



Wednesday, January 03, 2018

Karen Waters-Husted
CH2M HILL Plateau Remediation Company
825 Jadwin Avenue
Richland, WA 99352

Re: ALS Workorder: 1712416
Project Name: RCRA, OCTOBER 2017
Project Number: W18-010

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 10/14/2017. 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,

For
ALS Environmental
Shiloh J. Summy
Project Manager

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1712416

Client Name: CH2M HILL Plateau Remediation Company

Client Project Name: RCRA, OCTOBER 2017

Client Project Number: W18-010

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B3D957	1712416-3		WATER	13-Oct-17	8:50
B3D234	1712416-4		WATER	13-Oct-17	8:50

RECHECK, RECOUNT, OR REANALYSIS ORDER

12/18/2017

Order Number: 171206ALS-R9286

ALS Environmental Ft. Collins

225 Commerce Drive

Fort Collins, CO 80524

Sample Delivery Group: ALS1710312

Method Name: 6010_METALS_ICP

Sample#: B3D234

Sample Date: 10/13/2017 8:50:00 AM

SAF #: W18-010

Lab Sample ID	RDR Action Start Date	Constituent	Action	TAT (Hardcopy/EDD)
1710312-4	12/18/2017 3:22:36 PM	Chromium	REANALYZE	15 Days / 15 Days

Sample#: B3D957

Sample Date: 10/13/2017 8:50:00 AM

SAF #: W18-010

Lab Sample ID	RDR Action Start Date	Constituent	Action	TAT (Hardcopy/EDD)
1710312-3	12/18/2017 3:22:36 PM	Chromium	REANALYZE	15 Days / 15 Days

Deliver Report Results to: CHPRC

P.O. Box 1600

Richland, WA 99352

C/O Mr.Scot Fitzgerald

17-12-416 relog

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# **W18-010-297**
Page 1 of 1

CH2M Hill Plateau Remediation Company
SCOTT KING
CHPRC

Contact/Requester: Karen Waters-Husted
Telephone No.: 509-376-4650

Sampling Origin: Hanford Site
Purchase Order/Charge Code: 300071

Project Title: RCRA, OCTOBER 2017
Logbook No.: HNF-N-506-95/45
Ice Chest No.: 605-598

Shipped To (Lab): ALS Environmental Ft. Collins
Method of Shipment: Commercial Carrier
Bill of Lading/Air Bill No.: 17049PPA 3732

Protocol: RCRA
Priority: 30 Days
Offsite Property No.: 8585

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3D957	N		OCT 13 2017	0800	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B3D234	X				1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By: Scott King CHPRC Print First and Last Name: Scott King Signature: <i>Scott King</i> Date/Time: OCT 13 2017 11:00	Received By: Leah Wall CHPRC Print First and Last Name: Leah Wall Signature: <i>Leah Wall</i> Date/Time: OCT 13 2017 11:00	Matrix * DS = Drum Solids DL = Drum Liquid SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By: Leah Wall CHPRC Print First and Last Name: Leah Wall Signature: <i>Leah Wall</i> Date/Time: OCT 13 2017 1400	Received By: Leah Wall CHPRC Print First and Last Name: Leah Wall Signature: <i>Leah Wall</i> Date/Time: OCT 13 2017 1400	
Relinquished By: FRED EX CHPRC Print First and Last Name: FRED EX Signature: <i>FRED EX</i> Date/Time:	Received By: Leah Wall CHPRC Print First and Last Name: Leah Wall Signature: <i>Leah Wall</i> Date/Time: OCT 13 2017 1045	
Relinquished By: Print First and Last Name: _____ Signature: _____ Date/Time: _____	Received By: Print First and Last Name: _____ Signature: _____ Date/Time: _____	
Relinquished By: Print First and Last Name: _____ Signature: _____ Date/Time: _____	Received By: Print First and Last Name: _____ Signature: _____ Date/Time: _____	
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process): Disposed By:	Date/Time:	Date/Time:



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

1712416 rcl

Client: CHPRC

Workorder No: 1710312 12/19/17

Project Manager: _____

Initials: CDJ Date: 10-14-17

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	NONE	<input checked="" type="radio"/> YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<input checked="" type="radio"/> YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MBE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount of sediment: ___ dusting ___ moderate ___ heavy	Amount N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>Amb</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: _____			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

DOT Survey Acceptance Information

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: Shilah Perry 10/16/17

RE-ANALYSIS

ALS1712416
1/3/2018

1712416
1710312

REV.0

Page 1 of 1

ORIGIN ID: PSCA (509) 528-9426
LESLY WALL
CH2M
6267 LATAH ST
6269 LATAH ST
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 13OCT17
ACTWGT: 27.00 LB
CAD: 107086051/NET3920

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

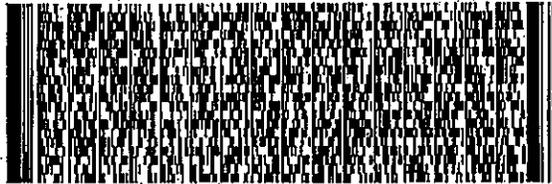
FORT COLLINS CO 80524

(970) 490-1511
INV:
PC:

REF: PTR# 86955/COOLER#GWS-598

DEPT:

10
2



FedEx
Express



610464FC104C

SATURDAY 12:00P

PRIORITY OVERNIGHT

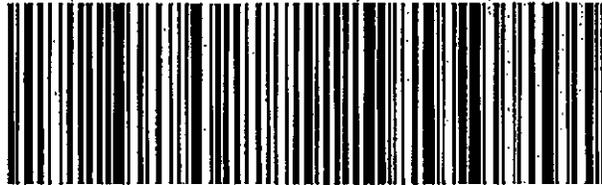
TRK# 7704 9799 3733
0201

DSR

80524

X0 FTCA

CO-US: DEN





Metals

Case Narrative

CH2M HILL Plateau Remediation Company

RCRA, OCTOBER 2017 – W18-010

Work Order Number: 1712416

1. This report consists of 2 water samples for total recoverable and dissolved metals.
2. The samples were received intact at ambient temperature by ALS on 10/14/17.
3. The sample for dissolved metals had been filtered prior to receipt. All samples had a pH less than 2 upon receipt.
4. The samples were prepared and analyzed based on SW-846, 3rd Edition procedure.

For analysis by Trace ICP, 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.
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. 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 read-backs associated with Method 6010B were within acceptance criteria.

9. Matrix specific quality control procedures.

Sample 1712416-3 was designated as the quality control sample for this 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.
- A serial dilution was analyzed with this 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.



Emily Lyons
Inorganics Primary Data Reviewer

1/2/18
Date



Inorganics Final Data Reviewer

1/3/18
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used 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 $\leq 20X$ 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: 1712416

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: RCRA, OCTOBER 2017 W18-010

Field ID:	B3D957
Lab ID:	1712416-3

Sample Matrix: WATER
 % Moisture: N/A
 Date Collected: 13-Oct-17
 Date Extracted: 27-Dec-17
 Date Analyzed: 27-Dec-17
 Prep Method: SW3005 Rev A

Prep Batch: IP171227-2
 QCBatchID: IP171227-2-3
 Run ID: IT171227-1A5
 Cleanup: NONE
 Basis: As Received
 File Name: 171227A.

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

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-36-0	ANTIMONY	1	6.2	U	20	6.2
7440-38-2	ARSENIC	1	3.2	U	10	3.2
7440-39-3	BARIUM	1	54		20	4.8
7440-43-9	CADMIUM	1	0.79	U	5	0.79
7440-70-2	CALCIUM	1	37000		1000	120
7440-47-3	CHROMIUM	1	130		10	1.3
7440-48-4	COBALT	1	1.9	U	10	1.9
7440-50-8	COPPER	1	1.7	U	8	1.7
7439-89-6	IRON	1	30	B	50	17
7439-95-4	MAGNESIUM	1	12000		750	97
7439-96-5	MANGANESE	1	1.8	B	5	1.5
7440-02-0	NICKEL	1	2.9	U	20	2.9
7440-09-7	POTASSIUM	1	4600		1000	150
7440-22-4	SILVER	1	1.2	U	10	1.2
7440-23-5	SODIUM	1	18000		500	110
7440-62-2	VANADIUM	1	29		10	0.98
7440-66-6	ZINC	1	3.7	B	20	2.8

Data Package ID: IT1712416-1

Dissolved ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1712416

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: RCRA, OCTOBER 2017 W18-010

Field ID:	B3D234
Lab ID:	1712416-4

Sample Matrix: WATER
 % Moisture: N/A
 Date Collected: 13-Oct-17
 Date Extracted: 27-Dec-17
 Date Analyzed: 27-Dec-17
 Prep Method: SW3005 Rev A

Prep Batch: IP171227-2
 QCBatchID: IP171227-2-3
 Run ID: IT171227-1A5
 Cleanup: NONE
 Basis: As Received
 File Name: 171227A.

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

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7440-36-0	ANTIMONY	1	6.2	U	20	6.2
7440-38-2	ARSENIC	1	6.9	B	10	3.2
7440-39-3	BARIUM	1	52		20	4.8
7440-43-9	CADMIUM	1	0.79	U	5	0.79
7440-70-2	CALCIUM	1	37000		1000	120
7440-47-3	CHROMIUM	1	130		10	1.3
7440-48-4	COBALT	1	1.9	U	10	1.9
7440-50-8	COPPER	1	1.7	U	8	1.7
7439-89-6	IRON	1	17	U	50	17
7439-95-4	MAGNESIUM	1	12000		750	97
7439-96-5	MANGANESE	1	1.5	U	5	1.5
7440-02-0	NICKEL	1	2.9	U	20	2.9
7440-09-7	POTASSIUM	1	4600		1000	150
7440-22-4	SILVER	1	1.2	U	10	1.2
7440-23-5	SODIUM	1	18000		500	110
7440-62-2	VANADIUM	1	28		10	0.98
7440-66-6	ZINC	1	2.8	U	20	2.8

Data Package ID: IT1712416-1

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1712416

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: RCRA, OCTOBER 2017 W18-010

Lab ID: IP171227-2MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 27-Dec-17

Date Analyzed: 27-Dec-17

Prep Batch: IP171227-2

QCBatchID: IP171227-2-3

Run ID: IT171227-1A5

Cleanup: NONE

Basis: N/A

File Name: 171227A.

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
7440-36-0	ANTIMONY	1	6.2	U	20	6.2
7440-38-2	ARSENIC	1	3.2	U	10	3.2
7440-39-3	BARIUM	1	4.8	U	20	4.8
7440-43-9	CADMIUM	1	0.79	U	5	0.79
7440-70-2	CALCIUM	1	120	U	1000	120
7440-47-3	CHROMIUM	1	1.3	U	10	1.3
7440-48-4	COBALT	1	1.9	U	10	1.9
7440-50-8	COPPER	1	1.7	U	8	1.7
7439-89-6	IRON	1	17	U	50	17
7439-95-4	MAGNESIUM	1	97	U	750	97
7439-96-5	MANGANESE	1	1.5	U	5	1.5
7440-02-0	NICKEL	1	2.9	U	20	2.9
7440-09-7	POTASSIUM	1	150	U	1000	150
7440-22-4	SILVER	1	1.2	U	10	1.2
7440-23-5	SODIUM	1	110	U	500	110
7440-62-2	VANADIUM	1	0.98	U	10	0.98
7440-66-6	ZINC	1	2.8	U	20	2.8

Data Package ID: IT1712416-1

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1712416

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: RCRA, OCTOBER 2017 W18-010

Lab ID: IP171227-2LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/27/2017

Date Analyzed: 12/27/2017

Prep Method: SW3005A

Prep Batch: IP171227-2

QCBatchID: IP171227-2-3

Run ID: IT171227-1A5

Cleanup: NONE

Basis: N/A

File Name: 171227A.

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
7440-36-0	ANTIMONY	500	510	20		102	80 - 120%
7440-38-2	ARSENIC	1000	1030	10		103	80 - 120%
7440-39-3	BARIUM	1000	1010	20		101	80 - 120%
7440-43-9	CADMIUM	50	47.1	5		94	80 - 120%
7440-70-2	CALCIUM	40000	40900	1000		102	80 - 120%
7440-47-3	CHROMIUM	200	205	10		102	80 - 120%
7440-48-4	COBALT	500	493	10		99	80 - 120%
7440-50-8	COPPER	250	257	8		103	80 - 120%
7439-89-6	IRON	1000	983	50		98	80 - 120%
7439-95-4	MAGNESIUM	40000	40800	750		102	80 - 120%
7439-96-5	MANGANESE	500	513	5		103	80 - 120%
7440-02-0	NICKEL	500	494	20		99	80 - 120%
7440-09-7	POTASSIUM	40000	43800	1000		110	80 - 120%
7440-22-4	SILVER	100	102	10		102	80 - 120%
7440-23-5	SODIUM	40000	40700	500		102	80 - 120%
7440-62-2	VANADIUM	500	512	10		102	80 - 120%
7440-66-6	ZINC	500	515	20		103	80 - 120%

Data Package ID: IT1712416-1

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1712416

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: RCRA, OCTOBER 2017 W18-010

Field ID: B3D234

LabID: 1712416-4MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 13-Oct-17

Date Extracted: 27-Dec-17

Date Analyzed: 27-Dec-17

Prep Method: SW3005 Rev A

Prep Batch: IP171227-2

QCBatchID: IP171227-2-3

Run ID: IT171227-1A5

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 171227A.

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-36-0	ANTIMONY	6.2	U	495		20	500	99	80 - 120%
7440-38-2	ARSENIC	6.9	B	1000		10	1000	100	80 - 120%
7440-39-3	BARIUM	52		1050		20	1000	100	80 - 120%
7440-43-9	CADMIUM	0.79	U	48.7		5	50	97	80 - 120%
7440-70-2	CALCIUM	37000		76500		1000	40000	99	80 - 120%
7440-47-3	CHROMIUM	130		330		10	200	99	80 - 120%
7440-48-4	COBALT	1.9	U	484		10	500	97	80 - 120%
7440-50-8	COPPER	1.7	U	255		8	250	102	80 - 120%
7439-89-6	IRON	17	U	969		50	1000	97	80 - 120%
7439-95-4	MAGNESIUM	12000		51700		750	40000	100	80 - 120%
7439-96-5	MANGANESE	1.5	U	505		5	500	101	80 - 120%
7440-02-0	NICKEL	2.9	U	482		20	500	96	80 - 120%
7440-09-7	POTASSIUM	4600		49700		1000	40000	113	80 - 120%
7440-22-4	SILVER	1.2	U	100		10	100	100	80 - 120%
7440-23-5	SODIUM	18000		59600		500	40000	105	80 - 120%
7440-62-2	VANADIUM	28		532		10	500	101	80 - 120%
7440-66-6	ZINC	2.8	U	507		20	500	101	80 - 120%

Data Package ID: IT1712416-1

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1712416

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: RCRA, OCTOBER 2017 W18-010

Field ID: B3D234
LabID: 1712416-4MSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 13-Oct-17

Date Extracted: 27-Dec-17

Date Analyzed: 27-Dec-17

Prep Method: SW3005 Rev A

Prep Batch: IP171227-2

QCBatchID: IP171227-2-3

Run ID: IT171227-1A5

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 171227A.

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-36-0	ANTIMONY	511		500	102	20	20	3
7440-38-2	ARSENIC	1040		1000	103	10	20	4
7440-39-3	BARIUM	1080		1000	103	20	20	2
7440-43-9	CADMIUM	50.3		50	101	5	20	3
7440-70-2	CALCIUM	78100		40000	103	1000	20	2
7440-47-3	CHROMIUM	338		200	103	10	20	2
7440-48-4	COBALT	498		500	100	10	20	3
7440-50-8	COPPER	264		250	106	8	20	3
7439-89-6	IRON	994		1000	99	50	20	3
7439-95-4	MAGNESIUM	52700		40000	102	750	20	2
7439-96-5	MANGANESE	518		500	104	5	20	3
7440-02-0	NICKEL	499		500	100	20	20	4
7440-09-7	POTASSIUM	50600		40000	115	1000	20	2
7440-22-4	SILVER	103		100	103	10	20	2
7440-23-5	SODIUM	60600		40000	107	500	20	2
7440-62-2	VANADIUM	546		500	104	10	20	3
7440-66-6	ZINC	520		500	104	20	20	3

Data Package ID: IT1712416-1

ICP Metals

Method SW6010

Serial Dilution

Lab Name: ALS -- Fort Collins

Work Order Number: 1712416

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: RCRA, OCTOBER 2017 W18-010

Field ID:	B3D234
Lab ID:	1712416-4L

Run ID: IT171227-1A5
Date Analyzed: 27-Dec-17
Result Units: mg/l

CASNO	Target Analyte	Sample Result	Samp Qual	SD Result	SD Qual	EPA Qualifier	%D
7440-36-0	ANTIMONY	0.00296	U	0.0148	U		
7440-38-2	ARSENIC	0.00693	B	0.0196	U		
7440-39-3	BARIUM	0.0524		0.0508	B		
7440-43-9	CADMIUM	0.000328	U	0.00164	U		
7440-70-2	CALCIUM	36.8		37.4			2
7440-47-3	CHROMIUM	0.132		0.136			3
7440-48-4	COBALT	0.000448	U	0.00224	U		
7440-50-8	COPPER	0.000968	U	0.00484	U		
7439-89-6	IRON	0.00494	U	0.0247	U		
7439-95-4	MAGNESIUM	11.9		12.1			2
7439-96-5	MANGANESE	0.000114	U	0.000570	U		
7440-02-0	NICKEL	0.000932	U	0.00466	U		
7440-09-7	POTASSIUM	4.59		4.34	B		
7440-22-4	SILVER	0.00107	U	0.00535	U		
7440-23-5	SODIUM	17.7		18.1			2
7440-62-2	VANADIUM	0.0284		0.0314	B		
7440-66-6	ZINC	0.000720	U	0.0122	B		

Data Package ID: IT1712416-1

Prep Batch ID: IP171227-2

Start Date: 12/27/17	End Date: 12/27/17	Concentration Method: NONE	Batch Created By: ajl2
Start Time: 9:29	End Time: 18:00	Extract Method: SW3005A	Date Created: 12/27/17
Prep Analyst: Amanda J. Lynn		Initial Volume Units: ml	Time Created: 9:37
Comments:		Final Volume Units: ml	Validated By: ajl2
<div style="border: 1px solid black; height: 30px; width: 100%;"></div>			Date Validated: 12/27/17
			Time Validated: 10:23

QC Batch ID: IP171227-2-3

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IP171227-2	MB	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1712416
IP171227-2	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1712416
1712416-4	MS	B3D234	WATER	10/13/2017	50	50	NONE	1	1712416
1712416-4	MSD	B3D234	WATER	10/13/2017	50	50	NONE	1	1712416
1712416-4	DUP	B3D234	WATER	10/13/2017	50	50	NONE	1	1712416
1712416-3	SMP	B3D957	WATER	10/13/2017	50	50	NONE	1	1712416
1712416-4	SMP	B3D234	WATER	10/13/2017	50	50	NONE	1	1712416

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicat
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standar	SMP	Field Sample
SYS	Sample Yield Spike		