ALS Environmental

Friday, July 29, 2016

Bob Evans
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1607245
Project Name: 200W Pump & Treat - Extraction Well Water Sampling
Project Number: F13-002

Dear Mr. Evans:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 7/15/2016. The samples were scheduled for the following analysis:

Metals

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

SAMPLE ISSUE RESOLUTION

SIR NUM SIR16-507
REV NUM 0
DATE INITIATED 7/20/2016

SAMPLE EVENT INFORMATION

SAF NUM(S) F13-002

OPERABLE UNIT(S) 200-ZP-1

PROJECT(S) 200W P&T EXTRAC

SAMPLE EVENT TITLE(S) 200W Pump & Treat Extraction Wells

LABORATORY ALS Environmental Ft. Collins

SAMPLING INFORMATION

NUMBER OF SAMPLES 1

SAMPLE NUMBERS B35K31

SAMPLE MATRIX

COLLECTION DATE 7/13/16

SDG NUM ALS1607245

ISSUE BACKGROUND

CLASS Field Sampling Issue

TYPE Incorrect Sample Preservation

DESCRIPTION The sample was received with a pH of 2.5.

DISPOSITION

DESCRIPTION The lab proposes to add additional HNO3 to bring the pH down to 2 and continue with the metals analyses.

JUSTIFICATION Final Disposition: Accept proposed resolution.

SUBMITTED BY: Julie Ellingson DATE: 07/19/2016
ACCEPTED BY: Scot Fitzgerald DATE: 07/20/2016

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
AIHA	214884
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1607245
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: 200W Pump & Treat - Extraction Well Water Sampling
Client Project Number: F13-002
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B35K31	1607245-1		WATER	13-Jul-16	11:10
B35JW1	1607245-2		WATER	13-Jul-16	10:25

CH2MHill Plateau Remediation Company	1607245 CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-002-2145	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC	**PRICE CODE** C05	**DATA TURNAROUND**
SAMPLING LOCATION 299-E33-350, YE29 Wk 8	**PROJECT DESIGNATION** 200W Pump & Treat - Extraction Well Water Sampling		**SAF NO.** F13-002	**AIR QUALITY** ☐	7 Days / 7 Days
ICE CHEST NO. GWS-451	**FIELD LOGBOOK NO.** HNF-N- 491 15	**ACTUAL SAMPLE DEPTH** N/A	**COA** 303111	**METHOD OF SHIPMENT** FEDERAL EXPRESS	**ORIGINAL**
SHIPPED TO ALS Environmental Ft. Collins	**OFFSITE PROPERTY NO.** GWS-451 6827			**BILL OF LADING/AIR BILL NO.** 7767 4443 9220	

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	**PRESERVATION**	HNO3 to pH <2
		HOLDING TIME	6 Months
		TYPE OF CONTAINER	G/P
		NO. OF CONTAINER(S)	1
		VOLUME	125mL
	SPECIAL HANDLING AND/OR STORAGE	**SAMPLE ANALYSIS**	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B35K31	WATER	JUL 13 2016	1110	J

7/29/2016
ALS1607245

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC	DATE/TIME JUL 13 2016 1130	RECEIVED BY/STORED IN SSU#1	DATE/TIME JUL 13 2016 1130	TRVL-16-137 (1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc};
RELINQUISHED BY/REMOVED FROM SSU#1	DATE/TIME JUL 14 2016 0745	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUL 14 2016 0745	
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	DATE/TIME JUL 14 2016 0800	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM Fedex	DATE/TIME	RECEIVED BY/STORED IN Rebecca Merola 7/15/16-0930	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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PRINTED ON 5/5/2016 FSR ID = FSR32150 TRVL NUM = TRVL-16-137 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	1607245 CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-002-2083	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC	**PRICE CODE** C05 **AIR QUALITY** ☐ **DATA TURNAROUND** 7 Days / 7 Days
SAMPLING LOCATION 299-E33-344, YE28 Wk 8	**PROJECT DESIGNATION** 200W Pump & Treat - Extraction Well Water Sampling		**SAF NO.** F13-002	
ICE CHEST NO. GWS-451	**FIELD LOGBOOK NO.** HNF-N-491 15	**ACTUAL SAMPLE DEPTH** N/A	**COA** 303111	**METHOD OF SHIPMENT** FEDERAL EXPRESS **ORIGINAL**
SHIPPED TO ALS Environmental Ft. Collins	**OFFSITE PROPERTY NO.** ~~GWS-451~~ 6827		**BILL OF LADING/AIR BILL NO.** 7767 4443 9220	

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HNO3 to pH <2
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	6 Months
		TYPE OF CONTAINER	G/P
		NO. OF CONTAINER(S)	1
		VOLUME	125mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B35JW1 2	WATER	JUL 13 2016	1025	✓

7/29/2016
ALS1607245

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC — DATE/TIME JUL 13 2016 1150	RECEIVED BY/STORED IN SSUTH — DATE/TIME JUL 13 2016 1150	TRVL-16-137 (1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc};
RELINQUISHED BY/REMOVED FROM SSUTH — DATE/TIME JUL 14 2016 0745	RECEIVED BY/STORED IN Janelle Zunker CHPRC — DATE/TIME JUL 14 2016 0745	
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC — DATE/TIME JUL 14 2016 0900	RECEIVED BY/STORED IN FEDEX — DATE/TIME	
RELINQUISHED BY/REMOVED FROM Fedex — DATE/TIME	RECEIVED BY/STORED IN Rebecca Merola — DATE/TIME 7/15/16 0910	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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PRINTED ON 5/5/2016 **FSR ID = FSR32142** **TRVL NUM = TRVL-16-137** A-6003-618 (REV 2)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1607245

Project Manager: JE Initials: RM Date: 7/15/16

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	NONE	(YES)	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	(NO)
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount of sediment: X dusting ____ moderate ____ heavy	N/A	(YES)	NO
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	(NO)

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information: External µR/hr reading:	11							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

8) Sample 1 pHed at 2.5 upon receipt, so HNO_3 was added
15) Sample 2 had light dusting of sediment.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: 7/19/16

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1607245

Project Manager: JE Initials: DLR Date: 7/15/16

NOTE:

No pH adjustments shall be made without prior consent of Project Manager. After pH adjustments, hold metals and radchem samples ≥ 16 hrs. before analysis.

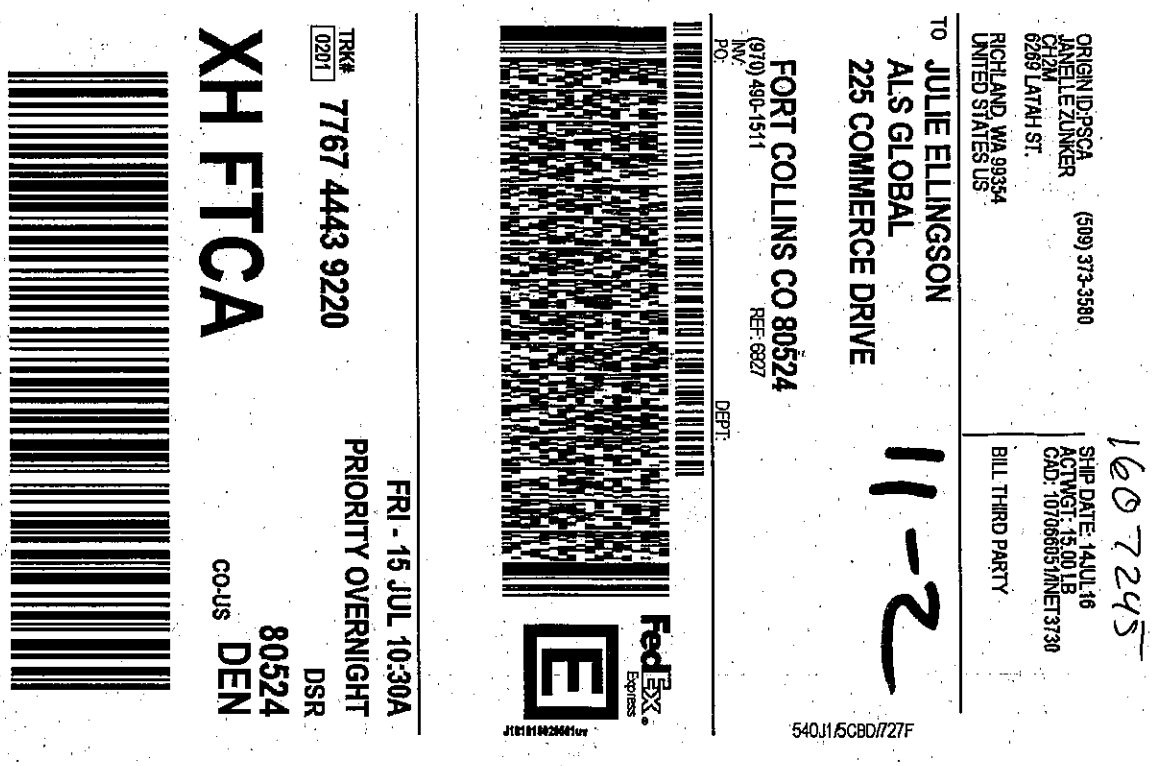
Was the pH of any sample adjusted by the laboratory? (YES) (See Table below) / NO

pH Excursion:

ALS Sample ID	Client Sample ID	Initial pH	Final pH	Reagent Used	Volume Added (mL)	Lot No. of Reagent	Requested Analysis	Initials / Date / Time
1607245-1	B35K31	2.5	<2.0	HNO_3	0.5mL	131530	Metals	DLR 7/15/16 1140

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: 7/19/16



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ALS160245
7/29/2016

Metals

Case Narrative

CH2M HILL Plateau Remediation Company

200W Pump & Treat – Extraction Well Water Sampling – F13-002

Work Order Number: 1607245

1. This report consists of 2 water samples.

2. The samples were received intact at ambient temperature by ALS on 07/15/16.

3. The sample -1 was received with a pH of 2.5. Additional HNO3 was added upon receipt. The other sample had a pH less than 2 upon receipt.

4. The samples were prepared and analyzed based on SW-846, 3rd Edition procedures.

   For analysis by Trace ICP and ICP-MS, the samples were digested following method 3005A and the current revision of SOP 806.

5. Analysis by Trace ICP followed method 6010B and the current revision of SOP 834.

   Analysis by ICP-MS followed method 6020A and the current revision of SOP 827.

6. All standards and solutions are NIST traceable and were used within their recommended shelf life.

7. The samples were prepared and analyzed within the established hold times.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.

   - A preparation (method) blank, laboratory control sample, and laboratory control sample duplicate were digested and analyzed with the samples in this digestion batch.
   - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes. Aluminum, boron, and calcium were detected above the MDL. Sample results have been compared to the blank results.

- All laboratory control sample criteria were met.
- All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.
- The interference check samples and high standard readbacks associated with Method 6010B were within acceptance criteria.
- The interference check samples associated with Method 6020A were analyzed.

9. Matrix specific quality control procedures.

   Due to limited sample volume, an LCSD (laboratory control sample duplicate) was performed in place of matrix QC.

10. It is a standard practice that samples for ICP-MS are analyzed at a dilution. The 10X factor can be considered an artifact of the prep and does not indicate a secondary dilution and is therefore not flagged as a dilution. Both samples required further dilutions to bring uranium into the analytical range of the ICP-MS. Copper was not able to be reported from the original 10X run and due to the high levels of uranium the sample could not be re-run at 10X. Copper is therefore reported form the 100X dilution in order to protect the instrument from the high metal content of the samples.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jill Latelle — 7/29/16
Jill Latelle — Date
Inorganics Primary Data Reviewer

7/29/16
Inorganics Final Data Reviewer — Date

Inorganic Data Reporting Qualifiers

The following qualifiers are used as needed by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- A “B” is entered if the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to the Method Detection Limit (MDL). If the analyte was analyzed for but not detected a “U” is entered. For samples, negative values are reported as non-detects (“U” flagged). For blanks, if the absolute value of the negative value is above the MDL and below the reporting limit, then the result is “B” flagged.

- QC qualifier -- Specified entries and their meanings are as follows:

  E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

  M - Duplicate injection precision was not met.

  N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

  Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

  * - Duplicate analysis (relative percent difference) not within control limits.

  S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

  C - The analyte was detected in both the sample and the associated QC blank, and the sample concentration was <=20X the blank concentration.

  D - Analyte was reported at a secondary dilution factor, typically DF>1 (i.e., the primary preparation required dilution to either bring the analyte within the calibration range or to minimize interference). Required for organics/wetchem if the sample was diluted.

Total Recoverable ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B35K31
Lab ID: 1607245-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Jul-16
Date Extracted: 19-Jul-16
Date Analyzed: 20-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-7
Run ID: IP160720-1A5
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Nathan A. Quatier
Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-42-8	BORON	1	58	30	11	C	
7440-70-2	CALCIUM	1	210000	1000	51		
7439-89-6	IRON	1	64	50	16		
7439-95-4	MAGNESIUM	1	90000	750	58		
7440-09-7	POTASSIUM	1	16000	1000	86		
7440-23-5	SODIUM	1	370000	500	61		

Data Package ID: *ip1607245-1*

Total Recoverable ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B35JW1
Lab ID: 1607245-2

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Jul-16
Date Extracted: 19-Jul-16
Date Analyzed: 20-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-7
Run ID: IP160720-1A5
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Nathan A. Quatier
Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-42-8	BORON	1	53	30	11	C	
7440-70-2	CALCIUM	1	160000	1000	51		
7439-89-6	IRON	1	220	50	16		
7439-95-4	MAGNESIUM	1	63000	750	58		
7440-09-7	POTASSIUM	1	13000	1000	86		
7440-23-5	SODIUM	1	280000	500	61		

Data Package ID: *ip1607245-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B35K31
Lab ID: 1607245-1

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Jul-16
Date Extracted: 19-Jul-16
Date Analyzed: 20-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160720-10A8
Cleanup: NONE
Basis: As Received
File Name: 035SMPL_

Analyst: Brent A. Stanfield
Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	14	100	14	U	
7440-38-2	ARSENIC	10	13	2	0.18		
7440-43-9	CADMIUM	10	0.099	2	0.099	U	
7440-47-3	CHROMIUM	10	81	10	1.1		
7440-48-4	COBALT	10	0.21	5	0.07	B	
7440-50-8	COPPER	100	11	80	11	UD	
7439-96-5	MANGANESE	10	13	5	0.3		
7439-98-7	MOLYBDENUM	10	28	2	0.41		
7440-02-0	NICKEL	10	4.2	20	4.2	U	
7782-49-2	SELENIUM	10	11	10	0.66		
7440-61-1	URANIUM	10000	100000	100	27	D	
7440-66-6	ZINC	10	12	100	9.1	B	

Data Package ID: *im1607245-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B35JW1
Lab ID: 1607245-2

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Jul-16
Date Extracted: 19-Jul-16
Date Analyzed: 20-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160720-10A8
Cleanup: NONE
Basis: As Received
File Name: 036SMPL_

Analyst: Brent A. Stanfield
Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	150	100	14	C	
7440-38-2	ARSENIC	10	5.6	2	0.18		
7440-43-9	CADMIUM	10	0.4	2	0.099	B	
7440-47-3	CHROMIUM	10	57	10	1.1		
7440-48-4	COBALT	10	3.7	5	0.07	B	
7440-50-8	COPPER	100	11	80	11	UD	
7439-96-5	MANGANESE	10	2400	5	0.3		
7439-98-7	MOLYBDENUM	10	31	2	0.41		
7440-02-0	NICKEL	10	8.9	20	4.2	B	
7782-49-2	SELENIUM	10	15	10	0.66		
7440-61-1	URANIUM	10000	67000	100	27	D	
7440-66-6	ZINC	10	14	100	9.1	B	

Data Package ID: *im1607245-1*

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IP160719-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 19-Jul-16
Date Analyzed: 20-Jul-16

Prep Batch: IP160719-1
QCBatchID: IP160719-1-7
Run ID: IP160720-1A5
Cleanup: NONE
Basis: N/A
File Name:

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-42-8	BORON	1	29	30	11	B	
7440-70-2	CALCIUM	1	170	1000	51	B	
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	58	750	58	U	
7440-09-7	POTASSIUM	1	86	1000	86	U	
7440-23-5	SODIUM	1	61	500	61	U	

Data Package ID: *ip1607245-1*

ICP Metals

Method SW6010B

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IP160719-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/19/2016
Date Analyzed: 07/20/2016
Prep Method: SW3005A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-7
Run ID: IP160720-1A5
Cleanup: NONE
Basis: N/A
File Name:

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-42-8	BORON	1000	1020	30		102	80 - 120%
7440-70-2	CALCIUM	40000	40400	1000		101	80 - 120%
7439-89-6	IRON	1000	1060	50		106	80 - 120%
7439-95-4	MAGNESIUM	40000	40300	750		101	80 - 120%
7440-09-7	POTASSIUM	40000	40300	1000		101	80 - 120%
7440-23-5	SODIUM	40000	40000	500		100	80 - 120%

Lab ID: IP160719-1LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/19/2016
Date Analyzed: 07/20/2016
Prep Method: SW3005A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-7
Run ID: IP160720-1A5
Cleanup: NONE
Basis: N/A
File Name:

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-42-8	BORON	1000	1000	30		100	20	2
7440-70-2	CALCIUM	40000	40000	1000		100	20	1
7439-89-6	IRON	1000	992	50		99	20	7
7439-95-4	MAGNESIUM	40000	39800	750		100	20	1
7440-09-7	POTASSIUM	40000	39700	1000		99	20	1
7440-23-5	SODIUM	40000	39300	500		98	20	2

Data Package ID: *ip1607245-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IP160719-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 19-Jul-16
Date Analyzed: 20-Jul-16

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160720-10A8
Cleanup: NONE
Basis: N/A
File Name: 005SMPL_

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7429-90-5	ALUMINUM	10	53	100	14	B	
7440-38-2	ARSENIC	10	0.18	2	0.18	U	
7440-43-9	CADMIUM	10	0.099	2	0.099	U	
7440-47-3	CHROMIUM	10	1.1	10	1.1	U	
7440-48-4	COBALT	10	0.07	5	0.07	U	
7439-96-5	MANGANESE	10	0.3	5	0.3	U	
7439-98-7	MOLYBDENUM	10	0.41	2	0.41	U	
7440-02-0	NICKEL	10	4.2	20	4.2	U	
7782-49-2	SELENIUM	10	0.66	10	0.66	U	
7440-61-1	URANIUM	10	0.027	0.1	0.027	U	
7440-66-6	ZINC	10	9.1	100	9.1	U	

Data Package ID: *im1607245-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IP160719-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 19-Jul-16
Date Analyzed: 21-Jul-16

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160721-10A8
Cleanup: NONE
Basis: N/A
File Name: 009SMPL_

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-50-8	COPPER	10	1.1	8	1.1	U	

Data Package ID: *im1607245-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IM160719-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/19/2016
Date Analyzed: 07/20/2016
Prep Method: SW3005A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160720-10A8
Cleanup: NONE
Basis: N/A
File Name: 006SMPL_

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7429-90-5	ALUMINUM	5000	4990	100		100	80 - 120%
7440-38-2	ARSENIC	100	105	2		105	80 - 120%
7440-43-9	CADMIUM	30	30.2	2		101	80 - 120%
7440-47-3	CHROMIUM	500	512	10		102	80 - 120%
7440-48-4	COBALT	100	103	5		103	80 - 120%
7439-96-5	MANGANESE	100	105	5		105	80 - 120%
7439-98-7	MOLYBDENUM	100	97.1	2		97	80 - 120%
7440-02-0	NICKEL	500	514	20		103	80 - 120%
7782-49-2	SELENIUM	100	109	10		109	80 - 120%
7440-61-1	URANIUM	10	9.94	0.1		99	80 - 120%
7440-66-6	ZINC	2000	1990	100		100	80 - 120%

Data Package ID: *im1607245-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IM160719-1LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/19/2016
Date Analyzed: 07/20/2016
Prep Method: SW3005A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160720-10A8
Cleanup: NONE
Basis: N/A
File Name: 007SMPL_

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7429-90-5	ALUMINUM	5000	5060	100		101	20	1
7440-38-2	ARSENIC	100	104	2		104	20	1
7440-43-9	CADMIUM	30	29.2	2		97	20	3
7440-47-3	CHROMIUM	500	517	10		103	20	1
7440-48-4	COBALT	100	104	5		104	20	1
7439-96-5	MANGANESE	100	104	5		104	20	1
7439-98-7	MOLYBDENUM	100	97.8	2		98	20	1
7440-02-0	NICKEL	500	518	20		104	20	1
7782-49-2	SELENIUM	100	109	10		109	20	1
7440-61-1	URANIUM	10	9.56	0.1		96	20	4
7440-66-6	ZINC	2000	2010	100		100	20	1

Data Package ID: *im1607245-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607245
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IM160719-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/19/2016
Date Analyzed: 07/21/2016
Prep Method: SW3005A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160721-10A8
Cleanup: NONE
Basis: N/A
File Name: 010SMPL_

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-50-8	COPPER	1000	1050	8		105	80 - 120%

Lab ID: IM160719-1LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/19/2016
Date Analyzed: 07/21/2016
Prep Method: SW3005A

Prep Batch: IP160719-1
QCBatchID: IP160719-1-4
Run ID: IM160721-10A8
Cleanup: NONE
Basis: N/A
File Name: 011SMPL_

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-50-8	COPPER	1000	1060	8		106	20	1

Data Package ID: *im1607245-1*