SAND2015-8773R

Sandia National Laboratories, New Mexico

Environmental Restoration Operations

A U.S. Department of Energy Environmental Cleanup Program

Consolidated Quarterly Report

April – June 2015

October 2015

United States Department of Energy
Sandia Field Office

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CONSOLIDATED QUARTERLY REPORT

October 2015

SANDIA NATIONAL LABORATORIES, NEW MEXICO

ENVIRONMENTAL RESTORATION OPERATIONS

U.S. DEPARTMENT OF ENERGY:	SANDIA FIELD OFFICE
CONTRACTOR:	SANDIA CORPORATION
PROJECT MANAGER:	John Cochran

NUMBER OF POTENTIAL RELEASE SITES SUBJECT TO THIS PERMIT: 13

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

REPORTING PERIOD: April – June 2015

OVERVIEW

This Sandia National Laboratories, New Mexico Environmental Restoration Operations (ER) Consolidated Quarterly Report (ER Quarterly Report) fulfills all quarterly reporting requirements set forth in the Resource Conservation and Recovery Act Facility Operating Permit, and the Compliance Order on Consent. The 13 sites in the Corrective Action process are listed in Table I-1. Because the status of any Long-Term Stewardship (LTS) activity is detailed in other reports, Section I.3.0 (titled Long-Term Stewardship Work Completed) will not be presented in future ER Quarterly Reports. Section I.3.0 of this ER Quarterly Report identifies the other reports that detail LTS activities. This ER Quarterly Report presents activities and data in sections as follows:

SECTION I: Environmental Restoration Operations Consolidated Quarterly Report, April – June 2015

SECTION II: Perchlorate Screening Quarterly Groundwater Monitoring Report, April – June 2015

ABBREVIATIONS AND ACRONYMS

°C	degrees Celsius
µg/L	microgram(s) per liter
µmhos/cm	micromhos per centimeter
% Sat	percent saturation
AGMR	Annual Groundwater Monitoring Report
ALTMM	Annual Long-Term Monitoring and Maintenance
AOC	Area of Concern
AR	Analysis Request
AVN	Area V (North)
BSG	Burn Site Groundwater
BW	background well
CAC	Corrective Action Complete
CAMU	Corrective Action Management Unit
CCBA	Coyote Canyon Blast Area
CFR	Code of Federal Regulations
CME	Corrective Measures Evaluation
COA	certificates of analyses
COC	Chain-of-Custody
CTF	Coyote Test Field
CWL	Chemical Waste Landfill
CY	Calendar Year
CYN	Canyons (Burn Site Groundwater Area of Concern)
DO	dissolved oxygen
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration Operations
ER Quarterly Report	Environmental Restoration Operations (ER) Consolidated Quarterly Report
ET Cover	evapotranspirative cover
FOP	Field Operating Procedure
GEL	GEL Laboratories LLC
HQ	hazard quotient
LCRS	leachate collection and removal system
LTMMP	Long-Term Monitoring and Maintenance Plan
LTS	Long-Term Stewardship
LWDS	liquid waste disposal system
MCL	maximum contaminant level
MDL	method detection limit

mg/L	milligram(s) per liter
MRN	Magazine Road North
mV	millivolt
MW	monitoring well
MWL	Mixed Waste Landfill
NA	not applicable
ND	nondetect
NE	not established
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NTU	nephelometric turbidity unit
NWTA	Northwest Technical Area
OBS	Old Burn Site
ORP	oxidation-reduction potential
PCCP	Post-Closure Care Permit
Permit	RCRA Facility Operating Permit
pH	potential of hydrogen
PQL	practical quantitation limit
QC	quality control
RCRA	Resource Conservation and Recovery Act
Sandia	Sandia Corporation
SAP	Sampling and Analysis Plan
SC	specific conductance
SNL/NM	Sandia National Laboratories, New Mexico
SWMU	Solid Waste Management Unit
SWTA	Southwest Technical Area
TA	Technical Area
TAVG	Technical Area-V Groundwater
TAG	Tijeras Arroyo Groundwater
TAV	Technical Area-V
TJA	Tijeras Arroyo
The Consent Order	the Compliance Order on Consent
WYO	Wyoming

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SECTION I
ENVIRONMENTAL RESTORATION OPERATIONS CONSOLIDATED QUARTERLY REPORT, April – June 2015

1.0 Introduction

This Environmental Restoration Operations (ER) Consolidated Quarterly Report (ER Quarterly Report) provides the status of ongoing corrective action activities being implemented by Sandia National Laboratories, New Mexico (SNL/NM) ER for the April, May, and June 2015 quarterly reporting period. Section I.2.0 provides the status of ER Operations activities including closure activities for the Mixed Waste Landfill (MWL), project management and site closure, and groundwater sampling and analysis. Section I.3.0 provides the identification of other reports that detail the status of long-term stewardship (LTS) monitoring and maintenance activities related to the MWL, Chemical Waste Landfill (CWL), and Corrective Action Management Unit (CAMU). Because the status of any LTS activity is detailed in other reports, Section I.3.0 will not be presented in future ER Quarterly Reports. Section I.4.0 provides the references.

2.0 Environmental Restoration Operations Work Completed

2.1 Mixed Waste Landfill

The Long-Term Monitoring and Maintenance Plan (LTMMP) was submitted to the New Mexico Environment Department (NMED) in March 2012 (SNL/NM March 2012). NMED approved the LTMMP on January 8, 2014 (Blaine January 2014). Monitoring, inspections, maintenance/repair, and reporting activities required by the LTMMP were implemented upon NMED approval of the LTMMP and are presented in annual long-term monitoring and maintenance (LTMM) reports submitted to NMED by June 30 of each year. These annual reports address all activities performed and provide monitoring and inspection results for the reporting period of April 1 through March 31 of the prior year. Remaining ER activities at the MWL are presented below.

The U.S. Department of Energy/National Nuclear Security Administration (DOE/NNSA) and Sandia Corporation (Sandia) requested a Certificate of Completion for the MWL on September 25, 2014 (Beausoleil September 2014). NMED provided the Certification of Completion for the MWL on October 8, 2014 (Cobrain October 2014). The DOE/NNSA and Sandia subsequently submitted a request to NMED for a Class 3 Permit Modification to the Resource Conservation and Recovery Act (RCRA) Facility Operating Permit (Permit). The Class 3 Permit Modification Request was dated October 17, 2014 and petitioned the NMED

to change the MWL status to Corrective Action Complete (CAC) with Controls (Beausoleil October 2014). The request and associated legal notice initiated the DOE/NNSA and Sandia 60-day public comment period that was completed on January 5, 2015, and included a public meeting that was held on November 18, 2014. After DOE and Sandia completed their public comment period on January 5, 2015, NMED issued a public notice announcing their intent to approve the DOE and Sandia request for corrective action complete with controls status for the MWL and initiated a 60-day public comment period that started on January 12, 2015 (Cobrain January 2015). On March 17, 2015, NMED extended this public comment period an additional 30 days, to April 13, 2015.

In an attempt to resolve issues raised in opposition to the Permit modification request, NMED conducted two meetings on April 29 and May 4, 2015 at the NMED District 1 Office in Albuquerque. All public commenters who requested a public hearing were invited, and DOE/NNSA and Sandia representatives also attended. Agreement was not reached during the two meetings, so NMED proceeded with plans to conduct a public hearing on the matter starting on July 8, 2015. DOE/NNSA and Sandia participated in a pre-hearing teleconference with the hearing officer and other involved parties on May 7, 2015. DOE/NNSA and Sandia prepared direct testimony that was filed with the hearing officer on June 17, and prepared rebuttal testimony that was filed on June 30, 2015.

2.2 Project Management and Site Closure

ER sites in the CAC regulatory process are addressed in this section. Currently, only the MWL is in the CAC regulatory process, as described in Section I.2.1.

2.3 Groundwater Sampling and Analysis

The following sections summarize the reporting of groundwater monitoring activities conducted at three groundwater areas of concern (AOCs) (Technical Area-V Groundwater [TAVG], Burn Site Groundwater [BSG], and Tijeras Arroyo Groundwater [TAG]), the MWL, and the CWL.

Analytical results for groundwater monitoring at TAVG AOC, BSG AOC, TAG AOC, the MWL, and the CWL will be presented in the SNL/NM Calendar Year (CY) 2014 Annual Groundwater Monitoring Report, which is anticipated to be submitted to the NMED in the summer of 2015. The well identifications and the frequency that these wells are sampled are presented in Table I-2.

The analytical results for the MWL groundwater monitoring will be presented and discussed in the MWL LTMMP for the reporting period of April 1, 2015 to March 31, 2016, which will be submitted to NMED in June 2016.

Groundwater monitoring results will be presented in the CWL Annual Post-Closure Care Report for CY 2015, which will be submitted to NMED in March 2016.

Perchlorate analysis of groundwater samples for BSG AOC is discussed in Section II of this ER Quarterly Report.

2.3.1 Technical Area-V Groundwater Area of Concern

Groundwater sampling at TAVG AOC was conducted in April and May 2015.

2.3.2 Burn Site Groundwater Area of Concern

Groundwater sampling at BSG AOC was conducted in June 2015.

2.3.3 Tijeras Arroyo Groundwater Area of Concern

Groundwater sampling at TAG AOC was conducted in May 2015.

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

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

- The BSG Interim Measures Work Plan submitted to the NMED on May 26, 2005 (SNL/NM May 2005).
- The BSG Current Conceptual Model of Groundwater Flow and Contaminant Transport submitted to the NMED on April 9, 2008 (SNL/NM March 2008).
- The Technical Area (TA)-V Geophysical Logs and Slug Test Results Report submitted to the NMED on November 24, 2010 (SNL/NM November 2010).
- The MWL Groundwater Monitoring Report for CY 2010 submitted to the NMED on September 30, 2011 (SNL/NM September 2011).
- The Class 3 Permit modification request dated October 17, 2014 for Corrective Action Complete with Controls status for the MWL (Beausoleil October 2014).

3.0 Long-Term Stewardship Work Completed

Because the status of any LTS activity is detailed in other reports, Section I.3.0 will not be presented in future ER Quarterly Reports. The subsections below identify the other reports that detail LTS activities.

3.1 Mixed Waste Landfill

The MWL LTMMP was approved by the NMED on January 8, 2014 (Blaine January 2014). Monitoring, inspections, maintenance/repair, and reporting activities required by the LTMMP are presented in annual LTMM Reports submitted to NMED by June 30 of each year.

3.2 Chemical Waste Landfill

The CWL Post-Closure Care Permit (PCCP) (NMED October 2009) became effective on June 2, 2011, when the NMED approved the CWL Final RCRA Closure Report (Kieling June 2011). Ongoing LTS activities, performed under the PCCP, are presented in annual reports submitted to the NMED in March of each year.

3.3 Corrective Action Management Unit

The CAMU post-closure care requirements of vadose zone monitoring, leachate removal, inspections, maintenance/repair, and reporting activities are specified in the RCRA Facility Operating Permit that became effective on February 26, 2015. An annual report summarizing CAMU post-closure care activities is submitted to NMED by March 31 of each year.

4.0 References

Beausoleil, G. (U.S. Department of Energy (NNSA)/Sandia Field Office), September 2014. Letter to J. Kieling (New Mexico Environment Department). "Request for Certificate of Completion for the Mixed Waste Landfill at Sandia National Laboratories," September 25, 2014.

Beausoleil, G. L. (U.S. Department of Energy), October 2014. Letter to J.E. Kieling (New Mexico Environment Department Hazardous Waste Bureau), "Request for Class 3 Modification to Module IV of Hazardous Waste Permit for Sandia National Laboratories/New Mexico, EPA ID NM5890110518, New Mexico," October 17, 2014.

Blaine, T. (New Mexico Environment Department), January 2014. Letter to G. Beausoleil (U.S. Department of Energy (NNSA)/Sandia Site Office) and S. Orrell (Sandia Corporation), "Approval, Mixed Waste Landfill Long-Term Monitoring and Maintenance Plan, March 2012, Sandia National Laboratories, NM5890110518, HWB-SNL-12-007," January 8, 2014.

Cobrain, D. (New Mexico Environment Department), October 2014. Letter to G. Beausoleil (U.S. Department of Energy (NNSA)/Sandia Site Office) and P. Davies (Sandia Corporation), "Certificate of Completion for the Mixed Waste Landfill, September 25, 2014, Sandia National Laboratories, EPA ID#NM5890110518, HWB-SNL-14-MISC," October 8, 2014.

Cobrain, D. (New Mexico Environment Department), January 2015. Letter to G. Beausoleil (U.S. Department of Energy (NNSA)/Sandia Site Office) and P. Davies (Sandia Corporation), "Notice of Public Comment Period for Proposed Determination of Corrective Action Complete with Controls for Sandia National Laboratories Mixed Waste Landfill, Sandia National Laboratories, EPA ID# NM5890110518, HWB-SNL-14-014," January 12, 2015.

Kieling, J.E. (New Mexico Environment Department), June 2011. Letter to P. Wagner (U.S. Department of Energy (NNSA)/Sandia Site Office) and S.A. Orrell (Sandia National Laboratories, New Mexico), "Approval, Closure of Chemical Waste Landfill and Post-Closure Care Permit in Effect, Sandia National Laboratories, EPA ID# NM5890110518, HWB SNL-10-013," June 2, 2011.

New Mexico Environment Department (NMED), October 2009. "Resource Conservation and Recovery Act, Post-Closure Care Permit, EPA ID No. NM5890110518, to the U.S. Department of Energy/Sandia Corporation, for the Sandia National Laboratories Chemical Waste Landfill," New Mexico Environment Department Hazardous Waste Bureau, Santa Fe, New Mexico, October 15, 2009.

NMED, see New Mexico Environment Department.

Sandia National Laboratories, New Mexico (SNL/NM), May 2005. "Burn Site Groundwater Interim Measures Work Plan," Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), March 2008. “Current Conceptual Model of Groundwater Flow and Contaminant Transport at Sandia National Laboratories/New Mexico Burn Site,” Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), November 2010. “Technical Area-V Geophysical Logs and Slug Test Results,” Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), September 2011. “Mixed Waste Landfill Groundwater Monitoring Report, Calendar Year 2010,” Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), March 2012. “Mixed Waste Landfill Long-Term Monitoring and Maintenance Plan,” Sandia National Laboratories, Albuquerque, New Mexico.

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

Tables

Table I-1
Solid Waste Management Units and Areas of Concern
Where Corrective Action Is Not Complete

Solid Waste Management Units and Areas of Concern	
Site Number	**Site Description**
8	Open Dump (CCBA)
58	CCBA
68	Old Burn Site
76	MWL (TA-III)
83	Long Sled Track
84	Gun Facilities
149	Building 9930 Septic System (CTF)
154	Building 9960 Septic System and Seepage Pits (CTF)
240	Short Sled Track
	Tijeras Arroyo Groundwater Investigation (TAG AOC)
	TA-V Groundwater Investigation (TAVG AOC)
	Burn Site Groundwater Investigation (BSG AOC)
502	Building 9938 Surface Discharge Site
Total	**13**

Notes

AOC = Area of Concern.
BSG = Burn Site Groundwater.
CCBA = Coyote Canyon Blast Area.
CTF = Coyote Test Field.
MWL = Mixed Waste Landfill.
NA = Not applicable. A site number was not assigned.
TA = Technical Area.
TAG = Tijeras Arroyo Groundwater.
TA-V = Technical Area-V.
TAVG = Technical Area-V Groundwater.

Table I-2
Groundwater Sampling and Analysis

Investigation Site	Sampling Frequency in CY 2015[a]	Quarter of Sampling in CY 2015	Location of Analytical Results	Location of Perchlorate Analytical Results	Monitoring Wells in Network
TAVG AOC	Quarterly	1,2,3,4	AGMR	NA	AVN-1, LWDS-MW1, LWDS-MW2, TAV-MW2, TAV-MW3, TAV-MW4, TAV-MW5, TAV-MW6, TAV-MW7, TAV-MW8, TAV-MW9, TAV-MW10, TAV-MW11, TAV-MW12, TAV-MW13, TAV-MW14
To prin	Semiannually	2,4	AGMR	NA	CYN-MW4, CYN-MW7, CYN-MW8, CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, CYN-MW13, CYN-MW14A, CYN-MW15
TAG AOC	Quarterly	1,2,3,4	AGMR	NA	PGS-2, TA1-W-01, TA1-W-02, TA1-W-03, TA1-W-04, TA1-W-05, TA1-W-06, TA1-W-08, TA2-NW1-595, TA2-SW1-320, TA2-W-01, TA2-W-19, TA2-W-26, TA2-W-27, TA2-W-28, TJA-2, TJA-3, TJA-4, TJA-6, TJA-7, WYO-3, WYO-4
MWL Groundwater	Semiannually	2,4	AGMR, Section 4 of MWL ALTMM Report	NA	MWL-BW2, MWL-MW7, MWL-MW8, MWL-MW9
CWL Groundwater	Semiannually	1,3	AGMR, Section 4 CWL PCCP Report	NA	CWL-BW5, CWL-MW9, CWL-MW10, CWL-MW11

Notes

[a]Not all wells in a particular investigation are sampled at the same frequency; this represents the maximum frequency of sampling at a site.

AGMR = Annual Groundwater Monitoring Report.
ALTMM = Annual Long-Term Monitoring and Maintenance.
AOC = Area of Concern.
AVN = Area V (North).
BSG = Burn Site Groundwater (Area of Concern).
BW = Background well.
CWL = Chemical Waste Landfill.
CY = Calendar Year.
CYN = Lurance Canyon.
LWDS = Liquid Waste Disposal System.
MW = Monitoring Well.
MWL = Mixed Waste Landfill.
NA = Not applicable. No wells in the site network are currently being sampled and analyzed for perchlorate.
PCCP = Post-Closure Care Permit.
PGS = Parade Ground South.
TA1-W = Technical Area-I (Well).
TA2-NW = Technical Area-II (Northwest).
TA2-SW = Technical Area-II (Southwest).
TA2-W = Technical Area-II (Well).
TAG = Tijeras Arroyo Groundwater (Area of Concern).
TAV = Technical Area-V.
TAVG = Technical Area-V Groundwater (Area of Concern).
TJA = Tijeras Arroyo.
WYO = Wyoming.

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SECTION II
PERCHLORATE SCREENING QUARTERLY GROUNDWATER MONITORING REPORT, April – June 2015

1.0 Introduction

Section IV.B of the Compliance Order on Consent (the Consent Order), between the New Mexico Environment Department (NMED), the U.S. Department of Energy (DOE), and Sandia Corporation (Sandia), jointly referred to as DOE/Sandia, for Sandia National Laboratories, New Mexico (SNL/NM), effective on April 29, 2004, stipulates that a select group of groundwater monitoring wells at SNL/NM be sampled for perchlorate (NMED April 2004). This section of the Environmental Restoration Operations (ER) Consolidated Quarterly Report (ER Quarterly Report) summarizes the perchlorate screening groundwater monitoring completed during the Second Quarter of Calendar Year (CY) 2015 (April, May, and June 2015) in response to the requirements of the Consent Order. The outline of this report is based on the required elements of a "Periodic Monitoring Report" described in Section X.D. of the Consent Order (NMED April 2004).

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

Based on the NMED response (NMED January 2006), DOE/Sandia will submit each quarterly report within 90 days following the quarter that the data represent. In November 2008, DOE/Sandia received approval from the NMED to proceed to semiannual reporting (NMED November 2008); however, upon further consideration, the NMED once more required quarterly reporting (NMED April 2009). This did not alter the previously negotiated frequency for monitoring well CYN-MW6, an existing Burn Site Groundwater (BSG) Area of Concern (AOC) monitoring well that has been under the sampling and reporting requirements of the Consent Order since the well was installed, which remains at a semiannual frequency for sampling and reporting. Due to declining water levels, CYN-MW6 has insufficient water to routinely sample and the replacement monitoring well (CYN-MW15) was installed in December 2014 and has assumed the negotiated semiannual frequency.

In September 2011, DOE/Sandia requested an extension of the submittal dates by one month for ER Quarterly Reports (SNL/NM September 2011). The request was approved by the NMED (September 2011), which allows DOE/Sandia to submit perchlorate quarterly reports within 120 days following the quarter that the data represent.

This report is the thirty eighth to be submitted since the November 2005 letter report; the previous reports were submitted for Fourth Quarter of CY 2005 through the First Quarter of CY 2015 (SNL/NM February 2006 and June 2015).

Groundwater at BSG AOC monitoring well CYN-MW14A was sampled for the third time during the reporting period (Table II-1). This is in accordance with the Consent Order requirements that a new groundwater monitoring well be sampled for perchlorate for a minimum of four quarters (NMED April 2004). Groundwater at BSG AOC monitoring well CYN-MW15 is sampled semiannually and was sampled for the second time during the reporting period (Table II-1). The corresponding reporting will continue for as long as a well remains active in the perchlorate screening network, or unless otherwise negotiated with the NMED.

2.0 Scope of Activities

This report provides perchlorate screening groundwater monitoring analytical results for the Second Quarter of CY 2015 (April, May, and June 2015) for the two wells currently active in the perchlorate screening program as shown on Figure II-1 and listed in Table II-1. In accordance with the requirements of Table XI-1 of the Consent Order, a well with four consecutive quarters of nondetects (NDs) for perchlorate 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 for numerous wells identified in the Consent Order have satisfied this requirement; therefore, these wells have been removed from the perchlorate screening program. The perchlorate results for these wells have been provided in previous reports and are not discussed in this current report. Wells discussed in previous perchlorate screening reports are included in Table II-2.

SNL/NM personnel performed groundwater sampling for perchlorate at two wells (CYN-MW14A and CYN-MW15) on the dates listed in Table II-1. Groundwater sampling activities were conducted in accordance with procedures outlined in the following investigation-specific sampling and analysis plan (SAP) entitled:

- “Burn Site Groundwater Monitoring, Mini-SAP for Third Quarter, Fiscal Year 2015” (SNL/NM May 2015).

As described in the Mini-SAP, groundwater sampling was performed in accordance with current SNL/NM Environmental Management, Long-Term Stewardship 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 insertion into the monitoring well in accordance with procedures described in FOP 05-03, “Groundwater Monitoring Equipment Decontamination” (SNL/NM January 2012a). The well was purged a minimum of one saturated screen volume before sampling in accordance with FOP 05-01, “Groundwater Monitoring Well Sampling and Field Analytical Measurements” (SNL/NM January 2012b). Field water quality measurements for turbidity, pH, temperature, specific conductance (SC), oxidation-reduction potential (ORP), and dissolved oxygen (DO) were obtained from the well prior to collecting the groundwater sample. Groundwater temperature, SC, ORP, DO, and pH were measured with an YSI™ Model EXO1 water quality meter. Turbidity was measured with a HACH™ Model 2100Q turbidity meter. Purging continued until four stable measurements for turbidity, pH, temperature, and SC were obtained. Groundwater stability is considered acceptable when the following parameters are achieved:

- Turbidity measurements are less than 5 nephelometric turbidity units (NTUs), or within 10 percent for turbidity values greater than 5 NTUs.

- pH is within 0.1 units.

- Temperature is within 1.0 degree Celsius.

- SC is within 5 percent.

Field measurement logs documenting details of well purging and water quality measurements have been submitted to the SNL/NM Customer Funded Record Center.

The groundwater samples were submitted to GEL Laboratories LLC (GEL) for chemical analysis of perchlorate using U.S. Environmental Protection Agency (EPA) Method 314.0 (EPA November 1999). The sample identification, Analysis Request/Chain-of-Custody form number, and the associated groundwater investigation are provided in Table II-3. The analytical report from GEL, including certificates of analyses (COA) (Appendix A), analytical methods, MDLs, practical quantitation limits, dates of analyses, and results of quality control (QC) analyses and data validation findings (Appendix B), have been submitted to the SNL/NM Customer Funded Record Center.

3.0 Regulatory Criteria

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

3.1 Burn Site Groundwater Area of Concern

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

In preparation for discussing the perchlorate-impacted groundwater in the vicinity of monitoring well CYN-MW6, and to show that the requirement "to determine the nature and extent of contamination" (NMED March 2007) has been met, DOE/Sandia provided supporting information to the NMED (SNL/NM March 2008). Perchlorate in surface soil has been characterized at several Solid Waste Management Units (SWMUs) in the study area (SNL/NM June 2006 and March 2008–Appendix C). Based on these data, DOE/Sandia considers the nature and extent of perchlorate in groundwater at the BSG AOC to be sufficiently characterized. Since 2004, groundwater samples from four other monitoring wells in the vicinity of the BSG AOC have been analyzed for perchlorate, including monitoring wells CYN-MW1D, CYN-MW5, CYN-MW7, and CYN-MW8. All wells were sampled for four quarters and all results were ND for perchlorate (SNL/NM March 2008–Appendix D).

In accordance with the requirements of Section VI.K.1.b of the Consent 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 monitoring well CYN-MW6 groundwater samples. The maximum perchlorate concentration to date of 8.93 µg/L was used in the risk 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 2008–Appendix E).

Because perchlorate concentrations in samples from 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. In November 2008, DOE/Sandia received approval from the NMED to proceed with semiannual monitoring of perchlorate in monitoring well CYN-MW6 and proceed with semiannual reporting of all perchlorate results (NMED November 2008). Upon further consideration, the NMED once more required that DOE/Sandia resume quarterly reporting of perchlorate results with the exception of monitoring well CYN-MW6 (NMED April 2009). Due to declining water levels, CYN-MW6 has insufficient water to routinely sample and the replacement monitoring well (CYN-MW15) was installed in December 2014 and has assumed the negotiated frequency. Monitoring well CYN-MW14A was also installed in December 2014; this well is considered to be a new monitoring well that requires quarterly sampling due to its deep screen interval.

In April 2009, DOE/Sandia received a letter from the NMED requiring DOE/Sandia to characterize the nature and extent of the perchlorate contamination in soil and groundwater in the BSG AOC (NMED April 2009). A characterization work plan was prepared and submitted to the NMED (SNL/NM November 2009), approved by the NMED (February 2010), and implemented in July 2010.

3.2 Tijeras Arroyo Groundwater and Technical Area-V Groundwater Areas of Concern

The April 2009 letter from the NMED to DOE/Sandia was not limited to the BSG AOC (NMED April 2009). In the April 2009 letter, the NMED had also requested that DOE/Sandia monitor perchlorate concentrations for a minimum of four quarters at five monitoring wells in the Tijeras Arroyo Groundwater AOC and at four monitoring wells in the Technical Area-V AOC (NMED April 2009). All nine wells have been sampled for four consecutive monitoring events with no perchlorate detections being reported; therefore, these nine wells have been removed from the perchlorate sampling list. A replacement well, TA2-W-28, was installed in December 2014 for the purpose of monitoring the same depth interval as damaged well TA2-SW1-320. Because well TA2-SW1-320 was not one of the

four Tijeras Arroyo Groundwater wells selected for perchlorate sampling, well TA2-W-28 does not require perchlorate sampling.

3.3 March 2006 and January 2008 Permit Modification Requests

During the First Quarter of CY 2011, four monitoring wells were added to the perchlorate monitoring network based on the NMED letter of April 8, 2010, entitled, "Class 3 Permit Modification Requests for Granting Corrective Action Complete Status for 26 SWMUs/AOCs (Request of March 1, 2006) and 5 Other SWMUs/AOCs (Request of January 7, 2008), Sandia National Laboratories, EPA ID #NM5890110518 HWB-SNL-06-007 and HWB-SNL-08-001" (NMED April 2010). The sites and the corresponding requests are described in Section I.2.2 of this ER Quarterly Report. The NMED letter required work plans and groundwater monitoring at the following SWMUs:

- SWMU 8/58—Installation of at least two groundwater monitoring wells west of and near Features YY and OO and submittal and approval of a work plan.
- SWMU 49—Annual sampling of existing monitoring well CYN-MW5.
- SWMU 68—Installation of monitoring wells near the burn pan and associated ditch/surface impoundments and submittal and approval of a work plan.
- SWMU 116—Annual sampling of existing monitoring well CTF-MW1.
- SWMU 149—Submittal of a SAP and quarterly sampling of existing monitoring well CTF-MW3 for a minimum of eight quarters.
- SWMU 154—Submittal of a SAP and quarterly sampling of existing monitoring well CTF-MW2 for a minimum of eight quarters.

To fulfill the requirements of the April 2010 NMED letter, DOE/Sandia submitted a SAP for monitoring wells CTF-MW2 and CTF-MW3 (SNL/NM June 2010) that was subsequently approved (with modifications) by the NMED (December 2010). All of these wells have been sampled for the required number of monitoring events, with no perchlorate detections, and have since been removed from the perchlorate sampling list.

The NMED letter of April 8, 2010, also required work plans, installation of groundwater monitoring wells, and groundwater monitoring at the following SWMUs:

- SWMUs 8/58—Two groundwater monitoring wells must be installed (CCBA-MW1 and CCBA-MW2) and sampled quarterly for a minimum of eight quarters.

- SWMU 68—Three groundwater monitoring wells must be installed (OBS-MW1, OBS-MW2, and OBS-MW3) and sampled quarterly for a minimum of eight quarters.

To fulfill the requirements of the April 2010 NMED letter, DOE/Sandia submitted SWMU 68 and SWMUs 8/58 Groundwater Characterization Work Plans that included a Well Installation Plan/SAP for monitoring wells CCBA-MW1, CCBA-MW2, OBS-MW1, OBS-MW2, and OBS-MW3 (SNL/NM September 2010) that was subsequently approved (with modification) by the NMED (January 2011). All of these wells have been sampled for eight or more consecutive monitoring events with no perchlorate detections and have since been removed from the perchlorate sampling list.

4.0 Monitoring Results

Table II-3 summarizes the details of samples collected from monitoring wells CYN-MW14A and CYN-MW15 in the Second Quarter of CY 2015. Table II-4 summarizes current and historical perchlorate results for the two wells currently in the perchlorate screening monitoring network. The analytical laboratory COA for the Second Quarter of CY 2015 perchlorate data is provided in Appendix A. Consistent with historical analytical results, no perchlorate was detected above the screening level in samples collected from monitoring wells CYN-MW14A and CYN-MW15.

Table II-5 summarizes the stabilized water quality values measured immediately before the groundwater samples were collected. The field water quality measurements include turbidity, pH, temperature, SC, ORP, and DO.

The analytical data were reviewed and validated in accordance with Administrative Operating Procedure 00-03, “Data Validation Procedure for Chemical and Radiochemical Data,” Revision 4 (SNL/NM June 2014). No problems were identified with the analytical data that resulted in qualification of the data as unusable. The data are acceptable, and reported QC measures are adequate. The data validation sample findings summary sheets for the perchlorate data are provided in Appendix B.

No variances or nonconformances in perchlorate sampling field activities, or field conditions from requirements in the groundwater monitoring Mini-SAP (SNL/NM May 2015), were identified during the Second Quarter of CY 2015 sampling activities.

5.0 Summary and Conclusions

Based on the analytical data presented in Table II-4 and in previous reports, the following statements can be made:

- No perchlorate was detected in the environmental samples from groundwater monitoring wells CYN-MW14A and CYN-MW15 at the screening level/MDL of 4 µg/L.

- Since June 2004 (the start of sampling as required by the Consent Order), perchlorate was detected above the screening level/MDL (4 µg/L) in groundwater samples from only one of the wells (CYN-MW6) in the perchlorate screening monitoring well network. However, no perchlorate was detected in the environmental samples from groundwater monitoring well CYN-MW15, the well that was installed to replace CYN-MW6.

- DOE/Sandia will continue periodic monitoring of perchlorate for monitoring wells CYN-MW14A (quarterly) and CYN-MW15 (semiannually).

6.0 References

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Figures

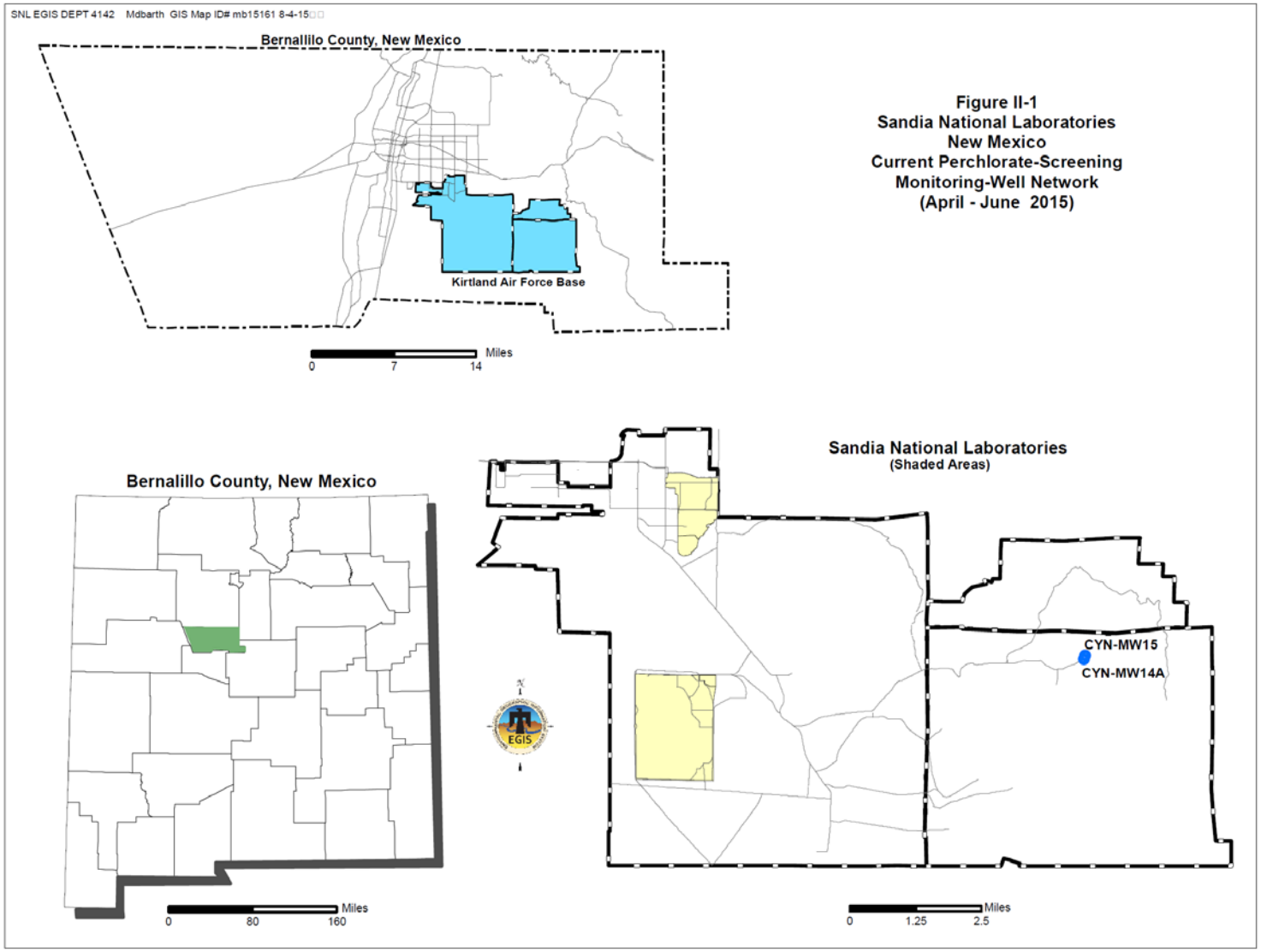

Figure II-1
Sandia National Laboratories, New Mexico
Current Perchlorate Screening Monitoring Well Network, April – June 2015

Tables

Table II-1
Current Perchlorate Screening Monitoring Well Network
Second Quarter, CY 2015

Well	Date Sampled	Number of Consecutive Sampling Events[a]	Remaining Number of Sampling Events[b]	Sampling Equipment
CYN-MW14A	09-Jun-15	3	1	Bennett™ Pump
CYN-MW15	11-Jun-15	2	TBD[c]	Bennett™ Pump

Notes

[a]Includes this sampling event.
[b]Per the requirements of Table XI-1 of the Consent 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.
[c]TBD = To be determined. This well was installed as a replacement well for CYN-MW6. Because perchlorate concentrations in CYN-MW6 have exceeded the screening level, DOE/Sandia and the NMED have agreed to further characterization requirements in the Burn Site Groundwater Area of Concern (NMED February 2010).

μg/L = Microgram(s) per liter.
CY = Calendar Year.
CYN = Canyons (Burn Site Groundwater Area of Concern).
MDL = Method Detection Limit.
MW = Monitoring Well.
NMED = New Mexico Environment Department.
The Consent Order = The Compliance Order on Consent.

Table II-2
Monitoring Wells Discussed in Previous Perchlorate Screening Reports

Well
CCBA-MW1
CCBA-MW2
CTF-MW1
CTF-MW2
CTF-MW3
CYN-MW1D
CYN-MW5
CYN-MW6
CYN-MW7
CYN-MW8
CYN-MW9
CYN-MW10
CYN-MW11
CYN-MW12
LWDS-MW1
MRN-2
MRN-3D
MWL-BW1
MWL-BW2
MWL-MW1
MWL-MW7
MWL-MW8
MWL-MW9
NWTA3-MW2
OBS-MW1
OBS-MW2
OBS-MW3
SWTA3-MW4
TA1-W-03
TA1-W-06
TA1-W-08
TA2-W-01
TA2-W-27
TAV-MW11
TAV-MW12
TAV-MW13
TAV-MW14

Notes

BW = Background Well.
CCBA = Coyote Canyon Blast Area.
CTF = Coyote Test Field.
CYN = Canyons (Burn Site Groundwater Area of Concern).
LWDS = Liquid Waste Disposal System.
MRN = Magazine Road North.
MW = Monitoring Well.
MWL = Mixed Waste Landfill.
NWTA = Northwest Technical Area (III).
OBS = Old Burn Site.
SWTA = Southwest Technical Area (III).
TA1-W = Technical Area I (Well).
TA2-W = Technical Area II (Well).
TAV = Technical Area-V.

Table II-3
Sample Details for Second Quarter, CY 2015 Perchlorate Sampling

Well	Sample Identification	AR/COC Number	Associated Groundwater Investigation
CYN-MW14A	097836-020	616175	BSG AOC
CYN-MW15	097842-020	616178	BSG AOC
CYN-MW15 (Duplicate)	097843-020		

Notes

AR/COC = Analysis Request/Chain-of-Custody.
BSG AOC = Burn Site Groundwater Area of Concern.
CY = Calendar Year.
CYN = Canyons (Burn Site Groundwater Area of Concern).
MW = Monitoring Well.

Table II-4
Summary of Perchlorate Screening Analytical Results for the Current Monitoring Well Network as of Second Quarter, CY 2015

Well	Sample Date	AR/COC Number	Sample Number	Result (µg/L)	MDL (µg/L)	PQL (µg/L)	MCL (µg/L)	Laboratory Qualifier[a]	Validation Qualifier[b]	Analytical Method[c]	Comments
Burn Site Groundwater Area of Concern											
CYN-MW14A	17-Dec-14	615940	096977-020	ND	4.0	12	NE	U		EPA 314.0	
	27-Mar-15	616072	097522-020	ND	4.0	12	NE	U		EPA 314.0	
			097523-020	ND	4.0	12	NE	U		EPA 314.0	Duplicate sample
	09-Jun-15	616175	097836-020	ND	4.0	12	NE	U		EPA 314.0	
CYN-MW15	17-Dec-14	615941	096979-020	ND	4.0	12	NE	U		EPA 314.0	
	11-Jun-15	616178	097842-020	ND	4.0	12	NE	U		EPA 314.0	
			097843-020	ND	4.0	12	NE	U		EPA 314.0	Duplicate sample

Notes

[a]Laboratory Qualifier
U = Analyte is absent or below the method detection limit.

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

[c]Analytical Method
EPA 314.0: EPA, November 1999, "Perchlorate in Drinking Water Using Ion Chromatography," EPA 815/R-00-014 (EPA November 1999).

µg/L = Micrograms per liter.
AR/COC = Analysis Request/Chain-of-Custody.
CFR = Code of Federal Regulations.
CY = Calendar Year.
CYN = Canyons (Burn Site Groundwater Area of Concern).
EPA = U.S. Environmental Protection Agency.
MCL = Maximum contaminant level. Established by the U.S. Environmental Protection Agency Primary Water Regulations (40 CFR 141.11, Subpart B) and subsequent amendments or Title 20, Chapter 7, Part 1 of the New Mexico Administrative Code, incorporating 40 CFR 141.
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.
MW = Monitoring Well.
ND = Not detected (at MDL).
NE = Not Established.
PQL = Practical Quantitation Limit. The lowest concentration of analytes in a sample that can be reliably determined within specified limits of precision and accuracy by the indicated method under routine laboratory operating conditions.

Table II-5
Perchlorate Screening Groundwater Monitoring
Field Water Quality Measurements[a], Second Quarter, CY 2015

Well	Sample Date	Temperature (°C)	Specific Conductivity (μmhos/cm)	Oxidation-Reduction Potential (mV)	pH	Turbidity (NTU)	Dissolved Oxygen (% Sat)	Dissolved Oxygen (mg/L)
Burn Site Groundwater Area of Concern								
CYN-MW14A	09-Jun-15	19.49	1060.9	227.5	7.48	0.29	11.4	0.99
CYN-MW15	11-Jun-15	17.84	1220.6	322.8	7.24	0.41	13.2	1.24

Notes

[a]Field measurements obtained immediately before the groundwater sample was collected.

°C = Degrees Celsius.
% Sat = Percent saturation.
μmhos/cm = Micromhos per centimeter.
CY = Calendar Year.
CYN = Canyons (Burn Site Groundwater Area of Concern).
mg/L = Milligrams per liter.
mV = Millivolt(s).
MW = Monitoring Well.
NTU = Nephelometric turbidity unit.
pH = Potential of hydrogen (negative logarithm of the hydrogen ion concentration).

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Appendix A
Analytical Laboratory Certificates of Analysis for the Perchlorate Data

SMO 2012-ARCOC (4-2012)

AOP 95-16

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. NA

Page 1 of 2

AR/COC 616175

Project Name: BSG	Date Samples Shipped: 6/9/15	SMO Authorization:	☐ Waste Characterization
Project/Task Manager: Mike Skelly	Carrier/Waybill No. 234549	SMO Contact Phone: Wendy Palencia/505-844-3132	☐ RMMA
Project/Task Number: 146422.10.11.01	Lab Contact: Edie Kent/803-556-8171		☐ Released by COC No.
Service Order: CF058-15	Lab Destination: GEL	Send Report to SMO: Stephanie Montano/505-284-2553	☑ 4° Celsius
Tech Area:	Contract No.: PO 1303873		Bill to:Sandia National Laboratories (Accounts Payable), P.O. Box 5800, MS-0154 Albuquerque, NM 87185-0154
Building: Room:	Operational Site:		

SMO Use

Sample No.	Fraction	Sample Location Detail	Depth (ft)	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preservative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
097835	-001	CYN-FB2	NA	6/9/15 9:49	DIW	G	3x40 ml	HCL	G	FB	TCL VOC (SW846-8260)	374620 015
097835	-006	CYN-FB2	NA	6/9/15 9:50	DIW	AG	3x40 ml	None	G	FB	TPH GRO (SW846-8015A/B) VOC	374620 016
097836	-001	CYN-MW14A	286	6/9/15 9:49	GW	G	3x40 ml	HCL	G	SA	TCL VOC (SW846-8260)	374620 017
097836	-005	CYN-MW14A	286	6/9/15 9:52	GW	AG	4x1 L	None	G	SA	TPH DRO (SW846-8015D) SVOC	374620 018
097836	-006	CYN-MW14A	286	6/9/15 9:50	GW	AG	3x40 ml	None	G	SA	TPH GRO (SW846-8015A/B) VOC	374620 019
097836	-009	CYN-MW14A	286	6/9/15 9:53	GW	P	500 ml	HNO3	G	SA	TAL Metals+U (SW846-6020/7470)	374620 020
097836	-016	CYN-MW14A	286	6/9/15 9:54	GW	P	125 ml	None	G	SA	Anions (SW846-9056)	374620 021
097836	-017	CYN-MW14A	286	6/9/15 9:55	FGW	P	500 ml	HNO3	G	SA	Metals-Ca,Mg,K,Na (SW846-6020)	374620 022
097836	-018	CYN-MW14A	286	6/9/15 9:56	GW	P	125 ml	H2SO4	G	SA	Nitrate+Nitrite (EPA 353.2)	374620 023
097836	-020	CYN-MW14A	286	6/9/15 9:57	GW	P	250 ml	None	G	SA	Perchlorate (EPA 314.0)	374620 024

Last Chain:	☐ Yes	Sample Tracking	SMO Use
Validation Req'd:	☑ Yes	Date Entered:	
Background:	☐ Yes	Entered by:	
Confirmatory:	☐ Yes	QC inits.:	

Sample Team Members	Name	Signature	Init.	Company/Organization/Phone/Cell
	Robert Lynch		RL	SNL/4142/505-844-4013/505-250-7090
	Alfred Santillanes		AS	SNL/4142/505-284-6870/505-228-0710
	William Gibson		WG	SNL/4142/505-284-3307/505-239-7367
	Gilbert Quintana			SNL/4143/505-844-2507/505-228-2606

Special Instructions/QC Requirements:

EDD ☑ Yes ☐ No

Turnaround Time ☐ 7 Day* ☐ 15 Day* ☑ 30 Day

Negotiated TAT ☐

Sample Disposal ☐ Return to Client ☑ Disposal by Lab

Return Samples By:

Comments: Send report to Tim Jackson/4142/MS 0729/284-2547

Alkalinity(total as CaCO3,HCO3,and CO3). If Perchlorate detected verification required using method SW846-6850. Report Anions as Br,Cl,F,SO4. Report short list isotopes for gamma spec analysis.

Conditions on Receipt

Lab Use

1.Relinquished by	Org. 4142	Date 6/9/15	Time 1044	3.Relinquished by	Org. Date Time
1. Received by	Org. 4142	Date 6/9/15	Time 1044	3. Received by	Org. Date Time
2.Relinquished by	Org. 4142	Date 6/9/15	Time 1130	4.Relinquished by	Org. Date Time
2. Received by	Org.	Date 06/10/15	Time 0835	4. Received by	Org. Date Time

*Prior confirmation with SMO required for 7 and 15 day TAT

SMO 2012-ARCOC (4-2012)

AOP 95-16

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY (Continuation)

AR/COC 616175

Project Name: BSG
Tech Area:
Building:
Room:
Project/Task Manager: Mike Skelly
Project/Task No.: 146422.10.11.01

Sample No.	Fraction	Sample Location Detail	Depth (ft)	Date/Time Collected		Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab use Lab Sample ID
097836	-022	CYN-MW14A	286	6/9/15	9:58	GW	P	500 ml	None	G	SA	Alkalinity (SM2320B)	374620 024
097836	-024	CYN-MW14A	286	6/9/15	10:00	GW	AG	4x L	None	G	SA	High Explosives(SW846-8321A) mod	374620 025
097836	-033	CYN-MW14A	286	6/9/15	10:01	GW	P	1 L	HNO3	G	SA	Gamma Spectroscopy (EPA 901.0)	374620 026
097836	-034	CYN-MW14A	286	6/9/15	10:02	GW	P	1 L	HNO3	G	SA	Gross Alpha and Beta (EPA 900.0)	374620 027
097836	-035	CYN-MW14A	286	6/9/15	10:04	GW	P	1 L	HNO3	G	SA	Isotopic Uranium (HASL 300)	374620 028
097836	-036	CYN-MW14A	286	6/9/15	10:05	GW	AG	250 ml	None	G	SA	Tritium (EPA 906.0)	374620 029
097837	-001	CYN-TB15	NA	6/9/15	9:49	DIW	G	3x40 ml	HCL	G	TB	TCL VOC (SW846-8260B)	374620 030
097837	-006	CYN-TB16	NA	6/9/15	9:50	DIW	AG	3x40 ml	None	G	TB	TPH GRO (SW846-8015 A/B) VOC	374620 031

Recipient Initials

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 7, 2015

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:	Groundwater, Level C Package

Client Sample ID:	097836-020	Project:	SNLSGWater
Sample ID:	374620023	Client ID:	SNLS004
Matrix:	AQUEOUS		
Collect Date:	09-JUN-15 09:57		
Receive Date:	10-JUN-15	Client Desc.:	CYN-MW14A
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 314.0 Perchlorate by IC "As Received"											
Perchlorate	U	ND	0.004	0.012	mg/L	1	MXL2	06/24/15	2143	1485796	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

Notes:

SMO 2012-ARCOC (4-2012)

AOP 95-16

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. N/A

Page 1 of 2

AR/COC 616178

Project Name:	BSG	Date Samples Shipped:	6/11/15	SMO Authorization:	☐ Waste Characterization
Project/Task Manager:	Mike Skelly	Carrier/Waybill No.	234555	SMO Contact Phone: Wendy Palencia/505-844-3132	☐ RMMA
Project/Task Number:	146422.10.11.01	Lab Contact:	Edie Kent/803-556-8171		☐ Released by COC No.
Service Order:	CF058-15	Lab Destination:	GEL	Send Report to SMO: Stephanie Montano/505-284-2553	☑ 4° Celsius
		Contract No.:	PO 1303873		Bill to: Sandia National Laboratories (Accounts Payable), P.O. Box 5800, MS-0154 Albuquerque, NM 87185-0154 374832 374841
Tech Area:					
Building:	Room:	Operational Site:			

SMO Use

Sample No.	Fraction	Sample Location Detail	Depth (ft)	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preservative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
097842	-001	CYN-MW15	183	6/11/15 9:46	GW	G	3x40 ml	HCL	G	SA	TCL VOC (SW846-8260)	015
097842	-005	CYN-MW15	183	6/11/15 9:53	GW	AG	4x1 L	None	G	SA	TPH DRO (SW846-8015D) SVOC	016
097842	-006	CYN-MW15	183	6/11/15 9:50	GW	AG	3x40 ml	None	G	SA	TPH GRO (SW846-8015A/B) VOC	017
097842	-009	CYN-MW15	183	6/11/15 9:58	GW	P	500 ml	HNO3	G	SA	TAL Metals+U (SW846-6020/7470)	018
097842	-016	CYN-MW15	183	6/11/15 10:00	GW	P	125 ml	None	G	SA	Anions (SW846-9056)	019
097842	-017	CYN-MW15	183	6/11/15 10:02	FGW	P	500 ml	HNO3	G	SA	Metals-Ca,Mg,K,Na (SW846-6020) HX	003002
097842	-018	CYN-MW15	183	6/11/15 10:04	GW	P	125 ml	H2SO4	G	SA	Nitrate+Nitrite (EPA 353.2)	020
097842	-020	CYN-MW15	183	6/11/15 10:05	GW	P	250 ml	None	G	SA	Perchlorate (EPA 314.0)	021
097842	-022	CYN-MW15	183	6/11/15 10:07	GW	P	500 ml	None	G	SA	Alkalinity (SM2320B)	022
097842	-024	CYN-MW15	183	6/11/15 10:09	GW	AG	4x1 L	None	G	SA	High Explosives (SW846-8321A) Mod	023

Last Chain:	☐ Yes	Sample Tracking	SMO Use
Validation Req'd:	☑ Yes	Date Entered:	
Background:	☐ Yes	Entered by:	
Confirmatory:	☐ Yes	QC inits.:	

Sample Team Members	Name	Signature	Init.	Company/Organization/Phone/Cell
	Robert Lynch		RL	SNL/4142/505-844-4013/505-250-7090
	Alfred Santillanes			SNL/4142/505-284-6870/505-228-0710
	William Gibson			SNL/4142/505-284-3307/505-239-7367

Special Instructions/QC Requirements:

EDD ☑ Yes ☐ No

Turnaround Time ☐ 7 Day* ☐ 15 Day* ☑ 30 Day

Negotiated TAT

Sample Disposal ☐ Return to Client ☑ Disposal by Lab

Return Samples By:

Comments: Send report to Tim Jackson/4142/MS 0729/284-2547

Alkalinity(total as CaCO3,HCO3,and CO3). If Perchlorate detected verification required using method SW846-6850. Report Anions as Br,Cl,F,SO4. Report short list isotopes for gamma spec analysis.

Conditions on Receipt

Lab Use

1.Relinquished by	Org. 4142	Date 6/11/15	Time 1055	3.Relinquished by	Org.	Date	Time
1. Received by	Org. 4142	Date 6/11/15	Time 1055	3. Received by	Org.	Date	Time
2.Relinquished by	Org. 4142	Date 6/11/15	Time 1115	4.Relinquished by	Org.	Date	Time
2. Received by	Org. Cel	Date 6-12-15	Time 0910	4. Received by	Org.	Date	Time

*Prior confirmation with SMO required for 7 and 15 day TAT

SMO 2012-ARCOC (4-2012)

AOP 95-16

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY (Continuation)

AR/COC 616178

Project Name: BSG | Project/Task Manager: Mike Skelly | Project/Task No.: 146422.10.11.01

Tech Area:

Building: | Room:

Sample No.	Fraction	Sample Location Detail	Depth (ft)	Date/Time Collected		Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab use Lab Sample ID
097842	-033	CYN-MW15	183	6/11/15	10:14	GW	P	1 L	HNO3	G	SA	Gamma Spectroscopy (EPA 901.0)	024
097842	-034	CYN-MW15	183	6/11/15	10:16	GW	P	1 L	HNO3	G	SA	Gross Alpha and Beta (EPA 900.0)	025
097842	-035	CYN-MW15	183	6/11/15	10:18	GW	P	1 L	HNO3	G	SA	Isotopic Uranium (HASL 300)	026
097842	-036	CYN-MW15	183	6/11/15	10:20	GW	AG	250 ml	None	G	SA	Tritium (EPA 906.0)	027
097843	-001	CYN-MW15	183	6/11/15	9:46	GW	G	3x40 ml	HCL	G	DU	TCL VOC (SW846-8260)	028
097843	-005	CYN-MW15	183	6/11/15	9:53	GW	AG	4x1 L	None	G	DU	TPH DRO (SW846-8015D) SVOC	029
097843	-006	CYN-MW15	183	6/11/15	9:50	GW	AG	3x40 ml	None	G	DU	TPH GRO (SW846-8015A/B) VOC	030
097843	-009	CYN-MW15	183	6/11/15	9:58	GW	P	500 ml	HNO3	G	DU	TAL Metals+U (SW846-6020/7470)	031
097843	-016	CYN-MW15	183	6/11/15	10:00	GW	P	125 ml	None	G	DU	Anions (SW846-9056)	032
097843	-017	CYN-MW15	183	6/11/15	10:02	FGW	P	500 ml	HNO3	G	DU	Metals-Ca,Mg,K,Na (SW846-6020)	003
097843	-018	CYN-MW15	183	6/11/15	10:04	GW	P	125 ml	H2SO4	G	DU	Nitrate+Nitrite (EPA 353.2)	033
097843	-020	CYN-MW15	183	6/11/15	10:05	GW	P	250 ml	None	G	DU	Perchlorate (EPA 314.0)	034
097843	-022	CYN-MW15	183	6/11/15	10:07	GW	P	500 ml	None	G	DU	Alkalinity (SM2320B)	035
097843	-024	CYN-MW15	183	6/11/15	10:09	GW	AG	4x1 L	None	G	DU	High Explosives (SW846-8321A) Mod	036
097843	-033	CYN-MW15	183	6/11/15	10:14	GW	P	1 L	HNO3	G	DU	Gamma Spectroscopy (EPA 901.0)	037
097843	-034	CYN-MW15	183	6/11/15	10:16	GW	P	1 L	HNO3	G	DU	Gross Alpha and Beta (EPA 900.0)	038
097843	-035	CYN-MW15	183	6/11/15	10:18	GW	P	1 L	HNO3	G	DU	Isotopic Uranium (HASL 300)	039
097843	-036	CYN-MW15	183	6/11/15	10:20	GW	AG	250 ml	None	G	DU	Tritium (EPA 906.0)	040
097844	-001	CYN-TB21	NA	6/11/15	9:46	DIW	G	3x40 ml	HCL	G	TB	TCL VOC (SW846-8260B)	041
097844	-006	CYN-TB22	NA	6/11/15	9:50	DIW	AG	3x40 ml	None	G	TB	TPH GRO (SW846-8015 A/B) VOC	042

Recipient Initials MK

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 9, 2015

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:	Groundwater, Level C Package

Client Sample ID:	097842-020	Project:	SNLSGWater
Sample ID:	374832021	Client ID:	SNLS004
Matrix:	AQUEOUS		
Collect Date:	11-JUN-15 10:05		
Receive Date:	12-JUN-15	Client Desc.:	CYN-MW15
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 314.0 Perchlorate by IC "As Received"											
Perchlorate	U	ND	0.004	0.012	mg/L	1	MXL2	06/24/15	2240	1485796	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 9, 2015

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:	Groundwater, Level C Package

Client Sample ID:	097843-020	Project:	SNLSGWater
Sample ID:	374832034	Client ID:	SNLS004
Matrix:	AQUEOUS		
Collect Date:	11-JUN-15 10:05		
Receive Date:	12-JUN-15	Client Desc.:	CYN-MW15
Collector:	Client	Vol. Recv.:	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 314.0 Perchlorate by IC "As Received"											
Perchlorate	U	ND	0.004	0.012	mg/L	1	MXL2	06/24/15	2300	1485796	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0 DOE-AL	

Notes:

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

ANALYTICAL QUALITY ASSOCIATES, INC.

PO Box 21987
Albuquerque, NM 87154
1-888-678-5447
www.aqainc.net

Memorandum

Date: July 22, 2015

To: File

From: Linda Thal

Subject: Inorganic Data Review and Validation – SNL
Site: BSG
AR/COC: 616174 and 616175
SDG: 374620
Laboratory: GEL
Project/Task: 146422.10.11.01
Analysis: General Chemistry

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 4.

Summary

Two samples were prepared and analyzed with accepted procedures using methods EPA 9056 (anions by IC), EPA 353.2 (nitrate/nitrite) and SM 2320B (total alkalinity). One sample was prepared and analyzed with accepted procedures using method EPA 314.0 (perchlorate). Data were reported for all required analytes. No problems were identified with the data package that resulted in the qualification of data.

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

Holding Times and Preservation

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

Calibration

All initial and continuing calibration met QC acceptance criteria except as follows. The intercept for chloride was positive and > the MDL. The associated sample results were detects >3X the value of the intercept and will not be qualified.

Blanks

No target analytes were detected in the blanks.

Alkalinity blank results were reported, but were not assessed for data validation.

Laboratory Control Sample (LCS)

All LCS acceptance criteria were met.

Matrix Spike (MS)

All MS/PS recoveries met QC acceptance criteria.

It should be noted that the MS analyses for alkalinity were performed on SNL samples of similar matrix from other SDGs. No data will be qualified.

Laboratory Replicate

The replicate analyses met all QC acceptance criteria.

It should be noted that the replicate analyses for alkalinity were performed on SNL samples of similar matrix from other SDGs. No data will be qualified.

Detection Limits/Dilutions

All detection limits were properly reported. The samples were not diluted except as follows.

Nitrate/nitrite:
Samples -006 and -022 were diluted 25X; MDLs and PQLs were adjusted accordingly

Anions:
Samples -005 and -021 were diluted 20X for chloride and sulfate; MDLs and PQLs were adjusted accordingly.

Other QC

No other specific issues that affect data quality were identified.

Reviewed by: Mary Donivan **Level:** I **Date:** 07/27/15

Sample Findings Summary

AR/COC: 616174, 616175

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
EPA 900.0/SW846 9310			
	097833-034/CYN-MW12	ALPHA (12587-46-1)	J, FR7
	097833-034/CYN-MW12	BETA (12587-47-2)	BD, FR3
	097836-034/CYN-MW14A	BETA (12587-47-2)	J, FR7
EPA 901.1			
	097833-033/CYN-MW12	Americium-241 (14596-10-2)	BD, FR3
	097833-033/CYN-MW12	Cesium-137 (10045-97-3)	BD, FR3
	097833-033/CYN-MW12	Cobalt-60 (10198-40-0)	BD, FR3
	097833-033/CYN-MW12	Potassium-40 (13966-00-2)	BD, FR3
	097836-033/CYN-MW14A	Americium-241 (14596-10-2)	BD, FR3
	097836-033/CYN-MW14A	Cesium-137 (10045-97-3)	BD, FR3
	097836-033/CYN-MW14A	Cobalt-60 (10198-40-0)	BD, FR3
	097836-033/CYN-MW14A	Potassium-40 (13966-00-2)	BD, FR3
EPA 906.0 Modified			
	097833-036/CYN-MW12	Tritium (10028-17-8)	BD, FR3
	097836-036/CYN-MW14A	Tritium (10028-17-8)	BD, FR3
SW846 3005/6020 DOE-AL			
	097833-009/CYN-MW12	Barium (7440-39-3)	J+, CK2
	097833-009/CYN-MW12	Cadmium (7440-43-9)	J-, CK3
	097833-009/CYN-MW12	Manganese (7439-96-5)	J, MS3,CK2
	097836-009/CYN-MW14A	Cadmium (7440-43-9)	R, CK3
	097836-009/CYN-MW14A	Manganese (7439-96-5)	J, MS3,CK2
SW846 3535/8321A Modified			
	097833-024/CYN-MW12	m-Nitrotoluene (99-08-1)	UJ, I4
	097833-024/CYN-MW12	Nitrobenzene (98-95-3)	UJ, I4
	097833-024/CYN-MW12	o-Nitrotoluene (88-72-2)	UJ, I4,MS5

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
	097833-024/CYN-MW12	p-Nitrotoluene (99-99-0)	UJ, I4
	097836-024/CYN-MW14A	m-Nitrotoluene (99-08-1)	UJ, I4
	097836-024/CYN-MW14A	Nitrobenzene (98-95-3)	UJ, I4
	097836-024/CYN-MW14A	o-Nitrotoluene (88-72-2)	UJ, I4,MS5
	097836-024/CYN-MW14A	p-Nitrotoluene (99-99-0)	UJ, I4
SW846 8260B DOE-AL			
	097835-001/CYN-FB2	Acetone (67-64-1)	J+, C2

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

ANALYTICAL QUALITY ASSOCIATES, INC.

PO Box 21987
Albuquerque, NM 87154
1-888-678-5447
www.aqainc.net

Memorandum

Date: July 21, 2015

To: File

From: Mary Donivan

Subject: Inorganic Data Review and Validation – SNL
Site: BSG
AR/COC: 616176, 616177 and 616178
SDG: 374832
Laboratory: GEL
Project/Task: 146422.10.11.01
Analysis: General Chemistry

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 4.

Summary

Four samples were prepared and analyzed with accepted procedures using methods EPA 9056 (anions by IC), EPA 353.2 (nitrate/nitrite), and SM 2320B (total alkalinity). Three samples were prepared and analyzed with accepted procedures using methods EPA 314.0 (perchlorate by IC). Data were reported for all required analytes. No problems were identified with the data package that resulted in the qualification of data.

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

Holding Times and Preservation

The sample fractions were prepared and analyzed within the prescribed holding times and were properly preserved.

Calibration

All initial and continuing calibration met QC acceptance criteria.

Blanks

No target analytes were detected in the blanks except as follows. Chloride was detected at < the PQL in the EB, sample -047, associated with samples -019 and -032. The associated sample results were detects >5X the EB value and will not be qualified.

Alkalinity blank results were reported, but were not assessed for data validation.

Laboratory Control Sample (LCS)

All LCS acceptance criteria were met.

Matrix Spike (MS)

All MS/PS recoveries met QC acceptance criteria with the following exception. Sample -048 had a 25X relative dilution compared to the QC parent sample, -006. Because the sample is the EB, the result will not be qualified, based on professional judgment.

Perchlorate:
It should be noted that the PS was performed on an SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Laboratory Replicate

The replicate analyses met all QC acceptance criteria with the following exception. Sample -048 had a 25X relative dilution compared to the QC parent sample, -006. Because the sample is the EB, the result will not be qualified, based on professional judgment.

Perchlorate:
It should be noted that the replicate was performed on an SNL sample of similar matrix from another SDG. No sample data will be qualified as a result.

Detection Limits/Dilutions

All detection limits were properly reported. The samples were not diluted except as follows.

Nitrate/nitrite:
Sample -006 was diluted 25X and samples -020 and -033 were diluted 50X to bring analyte concentration within linear range.

Anions:
Samples -005, -019 and -032 were diluted 20X for chloride and sulfate to bring analyte concentrations within linear range.

Other QC

An EB was submitted with AR/COC 616177 and was associated with the samples on AR/COC 616178. A field duplicate pair was submitted with AR/COC 616178. There are no "required" review criteria for field duplicate analyses comparability; no data will be qualified as a result.

No other specific issues that affect data quality were identified.

Reviewed by: Monica Dymerski **Level I** **Date:** 07/22/15

Sample Findings Summary

AR/COC: 616176, 616177, 616178, 616181

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
DOE EML HASL-300, U-02-RC			
	097838-035/CYN-MW11	Uranium-235/236 (15117-96-1/13982-70-)	J, FR7
	097840-035/CYN-EB3	Uranium-233/234 (13968-55-3/13966-29-)	BD, FR3
	097840-035/CYN-EB3	Uranium-235/236 (15117-96-1/13982-70-)	BD, FR3
	097840-035/CYN-EB3	Uranium-238 (7440-61-1)	BD, FR3
EPA 900.0/SW846 9310			
	097838-034/CYN-MW11	ALPHA (12587-46-1)	J, FR7
	097838-034/CYN-MW11	BETA (12587-47-2)	BD, FR3
	097840-034/CYN-EB3	ALPHA (12587-46-1)	BD, FR3
	097840-034/CYN-EB3	BETA (12587-47-2)	BD, FR3
	097842-034/CYN-MW15	BETA (12587-47-2)	J, FR7
	097843-034/CYN-MW15	ALPHA (12587-46-1)	J, FR7
	097843-034/CYN-MW15	BETA (12587-47-2)	BD, FR3
EPA 901.1			
	097838-033/CYN-MW11	Americium-241 (14596-10-2)	BD, FR3
	097838-033/CYN-MW11	Cesium-137 (10045-97-3)	BD, FR3
	097838-033/CYN-MW11	Cobalt-60 (10198-40-0)	BD, FR3
	097838-033/CYN-MW11	Potassium-40 (13966-00-2)	BD, FR3
	097840-033/CYN-EB3	Americium-241 (14596-10-2)	BD, FR3
	097840-033/CYN-EB3	Cesium-137 (10045-97-3)	BD, FR3
	097840-033/CYN-EB3	Cobalt-60 (10198-40-0)	BD, FR3
	097840-033/CYN-EB3	Potassium-40 (13966-00-2)	BD, FR3
	097842-033/CYN-MW15	Americium-241 (14596-10-2)	BD, FR3
	097842-033/CYN-MW15	Cesium-137 (10045-97-3)	BD, FR3

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
	097842-033/CYN-MW15	Cobalt-60 (10198-40-0)	BD, FR3
	097842-033/CYN-MW15	Potassium-40 (13966-00-2)	BD, FR3
	097843-033/CYN-MW15	Americium-241 (14596-10-2)	BD, FR3
	097843-033/CYN-MW15	Cesium-137 (10045-97-3)	BD, FR3
	097843-033/CYN-MW15	Cobalt-60 (10198-40-0)	BD, FR3
	097843-033/CYN-MW15	Potassium-40 (13966-00-2)	BD, FR3
EPA 906.0 Modified			
	097838-036/CYN-MW11	Tritium (10028-17-8)	BD, FR3
	097840-036/CYN-EB3	Tritium (10028-17-8)	BD, FR3
	097842-036/CYN-MW15	Tritium (10028-17-8)	BD, FR3
	097843-036/CYN-MW15	Tritium (10028-17-8)	BD, FR3
SW846 3005/6020 DOE-AL			
	097842-009/CYN-MW15	Copper (7440-50-8)	0.0027U, B2
	097843-009/CYN-MW15	Copper (7440-50-8)	0.0027U, B2
SW846 3535/8321A Modified			
	097838-024/CYN-MW11	1,3,5-Trinitrobenzene (99-35-4)	UJ, IS1
	097838-024/CYN-MW11	2,4,6-Trinitrotoluene (118-96-7)	UJ, IS1
	097838-024/CYN-MW11	2,4-Dinitrotoluene (121-14-2)	UJ, IS1
	097838-024/CYN-MW11	2,6-Dinitrotoluene (606-20-2)	UJ, IS1
	097838-024/CYN-MW11	2-Amino-4,6-dinitrotoluene (35572-78-2)	UJ, IS1
	097838-024/CYN-MW11	4-Amino-2,6-dinitrotoluene (19406-51-0)	UJ, IS1
	097838-024/CYN-MW11	HMX (2691-41-0)	UJ, IS1
	097838-024/CYN-MW11	m-Dinitrobenzene (99-65-0)	UJ, IS1
	097838-024/CYN-MW11	m-Nitrotoluene (99-08-1)	UJ, I4,IS1
	097838-024/CYN-MW11	Nitrobenzene (98-95-3)	UJ, I4,IS1
	097838-024/CYN-MW11	o-Nitrotoluene (88-72-2)	UJ, I4,IS1,MS5
	097838-024/CYN-MW11	PETN (78-11-5)	UJ, IS1
	097838-024/CYN-MW11	p-Nitrotoluene (99-99-0)	UJ, I4,IS1

Analytical Method	Sample ID	Analyte Name (CAS#)	Qualifier, RC
	097838-024/CYN-MW11	RDX (121-82-4)	UJ, IS1
	097838-024/CYN-MW11	Tetryl (479-45-8)	UJ, IS1
	097840-024/CYN-EB3	m-Nitrotoluene (99-08-1)	UJ, I4
	097840-024/CYN-EB3	Nitrobenzene (98-95-3)	UJ, I4
	097840-024/CYN-EB3	o-Nitrotoluene (88-72-2)	UJ, I4,MS5
	097840-024/CYN-EB3	p-Nitrotoluene (99-99-0)	UJ, I4
	097842-024/CYN-MW15	m-Nitrotoluene (99-08-1)	UJ, I4
	097842-024/CYN-MW15	Nitrobenzene (98-95-3)	UJ, I4
	097842-024/CYN-MW15	o-Nitrotoluene (88-72-2)	UJ, I4,MS5
	097842-024/CYN-MW15	p-Nitrotoluene (99-99-0)	UJ, I4
	097843-024/CYN-MW15	m-Nitrotoluene (99-08-1)	UJ, I4
	097843-024/CYN-MW15	Nitrobenzene (98-95-3)	UJ, I4
	097843-024/CYN-MW15	o-Nitrotoluene (88-72-2)	UJ, I4,MS5
	097843-024/CYN-MW15	p-Nitrotoluene (99-99-0)	UJ, I4
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	097840-001/CYN-EB3	Bromodichloromethane (75-27-4)	J+, C2
	097840-001/CYN-EB3	Methylene chloride (75-09-2)	10.0U, B
	097841-001/CYN-TB19	Methylene chloride (75-09-2)	10.0U, B
	097850-001/CYN-MW12	Methylene chloride (75-09-2)	10.0U, B
	097851-001/CYN-TB27	Methylene chloride (75-09-2)	10.0U, B

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