LMS/SHE/S00516

Data Validation Package

May 2016
Groundwater Sampling at the Sherwood, Washington, Disposal Site

August 2016

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Sampling Event Summary

Site: Sherwood, Washington, Disposal Site

Sampling Period: May 19, 2016

The 2001 *Long-Term Surveillance Plan* (LTSP) *for the U.S. Department of Energy Sherwood Project (UMTRCA Title II) Reclamation Cell, Wellpinit, Washington,* does not require groundwater compliance monitoring at the Sherwood site. However, the LTSP stipulates limited groundwater monitoring for chloride and sulfate (designated indicator parameters) and total dissolved solids (TDS) as a best management practice.

Samples were collected from the background well, MW-2B, and the two downgradient wells, MW-4 and MW-10, in accordance with the LTSP. Sampling and analyses were conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated). Water levels were measured in all wells prior to sampling and in four piezometers completed in the tailings dam.

Time-concentration graphs included in this report indicate that the chloride, sulfate, and TDS concentrations are consistent with historical measurements. The concentrations of chloride and sulfate are well below the State of Washington water quality criteria value of 250 milligrams per liter (mg/L) for both parameters.

David Traub

David Traub, Site Lead
Navarro Research and Engineering, Inc.

8-4-2016

Date

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Sherwood, Washington, Disposal Site, Sample Location Map

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Sherwood, Washington	**Date(s) of Water Sampling**	May 19, 2016
Date(s) of Verification	July 21, 2016	**Name of Verifier**	Stephen Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List any Program Directives or other documents, SOPs, instructions.		Work Order letter dated April 14, 2016.
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Were field equipment calibrations conducted as specified in the above-named documents?	Yes	Calibrations were performed on May 13, 2016.
4. Was an operational check of the field equipment conducted daily?	No	See trip report for details.
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. Were wells categorized correctly?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate sample was collected at location MW-10.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	NA	An equipment blank was not required.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were the true identities of the QC samples documented?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Was all pertinent information documented on the field data sheets?	Yes	
18. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
19. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Task ID:	SHE01.1-16050001
Sample Event:	May 19, 2016
Site(s):	Sherwood, Washington
Laboratory:	ALS Laboratory Group, Fort Collins, Colorado
Work Order No.:	1605450
Analysis:	Inorganics
Validator:	Stephen Donivan
Review Date:	July 21, 2016

This validation was performed according to the *Environmental Procedures Catalog*, (LMS/POL/S04325, continually updated) "Standard Practice for Validation of Environmental Data." The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 1.

Table 1. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Chloride, Cl	MIS-A-045	SW-846 9056	SW-846 9056
Sulfate, SO4	MIS-A-045	SW-846 9056	SW-846 9056
Total Dissolved Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1

Data Qualifier Summary

Analytical results were qualified as listed in Table 2. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

Table 2. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason[1]
1605450-1	MW-2B	Sulfate	J	Preservation temperature
1605450-1	MW-2B	TDS	J	Preservation temperature
1605450-2	MW-4	Sulfate	J	Preservation temperature
1605450-2	MW-4	TDS	J	Preservation temperature
1605450-3	MW-10	Sulfate	J	Preservation temperature
1605450-3	MW-10	TDS	J	Preservation temperature
1605450-4	MW-10 Duplicate	Sulfate	J	Preservation temperature
1605450-4	MW-10 Duplicate	TDS	J	Preservation temperature

[1] Preservation temperature out of compliance because of late sample delivery by FedEx.

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received four samples on May 23, 2016, accompanied by a Chain of Custody form. The Chain of Custody was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The Chain of Custody was complete with no errors or omissions. A copy of the air bill was included in the receiving documentation.

Preservation and Holding Times

The sample shipment was received intact with the temperature inside the cooler at 15.1 °C, which does not comply with requirements. The sample sulfate and TDS results are qualified with a "J" flag as estimated values. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All sample analyses were performed within the applicable holding times with the exception of TDS. The TDS results have been previously qualified.

Detection and Quantitation Limits

The method detection limit (MDL) was reported for all analytes as required. The MDL, as defined in 40 CFR 136, is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The practical quantitation limit (PQL) for these analytes is the lowest concentration that can be reliably measured, and is defined as 5 times the MDL. The reported MDLs for all analytes demonstrate compliance with contractual requirements.

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods. All calibration and laboratory spike standards were prepared from independent sources.

Method MCAWW 160.1, Total Dissolved Solids
There are no initial or continuing calibration requirements associated with the determination of Total Dissolved Solids.

Method SW-846 9056, Chloride and Sulfate
Initial calibrations were performed using five calibration standards on May 6, 2016. The correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results were below the MDL for all analytes.

Matrix Spike Analysis

Matrix spike (MS) samples are used to measure method performance in the sample matrix. The spike recoveries met the acceptance criteria for all analytes evaluated.

Laboratory Replicate Analysis

Laboratory replicate analyses are used to determine laboratory precision for each sample matrix. The relative percent difference for replicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. The replicate results met these criteria, demonstrating acceptable laboratory precision.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. All control sample results were acceptable.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers.

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

Electronic Data Deliverable File

The electronic data deliverable (EDD) file arrived on June 11, 2016. The EDD was examined to verify that the file was complete and in compliance with requirements. The contents of the file were compared to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

General Data Validation Report

Task Code: SHE01.1-16050001 **Lab Code:** PAR **Validator:** Stephen Donivan **Validation Date:** 07-21-2016

Project: Sherwood Monitoring **# Samples:** 4

Analysis Type: [X] General Chemistry [ ] Metals [ ] Organics [ ] Radiochemistry

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation OK Temperature: OK

Check	Summary
Holding Times:	There were 4 analyses performed outside the applicable holding times.
Detection Limits:	The reported detection limits are equal to or below the contract required limits.
Field Duplicates:	There was 1 duplicate evaluated.

Validation Report: Holding Times

21-Jul-2016

Project: Sherwood Monitoring **Task Code:** SHE01.1-16050001 **Lab Code:** PAR

			Holding Times			Criteria			Actual Dates		
Sample ID	Location	Method	Collection to Prep.	Prep. to Analysis	Collection to Analysis	Collection to Prep	Prep to Analysis	Collection to Analysis (Preserved)	Date Sampled	Date Prepared	Date Analyzed
SHE01.1-16050001-004	MW-10	EPA 160.1	8	4	12	7		7	5/19/2016	5/27/2016	5/31/2016
SHE01.1-16050001-003	MW-10	EPA 160.1	8	4	12	7		7	5/19/2016	5/27/2016	5/31/2016
SHE01.1-16050001-001	MW-2B	EPA 160.1	8	4	12	7		7	5/19/2016	5/27/2016	5/31/2016
SHE01.1-16050001-002	MW-4	EPA 160.1	8	4	12	7		7	5/19/2016	5/27/2016	5/31/2016

Wet Chemistry Data Validation Worksheet

21-Jul-2016

Project: Sherwood Monitoring **Task Code:** SHE01.1-16050001 **Lab Code:** PAR

Analyte	Method	Analysis Date	QC Type	Spike Recovery	Spike Dup Recovery	Lower Limit	Upper Limit	RPD	RPD Limit	Comments
Chloride	SW-846 9056	06-02-2016	LCS	100.34		90	110		15	
Chloride	SW-846 9056	06-02-2016	MB							MB < MDL
Chloride	SW-846 9056	06-02-2016	R						15	
Sulfate	SW-846 9056	06-02-2016	LCS	99.19		90	110		15	
Sulfate	SW-846 9056	06-02-2016	MB							MB < MDL
Sulfate	SW-846 9056	06-02-2016	R						15	
Total Dissolved Solids	EPA 160.1	05-31-2016	LCS	95.00		85	115		5	
Total Dissolved Solids	EPA 160.1	05-31-2016	LCSD	99.00	99.00	85	115	4	5	
Total Dissolved Solids	EPA 160.1	05-31-2016	MB							MB < MDL
Total Dissolved Solids	EPA 160.1	05-31-2016	R					1	5	

QC Types: LCS: Laboratory Control Sample MB: Method Blank MS: Matrix Spike MSD: Matrix Spike Duplicate R: Replicate

QC Checks: RPD: Relative Percent Difference

Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

Sampling Protocol

Sample results for all monitoring wells met the Category I or II low-flow sampling criteria and were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. The groundwater sample results for the wells MW-2B and MW-4 were further qualified with a "Q" flag in the database indicating the data are considered qualitative because these are Category II wells.

Equipment Blank Assessment

Dedicated equipment was used for collection of all samples and an equipment blank was not required.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. The relative percent difference for duplicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. A duplicate sample was collected from location MW-10. The duplicate results met the criteria, demonstrating acceptable overall precision.

Validation Report: Field Duplicates

21-Jul-2016

Project: Sherwood Monitoring **Task Code:** SHE01.1-16050001 Lab Code: PAR

	Duplicate: SHE01.1-16050001-004				Sample: SHE01.1-16050001-003 MW-10						
Analyte	**Result**	**Qualifiers**	**Uncert.**	**Dilution**	**Result**	**Qualifiers**	**Uncert.**	**Dilution**	**RPD**	**RER**	**Units**
Chloride	1.3			1	1.2			1	8.0		mg/L
Sulfate	33			1	32			1	3.1		mg/L
Total Dissolved Solids	610			1	610			1	0		mg/L

QC Checks: RPD: Relative Percent Difference RER: Relative Error Ratio

Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the environmental database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator: Stephen Donivan — Stephen Donivan — 8-4-2016 — Date

Data Validation Lead: Stephen Donivan — Stephen Donivan — 8-4-2016 — Date

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Attachment 1

Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

Potential outliers are results that lie outside the historical range, possibly due transcription errors, data calculation errors, or measurement system problems. However, outliers can also represent true values outside the historical range. Potential outliers are identified by generating the Data Validation Outliers Report from data in the environmental database. The new data are compared to historical values and data that fall outside the historical data range are listed on the report along with the historical minimum and maximum values. The potential outliers are further reviewed and may be subject to statistical evaluation using the ProUCL application developed by the EPA. The review also includes an evaluation of any notable trends in the data that may indicate the outliers represent true extreme values. There were no potential outliers identified, and the data for this event are acceptable as qualified.

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Attachment 2

Data Presentation

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Groundwater Quality Data

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Groundwater Quality Data by Location For Site SHE01, Sherwood Disposal Site

Location: MW-10

Report Date: 07/21/2016

Parameter	Units	Sample Date	Sample Type	Fraction	Result	Uncertainty	MDC/MDL	Lab	Data	QA
Chloride	mg/L	05/19/2016	F	N	1.2		0.06		F	Y
Sulfate	mg/L	05/19/2016	F	N	32		0.3		FJ	Y
Total Dissolved Solids	mg/L	05/19/2016	F	N	610		20.00		FJ	Y

Groundwater Quality Data by Location For Site SHE01, Sherwood Disposal Site

Location: MW-2B

Report Date: 07/21/2016

Parameter	Units	Sample Date	Sample Type	Fraction	Result	Uncertainty	MDC/MDL	Lab	Data	QA
Chloride	mg/L	05/19/2016	F	N	1.8		0.3		FQ	Y
Sulfate	mg/L	05/19/2016	F	N	3.4		1.5		FJQ	Y
Total Dissolved Solids	mg/L	05/19/2016	F	N	240		20.00		FJQ	Y

Groundwater Quality Data by Location For Site SHE01, Sherwood Disposal Site

Location: MW-4

Report Date: 07/21/2016

Parameter	Units	Sample Date	Sample Type	Fraction	Result	Uncertainty	MDC/MDL	Lab	Data	QA
Chloride	mg/L	05/19/2016	F	N	32		0.6		FQ	Y
Sulfate	mg/L	05/19/2016	F	N	140		3		FJQ	Y
Total Dissolved Solids	mg/L	05/19/2016	F	N	650		20.00		FJQ	Y

SAMPLE TYPE: D = Duplicate E = Equipment Blank F = Field Sample FB = Field Blank TB = Trip Blank

FRACTION: D = Dissolved N = NA T = Total

MDC / MDL: MDC = Radiochemical minimum detectable concentration MDL = Non-radiochemical minimum detection limit

LAB QUALIFIERS (details can be found in laboratory report):
* = One or more quality control criteria failed (e.g., laboratory control sample, surrogate spike, or calibration verification recovery).
B = Blank contamination. The reported result is associated with a contaminated blank.
D = Result is from the analysis of a diluted sample.
H = Holding time was exceeded.
J = The reported result is an estimated value (e.g., matrix interference was observed or the analyte was detected at a concentration outside the quantitation range).
U = Analytical result is below the MDC or MDL.
Z = Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:
F = Low flow sampling method used.
L = Less than 3 bore volumes purged prior to sampling.
U = Parameter analyzed for, but not detected.
G = Possible grout contamination, pH > 9
Q = Qualitative result due to sampling technique.
X = Location is undefined.
J = Estimated value
R = Rejected, unusable result

QA QUALIFIER: Yes = Validated, acceptable as qualified.

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Static Water Level Data

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Static Water Levels For Site SHE01, Sherwood Disposal Site

Measurement Date Between : 05/19/2016 and 05/19/2016

Report Date: 07/21/2016

Location Code	Measurement Date	Top of Casing Elevation	Water Elevation	Water Level Depth	Units	Dry (y/n)
MW-10	05/19/2016	2008.93	1780.23	228.7	ft	
MW-2B	05/19/2016	2116.04	2061.09	54.95	ft	
MW-4	05/19/2016	NA	NA	233.49	ft	

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Time-Concentration Graphs

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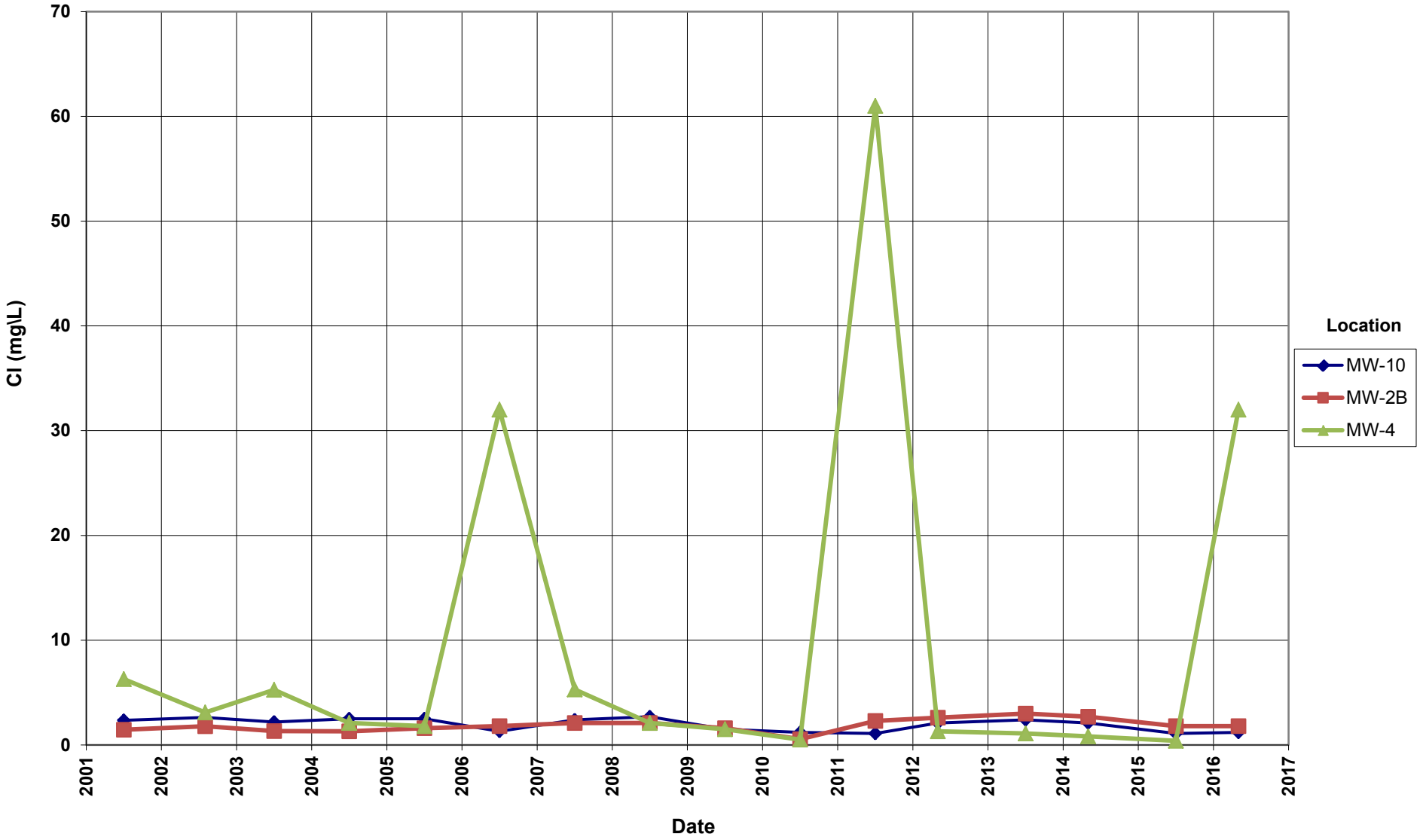
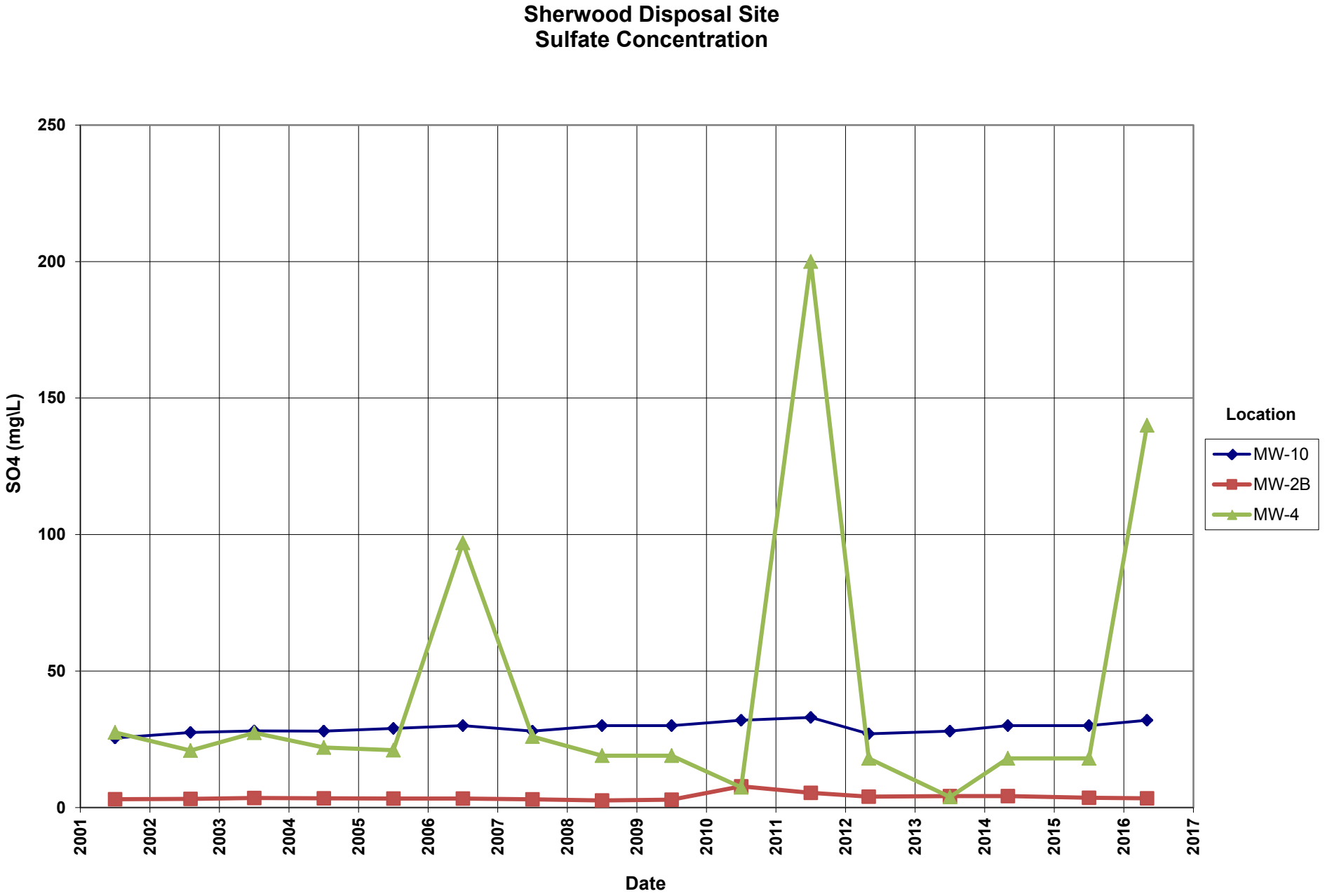
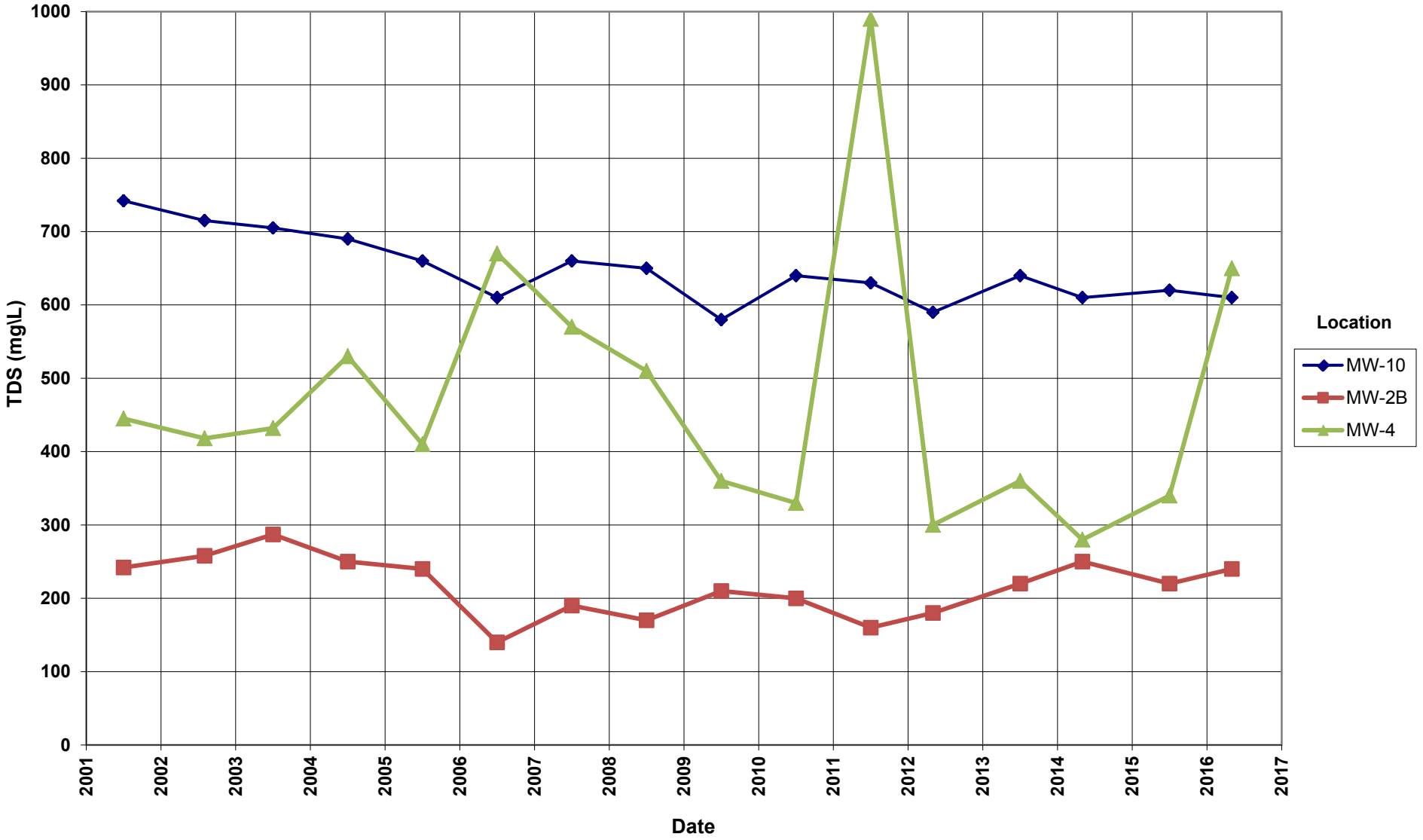
Sherwood Disposal Site
Chloride Concentration




Sherwood Disposal Site
Sulfate Concentration
SO4 (mg\L)
250
200
150
100
50
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Date
Location
MW-10
MW-2B
MW-4

Sherwood Disposal Site
TDS Concentration



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Attachment 3

Sampling and Analysis Work Order

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April 14, 2016

Task Assignment 103
Control Number 16-0508

U.S. Department of Energy
Office of Legacy Management
ATTN: Richard Bush
Site Manager
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: Contract No. DE-LM0000421, Navarro Research & Engineering, Inc. (Navarro)
Task Assignment 103 LTS&M-UMTRCA TI & TII Sites, D&D Sites, Other Sites, and Other
May 2016 Environmental Sampling at the Sherwood, Washington, Disposal Site

REFERENCE: Task Assignment 103, 1-103-1-03-221, Sherwood, Washington, Disposal Site

Dear Mr. Bush:

The purpose of this letter is to inform you of the upcoming sampling event at the Sherwood, Washington, disposal site. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the site. Water quality data will be collected at this site as part of the routine environmental sampling currently scheduled to begin the week of May 16, 2016.

The following list shows the locations scheduled to be sampled during this event.

MONITORING WELLS
MW-2B MW-4 MW-10

Water levels will be obtained from piezometers P1, P2, P3, and P4.

Following the groundwater sampling, the sampling team will conduct a survey to determine ground level elevation at selected locations on the disposal cell cover. This survey is in response to Nuclear Regulatory Commission (NRC) concerns about possible settlement issues on the cover. Results will be provided to NRC in the annual inspection report.

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*.

Please contact me at (970) 248-6557 if you have any questions.

Sincerely,

David Traub
2016.04.11 15:13:28
-06'00'

David Traub
LMS Site Lead
DT/lcg/bkb

Enclosures (3)

cc: (electronic)
Christina Pennal, DOE
Jeff Carman, Navarro
Bev Cook, Navarro
Steve Donivan, Navarro
Lauren Goodknight, Navarro
Sam Marutzky, Navarro
Diana Osborne, Navarro
David Traub, Navarro
EDD Delivery
rc-grand.junction
File: SHE 400.02

Sampling Frequencies for Locations at Sherwood, Washington

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
MW-2B			X			
MW-4			X			
MW-10			X			
P1					X	Water level only
P2					X	Water level only
P3					X	Water level only
P4					X	Water level only

Sampling conducted in May

Constituent Sampling Breakdown

Site	Sherwood				
Analyte	Groundwater	Surface Water	Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Approx. No. Samples/yr	3	0			
Field Measurements					
Alkalinity					
Dissolved Oxygen					
Redox Potential	X				
pH	X				
Specific Conductance	X				
Turbidity	X				
Temperature	X				
Laboratory Measurements					
Aluminum					
Ammonia as N (NH3-N)					
Calcium					
Chloride	X		0.5	SW-846 9056	MIS-A-039
Chromium					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Nitrate + Nitrite as N (NO_3+NO_2)-N					
Potassium					
Selenium					
Sodium					
Sulfate	X		0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids	X		10	SM2540 C	WCH-A-033
Total Organic Carbon					
Uranium					
Vanadium					
Zinc					
Total No. of Analytes	3	0			

Note: All private well samples are to be unfiltered. The total number of analytes does not include field parameters.

Attachment 4

Trip Report

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memo

NAVARRO

To: Dave Traub, Navarro
From: David Atkinson, Navarro
Date: June 10, 2016
CC: Rich Bush, DOE
Steve Donivan, Navarro
EDD Delivery
Re: Sampling Trip Report

Site: Sherwood, Washington, Disposal Site

Dates of Event: May 18–20, 2016.

Team Members: David Atkinson and Eric Szabelski, Navarro

Summary of Site Surveying Activities: Surveys were done on many aspects of the site including boundary monuments, all wells, and all piezometers. The ecological study areas were re-mapped and entered, a survey was done tracking ground elevation to test for change in the top of the cell. Many old monuments were navigated to, but determined to no longer exist.

Locations Sampled: Groundwater samples were collected at wells MW-2b, MW-4, and MW-10 on May 19, 2016.

Locations Not Sampled/Reason: None.

Location Specific Information: Water levels only were obtained at piezometers P1 through P4 on May 19, 2016, and are presented in the following table.

Piezometer ID	Depth to water (ft.)
P1	21.92
P2	61.83
P3	DRY
P4	22.00

Quality Control Sample Cross Reference:

False ID	Sample ID	True ID	Sample Type	Associated Matrix	Associated Samples
2397	SHE01.1-16050001-004	MW-10	Duplicate	Groundwater	N/A

Task Code: All samples were assigned to task code SHE01.1-16050001. Field data sheets can be found in \\crow\SMS\SHE01.1-16050001\FieldData.

Sample Shipment: Samples were shipped from the field to ALS Laboratory Group via FedEx on Thursday, May 19, 2016. The FedEx air-bill was clearly marked for priority overnight service and the address was correctly entered into the FedEx system; however, the samples did not arrive at the lab until Monday, May 23, 2016. No explanation has been obtained or offered from FedEx.

Water Level Measurements: Water levels were measured in all wells prior to sampling.

Well Inspection Summary: All wells appeared in good condition.

Field Variance: Water quality measurement equipment was calibrated in Grand Junction prior to travel; however, a daily calibration check could not be performed according to the Sampling and Analysis Plan for the parameters of specific conductance and oxidation reduction potential because the calibration standards were missing from the samplers' equipment. Upon receiving these standards via overnight delivery a calibration check was performed to bracket (along with the pre-trip calibration) the field data collected. The water quality measurement equipment passed all pre-trip and daily calibration checks performed.

Equipment: Wells were sampled with a dedicated bladder pump.

Stakeholder/Regulatory: Nothing to note.

Institutional Controls:

Fences, Gates, and Locks: N/A
Signs: N/A
Trespassing/Site Disturbances: None observed.
Site Issues: None.
Disposal Cell/Drainage Structure Integrity: N/A
Vegetation/Noxious Weed Concerns: None observed.
Maintenance Requirements: None.
Safety Issues: None.
Access Issues: None.

Corrective Action Required/Taken: N/A