L)	MCL (µg/L)
Benzo(ghi)perylene	0.211	NE	Hexachloroethane	2.11	NE
Benzo(k)fluoranthene	0.211	NE	Hexachlorophene	211	NE
Benzoic acid	6.32	NE	Hexachloropropene	2.11	NE
Benzyl alcohol	2.11	NE	Indeno(1,2,3-c,d)pyrene	0.211	NE
Butylbenzyl phthalate	2.11	NE	Isodrin	2.11	NE
Carbazole	0.211	NE	Isophorone	2.11	NE
Chlorobenzilate	2.11	NE	Isosafrole	2.11	NE
Chrysene	0.211	NE	Kepone	2.11	NE
Di-n-butyl phthalate	2.11	NE	Methapyrilene	2.11	NE
Di-n-octyl phthalate	3.16	NE	Methoxychlor	2.11	40
Diallate	2.11	NE	Methyl methacrylate	2.11	NE
Dibenz[a,h]anthracene	0.211	NE	Methyl methanesulfonate	2.11	NE
Dibenzofuran	2.11	NE	Methyl parathion	2.11	NE
Diethylphthalate	2.11	NE	Naphthalene	0.316	NE
Dimethoate	2.11	NE	Nitro-benzene	3.16	NE
Dimethylphthalate	2.11	NE	O,O,O-Triethylphosphorothioate	2.11	NE
Dinitro-o-cresol	3.16	NE	Parathion	3.16	NE
Dinoseb	2.11	7.0	Pentachlorobenzene	2.11	NE
Diphenyl amine	3.16	NE	Pentachloroethane	2.11	NE
Disulfoton	2.11	NE	Pentachloronitrobenzene	2.11	NE
Ethyl methacrylate	2.11	NE	Pentachlorophenol	2.11	1.0
Ethyl methanesulfonate	2.11	NE	Phenacetin	2.11	NE
Famphur	2.11	NE	Phenanthrene	0.211	NE
Fluoranthene	0.211	NE	Phenol	1.05	NE
Fluorene	0.211	NE	Phorate	2.11	NE
Hexachlorobenzene	2.11	1.0	Pronamide	2.11	NE
Hexachlorobutadiene	2.11	NE	Pyrene	0.316	NE
Hexachlorocyclopentadiene	2.11	50	Pyridine	1.05	NE

Refer to footnotes at end of table.

Table A-7 *(Concluded)*

Chemical Parameter, MDL/MCL for Semi-Volatile Organic Compounds Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

Test Method 8270C[a] (Appendix IX List)[b]	MDL (µg/L)	MCL (µg/L)	Test Method 8270C[a] (Appendix IX List)[b]	MDL (µg/L)	MCL (µg/L)
Sulfotepp	2.11	NE	n-Nitrosodimethylamine	2.11	NE
Thionazin	2.11	NE	n-Nitrosodipropylamine	2.11	NE
Tributylphosphate	2.11	NE	n-Nitrosomethylethylamine	2.11	NE
bis(2-Chloroethoxy)methane	3.16	NE	n-Nitrosomorpholine	2.11	NE
bis(2-Chloroethyl)ether	2.11	NE	n-Nitrosopiperidine	2.11	NE
bis(2-Ethylhexyl)phthalate	2.11	6.0	n-Nitrosopyrrolidine	2.11	NE
bis-Chloroisopropyl ether	2.11	NE	o-Cresol	2.11	NE
m,p-Cresol	3.16	NE	o-Toluidine	2.11	NE
n-Nitroso-di-n-butylamine	2.11	NE	para-Phenylenediamine	2.11	NE
n-Nitrosodiethylamine	2.11	NE			

[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-8

Chemical Parameters, MDL/MCL for Chlorinated Herbicides and Polychlorinated Biphenyls Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

Appendix IX List[a]	Test Method[b]	MDL (µg/L)	MCL (µg/L)
2,4,5-T	8151A	0.0922	NE
2,4,5-TP	8151A	0.0922	50
2,4-D	8151A	0.0922	70
Aroclor 1016	8082	0.0351	0.5
Aroclor 1221	8082	0.0351	0.5
Aroclor 1232	8082	0.0351	0.5
Aroclor 1242	8082	0.0351	0.5
Aroclor 1248	8082	0.0351	0.5
Aroclor 1254	8082	0.0351	0.5
Aroclor 1260	8082	0.0351	0.5

[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.

[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.

µg/L = Microgram(s) per liter.

NE = Not established.

Table A-9

Chemical Parameters, MDL/MCL for Metal Parameters Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 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	0.0025	0.1
Cobalt	6020	0.0001	NE
Copper	6020	0.0003	NE
Iron	6020	0.010	NE
Lead	6020	0.0005	NE
Mercury	7470A	0.00003	0.002
Nickel	6020	0.0005 – 0.001	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-10

Chemical Parameter, MDL/MCL for Total Cyanide and Sulfides Analyzed
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

Parameter List	Test Method[a]	MDL (mg/L)	MCL (mg/L)
Total Cyanide	9012A	0.0015	0.2
Sulfides	9034	0.670	NE

[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

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 measured with 99% confidence that the analyte is greater than zero.

mg/L = Milligram(s) per liter.

Table A-11

Summary of Detected Volatile and Semi-Volatile Organic Compounds, Chlorinated Herbicides, and Polychlorinated Biphenyls
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

	ARCOC No.:		611889	611890	611891	611892	611894	611894
	Sample No.:		086247	086249	086251	086254	086258	086259
	Well No.:		CWL-BW3	CWL-BW4A	CWL-MW2BL	CWL-MW2BU	CWL-MW4	CWL-MW4
	Sample Type:		Environmental	Environmental	Environmental	Environmental	Environmental	Duplicate
	Sample Method:		Bennett Pump	Bennett Pump	Bennett Pump	QED Pump	Bennett Pump	Bennett Pump
	Laboratory:		GEL	GEL	GEL	GEL	GEL	GEL
	Date Sampled:		06-09-08	06-02-08	06-10-08	06-11-08	06-17-08	06-17-08
Parameter	**Method**	**MCL**	**All results in µg/L**					
Acetone	8260	NE	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)
Chloroform	8260	NE	ND (0.250)	ND (0.250)	0.271 (1.00) J	ND (0.250)	ND (0.250)	ND (0.250)
Toluene	8260	1,000	0.666 (1.00) J	1.38	ND (0.250)	ND (0.250)	0.383 (1.00) J	0.379 (1.00) J
Trichloroethene	8260	5	0.719 (1.00) J	0.374 (1.00) J	ND (0.250)	2.39	ND (0.250)	ND (0.250)

Table A-11 *(Concluded)*

Summary of Detected Volatile and Semi-Volatile Organic Compounds, Chlorinated Herbicides, and Polychlorinated Biphenyls
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

			ARCOC No.:	611895	611896	611897	611899	611899
			Sample No.:	086261	086264	086266	086270	086271
			Well No.:	CWL-MW5L	CWL-MW5U	CWL-MW6L	CWL-MW6U	CWL-MW6U
			Sample Type:	Environmental	Environmental	Environmental	Environmental	Duplicate
			Sample Method:	QED Pump	Bennett Pump	QED Pump	Bennett Pump	Bennett Pump
			Laboratory:	GEL	GEL	GEL	GEL	GEL
			Date Sampled:	06-05-08	06-16-08	06-12-08	06-04-08	06-04-08
Parameter	**Method**	**MCL**		**All results in µg/L**				
Acetone	8260	NE		ND (5.00)	2.02 (5.00) J	ND (5.00)	ND (5.00)	ND (1.25)
Chloroform	8260	NE		ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)
Toluene	8260	1,000		ND (0.250)	0.645 (1.00) J	ND (0.250)	ND (1.00)	ND (1.00)
Trichloroethene	8260	5		0.629 (1.00) J	1.65	ND (0.250)	ND (1.00)	ND (1.00)

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.
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-12

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

		ARCOC No.:	611889	611890	611891	611892	611894	611894
		Sample No.:	086247	086249	086251	086254	086258	086259
		Well No.:	CWL-BW3	CWL-BW4A	CWL-MW2BL	CWL-MW2BU	CWL-MW4	CWL-MW4
		Sample Type:	Environmental	Environmental	Environmental	Environmental	Environmental	Duplicate
		Sample Method:	Bennett Pump	Bennett Pump	Bennett Pump	QED Pump	Bennett Pump	Bennett Pump
		Laboratory:	GEL	GEL	GEL	GEL	GEL	GEL
		Date Sampled:	06-09-08	06-02-08	06-10-08	06-11-08	06-17-08	06-17-08
Parameter	**Method**	**MCL**	**All results in mg/L**					
Antimony	6020	0.006	ND (0.0005)	ND (0.004)	ND (0.0005)	ND (0.0044)	ND (0.0005)	ND (0.0005)
Arsenic	6020	0.01	ND (0.0015)	ND (0.0015)	ND (0.0015)	ND (0.0015)	ND (0.013)	ND (0.013)
Barium	6020	2.0	0.0481	0.0543	0.0559	0.0776	0.0595	0.0605
Beryllium	6020	0.004	ND (0.0001)	ND (0.0001)	ND (0.0001)	0.000171 (0.0005) J	ND (0.0001)	ND (0.0001)
Cadmium	6020	0.005	0.000928 (0.001) J	0.000373 (0.001) J, J+	ND (0.00011)	ND (0.00011)	0.000146 (0.001) J, J+	0.000143 (0.001) J, J+
Chromium	6020	0.1	0.0131	ND (0.0025)	ND (0.0025)	0.0178	ND (0.023)	ND (0.023)
Cobalt	6020	NE	ND (0.00055)	0.000665 (0.001) J, J+	0.00017 (0.001) J	0.000634 (0.001) J	0.00263 J+	0.00271 J+
Copper	6020	NE	0.00175	0.00206 J+	0.0016	0.00381	0.00151 J+	ND (0.0015)
Iron	6020	NE	0.565	1.06	0.358	1.79	0.860	0.815
Lead	6020	NE	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.00296	ND (0.0005)	ND (0.0005)
Mercury	7470A	0.002	ND (0.00003) UJ	ND (0.00003) UJ	ND (0.00003) UJ	ND (0.00003) UJ	ND (0.00003) UJ	ND (0.00003) UJ
Nickel	6020	NE	0.0445	0.00398 J+	0.00185 (0.002) J	0.129	0.221	0.211
Selenium	6020	0.05	0.00153 (0.005) J	0.00112 (0.005) J, J-	0.0013 (0.005) J	0.00173 (0.005) J	0.00178 (0.005) J	0.0014 (0.005) J
Silver	6020	NE	ND (0.0002)	ND (0.0002)	ND (0.0002)	0.00136	ND (0.0002)	ND (0.0002)
Thallium	6020	0.002	0.000331 (0.001) J	ND (0.0017)	0.000502 (0.001) J	ND (0.0003)	0.000482 (0.001) J	ND (0.0003)
Tin	6020	NE	ND (0.001)	ND (0.001)	ND (0.001)	0.00179 (0.005) J	ND (0.001)	ND (0.001)
Vanadium	6020	NE	0.0038 (0.010) J	ND (0.003)	ND (0.003)	0.00874 (0.010) J	ND (0.003)	ND (0.003)
Zinc	6020	NE	0.00954 (0.010) J	0.0145 J+	ND (0.0026)	0.0284	0.00295 (0.010) J, J+	0.00302 (0.010) J, J+

Refer to footnotes at end of table.

Table A-12 *(Continued)*

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

		ARCOC No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled:	611895 086261 CWL-MW5L Environmental QED Pump GEL 06-05-08	611896 086264 CWL-MW5U Environmental Bennett Pump GEL 06-16-08	611897 086266 CWL-MW6L Environmental QED Pump GEL 06-12-08	611899 086270 CWL-MW6U Environmental Bennett Pump GEL 06-04-08	611899 086271 CWL-MW6U Duplicate Bennett Pump GEL 06-04-08
Parameter	**Method**	**MCL**	**All results in mg/L**				
Antimony	6020	0.006	ND (0.0005)	ND (0.011)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Arsenic	6020	0.01	ND (0.0015)	ND (0.017)	0.00156 (0.005) J	ND (0.0015)	ND (0.0015)
Barium	6020	2.0	0.0594	0.0745	0.0947	0.0659	0.0693
Beryllium	6020	0.004	ND (0.0001)	ND (0.0001)	0.000219 (0.0005) J	ND (0.0001)	ND (0.0001)
Cadmium	6020	0.005	ND (0.00011)	0.000749 (0.001) J, J+	0.000229 (0.001) J	ND (0.00011)	ND (0.00011)
Chromium	6020	0.1	ND (0.0025)	ND (0.020)	0.0361	ND (0.0025)	ND (0.0025)
Cobalt	6020	NE	0.000537 (0.001) J, J+	0.000216 (0.001) J, J+	0.00155	0.000626 (0.001) J, J+	0.000544 (0.001) J, J+
Copper	6020	NE	0.00163 J+	0.00776 J+	0.00519	0.00263 J+	0.00248 J+
Iron	6020	NE	1.02	0.409	5.04 J-	0.831	0.792
Lead	6020	NE	ND (0.0005)	ND (0.0005)	0.00344	ND (0.0005)	ND (0.0005)
Mercury	7470A	0.002	ND (0.00003) UJ	ND (0.00003) UJ	ND (0.00003) UJ	ND (0.00003) UJ	ND (0.00003) UJ
Nickel	6020	NE	0.00286 J+	0.0025 J+	0.016	0.0033 J+	0.00304 J+
Selenium	6020	0.05	0.00233 (0.005) J, J-	0.00157 (0.005) J	0.00126 (0.005) J	0.00167 (0.005) J, J-	0.00135 (0.005) J, J-
Silver	6020	NE	ND (0.0002)	ND (0.0002)	0.00056 (0.001) J	ND (0.0002)	ND (0.0002)
Thallium	6020	0.002	0.000353 (0.001) J	0.000462 (0.001) J	0.000492 (0.001) J	ND (0.0003)	ND (0.0003)
Tin	6020	NE	ND (0.001)	ND (0.001)	0.00104 (0.005) J	ND (0.001)	ND (0.001)
Vanadium	6020	NE	ND (0.003)	ND (0.003)	0.0178	ND (0.003)	ND (0.032)
Zinc	6020	NE	ND (0.013)	0.0472 J+	0.020	0.00673 (0.010) J, J+	0.00661 (0.010) J, J+

Refer to footnotes at end of table.

Table A-12 *(Concluded)*

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

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.
J- = The associated numerical value is an estimated quantity with a suspected negative bias.
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-13

Summary of Dissolved Chromium, Total Cyanide, and Sulfides
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

		ARCOC No.:	611897
		Sample No.:	086266
		Well No.:	CWL-MW6L
		Sample Type:	Environmental
		Sample Method:	QED Pump
		Laboratory:	GEL
		Date Sampled:	06-12-08
Parameter	**Method**	**MCL**	**All results in mg/L**
Dissolved Chromium	7470A	0.1	0.00302 (0.010) J
Total Cyanide	9012A	0.2	ND (0.0015)
Sulfides	9034	NE	0.868 (2.50) 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).
mg/L = Milligrams per liter.
MW = Monitoring well.
ND = The analyte was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

Table A-14

Summary of Detected Parameters in Equipment Blank Samples
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

			ARCOC No.: Sample No.: Well No.: Sample Type: Sample Method: Laboratory: Date Sampled:	611893 086256 Prior to CWL-MW6U Equipment Blank Bennett Pump GEL 06-03-08	611898 086268 Prior to CWL-MW4 Equipment Blank Bennett Pump GEL 06-16-08
Parameter	**Method**	**MCL**		**All results in mg/L (unless otherwise specified)**	
Acetone (in µg/L)	8260	NE		ND (1.25)	2.32 (5.00) J
Bromodichloromethane (in µg/L)	8260	NE		ND (0.250)	0.346 (1.00) J
Dibromochloromethane (in µg/L)	8260	NE		0.433 (1.00) J	0.456 (1.00) J
Toluene (in µg/L)	8260	1,000		5.16	ND (1.00)
Trichloroethene (in µg/L)	8260	5.0		0.707 (1.00) J	ND (0.250)
Chromium	6020	0.1		0.0135	ND (0.020)
Copper	6020	NE		ND (0.0003)	0.000302 (0.001) J
Iron	6020	NE		0.0105 (0.025) J	ND (0.010)
Vanadium	6020	NE		0.0063 (0.010) J	ND (0.003)

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.
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-15

Summary of Environmental and Duplicate Analyses
Sandia National Laboratories/New Mexico
Chemical Waste Landfill
Semi-annual Assessment, April - June 2008

Parameter	Environmental Sample Results (R_1) (mg/L, unless indicated)	Duplicate Sample Results (R_2) (mg/L, unless indicated)	RPD
CWL-MW4			
Toluene (µg/L)	0.383 J	0.379 J	1
Barium	0.0595	0.0605	2
Cadmium	0.000146 J+	0.000143 J+	2
Cobalt	0.00263 J+	0.00271 J+	3
Copper	0.00151 J+	ND (0.0015)	NC
Iron	0.860	0.815	5
Nickel	0.221	0.211	5
Selenium	0.00178 J	0.0014 J	24
Thallium	0.000482 J	ND (0.0003)	NC
Zinc	0.00295 J+	0.00302 J+	2
CWL-MW6U			
Barium	0.0659	0.0693	5
Cobalt	0.000626 J+	0.000544 J+	14
Copper	0.00263 J+	0.00248 J+	6
Iron	0.831	0.792	5
Nickel	0.0033 J+	0.00304 J+	8
Selenium	0.00167 J-	0.00135 J-	21
Zinc	0.00673 J+	0.00661 J+	2

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

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

where: R_1 = analysis result.

R_2 = duplicate analysis result.

ATTACHMENT A

CHEMICAL WASTE LANDFILL
FIELD MEASUREMENT LOGS AND DOCUMENTATION

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.:
Well I.D.: CWL-BW3	Date: 6-6-08 6-9-08
Weather	
Method: X Portable pump _____ Dedicated pump	Pump depth: ~ 507'

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~~
503.05	0819		START							
506.81	0839	1	16.48	835	266.3	7.22		1.68	32.0	3.11
506.81	0839	WELL	DRY							
503.17	0854		START							
506.18	0911	.5	19.62	847	187.4	7.74		4.84	78.7	7.16
	0912		sampling							

COC number(s):

Sample number(s):

~ 4.75 gals purge from tubing 0835

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-BW4A	Date: 5-30-08 / 6-02-08
Weather	
Method: X Portable pump _____ Dedicated pump	Pump depth: 507'

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
503.76	0844		START							
507.86	0901	1	20.14	1029	263.7	6.63		1.54	111.7	9.91
507.86	0901	well	DRY							
503.76	0851		start							
507.95	0905	0.25	22.03	1045	209.4	7.03		2.05	76.7	668
507.95	0909	0.75	23.32	1059	216.9	7.05		1.52	76.9	653
	0916	BEGIN	Sampling							

COC number(s): 611890
Sample number(s): 086249

Purge Volume Calculations

~ 4.75 gals. purged from tubing 0859
6-2-08 0904

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.: 121515.02.01
Well I.D.: MW2BL	Date: 6/10/08
Weather	
Method: ✓ Portable pump ____ Dedicated pump	Pump depth: 550 *

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~~
497.83 ~~498.83~~	0820		START							
498.02	0912	50	21.63	1125	195.6	6.81		51.4	85.6	7.51
498.06	0959	100	22.16	1124	175.9	6.82		5.72	86.8	7.54
498.04	1045	150	22.44	1124	190.1	6.83		5.22	86.6	7.47
498.04	1127	200	22.81	1126	195.6	6.82		5.12	87.2	7.45
498.02	1201	250	23.06	1124	212.5	6.82		1.31	87.2	7.44
498.02	1234	300	23.71	1130	217.8	6.84		3.22	88.7	7.55
497.99	1305	350	23.60	1131	224.4	6.81		0.58	89.4	7.57
497.99	1337	400	23.56	1130	235.5	6.81		0.49	90.0	7.67
497.98	1350	420	23.66	1131	237.6	6.81		0.40	90.2	7.82
497.98	1404	440	23.19	1131	234.3	6.80		0.59	90.9	7.84
497.98	1417	460	23.27	1130	240.2	6.81		0.55	91.4	7.74
497.98	1430	480	23.29	1130	240.5	6.81		0.58	92.9	7.76
497.98	1436	490	23.31	1129	240.6	6.81		0.56	91.3	7.80
COC number(s): 61189										
Sample number(s): 086251, 086252										

1437 sampling

Purge Volume Calculations

~ 4.75 gals purged from tubing 0830

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

* sediment @ bottom of well ~550'

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.: 121515.02.01
Well I.D.: CWL-MW2BL	Date: 5/28/08 6-11-08
Weather	
Method: _____ Portable pump ___✓___ Dedicated pump	Pump depth: 491

PURGE MEASUREMENTS

Depth to Water (FT)	Time 24 hr	Vol. mL gls	Temp °C	Ec µmho	ORP MV	pH	Flow L gls	Turb NTU	DO %	DO mg/L ~~Color and appearance~~
N/A	0815	BEGIN PURGE								
	0850	350mL	17.29	822	174.8	8.38		13.9	90.1	8.62
	0900	350mL	17.01	762	192.7	8.21		16.5	89.1	8.58
	0905	275	17.09	763	204.9	8.05	>	800	88.3	8.49
	0910	200mL	17.20	768	217.9	7.96	>	800	89.2	8.54
	0916	150mL		WELL	DRY					
6/11 493.21	0906		START							
	0910	250	19.39	848	239.3	8.39		29.1	87.1	8.00
	6914	500	19.87	815	265.8	8.17		31.0	86.2	8.00
	0915		SAMPLING							

COC number(s): 611892

Sample number(s): 086254

QED SYSTEM IN WELL WATER LEVEL NOT OBTAINABLE

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: CWL	Project No.:
Well I.D.: CWL-MW4	Date: 6-17-08
Weather	
Method: X Portable pump _____ Dedicated pump	Pump depth: 500'

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~~
496.63	0830		START							
498.75	0852	5	21.96	975	15.4	6.58		25.1	7.9	0.69
498.86	0903	10	21.49	988	60.7	6.77		193	36.6	3.26
498.72	0914	15	21.53	985	95.8	6.87		135	56.9	5.00
498.75	0927	20	21.48	984	103.7	6.90		46.4	60.2	5.31
498.75	0941	25	21.56	984	99.2	6.92		25.6	61.5	5.41
498.75	0954	30	21.66	985	117.0	6.94		13.2	62.0	5.44
498.75	1002	32	22.01	986	118.1	6.95		4.20	62.9	5.48
498.75	1012	34	22.46	986	118.2	6.95		4.14	64.3	5.56
498.75	1026	36	23.08	986	118.4	6.95		4.19	64.2	5.48
498.75	1034	38	22.64	986	118.6	6.95		4.15	64.6	5.50
	1035		SAMPLING							

COC number(s):

Sample number(s):

Purge Volume Calculations

~4.75 gals purged from tubing 0841

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.: 121515.02.01
Well I.D.: MW5U	Date: 6-13-08
Weather: Clear & warm	
Method: X Portable pump _____ Dedicated pump	Pump depth: 499'

PURGE MEASUREMENTS

Depth to Water (FT)	Time 24 hr	Vol. L (gls)	Temp °C	Ec µmho	ORP MV	pH	Flow L gls	Turb NTU	DO %	~~Color and appearance~~ DO mg/L
~~0845~~ 489.50	08:43		Start							
494.75	0906	2	20.61	890	220.9	7.02		0.26	73.4	6.57
496.48	0913	4	20.98	887	244.8	7.07		0.42	72.0	6.41
498.22	0921	6	21.16	883	258.2	7.09		6.50	69.2	6.14
498.92	0926	7	21.27	884	265.7	7.10		0.56	68.0	6.02
499.30	Well	Dry								
489.68	0909		START							
494.76	0927	1	22.06	958	381.7	6.94		0.86	78.3	6.82
495.62	0930	2	22.33	952	381.0	6.92		0.19	65.9	5.69
496.45	0934	3	22.63	949	380.0	6.92		0.20	64.4	5.55
	0935		SAMPLING							

COC number(s): 611896

Sample number(s): 086264

~ 4.75 gal. purg prior to measurem

0857

6-16-08 0924

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

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: CWL	Project No.: 121515.02.01
Well I.D.: CWL- MW5L	Date: 6-5-08
Weather	
Method: _____ Portable pump __X__ Dedicated pump	Pump depth: 543'

PURGE MEASUREMENTS

DO mg/L

Depth to Water (FT)	Time 24 hr	Vol. (L)gls	Temp °C	Ec µmho	ORP MV	pH	Flow L gls	Turb NTU	DO %	~~Color and appearance~~
494.23	0830	/	Start							
494.30	0839	2	15.42	764	181.3	7.92		0.39	77.4	7.71
494.30	0848	4	15.53	790	197.5	7.86		1.16	75.7	7.53
494.38	0855	6	16.01	950	220.6	7.34		0.49	71.4	6.99
-	0903	8	16.17	1090	239.2	6.88		0.35	73.7	7.23
-	0909	10	16.20	1074	248.3	6.83		0.35	75.0	7.38
-	0917	12	16.58	1076	256.2	6.82		0.30	76.8	7.46
-	0921	13	16.64	1076	258.9	6.83		0.23	76.8	7.48
-	0924	14	16.60	1076	259.2	6.83		0.29	76.2	7.44
	0925	/	Sampling							

COC number(s): 611895

Sample number(s): 086261, 086262

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: 2.16 ml/ft X____ (length of tubing)) = _____ millileters

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name:	Project No.:
Well I.D.: CWL-MW6L	Date: 6-12-08
Weather	
Method: _____ Portable pump ___X___ Dedicated pump	Pump depth: 549.6

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~~
496.60	0827		START							
496.60	0842	2	20.88	498	198.7	7.51		5.08	96.1	8.29
496.61	0857	4	~~530~~ 21.64	530	203.5	7.68		6.66	93.0	8.24
496.48	0914	6	21.98	994	298.6	7.43		34.2	101.5	8.85
496.48	0930	8	22.24	1065	339.2	7.03		4.84	80.1	7.01
496.56	0946	10	22.67	1067	269.5	6.98		1.97	73.6	6.33
496.48	0954	11	22.75	1066	265.1	6.94		1.87	58.1	5.03
496.48	1008	12	23.27	1066	258.1	6.94		1.95	51.2	4.36
496.48	1017	13	23.60	1069	255.9	6.94		2.00	49.9	4.20
496.48	1025	14	23.45	1070	255.4	6.94		2.02	49.2	4.18
	1026		SAMPLING							

COC number(s): 611897
Sample number(s): 086266

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.: 121515.02.01
Well I.D.: CWL - MW 6A	Date: 6/3/08 6/4/08
Weather	
Method: ✓ Portable pump _____ Dedicated pump	Pump depth: 499'

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~~
489.88	0840		start							
495.58	0858	2	22.47	933	276.3	6.84		0.77	66.8	5.77
497.28	0902	4	22.33	933	267.9	6.93		0.63	62.1	5.41
498.92	0906	6	22.27	933	260.8	6.96		0.63	61.0	5.25
498.92	0906	~~8~~	well	DRY						
6/4/08										
489.82	0845		START							
494.70	0901	1	20.47	932	234.0	6.96		0.31	79.2	7.00
495.35	0903	2	20.87	932	233.3	6.95		0.37	69.6	6.20
496.18	0905	3	20.99	932	231.7	6.95		0.31	63.0	6.00
	0906		sampling							

COC number(s): 611899

Sample number(s): 086270, 088271

24.75 gals purged from tubing 0853 — 0859

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

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
pH Calibrated to (std): 7.00			pH sloped to (std): 10.00			
Reference Value:	4.00		7.00		10.00	
	Value	Temp	Value	Temp	Value	Temp
1. Time: 0659	3.99	20.6	7.00	20.6	10.01	20.6
2. Time: 1047	4.00	20.9	7.01	20.9	10.01	20.9
3. Time: 0712	4.01	21.4	7.00	21.4	10.00	21.4
4. Time: 1031	4.01	21.7	6.99	21.7	10.01	21.7
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: 12/2008
1. Time: 0657	1276	20.6	
2. Time: 1046	1279	20.9	
3. Time: 0719	1281	21.4	
4. Time: 1033	1280	21.7	

Comments:	
Calibration Done by: RL RL	Date: 5-30-08 6-2-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 10/2008
1. Time: 0650	219.8	20.6	
2. Time: 1040	219.7	20.9	
3. Time: 0715	220.1	21.4	
4. Time 1029	220.4	21.7	

TURBIDIMETER	
Make & Model No.: HACH 2100P	Serial No.: 030900032367

Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0804	.11	20.1	100	802
2. Time 0911	.10	20.2	101	803
3. Time 0820	.10	20.1	100	801
4. Time 0924	.11	20.0	101	799

Comments:

Calibration Done By: RC RC	Date: 5-30-08 6-2-08

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 6820		Serial No.: YSI 6562
DO Probe Serial No.: 03J0967		
Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L	Atmospheric Pressure in/Hg
1. Time: 0647	81.6 / 6.92	24.40
2. Time: 1034	81.6 / 6.94	24.39
3. Time: 0700	81.6 / 7.00	24.34
4. Time: 1027	81.8 / 7.02	24.34

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

DO Charge= 34.9

Calibration done by: RL RL	Date: 5-30-08 6-2-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
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: 0717	4.02	21.2	7.01	21.2	10.00	21.2
2. Time: 1048	4.00	21.9	7.01	21.9	10.01	21.9
3. Time: 0726	4.01	20.9	7.02	20.9	9.99	20.9
4. Time: 0934	4.02	21.6	7.01	21.6	10.01	21.6
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: 12/2008
1. Time: 0713	1281	21.2	
2. Time: 1044	1284	21.9	
3. Time: 0721	1282	20.9	
4. Time: 0940	1283	21.6	

Comments:	
Calibration Done by: RL RL	Date: 6-3-08 6-4-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 10/2008
1. Time: 0715	219.8	21.2	
2. Time: 1047	220.1	21.9	
3. Time: 0718	220.4	20.9	
4. Time 0928	221.2	21.6	

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0812	.10	19.9	102	801
2. Time 0909	.09	20.0	101	800
3. Time 0827	.11	20.1	103	802
4. Time 0910	.10	19.8	101	800

Comments:

Calibration Done By: RL RL	Date: 6-3-08 6-4-08

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 6820		Serial No.: YSI 6562
DO Probe Serial No.: 03J0967		

Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L		Atmospheric Pressure in/Hg
1. Time: 0710	81.6	6.84	24.30
2. Time: ~~0742~~ 1040	81.6	6.96	24.40
3. Time: 0714	81.6	6.94	24.10
4. Time: 0921	81.8	6.99	24.12

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

DO Charge= 33.9
34.9

Calibration done by:	Date:
RL RL	6-3-08 6-4-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
pH Calibrated to (std): 7.00			pH sloped to (std): 10.00			
Reference Value:	4.00		7.00		10.00	
	Value	Temp	Value	Temp	Value	Temp
1. Time: 0659	4.01	19.4	6.99	19.4	9.99	19.4
2. Time: 1058	4.02	20.2	7.00	20.2	10.01	20.2
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: 12/2008
1. Time: 0655	1277	19.4	
2. Time: 1055	1279	20.2	
3. Time:			
4. Time:			

Comments:	
Calibration Done by:	Date: 6-5-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 10/2008
1. Time: 0704	219.8	19.4	
2. Time: 1053	219.7	20.2	
3. Time:			
4. Time			

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0810	.09	20.0	99.9	801
2. Time 0940	.10	19.9	100	802
3. Time				
4. Time				

Comments:	
Calibration Done By: RC	Date: 6-5-08

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 6820		Serial No.: YSI 6562	
DO Probe Serial No.: 03J0967			
Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L		Atmospheric Pressure in/Hg
1. Time: 0650	81.6	7.10	24.05
2. Time: 1047	81.8	7.12	24.08
3. Time:			
4. Time:			

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

DO Charge= 33.9

Calibration done by: RL	Date: 6-5-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
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	4.02	19.8	7.01	19.8	10.00	19.8
2. Time: 0917	4.02	20.1	7.02	20.1	9.99	20.1
6/9 3. Time: 0700	4.01	21.7	7.02	21.7	10.01	21.7
4. Time: 1000	4.02	21.9	7.01	21.9	10.01	21.9
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: 12/2008
1. Time: 0649	1280	19.8	
2. Time: 0920	1281	20.1	
6/9 3. Time: 0657	1282	21.7	
4. Time: 0956	1283	21.9	

Comments:	
Calibration Done by: RL RL	Date: 6-6-08 6-9-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 10/2008
1. Time: 0651	219.8	19.8	
2. Time: 0913	219.9	20.1	
3. Time: 0653	220.4	21.7	
4. Time 0953	220.2	21.9	

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0759	.09	19.9	100	802
2. Time 0847	.10	20.0	99.9	799
3. Time 0805	.10	20.0	102	801
4. Time 0921	.11	20.0	101	799

Comments:	
Calibration Done By: RL RL	Date: 6-6-08 6-9-08

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 6820		Serial No.: YSI 6562
DO Probe Serial No.: 03J0967		
Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L	Atmospheric Pressure in/Hg
1. Time: 0644	81.6 / 7.44	24.29
2. Time: 0910	81.4 / 7.41	24.27
3. Time: 0650 (6/9)	81.6 / 6.97	24.37
4. Time: 0947	81.6 / 7.00	24.35

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

DO Charge= 32.9
33.9

Calibration done by: RL RL	Date: 6-6-08 6-9-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
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: 0647	4.01	21.2	7.01	21.2	9.99	21.2
2. Time: 1529	4.02	22.1	7.01	22.1	10.00	22.1
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: 12/2008
1. Time: 0645	1277	21.2	
2. Time: 1518	1281	22.1	
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 6-10-05

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 10/2008
1. Time: 0650	219.8	21.2	
2. Time: 1521	220.1	22.1	
3. Time:			
4. Time			

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0719	.09	19.9	101	799
2. Time 1444	.10	20.1	102	801
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 6-10-08

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 6820		Serial No.: YSI 6562	
DO Probe Serial No.: 03J0967			
Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L		Atmospheric Pressure in/Hg
1. Time: 0640	81.6	7.09	24.32
2. Time: 1515	81.8	7.06	24.34
3. Time:			
4. Time:			

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

DO Charge= 33.9

Calibration done by: RL	Date: 6-10-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
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: 7:26	4.00	21.50	7.00	21.50	10.00	21.5
2. Time: 9:40	4.00	22.51	7.01	22.51	10.00	22.51
3. Time: 0703	4.01	20.6	7.01	20.6	10.01	20.6
4. Time: 09:15	4.00	23.20	7.00	23.20	10.00	23.20
Standard Lot No.: 031187						
Expiration Date: 8-2005						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: Dec. 2008
1. Time: 0705	1279	20.6	
2. Time: 0940	1278	22.51	
3. Time: 0659	1278	20.6	
4. Time: 0917	1278	23.20	

Comments:

Calibration Done by: Alfred Schile RL

Date: 5/28/08 6-11-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 12/2008
1. Time: 0726	220.0	21.50	
2. Time: 0945	221.0	22.51	
3. Time: 0655	219.8	20.6	
4. Time 0945	220.1	23.20	

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 7:28	07 .10	21	101	801
2. Time 0948	.10	20	99	800
3. Time 0759	.09	20.1	102	799
4. Time 0920	.10	21	100	801

Comments:

Calibration Done By: [signature] RL

Date: 5/28/08 6-11-08

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 6820	Serial No.: YSI 6562
DO Probe Serial No.: 03J0967	

Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L		Atmospheric Pressure in/Hg
1. Time: 7:30	81.6	7.18	24.36
2. Time: 0950	81.3	7.20	24.40
3. Time: 0650	81.6	6.85	24.21
4. Time: 0922	81.7	7.22	24.22

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

DO Charge= 30.7
33.9

Calibration done by:	Date:
Alfred Stiller RL	5/28/08 6-11-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
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: 0653	4.02	21.7	7.01	21.7	10.01	21.7
2. Time: 1130	4.03	22.1	7.01	22.1	10.00	22.1
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: 12/2008
1. Time: 0648	1281	21.7	
2. Time: 1125	1282	22.1	
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 6-12-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 10/2008
1. Time: 0650	221.2	21.7	
2. Time: 1129	221.4	22.1	
3. Time:			
4. Time			

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0818	.09	19.9	100	802
2. Time 1040	.09	20.0	101	802
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 6-12-08

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 6820		Serial No.: YSI 6562	
DO Probe Serial No.: 03J0967			
Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L		Atmospheric Pressure in/Hg
1. Time: 0644	81.6	7.00	24.33
2. Time: 1120	81.6	6.98	24.34
3. Time:			
4. Time:			

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

DO Charge= 33.9

Calibration done by: RL	Date: 6-12-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
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: 0737	4.01	23.21	7.01	23.22	10.00	23.23
2. Time: 1047	4.01	24.17	7.01	24.18	10.01	24.18
3. Time: 0705	4.02	21.6	7.01	21.6	10.01	21.6
4. Time: 1050	4.01	21.9	7.02	21.9	10.01	21.9
Standard Lot No.: 031187						
Expiration Date: 8-2005						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: Dec. 2008
1. Time: 0734	1277	23.21	
2. Time: 1041	1277	24.18	
3. Time: 0700	1283	21.6	
4. Time: 1044	1283	21.9	

Comments:

Calibration Done by: William J Fink RC	Date: 6-13-08 6-16-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 12/2008
1. Time: 0724	219.8	23.20	
2. Time: 1039	219.9	24.17	
3. Time: 0653	220.4	21.6	
4. Time 1047	220.5	21.9	

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0727	.10	20	101	801
2. Time 1034	.10	20	101	800
3. Time 0850	.09	19.9	102	799
4. Time 0947	.09	20.0	101	799

Comments:

Calibration Done By: William J Gilbert RL

Date: 6-13-08 6-16-08

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 6820		Serial No.: YSI 6562
DO Probe Serial No.: 03J0967		
Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L	Atmospheric Pressure in/Hg
1. Time: 0722	81.6 / 7.00	24.47
2. Time: 1031	81.6 / 6.81	24.49
3. Time: 0650	81.6 / 6.78	24.39
4. Time: 1040	81.8 / 6.80	24.41

6/16

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

DO Charge= 48.2
46.1

Calibration done by: William J. Fritz RL	Date: 6-13-08 6-16-08

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 6820			Serial No.: 99J0064			
PH Probe Model No.: YSI 6565			Serial No.: YSI 6565 03J			
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: 0653	4.02	22.1	7.01	22.1	10.01	22.1
2. Time: 1127	4.02	22.6	7.02	22.6	10.00	22.6
3. Time:						
4. Time:						
Standard Lot No.: 031187						
Expiration Date: 12/2008						

Ec Probe Model No.: YSI6560			Serial No.: 03J1141
Reference Value: 1278 @ 20C			Standard Lot #: 2307212
	Value	Temp	Expiration Date: 12/2008
1. Time: 0647	1283	22.1	
2. Time: 1120	1282	22.6	
3. Time:			
4. Time:			

Comments:	
Calibration Done by: RL	Date: 6-17-08

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 03J
Reference value: 220.0			Standard Lot No. 03K0868
	Value	Temp	Expiration Date: 10/2008
1. Time: 0644	220.7	22.1	
2. Time: 1115	221.4	22.6	
3. Time:			
4. Time			

TURBIDIMETER				
Make & Model No.: HACH 2100P			Serial No.: 030900032367	
Reference Value	.1	20	100	800
Standard Lot No.				
1. Time 0750	.09	19.9	101	802
2. Time 1045	.10	20.0	102	800
3. Time				
4. Time				

Comments:	
Calibration Done By: RL	Date: 6-17-08

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 6820		Serial No.: YSI 6562	
DO Probe Serial No.: 03J0967			
Calibration value:	81% Air Saturation @ 5200 ft./ DO mg/L		Atmospheric Pressure in/Hg
1. Time: 0641	81.6	6.70	24.47
2. Time: 1117	81.7	6.69	24.47
3. Time:			
4. Time:			

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

DO Charge= 45.1

Calibration done by: RL	Date: 6-17-08

Portable Pump and Tubing / Water Level Indicator
Decontamination Log Form

Project Name: CWL	**Monitoring Well ID #: CWL-BW4A**	**Date: 06/02/08**

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: William Gibson Initial: WJG Print Name: Robert Lynch Initial: RL	**Personnel Performing Decontamination:** Print Name: William Gibson Initial: WJG Print Name Robert Lynch Initial: RL

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: 05-02-08**	**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: 06/04/08**

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: William Gibson Initial: WJG Print Name: Alfred Santillanes Initial: AS	**Personnel Performing Decontamination:** Print Name: William Gibson Initial: WJG Print Name Alfred Santillanes Initial: AS

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: 05-02-08**	**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-BW3	**Date:** 06/09/08

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: William Gibson Initial: WJG Print Name: Robert Lynch Initial: RL	**Personnel Performing Decontamination:** Print Name: William Gibson Initial: WJG Print Name Robert Lynch Initial: RL

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: 05-28-08**	**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-MW2BL**	**Date: 06/10/08**

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: William Gibson Initial: WJG Print Name: Robert Lynch Initial: RL	**Personnel Performing Decontamination:** Print Name: William Gibson Initial: WJG Print Name Robert Lynch Initial: RL

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: 05-28-08**	**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-MW5U**	**Date: 06/16/08**

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: William Gibson WJG Initial: Print Name: Robert Lynch RL Initial:	**Personnel Performing Decontamination:** Print Name: William Gibson WJG Initial: Print Name Robert Lynch RC 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: 05-28-08** **EB-2, CoC 611898 prior to CWL-MW4 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-MW4**	**Date: 06/17/08**

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: William Gibson Initial: WJG Print Name: Robert Lynch Initial: RL	**Personnel Performing Decontamination:** Print Name: William Gibson Initial: WJG Print Name Robert Lynch Initial: RL

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: 05-28-08** **EB-1, CoC prior to CYN-MW6 purge**	**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: _____ **To the best of my knowledge this information is correct & accurate.**

Container I.D. # (site-date-sequence)	CWL-BW4A-053008		CWL-060208			
Container Certification # (i.e.SNL/NM######)	NA		NA			
Project Name	CWL-GWM		CWL-GWM			
Site Number	NA		NA			
Waste Mgt. Case #	98036.10.11.01		98036.10.11.01			
Initial Label Type	Haz-Waste		Haz-Waste			
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	10 gals		35 gals			
Total Container Weight	100lbs.		350lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611890 SMO# 086249		COC# 611890 SMO# 086249			
SMO Radioactive [ ]	NA		NA			
ERCL Haz [ ] Rad [ ]	NA		NA			
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA			
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Accumulation Date	Start 05/30/08 Full 06/02/08		Start 06/02/08 Full 06/02/08			
Date Moved to Waste Accumulation Area	06/02/08		06/02/08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments			Decon water after CWL-BW4A purge, CoC 611890			

(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:** Paul Freshour

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

Container I.D. # (site-date-sequence)	CWL-MW6U-060308		CWL-060408			
Container Certification # (i.e.SNL/NM######)	NA		NA			
Project Name	CWL-GWM		CWL-GWM			
Site Number	NA		NA			
Waste Mgt. Case #	121515.02.01		121515.02.01			
Initial Label Type	Haz-Waste		Haz-Waste			
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	22 gals		35 gals			
Total Container Weight	220lbs.		350lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611899 SMO# 086270, 086271		COC# 611899 SMO# 086270, 086271			
SMO Radioactive [ ]	NA		NA			
ERCL Haz [ ] Rad [ ]	NA		NA			
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA			
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Accumulation Date	Start 06/03/08 Full 06/04/08		Start 06/04/08 Full 06/04/08			
Date Moved to Waste Accumulation Area	06/04/08		06/04/08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments	EB-1, CoC 611893 taken prior to CWL-MW6U purge		Decon water after CWL-MW6U purge, CoC 611899			

(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: Alfred Santillanes **Phone:** 284-5232 **Task Leader:** Don Schofield

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

Container I.D. # (site-date-sequence)	CWL-BW3-060608		CWL-060908			
Container Certification # (i.e.SNL/NM######)	NA		NA			
Project Name	CWL-GWM		CWL-GWM			
Site Number	NA		NA			
Waste Mgt. Case #	121515.02.01		121515.02.01			
Initial Label Type	Haz-Waste		Haz-Waste			
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	17 gals		35 gals			
Total Container Weight	170lbs.		350lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611889 SMO#086247		COC# 611889 SMO#086247			
SMO Radioactive [ ]	NA		NA			
ERCL Haz [ ] Rad [ ]	NA		NA			
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA			
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Accumulation Date	Start 06/06/08 Full 06/09/08		Start 06/09/08 Full 06/09/08			
Date Moved to Waste Accumulation Area	06/09/08		06/09/08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments			Decon water after CWL-BW3 purge, CoC			

(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-061008-01		CWL-MW2BL-061008-02		CWL-MW2BL-061008-03	
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 #	121515.02.01		121515.02.01		121515.02.01	
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	50 gals		50 gals		50 gals	
Total Container Weight	500lbs.		500lbs.		500lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611891 SMO# 086251, 086252		COC# 611891 SMO# 086251, 086252		COC# 611891 SMO# 086251, 086252	
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 06/10/08 Full 06/10/08		Start 06/10/08 Full 06/10/08		Start 06/10/08 Full 06/10/08	
Date Moved to Waste Accumulation Area	06/10/08		06/10/08		06/10/08	
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: _____ To the best of my knowledge this information is correct & accurate.

Container I.D. # (site-date-sequence)	CWL-MW2BL-061008-04		CWL-MW2BL-061008-05		CWL-MW2BL-061008-06	
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 #	121515.02.01		121515.02.01		121515.02.01	
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	50 gals		50 gals		50 gals	
Total Container Weight	500lbs.		500lbs.		500lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611891 SMO# 086251, 086252		COC# 611891 SMO# 086251, 086252		COC# 611891 SMO# 086251, 086252	
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 06/10/08 Full 06/10/08		Start 06/10/08 Full 06/10/08		Start 06/10/08 Full 06/10/08	
Date Moved to Waste Accumulation Area	06/10/08		06/10/08		06/10/08	
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-061008-07		CWL-MW2BL-061008-08		CWL-MW2BL-061008-09	
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 #	121515.02.01		121515.02.01		121515.02.01	
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	50 gals		50 gals		50 gals	
Total Container Weight	500lbs.		500lbs.		500lbs.	
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611891 SMO# 086251, 086252		COC# 611891 SMO# 086251, 086252		COC# 611891 SMO# 086251, 086252	
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 06/10/08 Full 06/10/08		Start 06/10/08 Full 06/10/08		Start 06/10/08 Full 06/10/08	
Date Moved to Waste Accumulation Area	06/10/08		06/10/08		06/10/08	
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 Jr **To the best of my knowledge this information is correct & accurate.**

Container I.D. # (site-date-sequence)	CWL-MW2BL-061008-10		CWL-061008			
Container Certification # (i.e.SNL/NM######)	NA		NA			
Project Name	CWL-GWM		CWL-GWM			
Site Number	NA		NA			
Waste Mgt. Case #	121515.02.01		121515.02.01			
Initial Label Type	Haz-Waste		Haz-Waste			
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	33 gals		35 gals			
Total Container Weight	330lbs.		350lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611891 SMO# 086251, 086252		COC# 611891 SMO# 086251, 086252			
SMO Radioactive [ ]	NA		NA			
ERCL Haz [ ] Rad [ ]	NA		NA			
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA			
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Accumulation Date	Start 06/10/08 Full 06/10/08		Start 06/10/08 Full 06/10/08			
Date Moved to Waste Accumulation Area	06/10/08		06/10/08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments			Decon water after CWL-MW2BL purge, CoC 611891			

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

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

Container I.D. # (site-date-sequence)	CWL-QED-052808		CWL-PPE-052808			
Container Certification # (i.e.SNL/NM######)	NA		NA			
Project Name	CWL-GWM		CWL-GWM			
Site Number	NA		NA			
Waste Mgt. Case #	121515.02.01		121515.02.01			
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	15 gals					
Total Container Weight	150 lbs.		7 lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611895, 611892, 611897 SMO# 086261, 086262, 086254, 086266		COC# 611895, 611892, 611897 SMO# 086261, 086262, 086254, 086266			
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 05/28/08 Full 06/12/08		Start 05/28/08 Full 06/17/08		Start Full	
Date Moved to Waste Accumulation Area	06-17-08		06-17-08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments	ContainsCWL-MW2BU, CWL-MW6L and CWL-MW5L purge water CoC 611892, 611895, 611897		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.

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-MW5U-061308		CWL-061608			
Container Certification # (i.e.SNL/NM######)	NA		NA			
Project Name	CWL-GWM		CWL-GWM			
Site Number	NA		NA			
Waste Mgt. Case #	121515.02.01		121515.02.01			
Initial Label Type	Haz-Waste		Haz-Waste			
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	22 gals		35 gals			
Total Container Weight	220lbs.		350lbs.			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	COC# 611896 SMO# 086264		COC# 611896 SMO# 086264			
SMO Radioactive [ ]	NA		NA			
ERCL Haz [ ] Rad [ ]	NA		NA			
RPSD Rad [ ] (Amir's on-site Rad Lab)	NA		NA			
Container Exterior RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Container Contents RAD SURVEY #	Survey: NA Swipes:		Survey: NA Swipes:			
Accumulation Date	Start 06/13/08 Full 06/16/08		Start 06/16/08 Full 06/16/08			
Date Moved to Waste Accumulation Area	06/16/08		06/16/08			
Accumulation Area Name	9925		9925			
ERwm Memo #						
Comments			Decon water after CWL-MW5U purge, CoC 611896 EB-2, CoC 611898 prior to CWL-MW4 purge			

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

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

ER WASTE GENERATION LOG

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

Form Generator: William Gibson Phone: 284-5232 Task Leader: Paul Freshour

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

Container I.D. # (site-date-sequence)	**CWL-MW4-061708**		**CWL-061708**			
Container Certification # (i.e.SNL/NM######)	**NA**		**NA**			
Project Name	**CWL-GWM**		**CWL-GWM**			
Site Number	**NA**		**NA**			
Waste Mgt. Case #	**121515.02.01**		**121515.02.01**			
Initial Label Type	**Haz-Waste**		**Haz-Waste**			
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	**37 gals**		**35 gals**			
Total Container Weight	**370lbs.**		**350lbs.**			
Waste Char. Samples (COC#: Sample#-Fraction) **SMO Hazardous [ ]**	**COC# 611894 SMO#086258, 086259**		**COC# 611894 SMO#086258, 086259**			
SMO Radioactive [ ]	**NA**		**NA**			
ERCL Haz [ ] Rad [ ]	**NA**		**NA**			
RPSD Rad [ ] (Amir's on-site Rad Lab)	**NA**		**NA**			
Container Exterior RAD SURVEY #	**Survey: NA Swipes:**		**Survey: NA Swipes:**			
Container Contents RAD SURVEY #	**Survey: NA Swipes:**		**Survey: NA Swipes:**			
Accumulation Date	**Start 06/17/08 Full 06/17/08**		**Start 06/17/08 Full 06/17/08**			
Date Moved to Waste Accumulation Area	**06/17/08**		**06/17/08**			
Accumulation Area Name	**9925**		**9925**			
ERwm Memo #						
Comments	**EB-2, CoC 611898 taken prior to CWL-MW4 purge.**		**Decon water after CWL-MW4 purge, CoC 611894. EB-1,CoC 611911 taken prior to CYN-MW6 purge.**			

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

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

ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 5/28/08 Sheet 1 of 5

ER Site #(s): CWL-GWM Well=CWL-MW2BU Operable Units(s) _____
Applicable documentation:
Site Work Plan: PHS :9631246780-010, HASP 222696 mini SAP: CWL-MWL
FOP's : 94-01,94-25,94-26,94-28,94-30,94-34,94-46,94-47,94-48,95-02
Work to be performed: Ground water monitoring/sampling

MEETING CONDUCTED BY: Alfred Santillanes _____
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: Tom Jackson SIGNATURE: T Jackson

NAME PRINTED: _____ SIGNATURE: _____

6-11-08 NAME PRINTED: William Gibson SIGNATURE: William J Gibson Jr

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: 05/30/08 6/2/08 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 Rob 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 SANTILLANES SIGNATURE: _____
NAME PRINTED: William Gibson SIGNATURE: _____
6/2/08 NAME PRINTED: William Gibson SIGNATURE: _____
NAME PRINTED: ALFRED SANTILLANES 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: 06/03/08 6-4-08 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: _____
6/4/08 NAME PRINTED: William Gibson SIGNATURE: _____
NAME PRINTED: ALFRED SANTILLANES 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: 06/05/08 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: William Gibson SIGNATURE: _____
NAME PRINTED: ALFRED SANTILLANES 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: 06/06/08 6-9-08 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: ALFRED SANTILLANES SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

6/9/08 NAME PRINTED: William Gibson SIGNATURE: _____

NAME PRINTED: ALFRED SANTILLANES 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: 06/010/08 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: ALFREDO SANTILLANES 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: 06/011/08 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: _____
NAME PRINTED: ALFRED SANTILLANES SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____
NAME PRINTED: _____ SIGNATURE: _____

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

830 .

FOP 94-01
Rev. 1
Attachment

ENVIRONMENTAL RESTORATION
TAILGATE SAFETY MEETING FORM

Date: 06/12/08 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: William Gibson SIGNATURE: _____

NAME PRINTED: ALFRED SANTILLANES 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: 6/13/08 6-16-08 Sheet ___ of ___

ER Site #(s): CWL-GWM Well=CWL-MW5U Operable Units(s) _____
Applicable documentation:
Site Work Plan: PHS :9631246780-010, HASP 222696 mini SAP: CWL-MWL
FOP's : 94-01,94-25,94-26,94-28,94-30,94-34,94-46,94-47,94-48,95-02
Work to be performed: Ground water monitoring/sampling

MEETING CONDUCTED BY: William Gibson _____ William J Gibson 2
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 Santillanes

6/16 NAME PRINTED: William Gibson SIGNATURE: William J Gibson 2

NAME PRINTED: ALFRED SANTILLANES SIGNATURE: Alfred Santillanes

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: 06/17/08 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 SANTILLANES SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

NAME PRINTED: _____ SIGNATURE: _____

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

ATTACHMENT B

CHEMICAL WASTE LANDFILL
ANALYSIS REQUEST/CHAIN-OF-CUSTODY FORMS

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 1

Internal Lab MA

Batch No.

SMO Use

AR/COC 611889

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:	6-9-08	Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	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 025-08	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
086247-001	CWL-BW3	506	MA	060908/0912	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086247-010	CWL-BW3	506		060908/0913	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086248-001	CWL-TB1	NA		060908/0912	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No. Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

Abnormal Conditions on Receipt

Lab Use

Return Samples By: ☐ Negotiated TAT QC Inits.

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes		AS	Weston/4133/844-5130/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson		WJG	Weston/4133/284-5232/239-7367

*Send report to:

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

*Please list as separate report.

1.Relinquished by		Org. 4133	Date 6-9-08	Time 0935	4.Relinquished by	Org.	Date Time
1. Received by		Org. 4133	Date 6/9/08	Time 0935	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 611890

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:		Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	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 025-08	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
086249-001	CWL-BW4A	507		06/02/08 0916	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086249-010	CWL-BW4A	507		06/02/08 0917	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086250-001	CWL-TB2	NA		06/02/08 0916	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

QC inits

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

***Send report to:**

Tim Jackson/Org 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/4133/844-5130/228-0710
	Robert Lynch			Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/284-5232/239-7367

***Please list as separate report.**

1.Relinquished by		Org. 4133	Date 6/2/08	Time 10:25	4.Relinquished by	Org.	Date Time
1. Received by		Org. 4139	Date 6-2-08	Time 10:25	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. 2107

SMO Use

AR/COC 611891

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:	6-11-08	Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	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	SUBBOTTO ORDER	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-08	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
086251-001	CWL-MW2BL	550	N/A	061008/1437	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086251-010	CWL-MW2BL	550		061008/1438	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086252-001	CWL-FB1	NA		061008/1300	DIW	G	3x40ml	HCL	G	FB	VOC (SW846-8260)	
086253-001	CWL-TB3	NA		061008/1437	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

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

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	Alfred Santillanes			Weston/4133/844-5130/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/284-5232/239-7367

***Please list as separate report.**

1.Relinquished by		Org. 4133	Date 6-11-08	Time 1020	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4133	Date 6-11-08	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

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. 2167

SMO Use

AR/COC 611892

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:	6-11-08	Project/Task No.	121515.02.01
Project/Task Manager:	Paul Freshour	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		SOW BOTTLE ORDER
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		
Service Order No.	CF 025-08	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
086254-001	CWL-MW2BU	491	NA	061108/0915	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086254-010	CWL-MW2BU	491		061108/0916	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086255-001	CWL-TB4	NA		061108/0915	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

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

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

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

Abnormal Conditions on Receipt

Return Samples By: ☐ **Negotiated TAT** QC inits.

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

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	Alfred Santillanes		AS	Weston/4133/844-5130/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson		WJG	Weston/4133/284-5232/239-7367

***Please list as separate report.**

Lab Use

1.Relinquished by		Org. 4133	Date 6-11-08	Time 1025	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4133	Date 6-11-08	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

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 611894

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:	6-17-08	Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	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 025-08	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
086258-001	CWL-MW4	500	N/A	061708/1035	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086258-010	CWL-MW4	500		061708/1036	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086259-001	CWL-MW4	500		061708/1035	GW	G	3x40ml	HCL	G	DU	VOC (SW846-8260)	
086259-010	CWL-MW4	500		061708/1036	GW	P	500ml	HNO3	G	DU	Metals+Fe (SW846-6020/7470) APPXI	
086260-001	CMWL-TB6	NA		061708/1035	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

QC Inits:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

*Send report to:

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

Last well for CWL

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

Sample Team Members

Name	Signature	Init	Company/Organization/Phone/Cellular
Alfred Santillanes			Weston/4133/844-5130/228-0710
Robert Lynch		RL	Weston/4133/844-4013/250-7090
William J Gibson			Weston/4133/284-5232/239-7367

1.Relinquished by		Org. 4133	Date 6/17/08	Time 1055	4.Relinquished by	Org.	Date Time
1. Received by		Org 4133	Date 6/17/08	Time 1055	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 611895

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:		Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	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 025-08	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To: Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room	**Reference LOV(available at SMO)**			Albuquerque, NM 87185-0154

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086261-001	CWL-MW5L	543		060508/0925	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086261-010	CWL-MW5L	543		060508/0926	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086262-001	CWL-FB2	NA		060508/0902	DIW	G	3x40ml	HCL	G	FB	VOC (SW846-8260)	
086263-001	CWL-TB7	NA		060508/0925	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Return Samples By: ☐ Negotiated TAT QC inits.

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

***Send report to:**

Tim Jackson/Org 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/4133/844-5130/228-0710
Robert Lynch		RL	Weston/4133/844-4013/250-7090
William J Gibson		WJG	Weston/4133/284-5232/239-7367

1.Relinquished by	Org. 4133	Date 4/5/08	Time 0950	4.Relinquished by	Org.	Date	Time
1. Received by	Org. 4133	Date 4-5-08	Time 0950	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

Batch No. 1 of 1

SMO Use

AR/COC 611896

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:	6-16-08	Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Fresheon	Carrier/Waybill No.	70812	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 071/DAT	Lab Destination:	GEL		☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185	500 bottles 40ml	☑ Validation Required
Service Order No.	CF 025-08	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
086264-001	CWL-MW5U	499	N/A	061608/0935	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086264-002	CWL-MW5U	499		061608/0936	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086265-001	CWL-TB	NA	T	061608/0935	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Return Samples By:

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	AS	Weston/4133/844-5130/228-0710
	Robert Lynch	Robert Lynch	RL	Weston/4133/844-4013/250-7090
	William J Gibson	William J Gibson	WJG	Weston/4133/284-5232/239-7367

1.Relinquished by	Alfred Santillanes	Org. 4133	Date 6/16/08	Time 1650	4.Relinquished by	Org.	Date	Time
1. Received by	[illegible]	Org. 4133	Date 6/16/08	Time 1650	4. Received by	Org.	Date	Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by	Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 611897

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:	6/17/08	Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	Carrier/Waybill No.	7077470	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 025-08	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
086266-001	CWL-MW6L	549		061208/1026	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086266-002	CWL-MW6L	549		061208/1027	GW	AG	3x1L	4C	G	SA	SVOC (SW846-8270) APP IX	
086266-010	CWL-MW6L	549		061208/1045	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086266-013	CWL-MW6L	549		061208/1049	GW	NAL	250ml	HNO3	G	SA	Dissoloved Cr (SW846-6020)	
086266-025	CWL-MW6L	549		061208/1051	GW	AG	3x1L	4C	G	SA	PCBs (SW846-8082) APP IX	
086266-027	CWL-MW6L	549		061208/1109	GW	P	500ml	NaOH	G	SA	Total Cyanide (SW846-9012)	
086266-029	CWL-MW6L	549		061208/1115	GW	NAL	1L	NaOH	G	SA	Sulfide (SW846-9034)	
086266-032	CWL-MW6L	549		061208/1121	GW	AG	3x1L	4C	G	SA	Chlo Herbicides (SW846-8151) APP IX	
086267-001	CWL-TB9	NA		061208/1026	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

Abnormal Conditions on Receipt

Return Samples By: ☐ Negotiated TAT QC inits.

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	Alfred Santillanes			Weston/4133/844-5130/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/284-5232/239-7367

***Send report to:**

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

**Please list as separate report.*

Lab Use

1.Relinquished by		Org.	Date	Time	4.Relinquished by	Org.	Date	Time
1. Received by		Org.	Date	Time	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 611899

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:		Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	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 025-08	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
086270-001	CWL-MW6U	499		060408/0906	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260) APP IX	
086270-010	CWL-MW6U	499		060408/0907	GW	P	500ml	HNO3	G	SA	Metals+Fe (SW846-6020/7470) APPXI	
086271-001	CWL-MW6U	499		060408/0906	GW	G	3x40ml	HCL	G	DU	VOC (SW846-8260)	
086271-010	CWL-MW6U	499		060408/0907	GW	P	500ml	HNO3	G	DU	Metals+Fe (SW846-6020/7470) APPXI	
086272-001	CWL-TB11	NA		060408/0906	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Return Samples By: ☐ Negotiated TAT

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by: QC inits.

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

*Send report to:

Tim Jackson/Org 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/4133/844-5130/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/284-5232/239-7367

1.Relinquished by		Org. 4133	Date 6/4/08	Time ~~10:55~~	4.Relinquished by	Org.	Date	Time
1. Received by		Org. 4139	Date 6-4-08	Time 955	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 - mw 6 U

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 611893

Dept. No./Mail Stop:	6765/1089	Date Samples Shipped:	6-3-08	Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	Carrier/Waybill No.		SMO Authorization: 04	-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	500 Bottle 020 ea	☐ Released by COC No.:
Logbook Ref. No.:	ER 049	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 025-08	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
086256-001	CWL-EB1	NA	N/A	060308/0840	DIW	G	3x40ml	HCL	G	EB	VOC (SW846-8260) APP IX	
086256-010	CWL-EB1	NA		060308/0841	DIW	P	500ml	HNO3	G	EB	Metals+Fe (SW846-6020/7470) APPXI	
086257-001	CWL-TB5	NA		060308/0840	DIW	G	3x40ml	HCL	G	TB	VOC (SW846-8260)	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Return Samples By: ☐ Negotiated TAT QC inits.

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

*Send report to:

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

*Please list as separate report.

Abnormal Conditions on Receipt

Lab Use

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	Alfred Santillanes		AS	Weston/4133/844-5130/228-0710
	Robert Lynch		RL	Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/284-5232/239-7367

1.Relinquished by		Org. 4133	Date 6/3/08	Time 0920	4.Relinquished by	Org.	Date Time
1. Received by		Org. 4133	Date 6/3/08	Time 0920	4. Received by	Org.	Date Time
2.Relinquished by		Org.	Date	Time	5.Relinquished by	Org.	Date Time
2. Received by		Org.	Date	Time	5. Received by	Org.	Date Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date Time

Prior to CWL-mw-4

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 611898

Dept. No./Mail Stop:	6765/1039	Date Samples Shipped:	6-16-08	Project/Task No. 121515.02.01	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	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 025-08	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
086268-001	CWL-EB2	NA	N/A	06/16/08 1015	DIW	G	3x40ml	HCL	G	EB	VOC (SW846-8260) APP IX	
086268-010	CWL-EB2	NA	↓	06/16/08 1016	DIW	P	500ml	HNO3	G	EB	Metals+Fe (SW846-6020/7470) APPXI	

RMMA ☐ Yes ☑ No Ref. No.

Sample Disposal ☐ Return to Client ☑ Disposal by lab

Turnaround Time ☐ 7 Day ☑ 15 Day ☐ 30 Day

Sample Tracking Smo Use

Date Entered(mm/dd/yy)

Entered by:

Special Instructions/QC Requirements

EDD ☑ Yes ☐ No

Level D Package ☑ Yes ☐ No

Return Samples By: ☐ Negotiated TAT QC inits.

Sample Team Members	Name	Signature	Init	Company/Organization/Phone/Cellular
	Alfred Santillanes			Weston/4133/844-5130/228-0710
	Robert Lynch			Weston/4133/844-4013/250-7090
	William J Gibson			Weston/4133/284-5232/239-7367

***Send report to:**

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

See COC #611896 for trip blank info.

***Please list as separate report.**

Abnormal Conditions on Receipt

Lab Use

1.Relinquished by		Org. 4133	Date 6/16/08	Time 1045	4.Relinquished by	Org.	Date Time
1. Received by		Org. 7133	Date 6/16/08	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

ATTACHMENT C

CHEMICAL WASTE LANDFILL

DATA VALIDATION REPORTS FOR GROUNDWATER ANALYTICAL RESULTS

April - June 2008

Sample Findings Summary

Site: CWL Assess GWM **AR/COC:** 611890, 611893, and 611899 **Organic, Metals**

Sample ID	EPA8260B (VOCs):	78-83-1 (isobutyl alcohol)	75-05-8 (acetonitrile)	107-12-0 (propionitrile)	67-64-1 (acetone)	108-88-3 (toluene)	79-01-6 (trichloroethylene)	EPA6020 (ICP-MS):	7440-36-0 (Sb)	7440-28-0 (Tl)	7440-38-2 (As)	7440-62-2 (V)	7440-43-9 (Cd)	7440-48-4 (Co)	7440-50-8 (Cu)	7440-02-0 (Ni)	7440-66-6 (Zn)	7782-49-2 (Se)	EPA7470A (CVAA):	7439-97-6 (Hg)
086249-001 CWL-BW4A		UJ,I4	UJ,I4	UJ,I4	5.00U,B															
086249-010 CWL-BW4A									0.0040 U,B,B3	0.0017 U,B3			J+,CK2	J+,CK2	J+,CK2	J+,CK2	J+,CK2	J-,CK3		UJ,B4
086250-001 CWL-TB2		UJ,I4	UJ,I4	UJ,I4																
086256-001 CWL-EB1		UJ,I4	UJ,I4	UJ,I4																
086256-010 CWL-EB1											0.0097 U,B									UJ,B4
086257-001 CWL-TB5		UJ,I4	UJ,I4	UJ,I4																
086270-001 CWL-MW6U		UJ,I4	UJ,I4	UJ,I4	5.00U,B	1.00U,B2	1.00U,B2													
086270-010 CWL-MW6U														J+,CK2	J+,CK2	J+,CK2	J+,CK2	J-,CK3		UJ,B4
086271-001 CWL-MW6U		UJ,I4	UJ,I4	UJ,I4		1.00U,B2	1.00U,B2													
086271-010 CWL-MW6U												0.032 U,B2		J+,CK2	J+,CK2	J+,CK2	J+,CK2	J-,CK3		UJ,B4
086272-001 CWL-TB11		UJ,I4		UJ,I4	UJ,C3															

Validated By: David Schwent **Date:** 07/08/08

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Memorandum - Revised

DATE: September 10, 2008

TO: File

FROM: David Schwent

SUBJECT: Organic Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611890, 611893, and 611899
SDG: 209541
Laboratory: GEL
Project/Task No: 121515.02.01

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 factors (RFs) of isobutyl alcohol, analyzed on 6-11-08, 6-14-08, and 6-18-08, were <0.05 but ≥0.01. All associated sample results were non-detects (NDs) and will be qualified "UJ,I4."

Calibration: The initial calibration RFs of acetonitrile, analyzed on 6-11-08 and 6-14-08, were <0.05 but >0.01. All associated sample results were NDs and will be qualified "UJ,I4."

Calibration: The initial calibration RFs of propionitrile, analyzed on 6-11-08, 6-14-08, and 6-18-08, were <0.05 but >0.01. All associated sample results were NDs and will be qualified "UJ,I4."

Calibration: The continuing calibration verification (CCV) percent difference (%D) of acetone, analyzed on 6-18-08, was >40% but <60% with negative bias. The associated result of sample 209541-011 was a ND and will be qualified "UJ,C3."

Blanks: Acetone was detected in the method blank (MB) at a concentration > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated results of samples 209541-001 and -007 were detects <10X the MB concentration and < the PQL and will be qualified "5.00U,B" at the value of the PQL.

Blanks: Toluene was detected in the equipment blank (EB) (sample 209541-004) at a concentration > the MDL but < the PQL. The associated results of samples 209541-007 and -009 were detects <10X the EB concentration and < the PQL and will be qualified "1.00U,B2" at the value of the PQL.

Blanks: Trichloroethylene was detected in the EB (sample 209541-004) at a concentration > the MDL but < the PQL. The associated results of samples 209541-007 and -009 were detects <5X the EB concentration and < the PQL and will be qualified "1.00U,B2" at the value of the PQL.

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

Holding Times/Preservation

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

Instrument Tune

All instrument tune requirements were met.

Calibration

All initial and continuing calibration QC acceptance criteria were met, except as noted above in the summary section and the following. The initial calibration intercept value of pentachloroethane, analyzed on 6-14-08, was >3X the associated MDL. However, all associated sample results were NDs and will not be qualified. The initial calibration verification (ICV) %Ds of acetone, analyzed on 6-11-08 and 6-14-08, and the CCV %Ds of 2-butanone and 2-hexanone, analyzed on 6-18-08, were >20% but <40% with negative bias. However, all associated sample results were NDs and no other calibration QC acceptance criteria were exceeded. Therefore, no sample data will be qualified as a result. The ICV and/or CCV %Ds of fifteen other target analytes were >20% with positive bias (see Data Validation Worksheets). However, all associated sample results were NDs and will not be qualified.

Blanks

No target analytes were detected in the blanks, except as noted above in the summary section and the following. Acetone was detected in the MB at a concentration > the MDL but < the PQL and dibromochloromethane was detected in the EB (sample 209541-004) at a concentration > the MDL but < the PQL. However, all associated sample results, except the results qualified above in summary section, were NDs and will not be qualified.

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 recovery (%R) of dichlorodifluoromethane, analyzed 6-14-08, was > QC acceptance criteria. However, all associated sample results were NDs and will not be qualified. No LCSD analyses were 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 field blanks (FBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicate (FD) (sample 209541-009) were <30%. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified that affect data quality.

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Memorandum – Revised

DATE: August 9, 2008

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611890, 611893, and 611899
SDG: 209541
Laboratory: GEL
Project/Task No: 121515.02.01

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). On August 6, 2008, an addendum to the metals analysis was received containing new sample and QC summary results that reported the target analyte Ag, which was missing from the original data (see e-mail, dated 08-04-08). All new sample and QC summary forms of the addendum were evaluated for validation. Problems were identified with the data package that result in the qualification of data.

ICP-MS Analysis:

Blanks: Sb was detected in the initial calibration blank (ICB), continuing calibration blank (CCB), and method blank (MB) at concentrations > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated result of sample 209541-002 was a detect <5X the highest calibration blank (the CCB) value and <5X the MB and will be qualified "0.0040U,B,B3" at 5X the value of the MB (highest blank value).

Blanks: Tl was detected in the CCB at a concentration > the MDL but < the PQL. The associated result of sample 209541-002 was a detect <5X the CCB and will be qualified "0.0017U,B3" at 5X the value of the CCB.

Blanks: As was detected in the MB at a concentration > the MDL but < the PQL. The associated result of sample 209541-005 was a detect <5X the MB concentration and will be qualified "0.0097U,B"at 5X the value of the MB.

Blanks: V was detected in the equipment blank (EB) (sample 209541-005) at a concentration > the MDL but < the PQL. The associated result of sample -010 was a detect <5X the EB concentration and will be qualified "0.032U,B2"at 5X the value of the EB.

ICS A: For Sample 209541-002, the sample Ca and Mg concentrations were > or comparable to the ICS A Ca and Mg concentrations and the ICS A result for Cd was > the MDL. The associated Cd result was a detect <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Samples 209541-002, -008, and -010, the sample Ca and Mg concentrations were > or comparable to the ICS A Ca and Mg concentrations and the ICS A result for Co was > the MDL. The associated Co results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Samples 209541-002, -008, and -010, the sample Ca and Mg concentrations were > or comparable to the ICS A Ca and Mg concentrations and the ICS A result for Cu was > the MDL. The associated Cu results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Samples 209541-002, -008, and -010, the sample Ca and Mg concentrations were > or comparable to the ICS A Ca and Mg concentrations and the ICS A result for Ni was > the MDL. The associated Ni results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Samples 209541-002, -008, and -010, the sample Ca and Mg concentrations were > or comparable to the ICS A Ca and Mg concentrations and the ICS A result for Se was negative with and absolute value >2X the MDL. The associated Se results were detects <50X the absolute value of the ICS A result and will be qualified "J-,CK3."

CVAA Analysis:

Blanks: Hg was detected in the CCB at a negative concentration with an absolute value > the MDL but < the PQL. All associated sample results were non-detects (NDs) and will be qualified "UJ,B4."

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 as noted above in the summary section and the following. Sb, Tl, As, V, Cr, and Fe were detected in one or more of the blanks at concentrations > the MDL but < the PQL. However, all associated sample results, except the results qualified above in the summary section, were either detects >5X the highest calibration blank and/or MB and/or EB concentration or NDs and will not be qualified. It should be noted that the As detect result of the EB (sample 209541-005) was qualified "U" (ND) due to MB concentration and, therefore, cannot affect other field sample results.

CVAA Analysis: No target analytes were detected in the blanks, except as noted above in the summary section.

ICP-MS Internal Standards

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

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

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

Laboratory Replicate

All Analyses: All replicate QC acceptance criteria were met.

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

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

Detection Limits/Dilutions

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

ICP Interference Check Sample (ICS A and AB)

ICP-MS Analysis: All ICS A and AB QC acceptance criteria were met, except as noted above in the summary section and the following. For Samples 209541-002, -008, and -010, the sample Ca and Mg concentrations were > or comparable to the ICS A Ca and Mg concentrations and the ICS A results for Ba, Cd, and Pb were > the associated MDL. However, all associated sample results, except the results qualified above in the summary section, were either detects >50X the associated ICS A result or NDs and will not be qualified.

ICP Serial Dilution

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

Other QC

No field blanks (FBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicate (FD) (sample 209541-010) were <20%. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified which affect data quality.

Sample Findings Summary

Site: CWL Assess GWM **AR/COC:** 611894, 611896, and 611898 **Organic, Metals**

Sample ID	EPA8260B (VOCs):	78-83-1 (isobutyl alcohol)	107-02-8 (acrolein)	75-05-8 (acetonitrile)	107-12-0 (propionitrile)	108-88-3 (toluene)	67-64-1 (acetone)	EPA6020 (ICP-MS):	7440-36-0 (Sb)	7440-38-2 (As)	7440-47-3 (Cr)	7440-50-8 (Cu)	7440-43-9 (Cd)	7440-48-4 (Co)	7440-02-0 (Ni)	7440-66-6 (Zn)	EPA7470A (CVAA):	7439-97-6 (Hg)
086264-001 CWL-MW5U		UJ,I4	UJ,I4	UJ,I4	UJ,I4													
086264-010 CWL-MW5U									0.011 U,B,B3	0.017 U,B	0.020 U,B	J+,CK2	J+,CK2	J+,CK2	J+,CK2	J+,CK2		UJ,B4
086265-001 CWL-TB8		UJ,I4	UJ,I4	UJ,I4	UJ,I4													
086268-001 CWL-EB2		UJ,I4	UJ,I4	UJ,I4	UJ,I4	1.00U,B1												
086268-010 CWL-EB2										0.017 U,B	0.020 U,B							UJ,B4
086258-001 CWL-MW4		UJ,I4	UJ,I4	UJ,I4	UJ,I4		5.00U,B2											
086258-010 CWL-MW4										0.013 U,B	0.023 U,B	J+,CK2	J+,CK2	J+,CK2		J+,CK2		UJ,B4
086259-001 CWL-MW4		UJ,I4	UJ,I4	UJ,I4	UJ,I4		5.00U,B2											
086259-010 CWL-MW4										0.013 U,B	0.023 U,B	0.0015 U,B2	J+,CK2	J+,CK2		J+,CK2		UJ,B4
086260-001 CWL-TB6		UJ,I4	UJ,I4	UJ,I4	UJ,I4													

Validated By: David Schwent **Date:** 07/17/08

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Memorandum - Revised

DATE: September 10, 2008

TO: File

FROM: David Schwent

SUBJECT: Organic Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611894, 611896, and 611898
SDG: 210453
Laboratory: GEL
Project/Task No: 121515.02.01

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 acrolein was <0.05 but >0.01. All associated sample results were 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."

Blanks: Toluene was detected in the trip blank (TB) (sample 210453-003) at a concentration > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated result of sample -004 was a detect <10X the TB concentration and < the PQL and will be qualified "1.00U,B1" at the value of the PQL.

Blanks: Acetone was detected in the equipment blank (EB) (sample 210453-004) at a concentration > the MDL but < the PQL. The associated results of samples -006 and -008 were detects <10X the EB concentration and < the PQL and will be qualified "5.00U,B2" at the value of the PQL.

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

Holding Times/Preservation

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

Instrument Tune

All instrument tune requirements were met.

Calibration

All initial and continuing calibration QC acceptance criteria were met, except as noted above in the summary section and the following. The initial calibration intercept values of methyl methacrylate, ethyl methacrylate, and styrene were >3X the associated MDL. However, all associated sample results were NDs and will not be qualified. The continuing calibration verification (CCV) percent differences (%Ds) of 2-hexanone, acrolein, and 2-chloro-1,3-butadiene were >20% with positive. However, all associated sample results were NDs and will not be qualified.

Blanks

No target analytes were detected in the blanks, except as noted above in the summary section and the following. Bromodichloromethane and dibromochloromethane were detected in the EB (sample 210453-004) at concentrations > the MDL but < the PQL. However, all associated sample results were NDs and will not be qualified. It should be noted that the toluene detect result of the EB was qualified "U" (ND) due to TB contamination and, therefore, cannot affect other field sample results.

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 2-hexanone and acrolein 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 field blanks (FBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicate (FD) (sample 210453-008) were <30%. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified that affect data quality.

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Memorandum - Revised

DATE: August 9, 2008

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611894, 611896, and 611898
SDG: 210453
Laboratory: GEL
Project/Task No: 121515.02.01

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). On August 6, 2008, an addendum to the metals analysis was received containing new sample and QC summary results that reported the target analytes Ag and Sn, which were missing from the original data (see e-mail, dated 08-04-08). All new sample and QC summary forms of the addendum were evaluated for validation. Problems were identified with the data package that result in the qualification of data.

ICP-MS Analysis:

Blanks: Sb was detected in the initial calibration blank (ICB), continuing calibration blank (CCB), and method blank (MB) of Batch 765870 at concentrations > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated result of sample 210453-002 was a detect <5X the highest calibration blank (the CCB) value and <5X the MB and will be qualified "0.011U,B,B3" at 5X the value of the CCB (highest blank value).

Blanks: As was detected in the MB of Batch 765870 at a concentration > the MDL but < the PQL. The associated results of samples 210453-002 and -005 were detects <5X the MB concentration and will be qualified "0.017U,B"at 5X the value of the MB.

Blanks: Cr was detected in the MB of Batch 765870 at a concentration > the MDL but < the PQL. The associated results of samples 210453-002 and -005 were detects <5X the MB concentration and will be qualified "0.020U,B"at 5X the value of the MB.

Blanks: As was detected in the MB of Batch 766611 at a concentration > the MDL but < the PQL. The associated results of samples 210453-007 and -009 were detects <5X the MB concentration and will be qualified "0.013U,B"at 5X the value of the MB.

Blanks: Cr was detected in the MB of Batch 769755 at a concentration > the MDL but < the PQL. The associated results of samples 210453-007 and -009 were detects <5X the MB concentration and will be qualified "0.023U,B"at 5X the value of the MB.

Blanks: Cu was detected in the equipment blank (EB) (sample 210453-005) at a concentration > the MDL but < the PQL. The associated result of sample -009 was a detect <5X the EB concentration and will be qualified "0.0015U,B2"at 5X the value of the EB.

ICS A: For samples 210453-002, -007, and -009, the sample Ca concentration was > or comparable to the ICS A Ca concentration and the ICS A result for Cd was > the MDL. The associated Cd results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For samples 210453-002, -007, and -009, the sample Ca concentration was > or comparable to the ICS A Ca concentration and the ICS A result for Co was > the MDL. The associated Co results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For samples 210453-002 and -007, the sample Ca concentration was > or comparable to the ICS A Ca concentration and the ICS A result for Cu was > the MDL. The associated Cu results were detects <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For sample 210453-002, the sample Ca concentration was > or comparable to the 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."

ICS A: For samples 210453-002, -007, and -009, the sample Ca concentration was > or comparable to the ICS A Ca concentration and the ICS A result for Zn was > the MDL. The associated Zn results were detects <50X the ICS A result and will be qualified "J+,CK2."

CVAA Analysis:

Blanks: Hg was detected in the CCB at a negative concentration with an absolute value > the MDL but < the PQL. All associated sample results were non-detects (NDs) and will be qualified "UJ,B4."

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 as noted above in the summary section and the following. Sb, Co, As, Cr, and Cu were detected in one or more of the blanks at concentrations > the MDL but < the PQL. However, all associated sample results, except the results qualified above in the summary section, were either detects >5X the highest calibration blank and/or MB and/or EB concentration or NDs and will not be qualified. It should be noted that the As and Cr detect results of the EB (sample 210453-005) were qualified "U" (ND) due to MB concentration and, therefore, cannot affect other field sample results.

CVAA Analysis: No target analytes were detected in the blanks, except as noted above in the summary section.

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 (PS) QC acceptance criteria were met. No MSD analyses were performed. No sample data will be qualified as a result. It should be noted that the MS analysis for Batch 766611 was performed on a SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Laboratory Replicate

All Analyses: All replicate QC acceptance criteria were met. It should be noted that the laboratory replicate analysis for Batch 766611 was performed on a SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

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

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

Detection Limits/Dilutions

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

ICP Interference Check Sample (ICS A and AB)

ICP-MS Analysis: All ICS A and AB QC acceptance criteria were met, except as noted above in the summary section and the following. For Samples 210453-002, -007, and -009, the sample Ca concentrations were > or comparable to the ICS A Ca concentrations and the ICS A results for Sb, Ba, Pb, Cu, and Ni were > the associated MDL. However, all associated sample results, except the results qualified above in the summary section, were either detects >50X the associated ICS A result or NDs and will not be qualified. It should be noted that the Sb result for sample -002 and the Cu result for sample -009 were qualified "U" (ND) due to blank contamination and, therefore, will not be qualified due to the ICS A QC infractions.

ICP Serial Dilution

ICP-MS Analysis: The serial dilution analysis met all QC acceptance criteria. It should be noted that the serial dilution analysis for Batch 766611 was performed on a SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Other QC

No field blanks (FBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicate (FD) (sample 210453-009) were <20%, except the RPD for As (102%). No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified which affect data quality.

Sample Findings Summary

Site: CWL Assess GWM **AR/COC:** 611889, 611891, 611892, 611895, and 611897 **Organic, Metals, Gen Chem, Rad**

Sample ID	EPA8260B (VOCs):	78-83-1 (isobutyl alcohol)	EPA8270C (SVOCs):	56-57-5 (4-nitroquinoline-1-oxide)	65-85-0 (benzoic acid)	77-47-4 (hexachlorocyclopentadiene)	EPA8082 (PCBs):	EPA8151A (Herbicides):	EPA6020 (ICP-MS):	7440-36-0 (Sb)	7440-66-6 (Zn)	7440-48-4 (Co)	7439-89-6 (Fe)	7440-50-8 (Cu)	7440-02-0 (Ni)	7782-49-2 (Se)	EPA7470A (CVAA):	7439-97-6 (Hg)	EPA9034 (Sulfide):	EPA9012A (Total CN):
086261-001 CWL-MW5L		UJ,I4					All Acceptance criteria met. No sample data will be qualified.												All Acceptance criteria met. No sample data will be qualified.	
086261-010 CWL-MW5L											0.013U,B	J+,CK2		J+,CK2	J+,CK2	J-,CK3		UJ,B4		
086262-001 CWL-FB2		UJ,I4																		
086263-001 CWL-TB7		UJ,I4																		
086247-001 CWL-BW3		UJ,I4																		
086247-010 CWL-BW3												0.00055 U,B						UJ,B4		
086248-001 CWL-TB1		UJ,I4																		
086251-001 CWL-MW2BL		UJ,I4																		
086251-010 CWL-MW2BL																		UJ,B4		
086252-001 CWL-FB1		UJ,I4																		
086253-001 CWL-TB3		UJ,I4																		
086254-001 CWL-MW2BU		UJ,I4																		
086254-010 CWL-MW2BU										0.0044 U,B3								UJ,B4		
086255-001 CWL-TB4		UJ,I4																		
086266-001 CWL-MW6L		UJ,I4																		
086266-002 CWL-MW6L				UJ,C3	UJ,C3	UJ,C3														
086266-010 CWL-MW6L													J-,MS3					UJ,B4		
086267-001 CWL-TB9		UJ,I4																		

Validated By: David Schwartz **Date:** 07/14/08

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Memorandum

DATE: July 14, 2008

TO: File

FROM: David Schwent

SUBJECT: Organic GC/MS Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611889, 611891, 611892, 611895, and 611897
SDG: 209915
Laboratory: GEL
Project/Task No: 121515.02.01

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."

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

Holding Times/Preservation

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

Instrument Tune

All instrument tune requirements were met.

Calibration

All initial and continuing calibration QC acceptance criteria were met, except as noted above in the summary section and the following. The initial calibration intercept value of trichlorofluoromethane was >3X the associated method detection limit (MDL). However, all associated sample results were NDs and will not be qualified. The continuing calibration verification (CCV) percent differences (%Ds) of bromomethane, trichlorofluoromethane, and 2-chloro-1,3-butadiene were >20% with positive bias. However, all associated sample results were NDs and will not be qualified. The CCV %Ds of ten other target 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, except the following. Bromodichloromethane, bromoform, and dibromochloromethane were detected in the field blanks (FBs) (samples 209915-003 and -010) at concentrations > the MDL but < the practical quantitation limit (PQL). However, all associated sample results were NDs and will not be qualified.

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 methacrylonitrile, bis(2-chloroisopropyl) ether, and trans-1,4-dichloro-2-butene, analyzed on 6-17-08, were < QC acceptance criteria but >10. Up to three LCS %R infractions are allowable since 56 target analytes were reported. Therefore, no sample data will be qualified as a result. The LCS %R of trichlorofluoromethane, analyzed on 6-18-08, was > QC acceptance criteria. However, all associated sample results were NDs and will not be qualified. No LCSD analyses were 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, except the following. The PS and PSD %Rs of bromomethane and trichlorofluoromethane were > QC acceptance criteria. However, all associated sample results were NDs and will not be qualified.

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/COCs.

No other specific issues were identified that affect data quality.

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Memorandum

DATE: July 9, 2008

TO: File

FROM: David Schwent

SUBJECT: Organic GC/MS Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611889, 611891, 611892, 611895, and 611897
SDG: 209915
Laboratory: GEL
Project/Task No: 121515.02.01

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 EPA8270C (SVOCs). Problems were identified with the data package that result in the qualification of data.

Calibration: The continuing calibration verification (CCV) percent difference (%D) of 4-nitroquinoline-1-oxide was >40% but <60% with negative bias. The associated result of sample 209915-016 was a non-detect (ND) and will be qualified "UJ,C3."

Calibration: The CCV %D of benzoic acid was >40% but <60% with negative bias. The associated result of sample 209915-016 was a ND and will be qualified "UJ,C3."

Calibration: The CCV %D of hexachlorocyclopentadiene was >40% but <60% with negative bias. The associated result of sample 209915-016 was a ND and will be qualified "UJ,C3."

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

Holding Times/Preservation

All samples were extracted and 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 response factors (RFs) of 4-nitroquinoline-1-oxide and aramite were <0.05 but >0.01. However, all associated results of sample 209915-016 were NDs and will not be qualified. The initial calibration verification (ICV) %D of p-phenylenediamine was >20% with positive bias. However, the associated result of sample -016 was a ND and will not be qualified. The CCV %Ds of eight other target analytes were >20% but ≤40% with negative bias (see Data Validation Worksheets). However, all associated results of sample -016 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 method blank (MB).

Internal Standards (ISs)

All IS area and RT QC acceptance criteria were met.

Surrogates

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

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

All LCS QC acceptance criteria were met. No LCSD analysis was performed. The MSD 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 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), field blanks (FBs), 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: July 10, 2008

TO: File

FROM: David Schwent

SUBJECT: Organic GC Data Review and Validation – SNL
Site: CWL Assess GWM
AR/COC: 611889, 611891, 611892, 611895, and 611897
SDG: 209915
Laboratory: GEL
Project/Task No: 121515.02.01

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 was prepared and analyzed with accepted procedures using method EPA8082 (PCBs). No problems were identified with the data package that result in the qualification of data.

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

Holding Times and Preservation

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

Calibration

All initial and continuing calibration QC acceptance criteria were met.

Blanks

No target analytes were detected in the blanks.

Surrogates

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

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

All LCS QC acceptance criteria were met. No LCSD analysis was performed. The MSD 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 QC acceptance criteria were met.

Target Compound Identification/Confirmation

All confirmation QC acceptance criteria were met.

Detection Limits/Dilutions

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

Other QC

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

No other specific issues that affect data quality were identified.

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Memorandum

DATE: July 10, 2008

TO: File

FROM: David Schwent

SUBJECT: Organic GC Data Review and Validation – SNL
Site: CWL Assess GWM
AR/COC: 611889, 611891, 611892, 611895, and 611897
SDG: 209915
Laboratory: GEL
Project/Task No: 121515.02.01

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 was prepared and analyzed with accepted procedures using method EPA8151A (Herbicides). No problems were identified with the data package that result in the qualification of data.

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

Holding Times and Preservation

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

Calibration

All initial and continuing calibration QC acceptance criteria were met.

Blanks

No target analytes were detected in the blanks.

Surrogates

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

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

All LCS QC acceptance criteria were met. No LCSD analysis was performed. The MSD 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 QC acceptance criteria were met.

Target Compound Identification/Confirmation

All confirmation QC acceptance criteria were met.

Detection Limits/Dilutions

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

Other QC

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

No other specific issues that affect data quality were identified.

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Memorandum

DATE: July 14, 2008

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611889, 611891, 611892, 611895, and 611897
SDG: 209915
Laboratory: GEL
Project/Task No: 121515.02.01

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

Summary

The samples were prepared and analyzed with accepted procedures using methods EPA6020 (ICP-MS) and EPA7470A (CVAA). Problems were identified with the data package that result in the qualification of data.

ICP-MS Analysis:

Blanks: Sb, analyzed 6-25-08, was detected in the initial calibration blank (ICB) and continuing calibration blank (CCB) at concentrations > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated result of sample 209915-013 was a detect <5X the highest calibration blank (the ICB) value and will be qualified "0.0044U,B3" at 5X the value of the ICB.

Blanks: Zn was detected in the method blank (MB) of Batch 762734 at a concentration > the MDL but < the PQL. The associated result of sample 209915-002 was a detect <5X the MB and will be qualified "0.013U,B" at 5X the value of the MB.

Blanks: Co was detected in the MB of Batch 763880 at a concentration > the MDL but < the PQL. The associated result of sample 209915-006 was a detect <5X the MB and will be qualified "0.00055U,B" at 5X the value of the MB.

MS: The MS percent recovery (%R) for Fe of Batch 765002 was <75% but >30%. The associated result of sample 209915-017 was a detect and will be qualified "J-,MS3."

ICS A: For Sample 209915-002, the sample Ca concentration was > the ICS A Ca concentration and the ICS A result for Co was > the MDL. The associated Co result was a detect <50X the ICS A result and will be qualified "J+,CK2."

ICS A: For Sample 209915-002, the sample Ca concentration was > the 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 209915-002, the sample Ca concentration was > the 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."

ICS A: For Sample 209915-002, the sample Ca concentration was > the ICS A Ca concentration and the ICS A result for Se was negative with and absolute value >2X the MDL. The associated Se result was a detect <50X the absolute value of the ICS A result and will be qualified "J-,CK3."

CVAA Analysis:

Blanks: Hg was detected in the ICB and CCB at negative concentrations with absolute values > the MDL but < the PQL. All associated sample results were non-detects (NDs) and will be qualified "UJ,B4."

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 as noted above in the summary section and the following. Sb, Be, and Cu were detected in one or more of the blanks at concentrations > the MDL but < the PQL. However, all associated sample results, except the results qualified above in the summary section, were either detects >5X the highest calibration blank and/or MB or NDs and will not be qualified.

CVAA Analysis: No target analytes were detected in the blanks, except as noted above in the summary section.

ICP-MS Internal Standards

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

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

ICP-MS Analysis: All MS QC acceptance criteria were met, except as noted above in the summary section. No MSD analyses were performed. No sample data will be qualified as a result.

CVAA Analysis: All MS QC acceptance criteria were met.

Laboratory Replicate

All Analyses: All replicate QC acceptance criteria were met.

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

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

Detection Limits/Dilutions

All Analyses: All detection limits were properly reported. Ni was diluted 2X for sample 209915-013 to bring an over-range concentration into the linear calibration range of the instrument. No other samples required dilution.

ICP Interference Check Sample (ICS A and AB)

ICP-MS Analysis: All ICS A and AB QC acceptance criteria were met, except as noted above in the summary section and the following. For sample 209915-002, the sample Ca concentration was > the ICS A Ca concentration and the ICS A results for Sb, Ba, Cd, Pb, and Zn were > the associated MDL. However, all associated sample results were either detects >50X the associated ICS A result or NDs and will not be qualified. It should be noted that the Zn result was qualified "U" (ND) due to MB contamination and, therefore, will not be qualified due to the ICS A QC infraction.

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/COCs.

No other specific issues were identified which affect data quality.

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Memorandum

DATE: July 12, 2008

TO: File

FROM: David Schwent

SUBJECT: General Chemistry Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611889, 611891, 611892, 611895, and 611897
SDG: 209915
Laboratory: GEL
Project/Task No: 121515.02.01

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 EPA9012A (total CN) and EPA9034 (total sulfides). No problems were identified with the data package that result in the qualification of data.

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

Holding Times/Preservation

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

Calibration

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

Blanks

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

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

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

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

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

Replicates

All Analyses: All replicate QC acceptance criteria were met.

Detection Limits/Dilutions

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

Other QC

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

No other specific issues were identified which affect data quality.

Sample Findings Summary

Site: CWL Assess GWM **AR/COC:** 611889, 611891, 611892, 611895, and 611897 **Metals**

Sample ID	EPA6020 (ICP-MS):																
	All Acceptance criteria met. No sample data will be qualified.																

Validated By: David Schwenk **Date:** 08/13/08

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Memorandum

DATE: August 13, 2008

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611889, 611891, 611892, 611895, and 611897
SDG: 213083
Laboratory: GEL
Project/Task No: 121515.02.01

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 method EPA6020 (ICP-MS). This data package contains new metals data that reports the target analytes Ag and Sn, which were missing from the original data package (SDG 209915). No problems were identified with the data package that result in the qualification of data.

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

Holding Times/Preservation

All 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 CRI recoveries met QC acceptance criteria.

Blanks

No target analytes were detected in the blanks.

ICP-MS Internal Standards

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

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS QC acceptance criteria were met. No MSD analysis was performed. No sample data will be qualified as a result.

Laboratory Replicate

All replicate QC acceptance criteria were met.

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

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

Detection Limits/Dilutions

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

ICP Interference Check Sample (ICS A and AB)

All ICS A and ICS AB QC acceptance criteria were met.

ICP Serial Dilution

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/COCs.

No other specific issues were identified which affect data quality.

Sample Findings Summary

Site: CWL Assess GWM **AR/COC:** 611890, 611893, and 611899 **Metals**

Sample ID	EPA6020 (ICP-MS):															
	All Acceptance criteria met. No sample data will be qualified.															

Validated By: David Schwartz **Date:** 08/13/08

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Memorandum

DATE: August 13, 2008

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: CWL Assess GWM
AR/COC: 611890, 611893, and 611899
SDG: 213034
Laboratory: GEL
Project/Task No: 121515.02.01

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 method EPA6020 (ICP-MS). This data package contains new metals data that reports the target analyte Sn, which was missing from the original data package (SDG 209541). No problems were identified with the data package that result in the qualification of data.

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

Holding Times/Preservation

All 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 CRI recoveries met QC acceptance criteria.

Blanks

No target analytes were detected in the blanks.

ICP-MS Internal Standards

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

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS and PS QC acceptance criteria were met. No MSD analysis was performed. No sample data will be qualified as a result.

Laboratory Replicate

All replicate QC acceptance criteria were met.

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

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

Detection Limits/Dilutions

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

ICP Interference Check Sample (ICS A and AB)

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 analysis met all QC acceptance criteria.

Other QC

No field blanks (FBs) were submitted on the AR/COCs. The relative percent difference (RPD) of the field duplicate (FD) (sample 213034-004) was <20%. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified which affect data quality.

SECTION III:
Perchlorate Screening Quarterly Monitoring Report Second Quarter of Calendar Year 2008 (April, May, and June 2008)

Executive Summary

Section IV.B of the Compliance Order on Consent (the Order), between the New Mexico Environment Department (NMED), the U.S. Department of Energy (DOE), and Sandia Corporation (Sandia) for Sandia National Laboratories/New Mexico (SNL/NM), effective on April 29, 2004, stipulates that a select group of groundwater monitoring wells be sampled for perchlorate at SNL/NM (NMED April 2004). This report summarizes the perchlorate screening monitoring completed during the second quarter of Calendar Year 2008 (CY2008) in response to the requirements of the Order.

During the second quarter of CY2008, groundwater samples were collected from CYN-MW6 and MWL-BW2, the only two wells currently in the perchlorate-screening monitoring-well network. CYN-MW6 is one of the seven wells in the Burn Site Groundwater monitoring well network. MWL-BW2 is the recently installed (January 2008) background well at the Mixed Waste Landfill. The Order requires that new wells be sampled for perchlorate for a minimum of four quarters. MWL-BW2 was sampled for the first time on April 9, 2008 and CYN-MW6 was sampled for the tenth time on June 23, 2008. Both samples were submitted to General Engineering Laboratories (GEL) for perchlorate analysis using U.S. Environmental Protection Agency (EPA) Method 314.0 (EPA November 1999).

No perchlorate was detected in the environmental sample from MWL-BW2 at a method detection limit of 4 micrograms per liter (μg/L). The environmental sample from CYN-MW6 revealed perchlorate at a concentration of 6.67 μg/L. The source for the perchlorate in the groundwater at CYN-MW6 is unknown although a natural source may be present. Because perchlorate concentrations in monitoring well CYN-MW6 have exceeded the screening level, DOE/Sandia initiated a negotiation process with the NMED (SNL/NM March 2007) to determine the frequency of continued monitoring. DOE/Sandia will continue quarterly monitoring perchlorate concentrations in CYN-MW6 until a negotiated sampling schedule is finalized.

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Tables

Figures

Appendices

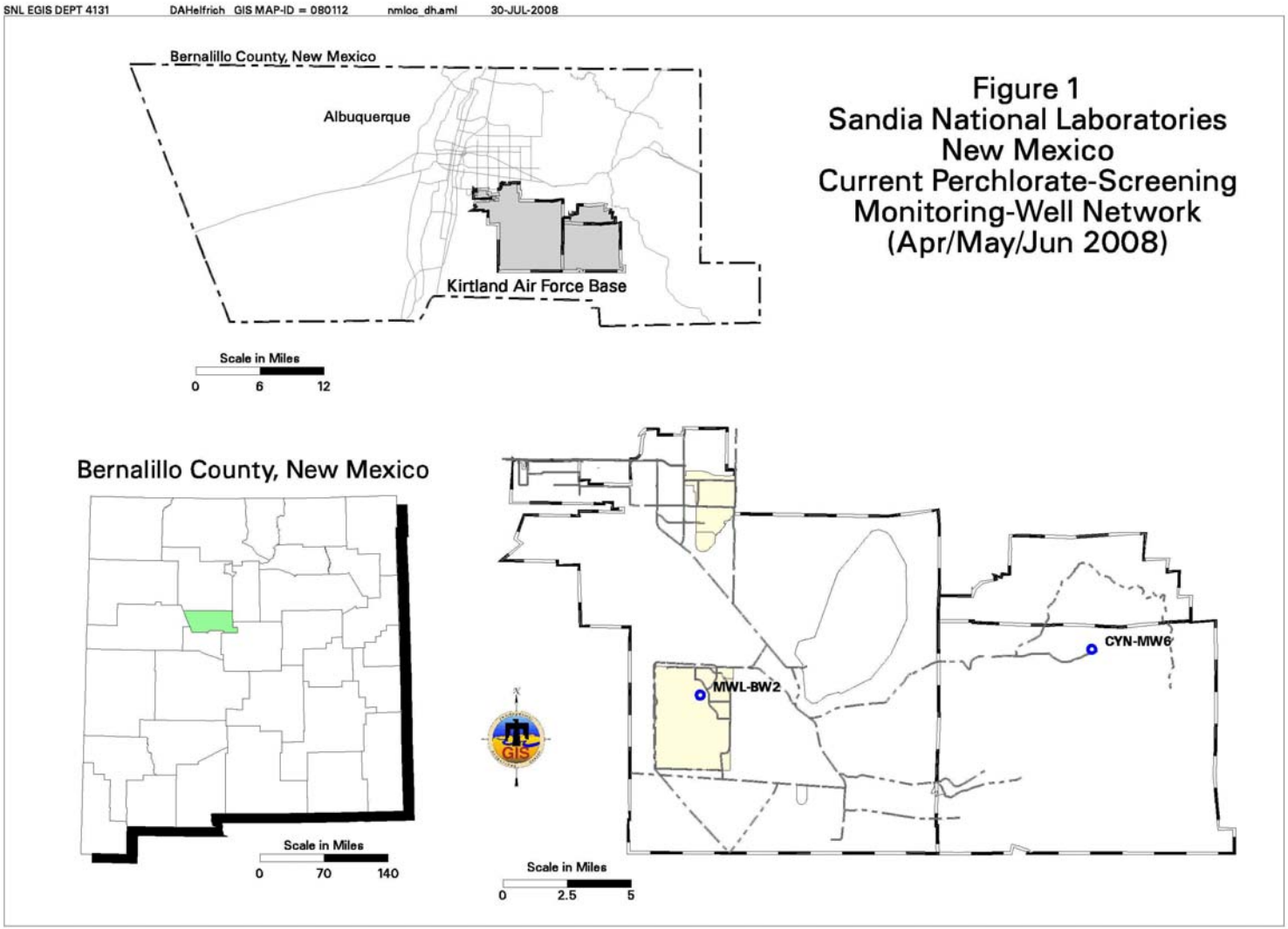
Perchlorate Screening Quarterly Monitoring Report
Second Quarter of Calendar Year 2008
(April, May, and June 2008)

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). This report summarizes the perchlorate screening monitoring completed during the second quarter of Calendar Year 2008 (CY2008) in response to the requirements of the Order. The outline of this report is based on the required elements of a "Periodic Monitoring Report" described in Section X.D. of the Order (NMED April 2004).

In November 2005 DOE/Sandia submitted a letter report on the status of perchlorate screening in groundwater at SNL/NM monitoring wells (SNL/NM November 2005). The purpose of that letter report was to summarize previous correspondence and sampling results, and to outline proposed future work to comply with NMED requirements for perchlorate screening in groundwater. Per the letter report, quarterly reports will be submitted for wells actively in the perchlorate-screening monitoring-well network. Based on NMED response (NMED January 2006), DOE/Sandia will submit each quarterly report within 90 days following the quarter that the data represent. This quarterly report is the tenth to be submitted since the November 2005 letter report; the previous quarterly reports were submitted Fourth Quarter of Calendar Year 2005 through the First Quarter of Calendar Year 2008 (SNL/NM February 2006, SNL/NM June 2006, SNL/NM September 2006, SNL/NM December 2006, SNL/NM March 2007, SNL/NM June 2007, SNL/NM September 2007, SNL/NM December 2007, SNL/NM March 2008a, and SNL/NM June 2008a).

Because perchlorate concentrations in monitoring well CYN-MW6 (in the Burn Site Groundwater study area) have exceeded the screening level, and because this well had completed the required minimum four quarters of sampling, DOE/Sandia initiated a negotiation process with the NMED (SNL/NM March 2007) to determine the frequency of continued perchlorate monitoring. DOE/Sandia will continue quarterly monitoring perchlorate concentrations in CYN-MW6 until a negotiated sampling schedule is finalized. Recently installed (January 2008) groundwater monitoring well MWL-BW2 (in the Mixed Waste Landfill study area) was added to the perchlorate screening monitoring well network starting this quarterly sampling event. The Order requires that new wells be sampled for perchlorate for a minimum of four quarters (NMED April 2004). Reporting will continue as long as a groundwater monitoring well remains in the perchlorate-screening monitoring well network unless negotiated otherwise with NMED.


SNL EGIS DEPT 4131 DAHelfrich GIS MAP-ID = 080112 nmloc_dh.aml 30-JUL-2008
Bernalillo County, New Mexico
Albuquerque
Kirtland Air Force Base
Scale in Miles
0 6 12
Figure 1
Sandia National Laboratories
New Mexico
Current Perchlorate-Screening
Monitoring-Well Network
(Apr/May/Jun 2008)
Bernalillo County, New Mexico
Scale in Miles
0 70 140
MWL-BW2
CYN-MW6
Scale in Miles
0 2.5 5

2.0 Scope of Activities

This report provides perchlorate screening results from the second quarter of CY2008 (April, May, and June 2008) for the two wells currently active in the perchlorate screening program as shown on Figure 1 and listed in Table 1. Per the requirements of Table XI-1 of the Order, a well with four consecutive quarters of non-detect results at the screening level/method detection limit (MDL) of 4 micrograms per liter (μg/L) is removed from the requirement of continued monitoring for perchlorate. Data from several wells identified in the Order have satisfied this requirement and, therefore, these wells have been removed from the perchlorate screening program. Data for these wells were provided in previous reports, and are not discussed in this current report. Wells discussed in previous perchlorate screening reports include: CYN-MW1D, CYN-MW5, CYN-MW7, CYN-MW8, MRN-2, MRN-3D, MWL-BW1, MWL-MW1, NWTA3-MW2, and SWTA3-MW4.

Table 1
Current Perchlorate-Screening Monitoring-Well Network
Second Quarter of CY2008 (April, May, and June)

Well	Date Sampled	Number of Consecutive Sampling Events[a]	Remaining Number of Sampling Events[b]	Sampling Method
CYN-MW6	23-JUN-2008	10	TBD[c]	Bennett™ Pump
MWL-BW2	09-APR-2008	1	3	Bennett™ Pump

Notes:
[a] Includes this sampling event.
[b] Per the requirements of Table XI-1 of the Order (NMED April 2004) a well will be removed from the perchlorate-screening monitoring-well network after four quarters unless perchlorate is detected above the screening level/MDL of 4 μg/L. If perchlorate is detected above the screening level/MDL in a specific well, monitoring will continue at that well at a frequency negotiated with the NMED.
[c] TBD = To be determined. This well has been sampled for the required initial four quarters. Because perchlorate concentrations in this well have exceeded the screening level, DOE/Sandia initiated the negotiation process with the NMED to determine the frequency of continued monitoring. DOE/Sandia will continue quarterly monitoring perchlorate concentrations in CYN-MW6 until a negotiated sampling schedule is finalized.

DOE/Sandia performed groundwater sampling at MWL-BW2 on April 9, 2008 and CYN-MW6 on June 23, 2008. These wells were installed after the Order was finalized and are required to be sampled for perchlorate as "new" wells. Groundwater sampling activities were conducted in conformance with procedures outlined in the investigation-specific sampling and analysis plans (SAP) entitled, "Mixed Waste Landfill Groundwater Monitoring Mini-SAP for Fiscal Year 2008 Annual Sampling " (SNL/NM March 2008b) and "Burn Site Groundwater Monitoring, Mini-SAP for Third Quarter Fiscal Year 2008" (SNL/NM June 2008b).

As described in the Mini-SAP, groundwater sampling was performed in conformance with current Sandia Environmental Management, Long Term Environmental Stewardship (LTES) Project field operating procedures (FOPs). A portable Bennett™

groundwater sampling system was used to collect the groundwater samples. The sampling pump and tubing bundle were decontaminated prior to installation into monitoring wells in accordance with procedures described in FOP 05-03, "LTES Groundwater Sampling Equipment Decontamination" (SNL/NM October 2005a). The well was purged a minimum of one saturated screen volume before sampling in conformance with FOP 05-01, "LTES Groundwater Monitoring Well Sampling and Field Analytical Measurements" (SNL/NM October 2005b).

Field water-quality measurements for turbidity, potential of hydrogen (pH), temperature, specific conductance (SC), oxidation-reduction potential (ORP), and dissolved oxygen (DO) were obtained from the well prior to collecting groundwater samples. Groundwater temperature, SC, ORP, DO, and pH were measured with a YSI™ Model 620 Water Quality Meter. Turbidity was measured with a HACH™ Model 2100P turbidity meter. Purging continued until four stable measurements for turbidity, pH, temperature, and SC were obtained. Groundwater stability was considered acceptable when measurements were within 10 percent or less than 5 nephelometric turbidity units for turbidity, 0.1 pH units, 1.0 degree Celsius, and SC within 5 percent. Field Measurement Logs documenting details of well purging and water quality measurements were submitted to the Sandia Customer-Funded Records Center.

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

Table 2
Sample Details for Second Quarter of CY2008 Perchlorate Sampling

Well	Sample Identification	AR/COC Number	Date Shipped
CYN-MW6	086280-020	611912	23-JUN-08
MWL-BW2	085758-020	611794	09-APR-08

Notes:
ARCOC = Analysis request and chain of custody.

3.0 Regulatory Criteria

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

In March 2007, DOE/Sandia received a letter from the NMED stating the requirement that DOE/Sandia "determine the nature and extent of the contamination and complete a Corrective Measures Evaluation for the perchlorate-impacted groundwater in the vicinity of CYN-MW6" (NMED March 2007). As this was based solely on the four quarters of monitoring results, DOE/Sandia submitted a letter to the NMED in April 2007 (SNL/NM April 2007) which recommended further characterization through continued quarterly monitoring of CYN-MW6 for four additional quarters, including for perchlorate, ending in December 2007, to assure appropriate characterization of this well. In January 2008, DOE/Sandia requested a meeting with NMED to discuss the need for continued monitoring or additional characterization work, and potentially, a CME.

To show that the requirement "to determine the nature and extent of contamination" (NMED March 2007) has been met, DOE/Sandia provided supporting information in the last quarterly report (SNL/NM March 2008a). Perchlorate in surface soils has been characterized at Solid Waste Management Units (SWMUs) in the study area (SNL/NM June 2006; SNL/NM March 2008a--Appendix C). In addition, the nature and extent of perchlorate in groundwater at the Burn Site has been sufficiently characterized. Since 2004, four other monitoring wells in the vicinity of the Burn Site have been sampled and analyzed for perchlorate, including CYN-MW1D, CYN-MW5, CYN-MW7, and CYN-MW8. All of these wells were sampled for four quarters and all results were non-detect for perchlorate (SNL/NM March 2008a--Appendix D).

Per the requirements of Section VI.K.1.b of the Order (NMED April 2004), a human health risk assessment has been performed to evaluate the potential for adverse health effects from the concentrations of perchlorate detected in CYN-MW6 groundwater. The maximum concentration of perchlorate in CYN-MW6 to date (8.93 μg/L) was used in the assessment. The calculated hazard quotient (HQ) of 0.35 is less than the NMED target level of a Hazard Index (the sum of all HQs) of 1.0 (NMED June 2006) (SNL/NM March 2008a--Appendix E).

4.0 Monitoring Results

Table 3 summarizes current perchlorate results for MWL-BW2, and the current and historical perchlorate results for CYN-MW6. The analytical laboratory COA for the second quarter CY2008 perchlorate data is included as Appendix A. Perchlorate was not detected above

the screening level in MWL-BW2. Consistent with historical analytical results, perchlorate was detected above the screening level/MDL in the second quarter of CY2008 in CYN-MW6.

As shown in Figure 2, the concentration of perchlorate found in CYN-MW6 in June 2008 (6.67 μg/L) is consistent with concentrations from previous quarters (SNL/NM May 2006, SNL/NM June 2006, SNL/NM September 2006, SNL/NM December 2006, SNL/NM March 2007, SNL/NM June 2007, SNL/NM September 2007, SNL/NM December 2007, SNL/NM March 2008a, and SNL/NM June 2008a).

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

The analytical data were reviewed and qualified in accordance with AOP 00-03 Revision 2, "Data Validation Procedure for Chemical and Radiochemical Data" (SNL/NM July 2007). No problems were identified with the analytical data that resulted in the qualification of the data as unusable. The data are acceptable and reported quality control measures are adequate. The data validation sample findings summary sheets for the perchlorate data are included as Appendix B. No variances or nonconformances in field activities or field conditions from requirements in the groundwater monitoring mini-SAPs (SNL/NM March 2008b and SNL/NM June 2008b) were identified during the second quarter CY2008 sampling activities.

5.0 Summary and Conclusions

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

- No perchlorate was detected in the environmental sample from the new groundwater monitoring well MWL-BW2 at a screening level/MDL of 4 μg/L.
- Since June 2004 (the start of sampling required by the Order), perchlorate has only been detected above the screening level/MDL in one of the wells (CYN-MW6) in the perchlorate-screening monitoring-well network. Due to the detection of perchlorate in the samples from CYN-MW6 in March 2006, DOE/Sandia submitted the "Notification of Release, Perchlorate at Well CYN-MW6, May 2006" (SNL/NM May 2006) to the NMED. DOE and Sandia were required to notify the NMED of the discovery of a previously unknown release under Section V of the Order (NMED April 2004).
- The result from this sampling event (6.67 μg/L) is consistent with the concentrations reported since the inception of sampling for perchlorate at CYN-MW6 in March 2006 (Figure 2) (SNL/NM May 2006, SNL/NM June 2006, SNL/NM September 2006, SNL/NM December 2006, SNL/NM March 2007, SNL/NM June 2007, SNL/NM September 2007, SNL/NM December 2007, SNL/NM March 2008a, and SNL/NM June 2008a).
- As discussed in the previous quarterly reports (SNL/NM June 2006, SNL/NM September 2006), the source for the perchlorate in the groundwater at CYN-MW6 is unknown. Soil sampling completed in 2001 at SWMU 65—Lurance Canyon Explosives Test Site, or SWMU 94—Lurance Canyon Burn Site did not reveal detectable concentrations of perchlorate in site soils (NMED January 2001; Skelly and Griffith January 2003; and SNL/NM June 2006).

Table 3
Summary of Perchlorate Screening Analytical Results for the Current Monitoring-Well Network, as of Second Quarter CY2008.

Well ID	Sample Date	ARCOC No.	Sample No.	Perchlorate Result[a] (µg/L)	MDL[b] (µg/L)	PQL[c] (µg/L)	MCL[d] (µg/L)	Laboratory Qualifier[e]	Validation Qualifier[f]	Analytical Method[g]	Comments
CYN-MW6	23-Mar-06	609578	075985-020	**6.92**	4.0	12	NE	J		EPA 314.0	
			075986-020	**7.44**	4.0	12	NE	J		EPA 314.0	Duplicate sample
			075985-R20	**6.39**	0.50	2.0	NE	Hh	HT, J	EPA 6850M	Verification/Re-analysis
			075986-R20	**6.48**	0.50	2.0	NE	Hh	HT, J	EPA 6850M	Verification/Re-analysis
	22-Jun-06	609929	078687-020	**6.63**	4.0	12	NE	J		EPA 314.0	
			078688-020	**6.45**	4.0	12	NE	J		EPA 314.0	Duplicate sample
			078687-021	**6.99**	1.0	4.0	NE			EPA 6850M	Verification
			078688-021	**6.92**	1.0	4.0	NE			EPA 6850M	Verification/Duplicate Sample
	20-Sep-06	610652	081626-020	**7.52**	4.0	12	NE	J		EPA 314.0	
			081626-R20	**6.96**	1.0	4.0	NE		P2	EPA 6850M	Verification/Re-analysis
	15-Dec-06	611057	083858-020	**8.46**	4.0	12	NE	J		EPA 314.0	
			083859-020	**8.93**	4.0	12	NE	J		EPA 314.0	Duplicate sample
	14-Mar-07	611200	084237-020	**8.12**	4.0	12	NE	J		EPA 314.0	
	27-Jun-07	611399	084833-020	**6.57**	4.0	12	NE	J	J-, X1	EPA 314.0	
	27-Jun-07	611399	084833-R20	**5.94**	0.5	2.0	NE			EPA 6850M	Verification/Re-analysis
	12-Sep-07	611581	085249-020	**7.74**	4.0	12	NE	J		EPA 314.0	
	12-Sep-07	611581	085249-R20	**6.46**	0.5	2.0	NE	Hh	J	EPA 6850M	Verification/Re-analysis
	18-Dec-07	611668	085446-020	**6.20**	4.0	12	NE	J		EPA 314.0	
	18-Dec-07	611668	085447-020	**6.56**	4.0	12	NE	J		EPA 314.0	Duplicate sample
	10-Mar-08	611749	085661-020	**7.25**	4.0	12	NE	J		EPA 314.0	
	23-Jun-08	611912	086280-020	**6.67**	4.0	12	NE	J		EPA 314.0	
MWL-BW2	09-Apr-08	611794	085758-020	ND	4.0	12	NE	U		EPA 314.0	

Refer to notes on next page.

Table 3 (concluded)
Summary of Perchlorate Screening Analytical Results for the Current Monitoring-Well Network, as of Second Quarter CY2008.

Notes—

CYN-MW6 was installed in January 2006 and MWL-BW2 was installed in March 2008; this table presents all quarterly data collected at these wells.

[a]Result

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

ND = not detected (at method detection limit).

μg/L = micrograms per liter.

[b]MDL

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

[c]PQL

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

[d]MCL

Maximum contaminant level. Established by the U.S. Environmental Protection Agency Primary Water Regulations [40 CFR 141.11(b)], and subsequent amendments or the New Mexico Environmental Improvement Board in Title 20, Chapter 7, Part 1 of the New Mexico Administrative Code (20MAC 7.1).

NE = not established.

[e]Lab Qualifier

H = Analytical holding time was exceeded.

h = Prep holding time was exceeded.

J = Amount detected is below the practical quantitation limit.

U = Analyte is absent or below the method detection limit.

[f]Validation Qualifier

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

HT = The holding time was exceeded for the associated sample analysis.

J = The associated value is an estimated quantity.

J- = The associated value is an estimated quantity with a suspected negative bias.

P2 = Insufficient quality control data to determine laboratory precision.

X1 = General data quality is suspect.

[g]Analytical Method

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

EPA 6850M: U.S. Environmental Protection Agency, April 2005, "Perchlorate in Water, Soils, and Solids Using High Performance Liquid Chromatography/Electrospray Ionization/Mass Spectrometry (HPLC/ESI/MS)," draft, Method 6850 (EPA April 2005).

Figure 2
Perchlorate Concentrations (µg/L) over Time in CYN-MW6

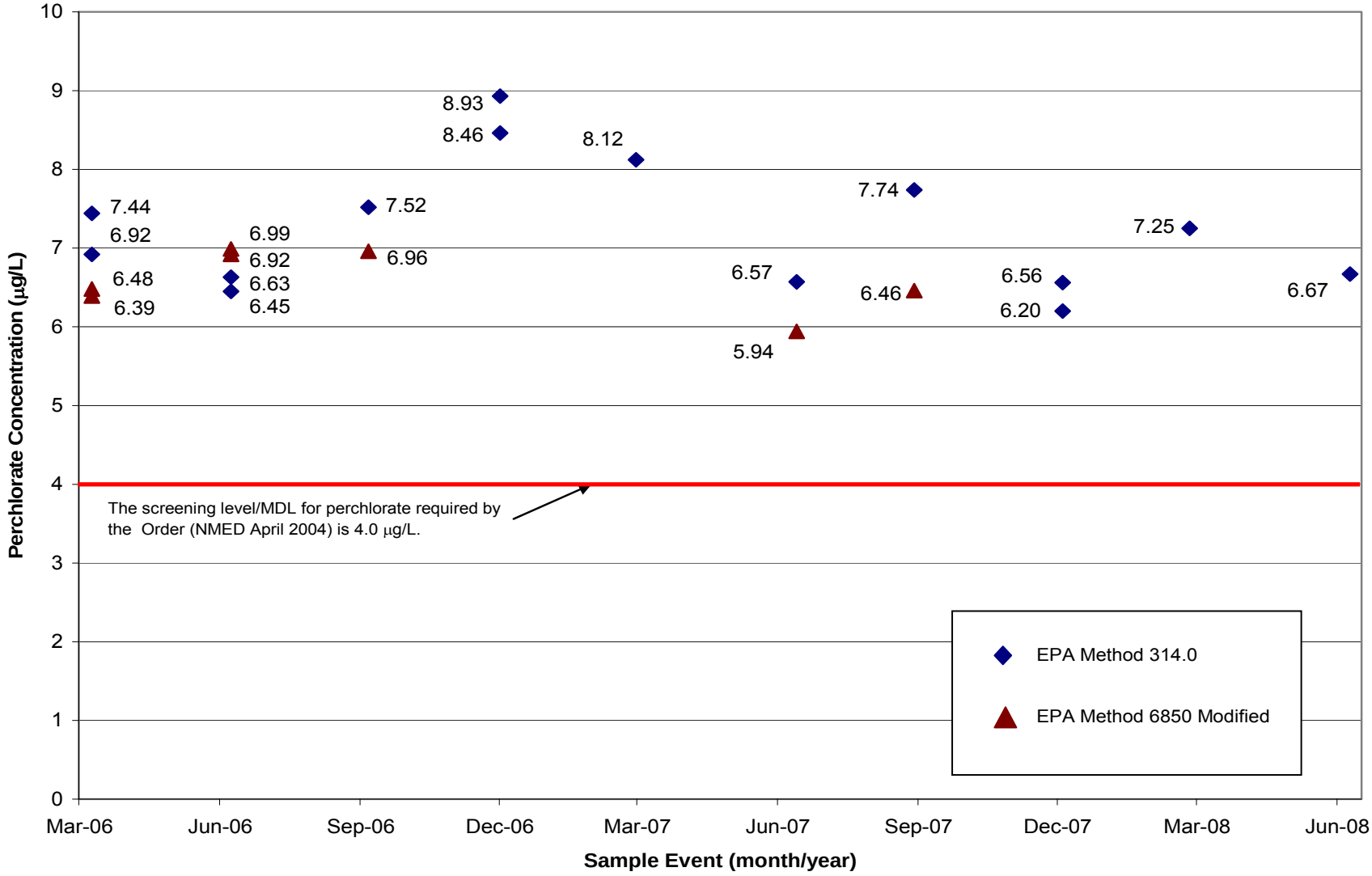


Table 4
Perchlorate Screening Groundwater Monitoring
Field Water Quality Measurements[a], Second Quarter of CY2008

Well ID	Sample Date	Temperature (^{0}C)	Specific Conductivity (μmho/cm)	Oxidation Reduction Potential (mV)	pH	Turbidity (NTU)	Dissolved Oxygen (% Sat)	Dissolved Oxygen (mg/L)
CYN-MW6	23-Jun-08	21.01	1139	171.7	7.05	0.69	18.5	1.64
MWL-BW2	09-Apr-08	18.78	704	114.9	7.13	1.53	14.3	1.33

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

- The nature and extent of perchlorate in groundwater at the Burn Site has been sufficiently characterized. Since 2004, four other monitoring wells in the vicinity of the Burn Site have been sampled and analyzed for perchlorate, including CYN-MW1D, CYN-MW5, CYN-MW7, and CYN-MW8. All of these wells were sampled for four quarters and all results were non-detect for perchlorate (SNL/NM March 2008a).
- A human health risk assessment has been performed to evaluate the potential for adverse health effects from the concentrations of perchlorate detected in CYN-MW6 groundwater. The maximum concentration of perchlorate in CYN-MW6 to date (8.93 µg/L) was used in the assessment. The calculated HQ of 0.35 is less than the NMED target level of a Hazard Index (the sum of all HQs) of 1.0 (NMED June 2006 and SNL/NM March 2008a).

DOE/Sandia will continue quarterly monitoring of perchlorate in MWL-BW2 for at least three more quarters to verify the results presented in this report. Because perchlorate concentrations in monitoring well CYN-MW6 have exceeded the screening level, DOE/Sandia initiated a negotiation process with the NMED (SNL/NM March 2007) to determine the frequency of continued monitoring. DOE/Sandia will continue quarterly monitoring of perchlorate in CYN-MW6 until a negotiated sampling schedule is finalized. In January 2008, DOE/Sandia requested a meeting with NMED to discuss the need for continued monitoring or additional characterization work, and potentially, a CME.

6.0 References

EPA (see US Environmental Protection Agency).

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Appendix A

Analytical Laboratory Certificate of Analysis for the Perchlorate Data

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name:	MWL	Project No.:	98026.01.08
Well I.D.:	MWL- BW2	Date:	4-9-08
Weather	Cool & cloudy		
Method:	X Portable pump	____ Dedicated pump	Pump depth: 499'

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~~
477.15	0848		Start Purge							
482.25	0921	10	18.96	694	141.1	7.12		1.44	12.3	1.12
483.97	0942	20	18.97	693	126.0	7.14		3.31	13.3	1.23
484.97	1003	30	18.97	699	116.1	7.14		1.60	9.2	0.84
485.71	1024	40	19.03	704	113.3	7.13		1.07	7.4	0.68
486.65	1046	50	19.08	705	112.3	7.13		1.40	7.6	0.71
486.35	1102	55	18.95	709	113.5	7.13		1.38	13.8	1.28
486.42	1115	60	18.99	704	113.9	7.13		1.49	14.2	1.31
486.53	1120	62	18.98	704	114.4	7.13		1.51	14.3	1.31
486.63	1125	64	18.93	703	115.3	7.13		1.55	14.5	1.36
486.73	1129	66	18.78	704	114.9	7.13		1.53	14.3	1.33
	1130	Start Sample.								

COC number(s): 611794, 611795

Sample number(s): 085758, 085760

≈ 4.75 gal purge prior to measurement

0859

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

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

SMO Use

AR/COC 611794

Dept. No./Mail Stop:	6765/MS 1089	Date Samples Shipped:	4-9-08	Project/Task NO. 98026 .01.08	☐ Waste Characterization
Project/Task Manager:	Paul Freshour	Carrier/Waybill No.	87218	SMO Authorization: Paul F. Freshour	-Send preliminary/copy report to:
Project Name:	MWL GWM	Lab Contact:	Edie Kent/803-556-8171	Contract # 691436	
Record Center Code:	ER/076/DAT	Lab Destination:	GEL	SEE BOTTLE ORDER	☐ Released by COC No.:_____
Logbook Ref. No.:	ER 032	SMO Contact/Phone:	Pam Puissant/505-844-3185		☑ Validation Required
Service Order No.	CF 001-08	Send Report to SMO:	Lorraine Herrera/505-844-3199		Bill To:Sandia National Labs (Accounts Payable)
Location	Tech Area				P.O. Box 5800 MS 0154
Building	Room	Reference LOV(available at SMO)			Albuquerque, NM 87185-0154

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
085758-001	MWL-BW2	497	76	040908/1130	GW	G	3x40ml	HCL	G	SA	VOC (SW846-8260)	010
085758-002	MWL-BW2	497	76	040908/1131	GW	AG	3x1 L	4C	G	SA	SVOC (SW846-8270)	011
085758-009	MWL-BW2	497	76	040908/1134	GW	P	500 ml	HNO3	G	SA	Total TAL Metals+Tot U,U-235,U-238	012
085758-010	MWL-BW2	497	76	040908/1135	FGW	P	500 ml	HNO3	G	SA	TAL Metals+Mo,Tot-U,U-235,U-238	013
085758-013	MWL-BW2	497	76	040908/1136	GW	P	1 L	4C	G	SA	TDS (160.1)	014
085758-016	MWL-BW2	497	76	040908/1137	GW	P	500 ml	4C	G	SA	Major Anions(SW846-9056)+ Alkalin(SM2320B)	015
085758-018	MWL-BW2	497	76	040908/1138	GW	P	250 ml	H2SO4	G	SA	NPN (353.2)	016
085758-020	MWL-BW2	497	76	040908/1139	GW	AG	250 ml	4C	G	SA	Perchlorate (314.0)	017
085758-026	MWL-BW2	497	76	040908/1140	GW	AG	250 ml	H2SO4	G	SA	Total Phenolics (SW846-9066)	018
085758-027	MWL-BW2	497	76	040908/1141	GW	P	500 ml	NaOH	G	SA	Total Cyanide (SW846-9012)	019

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

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	William J Gibson			Weston/4133/284-5232/239-7367
	Alfred Santillanes			Weston/4133/844-5130/228-0710

Total TAL&TAL Metals EPA Method (SW 846-6020/7470)
Major Anions/Br,Cl,Fl,SO4
FGW (filtered in field w/ 40 micron filter)
*Please list as separate report.

Lab Use

1.Relinquished by		Org. 4133	Date 4/9/08	Time 1240	4.Relinquished by		Org.	Date	Time
1. Received by		Org. 4133	Date 4/9/08	Time 1240	4. Received by		Org.	Date	Time
2.Relinquished by		Org. 4133	Date 4/9/08	Time 1750	5.Relinquished by		Org.	Date	Time
2. Received by		Org. GEL	Date 4/10/08	Time 0900	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

OFF-SITE LABORATORY
Analysis Request And Chain Of Custody (Continuation)

AR/COC- 611794

Project Name:	MWL GWM	Project/Task Manger:	Paul Freshour	Project/Task No.:	98026 .01.08
Location	Tech Area				
Building	Room				

Reference LOV (available at SMO)

Sample No-Fraction	ER Sample ID or Sample Location detail	Pump Depth (ft)	ER Site No.	Date/Time (hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab use Lab Sample ID
085758-033	MWL-BW2	497	76	040908/1142	GW	P	1 Liter	HNO3	G	SA	Gamma Spec (short list 901.1)	020
~~085758-034~~	~~MWL-BW2~~	~~497~~	~~76~~	~~040908/1143~~	~~GW~~	~~P~~	~~1 Liter~~	~~HNO3~~	~~G~~	~~SA~~	~~Gross Alpha/Beta (900.0)~~	~~021~~
085758-036	MWL-BW2	497	76	040908/1144	GW	AG	250 ml	4C	G	SA	Tritium (906.0)	022
085759-001	MWL-TB2	NA	NA	040908/1130	DIW	G	3x40ml	HCL	G	TB	VOC (8260)	023

Abnormal Conditions on Receipt

LAB USE

Recipient Initials RWS

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

Certificate of Analysis

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

Report Date: May 2, 2008

Client Sample ID: 085758-020
Sample ID: 206357017
Matrix: AQUEOUS
Collect Date: 09-APR-08 11:39
Receive Date: 10-APR-08
Collector: Client

Project: SNLSGWater
Client ID: SNLS003

Client Desc.: MWL-BW2

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography Federal										
EPA 314.0 Perchlorate by IC "As Received"										
Perchlorate	U	ND	0.004	0.012	mg/L	1	MAR1 04/15/08	2159	745089	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

ATTACHMENT A

FIELD MEASUREMENT LOG FOR GROUNDWATER SAMPLE COLLECTION

Project Name: Burnsite	Project No.:
Well I.D.: CYN-MW6	Date: 6-23-08
Weather	
Method: X Portable pump _____ Dedicated pump	Pump depth: 163'

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~~
139.97	0900		START							
142.80	0926	10	19.61	1346	126.5	6.98		0.47	7.8	0.72
143.71	0946	20	19.31	1164	140.7	7.03		0.87	16.5	1.51
144.08	0955	25	19.34	1130	153.6	7.05		0.67	18.7	1.72
144.53	1004	30	19.49	1128	161.6	7.04		0.60	18.8	1.72
144.84	1016	35	19.80	1138	168.6	7.05		0.68	19.0	1.73
145.42	1031	40	20.54	1140	170.1	7.06		0.75	19.0	1.71
146.15	1037	42	20.81	1139	171.4	7.05		0.76	18.8	1.68
146.83	1044	44	20.94	1140	171.5	7.05		0.72	18.6	1.66
147.56	1051	46	21.01	1139	171.7	7.05		0.69	18.5	1.64
	1052		SAMPLING							
COC number(s):										
Sample number(s):										

Purge Volume Calculations

~4.75 gals purged from tub 0906

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

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. | SMO Use | **AR/COC** 611912

Dept. No./Mail Stop:	4133/1089	Date Samples Shipped:	6-23-08	Project/Task No.121515.02.01	☐ Waste Characterization -Send preliminary/copy report to:
Project/Task Manager:	Don Schofield	Carrier/Waybill No.	91019	SMO Authorization: LR SMO	
Project Name:	Burn Site GWM	Lab Contact:	Edie Kent/803-556-8171	Contract #: PO 691436	☐ Released by COC No.:_____
Record Center Code:	ER/1333/DAT	Lab Destination:	GEL	5 EG BOTTLE ORDER	☑ Validation Required
Logbook Ref. No.:	ER 058	SMO Contact/Phone:	Pam Puissant/505-844-3185		Bill To:Sandia National Labs (Accounts Payable)
Service Order No.	CF#058-08	Send Report to SMO:	Lorraine Herrera/505-844-3199		P.O. Box 5800 MS 0154
Location	Tech Area	Reference LOV(available at SMO)			Albuquerque, NM 87185-0154 210879
Building	Room				

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Pump Depth (ft)	ER Site No.	Date/Time(hr) Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
086280-001	CYN-MW6	163		062308/1052	GW	G	3x40 ml	HCL	G	SA	VOC (SW846-8260)	001 .1
086280-002	CYN-MW6	163		062308/1053	GW	AG	3x1 L	4C	G	SA	SVOC (SW846-8270)	002 .2
086280-005	CYN-MW6	163		062308/1054	GW	AG	4x1 L	4C	G	SA	TPH Diesel (SW846-8015)	003 .3
086280-006	CYN-MW6	163		062308/1055	GW	G	3x40 ml	HCL	G	SA	TPH Gasoline (SW846-8015)	004 .4
086280-016	CYN-MW6	163		062308/1056	GW	P	250 ml	4C	G	SA	Major Anions (SW846-9056)	005 .5
086280-017	CYN-MW6	163		062308/1059	FGW	P	500 ml	HNO3	G	SA	Major Cations (Sw846-6020) field filtered	006 .6
086280-018	CYN-MW6	163		062308/1057	GW	P	250 ml	H2SO4	G	SA	NPN (353.2)	007 .7
086280-020	CYN-MW6	163		062308/1058	GW	P	500 ml	4C	G	SA	Perchlorate (314.0)	008 .8

5

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

Trip blank information on CoC 611911
FGW: Filtered in field w/40 micron filter

*Please list as separate report.

Abnormal Conditions on Receipt
Lab Use

	Name	Signature	Init	Company/Organization/Phone/Cellular
Sample Team Members	William J Gibson			Weston/4133/284-5232/239-7367
	Robert Lynch			Weston/4133/844-4013/250-7090
	Alfred Santillanes			Weston/4133/844-5130/228-0710

1.Relinquished by		Org.4133	Date 6/23/08	Time 1140	4.Relinquished by	Org.	Date Time
1. Received by		Org.6139	Date 6-23-08	Time 11:40	4. Received by	Org.	Date Time
2.Relinquished by		Org.6139	Date 6-23-08	Time 230	5.Relinquished by	Org.	Date Time
2. Received by		Org.6761	Date 6/24/08	Time 0740	5. Received by	Org.	Date Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date Time

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

Certificate of Analysis

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

Report Date: July 15, 2008

Client Sample ID: 086280-020
Sample ID: 210879008
Matrix: AQUEOUS
Collect Date: 23-JUN-08 10:58
Receive Date: 24-JUN-08
Collector: Client

Project: SNLSGWater
Client ID: SNLS003

Client Desc.: CYN-MW6

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography Federal										
EPA 314.0 Perchlorate by IC "As Received"										
Perchlorate	J	0.00667	0.004	0.012	mg/L	1	MAR1 06/26/08	1206	768356	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

Appendix B

Data Validation Sample Findings Summary Sheets for the Perchlorate Data

Analytical Quality Associates, Inc.
616 Maxine NE
Albuquerque, NM 87123
Phone: 505-299-5201
Fax: 505-299-6744
Email: minteer@aol.com

Memorandum

DATE: June 20, 2008

TO: File

FROM: David Schwent

SUBJECT: Inorganic Data Review and Validation - SNL
Site: MWL Assessment GWM
AR/COC: 611793, 611794, 611804, 611805, and 611807
SDG: 206357
Laboratory: GEL
Project/Task No: 98026.01.08

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

Summary

The samples were prepared and analyzed with accepted procedures using EPA314.0 (perchlorate), EPA353.2 (nitrate/nitrite by Cd reduction), EPA9012A (total CN), EPA9056 (anions), EPA9066 (total phenol), SM2320B (alkalinity), and SM2540C (TDS). It should be noted that the TDS analysis was requested on the COCs by method EPA160.1 but was analyzed by SM2540C with client approval (see e-mail, dated 4-10-08). Problems were identified with the data package that result in the qualification of data.

Total CN Analysis:

Blanks: Total CN was detected in the method blank (MB) at a negative concentration with an absolute value > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated result of sample 206357-019 was a non-detect (ND) and will be qualified "UJ,B5."

Total Phenol Analysis:

Blanks: Total phenol was detected in the initial calibration blank (ICB) and continuing calibration blank (CCB) at negative concentrations with absolute values > the MDL but < the PQL. The associated result of sample 206357-018 was a ND and will be qualified "UJ,B4."

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

Holding Times/Preservation

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

Calibration

Anions Analysis: All initial and continuing calibration QC acceptance criteria were met, except the following. The initial calibration intercept value of sulfate was >3X the MDL. However, all associated sample results were detects >3X the value of the intercept and will not be qualified.

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

Blanks

Total CN/Total Phenol Analyses: No target analytes were detected in the blanks, except as noted above in the summary section.

Total Alkalinity Analysis: No target analytes were detected in the blanks, except the following. Alkalinity was detected in the MB at a concentration > the MDL but < the PQL. However, all associated sample results were detects >5X the MB concentration and will not be qualified.

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

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 or MSD analyses were used as measures of precision. No sample data will be qualified as a result.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Total Phenol/Total Alkalinity Analyses: All MS/MSD QC acceptance criteria were met.

TDS Analysis: No MS analysis was required by this method.

All Other Analyses: All MS (PS) QC acceptance criteria were met. No MSD (PSD) analyses were performed. The replicate analyses were used as measures of laboratory precision. No sample data will be qualified as a result. It should be noted that the MS analysis for nitrate/nitrite (Batch 743268) was performed on a SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Replicates

Total Phenols Analysis: No laboratory replicate analyses were required for this method. The MSD was used as a measure of laboratory precision.

All Other Analyses: All replicate QC acceptance criteria were met. It should be noted that the laboratory replicate analysis for nitrate/nitrite (Batch 743268) was performed on a SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Detection Limits/Dilutions

Anions Analysis: All detection limits were properly reported. All samples were diluted 10X for chloride and sulfate due to high concentrations of the target analytes. All associated batch QC samples were analyzed at dilution factors that resulted in relative dilution factors to the samples that were ≤5X. No sample data will be qualified as a result.

Nitrate/nitrite Analysis: All detection limits were properly reported. Sample 206357-005 was diluted 5X for nitrate/nitrite due to high concentration of the target analyte and samples -016, -032, and -040 were diluted 10X for nitrate/nitrite due to matrix interference. All associated batch QC samples were analyzed

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

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

Other QC

All Analyses: No equipment blanks (EBs) or field blanks (FBs) were submitted on the AR/COCs. All relative percent differences (RPDs) of the field duplicates (FDs) (samples 206357-039 and -040) were <20%. No QC acceptance criteria for the evaluation of FDs are currently in place.

No other specific issues were identified that affect data quality.

Sample Finding Summary

Site: MWL Assessment GWM **AR/COC:** 611793, 611794, 611804, 611805, and 611807 **Organic, Metals, Gen Chem, Rad**

Sample ID	EPA901.1 (Gamma Spec):	86954-36-1 (Am-241)	10045-97-3 (Cs-137)	10198-40-0 (Co-60)	13966-00-2 (K-40)	EPA900.0 (Gross Alpha/Beta):	12587-47-2 (gross beta)	EPA906.0 (Tritium):	10028-17-8 (tritium)							
085779-033 MWL-MW6		BD,FR3	BD,FR3	BD,FR3	R,Z2											
085779-034 MWL-MW6							J,FR7									
085779-036 MWL-MW6									BD,FR3							
085758-033 MWL-BW2		BD,FR3	BD,FR3	BD,FR3	BD,FR3											
085758-036 MWL-BW2									BD,FR3							
085775-033 MWL-MW5		BD,FR3	BD,FR3	BD,FR3	BD,FR3											
085775-034 MWL-MW5							J,FR7									
085775-036 MWL-MW5									BD,FR3							
085776-033 MWL-MW5		BD,FR3	BD,FR3	BD,FR3	R,Z2											
085776-034 MWL-MW5							J,FR7									
085776-036 MWL-MW5									BD,FR3							

Validated By: David Schwandt **Date:** 06/20/08

Analytical Quality Associates, Inc.
616 Maxine NE
Albuquerque, NM 87123
Phone: 505-299-5201
Fax: 505-299-6744
Email: minteer@aol.com

Memorandum

DATE: August 8, 2008

TO: File

FROM: David Schwent

SUBJECT: General Chemistry Data Review and Validation - SNL
Site: Burn Site GWM (LTS)
AR/COC: 611911 and 611912
SDG: 210879
Laboratory: GEL
Project/Task No: 121515.02.01

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 EPA314.0 (perchlorate), EPA353.2 (nitrate/nitrite by Cd reduction), and EPA9056 (anions). Problems were identified with the data package that result in the qualification of data.

Anions Analysis:

Blanks: Chloride was detected in the continuing calibration blank (CCB) at a concentration > the method detection limit (MDL) but < the practical quantitation limit (PQL). The associated result of sample 210879-013 was a detect <5X the CCB concentration and will be qualified "0.93U,B3" at 5X the value of the CCB.

Nitrate/nitrite Analysis:

Blanks: Nitrate/nitrite was detected in the method blank (MB) at a concentration > the MDL but < the PQL. The associated result of sample 210879-015 was a detect <5X the MB concentration and will be qualified "0.078U,B" at 5X the value of the MB.

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

Holding Times/Preservation

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

Calibration

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

Blanks

Anions Analysis: No target analytes were detected in the blanks, except as noted above in the summary section and the following. Chloride was detected in the CCB at a concentration > the MDL but < the PQL. However, the associated result of sample 210879-005 was a detect >5X the CCB concentration and will not be qualified. It should be noted that the chloride detect result of the equipment blank (EB) (sample -013) was qualified "U" (ND) due to MB contamination and, therefore, cannot affect other field sample results. Sulfate were detected in the EB (sample -013) at a concentration > the MDL but < the PQL. However, the associated result of sample -005 was a detect >5X the highest calibration blank concentration and will not be qualified.

Nitrate/nitrite Analysis: No target analytes were detected in the blanks, except as noted above in the summary section and the following. Nitrate/nitrite was detected in the MB at a concentration > the MDL but < the PQL. However, the associated result of sample 210879-007 was a detect >5X the MB concentration and will not be qualified. It should be noted that the nitrate/nitrite detect result of the EB (sample -015) was qualified "U" (ND) due to MB contamination and, therefore, cannot affect other field sample results.

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

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.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

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

Replicates

All Analyses: All replicate QC acceptance criteria were met.

Detection Limits/Dilutions

All detection limits were properly reported. Sample 210879-005 was diluted 10X for chloride and sulfate due to high concentrations of the target analytes, sample -007 was diluted 50X for nitrate/nitrite due to high concentration of the target analyte, and sample -015 was diluted 5X for nitrate/nitrite due to matrix interference. All associated batch QC samples were diluted at dilution factors that resulted in relative dilution factors to the samples that were ≤5X. No sample data will be qualified as a result. No other samples required dilution.

Other QC

No field blanks (FBs) or field duplicates (FDs) were submitted on the AR/COCs.

No other specific issues were identified which affect data quality.

Sample Findings Summary

Site: Burn Site GWM (LTS) **AR/COC:** 611911 and 611912 **Organic, Metals, Gen Chem**

Sample ID	EPA8260B (VOCs):	EPA8270C (SVOCs):	88-75-5 (2-nitrophenol)	All Other SVOC Results	EPA8015A/B (DRO):	EPA8015B (GRO):	EPA6020 (ICP-MS):	7440-70-2 (Ca)	EPA314.0 (Perchlorate):	EPA9056 (Anions):	16887-00-6 (chloride)	Nitrate/nitrite (EPA353.2):	N599 (nitrate/nitrite)	
086280-002 CYN-MW6	All Acceptance criteria met. No sample data will be qualified.		R,H2,I5	UJ,H2		All Acceptance criteria met. No sample data will be qualified.			All Acceptance criteria met. No sample data will be qualified.					
086280-005 CYN-MW6					UJ,MS3									
086278-002 CYN-EB1			R,H2,I5	UJ,H2										
086278-005 CYN-EB1					UJ,MS3									
086278-016 CYN-EB1											0.93U,B3			
086278-017 CYN-EB1								0.19U,B						
086278-018 CYN-EB1													0.078U,B	

Validated By: David Schwent **Date:** 08/08/08