Ft. Collins, Colorado LIMS Version: 6.821

Thursday, August 04, 2016

Karen Waters-Husted
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1607379
Project Name: SURV, JULY 2016
Project Number: S16-007

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 7/21/2016. 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
ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1607379
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: SURV, JULY 2016
Client Project Number: S16-007
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B35TR4	1607379-1		WATER	20-Jul-16	10:24
B35TT0	1607379-2		WATER	20-Jul-16	10:24

1607379

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S16-007-013**

Collector	J.R. Aguilar/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JULY 2016	Logbook No.	HNF-N-506 87 / 5	Ice Chest No.	GWS-376
Shipped To (Lab)	ALS Environmental Ft. Collins	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7768 04253386
Protocol	SURV	Priority:	30 Days **PRIORITY**	Offsite Property No.	6847

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35TR4 (1)	N	W	JUL 20 2016	1024	1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04; 7470_MERCURY_CV: COMMON (AQUEOUS)	6 Months	HNO3 to pH <2
B35TT0 (2)	Y	W	JUL 20 2016	1024	1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04; 7470_MERCURY_CV: COMMON (AQUEOUS)	6 Months	HNO3 to pH <2

8/4/2016
ALS1607379

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.R. Aguilar/CHPRC			JUL 20 2016 1125	Janelle Zunker CHPRC			JUL 20 2016 1125
Janelle Zunker CHPRC			JUL 20 2016 1400	FEDEX			
FED EX				C Thomas C Thomas			7-21-16 0915

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PRINTED ON 5/26/2016 FSR ID = FSR32961 A-6004-842 (REV 2)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1607379
Project Manager: JK Initials: CDT Date: 7-21-16

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 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):	3.0							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	12							
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: 7/22/16

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

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

8/4/2016
ALS1607379

1607379

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.

Metals

Case Narrative

CH2M HILL Plateau Remediation Company

SURV, JULY2016 – S16-007

Work Order Number: 1607379

1. This report consists of 2 water samples for total recoverable or dissolved metals.

2. The samples were received cool and intact by ALS on 07/21/16.

3. The sample for dissolved metals had been filtered prior to receipt. Both 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.

   For analysis by Cold Vapor AA (CVAA), the samples were digested following method 7470A and the current revision of SOP 812.

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.

   Analysis by CVAA followed method 7470A and the current revision of SOP 812.

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 each digestion batch.
- The preparation (method) blank associated with each digestion batch was below the reporting limit for the requested analytes. Aluminum and lead have results 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.

   Sample 1607379-1 was designated as the quality control sample for each 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.
   - Matrix spike recoveries could not be evaluated for the following analyte:

Analyte	Sample ID
Strontium	1607379-1
Uranium	1607379-1

     The concentrations of these analytes in the native sample were 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 serial dilution was analyzed with each ICP batch. All acceptance criteria were met.

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.

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 — 7/30/16
Jill Latelle — Date
Inorganics Primary Data Reviewer

7/31/16
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: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TR4
Lab ID: 1607379-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-1
Run ID: IP160728-1A2
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	15	30	11	B	
7440-70-2	CALCIUM	1	81000	1000	51		
7439-89-6	IRON	1	25	50	16	B	
7439-95-4	MAGNESIUM	1	24000	750	58		
7440-09-7	POTASSIUM	1	9000	1000	86		
7440-23-5	SODIUM	1	32000	500	61		
7440-62-2	VANADIUM	1	12	10	2		

Data Package ID: *ip1607379-1*

Dissolved ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TT0
Lab ID: 1607379-2

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-1
Run ID: IP160728-1A2
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	24	30	11	B	
7440-70-2	CALCIUM	1	83000	1000	51		
7439-89-6	IRON	1	16	50	16	U	
7439-95-4	MAGNESIUM	1	24000	750	58		
7440-09-7	POTASSIUM	1	9400	1000	86		
7440-23-5	SODIUM	1	33000	500	61		
7440-62-2	VANADIUM	1	12	10	2		

Data Package ID: *ip1607379-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TR4
Lab ID: 1607379-1

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-3
Run ID: IM160728-12A5
Cleanup: NONE
Basis: As Received
File Name: 139SMPL_

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	22	100	14	BC	
7440-36-0	ANTIMONY	10	0.15	1	0.084	B	
7440-38-2	ARSENIC	10	3.1	2	0.18		
7440-39-3	BARIUM	10	68	5	0.23		
7440-41-7	BERYLLIUM	10	0.27	0.5	0.27	U	
7440-43-9	CADMIUM	10	0.099	2	0.099	U	
7440-47-3	CHROMIUM	10	2.4	10	1.1	B	
7440-48-4	COBALT	10	0.07	5	0.07	U	
7440-50-8	COPPER	10	1.1	8	1.1	U	
7439-92-1	LEAD	10	0.62	2	0.16	BC	
7439-96-5	MANGANESE	10	0.51	5	0.3	B	
7439-98-7	MOLYBDENUM	10	6.2	2	0.41		
7440-02-0	NICKEL	10	4.2	20	4.2	U	
7782-49-2	SELENIUM	10	6.8	10	0.66	B	
7440-22-4	SILVER	10	0.039	0.5	0.039	U	
7440-24-6	STRONTIUM	10	400	5	0.31		
7440-28-0	THALLIUM	10	0.014	0.1	0.014	U	
7440-29-1	THORIUM	10	0.032	0.2	0.032	U	
7440-31-5	TIN	10	2.6	10	1.3	B	
7440-61-1	URANIUM	10	44	0.1	0.027		
7440-66-6	ZINC	10	9.1	100	9.1	U	

Data Package ID: *im1607379-1*

Dissolved ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TT0
Lab ID: 1607379-2

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-3
Run ID: IM160728-12A5
Cleanup: NONE
Basis: As Received
File Name: 144SMPL_

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	
7440-36-0	ANTIMONY	10	0.16	1	0.084	B	
7440-38-2	ARSENIC	10	3.2	2	0.18		
7440-39-3	BARIUM	10	67	5	0.23		
7440-41-7	BERYLLIUM	10	0.27	0.5	0.27	U	
7440-43-9	CADMIUM	10	0.099	2	0.099	U	
7440-47-3	CHROMIUM	10	2.3	10	1.1	B	
7440-48-4	COBALT	10	0.07	5	0.07	B	
7440-50-8	COPPER	10	1.1	8	1.1	U	
7439-92-1	LEAD	10	0.5	2	0.16	BC	
7439-96-5	MANGANESE	10	0.36	5	0.3	B	
7439-98-7	MOLYBDENUM	10	6.2	2	0.41		
7440-02-0	NICKEL	10	4.2	20	4.2	U	
7782-49-2	SELENIUM	10	8.3	10	0.66	B	
7440-22-4	SILVER	10	0.039	0.5	0.039	U	
7440-24-6	STRONTIUM	10	390	5	0.31		
7440-28-0	THALLIUM	10	0.014	0.1	0.014	U	
7440-29-1	THORIUM	10	0.032	0.2	0.032	U	
7440-31-5	TIN	10	2.7	10	1.3	B	
7440-61-1	URANIUM	10	43	0.1	0.027		
7440-66-6	ZINC	10	9.1	100	9.1	U	

Data Package ID: *im1607379-1*

Total MERCURY

Method SW7470A

Sample Results

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: SURV, JULY 2016 S16-007
Work Order Number: 1607379 **Final Volume:** 10 ml
Reporting Basis: As Received **Matrix:** WATER
Analyst: Nathan A. Quatier **Result Units:** UG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Flag	Sample Aliquot
B35TR4	1607379-1	7/20/2016	7/27/2016	07/28/2016	N/A	1	0.06	0.2	0.06	U	10 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *hg1607379-1*

Dissolved MERCURY

Method SW7470A

Sample Results

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: SURV, JULY 2016 S16-007
Work Order Number: 1607379 **Final Volume:** 10 ml
Reporting Basis: As Received **Matrix:** WATER
Analyst: Nathan A. Quatier **Result Units:** UG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Flag	Sample Aliquot
B35TT0	1607379-2	7/20/2016	7/27/2016	07/28/2016	N/A	1	0.06	0.2	0.06	U	10 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *hg1607379-1*

ICP Metals

Method SW6010B

Method Blank

Lab Name: **ALS -- Fort Collins**
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Lab ID: IP160727-5MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16

Prep Batch: IP160727-5
QCBatchID: IP160727-5-1
Run ID: IP160728-1A2
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	16	50	16	U	
7440-09-7	POTASSIUM	1	86	1000	86	U	
7440-23-5	SODIUM	1	61	500	61	U	
7440-62-2	VANADIUM	1	2	10	2	U	

Data Package ID: *ip1607379-1*

ICP Metals

Method SW6010B
Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Lab ID: IP160727-5MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 27-Jul-16
Date Analyzed: 29-Jul-16

Prep Batch: IP160727-5
QCBatchID: IP160727-5-1
Run ID: IP160729-1A5
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
7439-95-4	MAGNESIUM	1	58	750	58	U	

Data Package ID: *ip1607379-1*

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Lab ID: IP160727-5LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/27/2016
Date Analyzed: 07/28/2016
Prep Method: SW3005A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-1
Run ID: IP160728-1A2
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	1010	30		101	80 - 120%
7440-70-2	CALCIUM	40000	41600	1000		104	80 - 120%
7439-89-6	IRON	1000	1020	50		102	80 - 120%
7439-95-4	MAGNESIUM	40000	38800	750		97	80 - 120%
7440-09-7	POTASSIUM	40000	40300	1000		101	80 - 120%
7440-23-5	SODIUM	40000	41800	500		104	80 - 120%
7440-62-2	VANADIUM	500	510	10		102	80 - 120%

Data Package ID: *ip1607379-1*

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TR4
LabID: 1607379-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-1
Run ID: IP160728-1A2
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	15	B	987		30	1000	97	80 - 120%
7440-70-2	CALCIUM	81000		119000		1000	40000	95	80 - 120%
7439-89-6	IRON	25	B	967		50	1000	94	80 - 120%
7439-95-4	MAGNESIUM	24000		62700		750	40000	98	80 - 120%
7440-09-7	POTASSIUM	9000		51700		1000	40000	107	80 - 120%
7440-23-5	SODIUM	32000		75500		500	40000	109	80 - 120%
7440-62-2	VANADIUM	12		520		10	500	102	80 - 120%

Field ID: B35TR4
LabID: 1607379-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-1
Run ID: IP160728-1A2
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	976		1000	96	30	20	1
7440-70-2	CALCIUM	117000		40000	91	1000	20	1
7439-89-6	IRON	964		1000	94	50	20	0
7439-95-4	MAGNESIUM	63000		40000	98	750	20	1
7440-09-7	POTASSIUM	51500		40000	106	1000	20	0
7440-23-5	SODIUM	75400		40000	109	500	20	0
7440-62-2	VANADIUM	520		500	102	10	20	0

Data Package ID: *ip1607379-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Lab ID: IP160727-5MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16

Prep Batch: IP160727-5
QCBatchID: IP160727-5-3
Run ID: IM160728-12A5
Cleanup: NONE
Basis: N/A
File Name: 137SMPL_

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	18	100	14	B	
7440-36-0	ANTIMONY	10	0.084	1	0.084	U	
7440-38-2	ARSENIC	10	0.18	2	0.18	U	
7440-39-3	BARIUM	10	0.23	5	0.23	U	
7440-41-7	BERYLLIUM	10	0.27	0.5	0.27	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	
7439-92-1	LEAD	10	0.54	2	0.16	B	
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	
7440-22-4	SILVER	10	0.039	0.5	0.039	U	
7440-24-6	STRONTIUM	10	0.31	5	0.31	U	
7440-28-0	THALLIUM	10	0.014	0.1	0.014	U	
7440-29-1	THORIUM	10	0.032	0.2	0.032	U	
7440-31-5	TIN	10	1.3	10	1.3	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: *im1607379-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Lab ID: IM160727-5LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/27/2016
Date Analyzed: 07/28/2016
Prep Method: SW3005A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-3
Run ID: IM160728-12A5
Cleanup: NONE
Basis: N/A
File Name: 138SMPL_

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%
7440-36-0	ANTIMONY	30	30.3	1		101	80 - 120%
7440-38-2	ARSENIC	100	105	2		105	80 - 120%
7440-39-3	BARIUM	100	106	5		106	80 - 120%
7440-41-7	BERYLLIUM	50	49.7	0.5		99	80 - 120%
7440-43-9	CADMIUM	30	30.9	2		103	80 - 120%
7440-47-3	CHROMIUM	500	516	10		103	80 - 120%
7440-48-4	COBALT	100	106	5		106	80 - 120%
7440-50-8	COPPER	1000	1030	8		103	80 - 120%
7439-92-1	LEAD	50	50.1	2		100	80 - 120%
7439-96-5	MANGANESE	100	104	5		104	80 - 120%
7439-98-7	MOLYBDENUM	100	102	2		102	80 - 120%
7440-02-0	NICKEL	500	521	20		104	80 - 120%
7782-49-2	SELENIUM	100	101	10		101	80 - 120%
7440-22-4	SILVER	10	10	0.5		100	80 - 120%
7440-24-6	STRONTIUM	100	102	5		102	80 - 120%
7440-28-0	THALLIUM	2	2	0.1		100	80 - 120%
7440-29-1	THORIUM	10	9.93	0.2		99	80 - 120%
7440-31-5	TIN	500	483	10		97	80 - 120%
7440-61-1	URANIUM	10	10.1	0.1		101	80 - 120%
7440-66-6	ZINC	2000	1990	100		100	80 - 120%

Data Package ID: *im1607379-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TR4
LabID: 1607379-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-3
Run ID: IM160728-12A5
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 142SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	22	BC	4860		100	5000	97	75 - 125%
7440-36-0	ANTIMONY	0.15	B	30.9		1	30	103	75 - 125%
7440-38-2	ARSENIC	3.1		109		2	100	106	75 - 125%
7440-39-3	BARIUM	68		162		5	100	94	75 - 125%
7440-41-7	BERYLLIUM	0.27	U	50.8		0.5	50	102	75 - 125%
7440-43-9	CADMIUM	0.099	U	30		2	30	100	75 - 125%
7440-47-3	CHROMIUM	2.4	B	513		10	500	102	75 - 125%
7440-48-4	COBALT	0.07	U	102		5	100	102	75 - 125%
7440-50-8	COPPER	1.1	U	1010		8	1000	101	75 - 125%
7439-92-1	LEAD	0.62	BC	49.8		2	50	98	75 - 125%
7439-96-5	MANGANESE	0.51	B	104		5	100	103	75 - 125%
7439-98-7	MOLYBDENUM	6.2		108		2	100	102	75 - 125%
7440-02-0	NICKEL	4.2	U	503		20	500	101	75 - 125%
7782-49-2	SELENIUM	6.8	B	107		10	100	100	75 - 125%
7440-22-4	SILVER	0.039	U	9.96		0.5	10	100	75 - 125%
7440-24-6	STRONTIUM	400		501		5	100	105	75 - 125%
7440-28-0	THALLIUM	0.014	U	2.08		0.1	2	104	75 - 125%
7440-29-1	THORIUM	0.032	U	9.91		0.2	10	99	75 - 125%
7440-31-5	TIN	2.6	B	511		10	500	102	75 - 125%
7440-61-1	URANIUM	44		52.1		0.1	10	82	75 - 125%
7440-66-6	ZINC	9.1	U	1970		100	2000	99	75 - 125%

Data Package ID: *im1607379-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TR4
LabID: 1607379-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160727-5
QCBatchID: IP160727-5-3
Run ID: IM160728-12A5
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 143SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMINUM	4940		5000	98	100	20	2
7440-36-0	ANTIMONY	30.6		30	102	1	20	1
7440-38-2	ARSENIC	106		100	103	2	20	3
7440-39-3	BARIUM	166		100	98	5	20	2
7440-41-7	BERYLLIUM	50.4		50	101	0.5	20	1
7440-43-9	CADMIUM	29.8		30	99	2	20	1
7440-47-3	CHROMIUM	509		500	101	10	20	1
7440-48-4	COBALT	102		100	102	5	20	0
7440-50-8	COPPER	1010		1000	101	8	20	0
7439-92-1	LEAD	50.1		50	99	2	20	1
7439-96-5	MANGANESE	102		100	102	5	20	1
7439-98-7	MOLYBDENUM	107		100	101	2	20	1
7440-02-0	NICKEL	502		500	100	20	20	0
7782-49-2	SELENIUM	109		100	102	10	20	2
7440-22-4	SILVER	10.3		10	103	0.5	20	3
7440-24-6	STRONTIUM	492		100	96	5	20	2
7440-28-0	THALLIUM	2		2	100	0.1	20	4
7440-29-1	THORIUM	10		10	100	0.2	20	1
7440-31-5	TIN	500		500	100	10	20	2
7440-61-1	URANIUM	51.5		10	77	0.1	20	1
7440-66-6	ZINC	1970		2000	99	100	20	0

Data Package ID: *im1607379-1*

Mercury

Method SW7470A

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Lab ID: HG160727-2MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16

Prep Batch: HG160727-2
QCBatchID: HG160727-2-1
Run ID: HG160728-1A2
Cleanup: NONE
Basis: N/A
File Name: HG160728-1

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7439-97-6	MERCURY	1	0.06	0.2	0.06	U	

Data Package ID: *hg1607379-1*

Mercury

Method SW7470A

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Lab ID: HG160727-2LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 07/27/2016
Date Analyzed: 07/28/2016
Prep Method: METHOD

Prep Batch: HG160727-2
QCBatchID: HG160727-2-1
Run ID: HG160728-1A2
Cleanup: NONE
Basis: N/A
File Name: HG160728-1

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7439-97-6	MERCURY	1	0.999	0.2		100	80 - 120%

Data Package ID: *hg1607379-1*

Mercury

Method SW7470A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1607379
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: SURV, JULY 2016 S16-007

Field ID: B35TR4
LabID: 1607379-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: METHOD

Prep Batch: HG160727-2
QCBatchID: HG160727-2-1
Run ID: HG160728-1A2
Cleanup: NONE
Basis: As Received

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
File Name: HG160728-1

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7439-97-6	MERCURY	0.06	U	2.02		0.2	2	101	80 - 120%

Field ID: B35TR4
LabID: 1607379-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 20-Jul-16
Date Extracted: 27-Jul-16
Date Analyzed: 28-Jul-16
Prep Method: METHOD

Prep Batch: HG160727-2
QCBatchID: HG160727-2-1
Run ID: HG160728-1A2
Cleanup: NONE
Basis: As Received

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
File Name: HG160728-1

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7439-97-6	MERCURY	2		2	100	0.2	20	1

Data Package ID: *hg1607379-1*