ALS Environmental

Ft. Collins, Colorado

LIMS Version: 6.813

Tuesday, May 10, 2016

Laine Sumner
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1604557
Project Name: 200W Pump & Treat - Extraction Well Water Sampling
Project Number: F13-002

Dear Ms. Sumner:

Three water samples were received from CH2M HILL Plateau Remediation Company, on 4/29/2016. 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

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522
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Environmental www.alsglobal.com
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ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1604557
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
B33CK1	1604557-1		WATER	28-Apr-16	8:20
B34V07	1604557-2		WATER	28-Apr-16	8:20
B35562	1604557-3		WATER	28-Apr-16	9:15

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F13-002-1623 | PAGE 1 OF 1

COLLECTOR K C Patterson/CHPRC	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC
SAMPLING LOCATION 299-E33-351, YE-30 - DAY 4-7 DUP	**PROJECT DESIGNATION** 200W Pump & Treat - Extraction Well Water Sampling		**SAF NO.** F13-002
ICE CHEST NO. GWS-098	**FIELD LOGBOOK NO.** HNF-N-491 15	**ACTUAL SAMPLE DEPTH** (N/A)	**COA** 303111
SHIPPED TO ALS Environmental Ft. Collins	**OFFSITE PROPERTY NO.** PTR 6577		**BILL OF LADING/AIR BILL NO.** 7762 1992 6577

PRICE CODE C05 | **AIR QUALITY** ☐ | **DATA TURNAROUND** 7 Days / 7 Days

METHOD OF SHIPMENT FEDERAL EXPRESS

ORIGINAL

1604557

MATRIX*
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

POSSIBLE SAMPLE HAZARDS/ REMARKS
*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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2
HOLDING TIME	6 Months
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B33CK1 (1)	WATER	APR 28 2016	0820	J

5/10/2016
ALS1604557

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
K C Patterson/CHPRC	APR 28 2016 1000	Frank Hall CHPRC	APR 28 2016 1000
Frank Hall CHPRC	APR 28 2016 1400	FEDEX	
FED EX		C Trimble C Trimble 4-29-16 0910	

SPECIAL INSTRUCTIONS
TRVL-16-009
(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};

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

PRINTED ON 4/28/2016 | **FSR ID = FSR32046** | **TRVL NUM = TRVL-16-009** | A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-002-1659	PAGE 1 OF 1
COLLECTOR K.C. 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-E33-351, YE30 - DAY 4-7	PROJECT DESIGNATION 200W Pump & Treat - Extraction Well Water Sampling		SAF NO. F13-002		
ICE CHEST NO. GWS-098	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. PTR 6577		BILL OF LADING/AIR BILL NO. 7762 1992 3919		

1604557

MATRIX*
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

POSSIBLE SAMPLE HAZARDS/ REMARKS
*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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2
HOLDING TIME	6 Months
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B34V07 (2)	WATER	APR 28 2016	0820	✓

5/10/2016
ALS1604557

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
K.C. Patterson/CHPRC	APR 28 2016 1000	Frank Hall CHPRC	APR 28 2016 1000
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Frank Hall CHPRC	APR 28 2016 1400	FEDEX	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
FED EX		CTrimble C Trimble	4-29-16 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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-16-009
(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};

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

PRINTED ON 3/23/2016 FSR ID = FSR26051 TRVL NUM = TRVL-16-009 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F13-002-1833

COLLECTOR
K.C. Patterson/CHPRC

COMPANY CONTACT
SUMNER, LC

TELEPHONE NO.
376-3922

PROJECT COORDINATOR
SUMNER, LC

PRICE CODE C05

DATA TURNAROUND
7 Days / 7 Days

AIR QUALITY ☐

SAMPLING LOCATION
Catch Tank 344, V01-Y31_Contingency 2

PROJECT DESIGNATION
200W Pump & Treat - Extraction Well Water Sampling

SAF NO.
F13-002

ICE CHEST NO.
GWS-098

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.
PTR 6577

BILL OF LADING/AIR BILL NO.
7762 1992 3919

1604557

MATRIX*
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

POSSIBLE SAMPLE HAZARDS/ REMARKS
*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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2
HOLDING TIME	6 Months
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME	
B35562	3	WATER	APR 28 2016	0915	✓

5/10/2016
ALS1604557

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
K.C. Patterson/CHPRC	APR 28 2016 1000	Frank Hall CHPRC	APR 28 2016 1000
Frank Hall CHPRC	APR 28 2016 1400	FEDEX	
FED EX		C Trimble C Trimble	4-29-16 0910

SPECIAL INSTRUCTIONS
TRVL-16-009
(1) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

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

PRINTED ON 4/18/2016 **FSR ID = FSR31189** **TRVL NUM = TRVL-16-009** A-6003-618 (REV 2)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1604557
Project Manager: JE Initials: CDT Date: 4-29-16

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 samples, 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: ____ 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:	10							
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.

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

Project Manager Signature / Date: [signature] 4-29-16

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

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

ORIGIN ID:PSCA (509) 528-2763
FRANK HALL
CH2M HILL PRC
6267 LATAH ST.
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 28APR16
ACTWGT: 21.00 LB
CAD: 107066051/INET3730

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL 225 COMMERCE DR.
FORT COLLINS CO 80524
(970) 490-1511 REF: PTR6577
INV:
PO: DEPT:

10
-2

540J1/1042/727F

FedEx Express

J101010020501uv

FRI - 29 APR 10:30A
PRIORITY OVERNIGHT
DSR
80524
CO-US DEN

TRK# 0201 7762 1992 3919

XH FTCA

1604557

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.
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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.

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Metals

Case Narrative

CH2M HILL Plateau Remediation Company

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

Work Order Number: 1604557

1. This report consists of 3 water samples.

2. The samples were received intact at ambient temperature by ALS on 04/29/16.

3. The samples 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 and laboratory control sample 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. 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.

Sample 1604557-3 was designated as the quality control sample for each ICP analysis.

Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

- A matrix spike and matrix spike duplicate were digested and analyzed with each batch. All acceptance criteria for accuracy were met with the following exceptions:

Analyte	Sample ID
Cadmium	1604557-3MS/MSD
Cobalt	1604557-3MS/MSD
Manganese	1604557-3MS/MSD
Molybdenum	1604557-3MSD
Nickel	1604557-3MS/MSD
Selenium	1604557-3MS/MSD
Zinc	1604557-3MS/MSD

The native sample results are flagged for matrix spike failure and an analytical post spike was performed. Matrix spike recoveries for these analytes could not be evaluated due to large dilution required to avoid potential contamination of the instrument by high levels of uranium. The dilution reduced the concentrations of the spiked elements to levels too low to allow accurate quantitation.

- Matrix spike recoveries could not be evaluated for the following analyte:

Analyte	Sample ID
Calcium	1604557-3

The concentration of this analyte in the native sample was greater than four times the concentration of matrix spike added during the digestion. When sample concentration is that much greater than the spike added, spike recoveries may not be accurate. The laboratory control sample indicates that the digestion and analysis were in control.

- A sample duplicate and matrix spike duplicate were digested and analyzed with each batch. All acceptance criteria for precision were met.

- A serial dilution was analyzed with each ICP batch. All acceptance criteria were met with the following exception:

Analyte	Sample ID
Sodium	1604557-3L

The native sample result is flagged for serial dilution failure.

10. All samples were analyzed at dilutions in order to protect the ICP-MS from the high metal content of the samples. Sample 1604557-3 required a further dilution to bring uranium into the analytical range of the ICP-MS.

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 Lafelle — 5/5/16
Jill Lafelle — Date
Inorganics Primary Data Reviewer

5/10/16
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 <=5X 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 Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B33CK1
Lab ID: 1604557-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 03-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-8
Run ID: IP160503-1A9
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	45	30	11		
7440-70-2	CALCIUM	1	330000	1000	51		
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	93000	750	58		
7440-09-7	POTASSIUM	1	20000	1000	86		
7440-23-5	SODIUM	1	440000	500	61		

Data Package ID: *ip1604557-1*

Total Recoverable ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B34V07
Lab ID: 1604557-2

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 03-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-8
Run ID: IP160503-1A9
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	45	30	11		
7440-70-2	CALCIUM	1	330000	1000	51		
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	93000	750	58		
7440-09-7	POTASSIUM	1	20000	1000	86		
7440-23-5	SODIUM	1	450000	500	61		

Data Package ID: *ip1604557-1*

Total Recoverable ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B35562
Lab ID: 1604557-3

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 03-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-8
Run ID: IP160503-1A9
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	41	30	11		
7440-70-2	CALCIUM	1	350000	1000	51		
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	110000	750	58		
7440-09-7	POTASSIUM	1	22000	1000	86		
7440-23-5	SODIUM	1	480000	500	61		E

Data Package ID: *ip1604557-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B33CK1
Lab ID: 1604557-1

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 04-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-5
Run ID: IM160504-10A8
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	500	680	5000	680	UD	
7440-38-2	ARSENIC	500	9	100	9	UD	
7440-43-9	CADMIUM	500	5	100	5	UD	
7440-47-3	CHROMIUM	500	60	500	54	BD	
7440-48-4	COBALT	500	3.5	250	3.5	UD	
7440-50-8	COPPER	500	53	400	53	UD	
7439-96-5	MANGANESE	500	15	250	15	UD	
7439-98-7	MOLYBDENUM	500	20	100	20	UD	
7440-02-0	NICKEL	500	210	1000	210	UD	
7782-49-2	SELENIUM	500	33	500	33	UD	
7440-61-1	URANIUM	500	41000	5	1.4	D	
7440-66-6	ZINC	500	450	5000	450	UD	

Data Package ID: *im1604557-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B34V07
Lab ID: 1604557-2

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 04-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-5
Run ID: IM160504-10A8
Cleanup: NONE
Basis: As Received
File Name: 037SMPL_

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	500	680	5000	680	UD	
7440-38-2	ARSENIC	500	9	100	9	UD	
7440-43-9	CADMIUM	500	5	100	5	UD	
7440-47-3	CHROMIUM	500	56	500	54	BD	
7440-48-4	COBALT	500	3.5	250	3.5	UD	
7440-50-8	COPPER	500	53	400	53	UD	
7439-96-5	MANGANESE	500	15	250	15	UD	
7439-98-7	MOLYBDENUM	500	20	100	20	UD	
7440-02-0	NICKEL	500	210	1000	210	UD	
7782-49-2	SELENIUM	500	33	500	33	UD	
7440-61-1	URANIUM	500	42000	5	1.4	D	
7440-66-6	ZINC	500	450	5000	450	UD	

Data Package ID: *im1604557-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B35562
Lab ID: 1604557-3

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 04-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-5
Run ID: IM160504-10A8
Cleanup: NONE
Basis: As Received
File Name: 047SMPL_

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	500	680	5000	680	UD	
7440-38-2	ARSENIC	500	9	100	9	UD	
7440-43-9	CADMIUM	500	5	100	5	UD	N
7440-47-3	CHROMIUM	500	54	500	54	UD	
7440-48-4	COBALT	500	3.5	250	3.5	UD	N
7440-50-8	COPPER	500	62	400	53	BD	
7439-96-5	MANGANESE	500	15	250	15	UD	N
7439-98-7	MOLYBDENUM	500	20	100	20	UD	N
7440-02-0	NICKEL	500	210	1000	210	UD	N
7782-49-2	SELENIUM	500	33	500	33	UD	N
7440-61-1	URANIUM	1000	51000	10	2.7	D	
7440-66-6	ZINC	500	1200	5000	450	BD	N

Data Package ID: *im1604557-1*

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IP160502-2MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 02-May-16
Date Analyzed: 03-May-16

Prep Batch: IP160502-2
QCBatchID: IP160502-2-8
Run ID: IP160503-1A9
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	11	30	11	U	
7440-70-2	CALCIUM	1	51	1000	51	U	
7439-89-6	IRON	1	6.7	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: *ip1604557-1*

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IP160502-2LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/02/2016
Date Analyzed: 05/03/2016
Prep Method: SW3005A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-8
Run ID: IP160503-1A9
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	981	30		98	80 - 120%
7440-70-2	CALCIUM	40000	41100	1000		103	80 - 120%
7439-89-6	IRON	1000	1000	50		100	80 - 120%
7439-95-4	MAGNESIUM	40000	41400	750		104	80 - 120%
7440-09-7	POTASSIUM	40000	41100	1000		103	80 - 120%
7440-23-5	SODIUM	40000	41900	500		105	80 - 120%

Data Package ID: *ip1604557-1*

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-0

Field ID: B35562
LabID: 1604557-3MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 03-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-8
Run ID: IP160503-1A9
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name:

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-42-8	BORON	41		1030		30	1000	99	80 - 120%
7440-70-2	CALCIUM	350000		391000		1000	40000	108	80 - 120%
7439-89-6	IRON	16	U	1050		50	1000	105	80 - 120%
7439-95-4	MAGNESIUM	110000		150000		750	40000	104	80 - 120%
7440-09-7	POTASSIUM	22000		63500		1000	40000	103	80 - 120%

Field ID: B35562
LabID: 1604557-3MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 03-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-8
Run ID: IP160503-1A9
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name:

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-42-8	BORON	1030		1000	99	30	20	0
7440-70-2	CALCIUM	386000		40000	93	1000	20	1
7439-89-6	IRON	1030		1000	103	50	20	2
7439-95-4	MAGNESIUM	148000		40000	99	750	20	1
7440-09-7	POTASSIUM	63700		40000	104	1000	20	0

Data Package ID: *ip1604557-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IP160502-2MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 02-May-16
Date Analyzed: 04-May-16

Prep Batch: IP160502-2
QCBatchID: IP160502-2-5
Run ID: IM160504-10A8
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
7429-90-5	ALUMINUM	10	14	100	14	U	
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	
7440-50-8	COPPER	10	1.1	8	1.1	U	
7439-96-5	MANGANESE	10	0.16	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: *im1604557-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Lab ID: IM160502-2LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/02/2016
Date Analyzed: 05/04/2016
Prep Method: SW3005A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-5
Run ID: IM160504-10A8
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
7429-90-5	ALUMINUM	5000	5080	100		102	80 - 120%
7440-38-2	ARSENIC	100	105	2		105	80 - 120%
7440-43-9	CADMIUM	30	31.5	2		105	80 - 120%
7440-47-3	CHROMIUM	500	502	10		100	80 - 120%
7440-48-4	COBALT	100	102	5		102	80 - 120%
7440-50-8	COPPER	1000	1060	8		106	80 - 120%
7439-96-5	MANGANESE	100	102	5		102	80 - 120%
7439-98-7	MOLYBDENUM	100	104	2		104	80 - 120%
7440-02-0	NICKEL	500	510	20		102	80 - 120%
7782-49-2	SELENIUM	100	105	10		105	80 - 120%
7440-61-1	URANIUM	10	10.5	0.1		105	80 - 120%
7440-66-6	ZINC	2000	2060	100		103	80 - 120%

Data Package ID: *im1604557-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-0

Field ID: B35562
LabID: 1604557-3MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 04-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-5
Run ID: IM160504-10A8
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 050SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	680	UD	5000		5000	5000	100	75 - 125%
7440-38-2	ARSENIC	9	UD	114		100	100	114	75 - 125%
7440-43-9	CADMIUM	5	UD	100	N	100	30	333	75 - 125%
7440-47-3	CHROMIUM	54	UD	532		500	500	106	75 - 125%
7440-48-4	COBALT	3.5	UD	250	N	250	100	250	75 - 125%
7440-50-8	COPPER	62	BD	1100		400	1000	104	75 - 125%
7439-96-5	MANGANESE	15	UD	250	N	250	100	250	75 - 125%
7439-98-7	MOLYBDENUM	20	UD	121		100	100	121	75 - 125%
7440-02-0	NICKEL	210	UD	1000	N	1000	500	200	75 - 125%
7782-49-2	SELENIUM	33	UD	500	N	500	100	500	75 - 125%
7440-61-1	URANIUM	51000	D	51800		10	10	3660	75 - 125%
7440-66-6	ZINC	1200	BD	5000	N	5000	2000	189	75 - 125%

Data Package ID: *im1604557-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-0

Field ID: B35562
LabID: 1604557-3MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Apr-16
Date Extracted: 02-May-16
Date Analyzed: 04-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160502-2
QCBatchID: IP160502-2-5
Run ID: IM160504-10A8
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 051SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMINUM	5750		5000	115	5000	20	14
7440-38-2	ARSENIC	116		100	116	100	20	2
7440-43-9	CADMIUM	100	N	30	333	100	20	0
7440-47-3	CHROMIUM	516		500	103	500	20	3
7440-48-4	COBALT	250	N	100	250	250	20	0
7440-50-8	COPPER	1100		1000	104	400	20	0
7439-96-5	MANGANESE	250	N	100	250	250	20	0
7439-98-7	MOLYBDENUM	129	N	100	129	100	20	6
7440-02-0	NICKEL	1000	N	500	200	1000	20	
7782-49-2	SELENIUM	500	N	100	500	500	20	0
7440-61-1	URANIUM	51900		10	4450	10	20	0
7440-66-6	ZINC	5000	N	2000	189	5000	20	0

Data Package ID: *im1604557-1*

ICPMS Metals

Method SW6020

Analytical Spike Sample Recovery

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1604557
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 200W Pump & Treat - Extraction Well Water Sampling F13-002

Field ID: B35562
LabID: 1604557-3A

Run ID: IM160504-10A8
Date Analyzed: 5/4/2016
Result Units: ug/l

Target Analyte	Sample Result	Samp Qual	PS Result	PS Qual	Spike Added	PS % Rec.	Control Limits
CADMIUM	0.0000100	UD	2.93		3	98	75 - 125%
COBALT	0	UD	9.63		10	96	75 - 125%
MANGANESE	0.0000200	UD	19.2		20	96	75 - 125%
MOLYBDENUM	0.0000300	UD	9.80		10	98	75 - 125%
NICKEL	0.000380	UD	48.8		50	98	75 - 125%
SELENIUM	0.0000700	UD	10.3		10	103	75 - 125%
ZINC	2.44	BD	197		200	97	75 - 125%

Data Package ID: *im1604557-1*