Ft. Collins, Colorado

LIMS Version: 6.860

Thursday, March 29, 2018

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

Re: ALS Workorder: 1803296
Project Name: RCRA, MARCH 2018
Project Number: W18-003

Dear Ms. Waters-Husted:

Four water samples were received from CH2M HILL Plateau Remediation Company, on 3/14/2018. 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
Katie M. OBrien
Project Manager

We certify that theis data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, an 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: 1803296
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: RCRA, MARCH 2018
Client Project Number: W18-003
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B3HKK3	1803296-1		WATER	13-Mar-18	8:49
B3HKL0	1803296-2		WATER	13-Mar-18	8:49
B3HKK9	1803296-3		WATER	13-Mar-18	6:45
B3HKK2	1803296-4		WATER	13-Mar-18	6:45

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 12 165-	C.O.C. # 18052916 W18-003-009 Page 1 of 1

Collector: Juan Aguilar /CHPRC	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: W18-003	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: RCRA, MARCH 2018	**Logbook No.:** HNF-N-506-98/56	**Ice Chest No.:** GWS-699
Shipped To (Lab): ALS Environmental Ft. Collins	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7800 3021 3266
Protocol RCRA	**Priority:** 30 Days	**Offsite Property No.:** 9160

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
1)	B3HKK3	N	W	3-13-18	0849	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
2)	B3HKL0	Y	W	3-13-18	0849	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Received By
Juan Aguilar /CHPRC — MAR 13 2018 0950 (Print First and Last Name / Signature / Date/Time)	Mike Esparza /CHPRC — MAR 13 2018 0950 (Print First and Last Name / Signature / Date/Time)
Mike Esparza /CHPRC — MAR 13 2018 1400 (Print First and Last Name / Signature / Date/Time)	FEDEX (Print First and Last Name / Signature / Date/Time)
FEDEX (Print First and Last Name / Signature / Date/Time)	Kelli-Jean Smith — 3/14/18 0940 (Print First and Last Name / Signature / Date/Time)
(Print First and Last Name / Signature / Date/Time)	(Print First and Last Name / Signature / Date/Time)

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
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 1/15/2018 FSR ID = FSR57188 A-6004-842 (REV 3)

4/2/2018 REV.1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # W18-003-008 Page 1 of 1

Collector:	Juan Aguilar /CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	W18-003	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071
Project Title:	RCRA, MARCH 2018	**Logbook No.:**	HNF-N-506-98154	**Ice Chest No.:**	GWS-699
Shipped To (Lab):	ALS Environmental Ft. Collins	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7800 3021 3266
Protocol	RCRA	**Priority:**	30 Days	**Offsite Property No.:**	9160

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
3 B3HKK9	Y	W	3-13-18	0645	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
4 B3HKK2	N	W	3-13-18	0645	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By:	Signature	Date/Time	Received By:	Signature	Date/Time
Juan Aguilar /CHPRC		MAR 13 2018 0950	Mike Esperza /CHPRC		MAR 13 2018 0950
Mike Esperza /CHPRC		MAR 13 2018 1400	FEDEX		
FEDEX			Keli-Jean Smith		3/14/18 0940

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
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 1/15/2018 FSR ID = FSR57187 A-6004-842 (REV 3)

4/2/2018 REV.1 4 of 18

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1803296

Project Manager: KMO Initials: KG Date: 3.14.18

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?	RAD ONLY	YES	NO

IR gun used*:	#1	#3	#4				
Cooler #:	1						
Temperature (°C):	AMB						
No. of custody seals on cooler:	2						
DOT Survey/ Acceptance Information: External µR/hr reading:	9						
Background µR/hr reading:	10						

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] 3/15/18

Form 201r25.xls
(02/12/2018)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

1803296

ORIGIN ID:PSCA (509) 373-3547
CHRIS FULTON
CH2M
6267 LATAH ST
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 13MAR18
ACTWGT: 12.00 LB
CAD: 107066051/INET3980

BILL THIRD PARTY

TO JULIE ELLINGSON
225 COMMERCE DRIVE
FORT COLLINS CO 80524
(970) 490-1511
INV:
PO:
REF: PTR#9160
DEPT:

92

552J1/07F5/DCA5

J101115012601uv

FedEx Express

WED - 14 MAR 10:30A
PRIORITY OVERNIGHT
DSR
80524
CO-US DEN

TRK# 0201 7800 3021 3266

XH FTCA

After printing this label:
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1803296

Metals

Case Narrative

CH2M HILL Plateau Remediation Company

RCRA, MARCH 2018 – W18-003

Work Order Number: 1803296

1. This report consists of 4 water samples for total recoverable and dissolved metals.

2. The samples were received cool and intact by ALS on 03/14/18.

3. The samples 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 procedures.

   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 time.

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. Potassium and zinc were detected above the MDL.
   - All laboratory control sample criteria were met.

- All initial and continuing calibration blanks were below the reporting limit for the requested analytes with the exception of CCB3 for iron. None of the samples associated with this order number were bracketed by this CCB.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes with the exception of CCV5 for chromium. None of the samples associated with this order number were bracketed by this CCV.
- The interference check samples and high standard read-backs associated with Method 6010B were within acceptance criteria.

9. Matrix specific quality control procedures.

   Sample 1803296-1 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 this batch indicated above. 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 — 3/27/18
Emily Lyons — Date
Inorganics Primary Data Reviewer

Kath M. O — 3/29/18
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: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Field ID: B3HKK3
Lab ID: 1803296-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Mar-18
Date Extracted: 20-Mar-18
Date Analyzed: 21-Mar-18
Prep Method: SW3005 Rev A

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Amanda J. Lynn
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	39		20	4.8
7440-43-9	CADMIUM	1	0.79	U	5	0.79
7440-70-2	CALCIUM	1	36000		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	2	B	8	1.7
7439-89-6	IRON	1	100		50	17
7439-95-4	MAGNESIUM	1	12000		750	97
7439-96-5	MANGANESE	1	1.9	B	5	1.5
7440-02-0	NICKEL	1	2.9	U	20	2.9
7440-09-7	POTASSIUM	1	3700	C	1000	150
7440-22-4	SILVER	1	1.2	U	10	1.2
7440-23-5	SODIUM	1	30000		500	110
7440-62-2	VANADIUM	1	23		10	0.98
7440-66-6	ZINC	1	2.8	U	20	2.8

Data Package ID: *IP1803296-1*

Dissolved ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Field ID: B3HKL0
Lab ID: 1803296-2

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Mar-18
Date Extracted: 20-Mar-18
Date Analyzed: 21-Mar-18
Prep Method: SW3005 Rev A

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Amanda J. Lynn
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	41		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	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	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	3800	C	1000	150
7440-22-4	SILVER	1	1.2	U	10	1.2
7440-23-5	SODIUM	1	32000		500	110
7440-62-2	VANADIUM	1	24		10	0.98
7440-66-6	ZINC	1	2.8	U	20	2.8

Data Package ID: *IP1803296-1*

Dissolved ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Field ID: B3HKK9
Lab ID: 1803296-3

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Mar-18
Date Extracted: 20-Mar-18
Date Analyzed: 21-Mar-18
Prep Method: SW3005 Rev A

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Amanda J. Lynn
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	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: *IP1803296-1*

Total Recoverable ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Field ID: B3HKK2
Lab ID: 1803296-4

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Mar-18
Date Extracted: 20-Mar-18
Date Analyzed: 21-Mar-18
Prep Method: SW3005 Rev A

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Amanda J. Lynn
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	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: *IP1803296-1*

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Lab ID: IP180320-2MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 20-Mar-18
Date Analyzed: 21-Mar-18

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
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	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	340	B	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	14	B	20	2.8

Data Package ID: *IP1803296-1*

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Lab ID: IP180320-2LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 03/20/2018
Date Analyzed: 03/21/2018
Prep Method: SW3005A

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
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
7440-36-0	ANTIMONY	500	501	20		100	80 - 120%
7440-38-2	ARSENIC	1000	996	10		100	80 - 120%
7440-39-3	BARIUM	1000	955	20		96	80 - 120%
7440-43-9	CADMIUM	50	47.7	5		95	80 - 120%
7440-70-2	CALCIUM	40000	40300	1000		101	80 - 120%
7440-47-3	CHROMIUM	200	169	10		85	80 - 120%
7440-48-4	COBALT	500	467	10		93	80 - 120%
7440-50-8	COPPER	250	236	8		94	80 - 120%
7439-89-6	IRON	1000	941	50		94	80 - 120%
7439-95-4	MAGNESIUM	40000	38700	750		97	80 - 120%
7439-96-5	MANGANESE	500	482	5		96	80 - 120%
7440-02-0	NICKEL	500	472	20		94	80 - 120%
7440-09-7	POTASSIUM	40000	38100	1000		95	80 - 120%
7440-22-4	SILVER	100	98.7	10		99	80 - 120%
7440-23-5	SODIUM	40000	39800	500		100	80 - 120%
7440-62-2	VANADIUM	500	442	10		88	80 - 120%
7440-66-6	ZINC	500	480	20		96	80 - 120%

Data Package ID: *IP1803296-1*

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Field ID: B3HKK3
LabID: 1803296-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Mar-18
Date Extracted: 20-Mar-18
Date Analyzed: 21-Mar-18
Prep Method: SW3005 Rev A

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
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
7440-36-0	ANTIMONY	6.2	U	489		20	500	98	80 - 120%
7440-38-2	ARSENIC	3.2	U	1020		10	1000	102	80 - 120%
7440-39-3	BARIUM	39		969		20	1000	93	80 - 120%
7440-43-9	CADMIUM	0.79	U	46.6		5	50	93	80 - 120%
7440-70-2	CALCIUM	36000		74900		1000	40000	97	80 - 120%
7440-47-3	CHROMIUM	1.3	U	174		10	200	87	80 - 120%
7440-48-4	COBALT	1.9	U	465		10	500	93	80 - 120%
7440-50-8	COPPER	2	B	225		8	250	89	80 - 120%
7439-89-6	IRON	100		997		50	1000	89	80 - 120%
7439-95-4	MAGNESIUM	12000		49800		750	40000	95	80 - 120%
7439-96-5	MANGANESE	1.9	B	481		5	500	96	80 - 120%
7440-02-0	NICKEL	2.9	U	459		20	500	92	80 - 120%
7440-09-7	POTASSIUM	3700	C	43400		1000	40000	99	80 - 120%
7440-22-4	SILVER	1.2	U	97.3		10	100	97	80 - 120%
7440-23-5	SODIUM	30000		69200		500	40000	99	80 - 120%
7440-62-2	VANADIUM	23		464		10	500	88	80 - 120%
7440-66-6	ZINC	2.8	U	479		20	500	96	80 - 120%

Data Package ID: *IP1803296-1*

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1803296
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA, MARCH 2018 W18-003

Field ID: B3HKK3
LabID: 1803296-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Mar-18
Date Extracted: 20-Mar-18
Date Analyzed: 21-Mar-18
Prep Method: SW3005 Rev A

Prep Batch: IP180320-2
QCBatchID: IP180320-2-2
Run ID: IP180321-1A2
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
7440-36-0	ANTIMONY	485		500	97	20	20	1
7440-38-2	ARSENIC	1040		1000	104	10	20	2
7440-39-3	BARIUM	1060		1000	102	20	20	9
7440-43-9	CADMIUM	46.2		50	92	5	20	1
7440-70-2	CALCIUM	76100		40000	100	1000	20	2
7440-47-3	CHROMIUM	186		200	93	10	20	7
7440-48-4	COBALT	472		500	94	10	20	1
7440-50-8	COPPER	243		250	96	8	20	7
7439-89-6	IRON	958		1000	86	50	20	4
7439-95-4	MAGNESIUM	50800		40000	97	750	20	2
7439-96-5	MANGANESE	493		500	98	5	20	2
7440-02-0	NICKEL	461		500	92	20	20	0
7440-09-7	POTASSIUM	43900		40000	101	1000	20	1
7440-22-4	SILVER	98.9		100	99	10	20	2
7440-23-5	SODIUM	76200		40000	116	500	20	10
7440-62-2	VANADIUM	474		500	90	10	20	2
7440-66-6	ZINC	483		500	97	20	20	1

Data Package ID: *IP1803296-1*

Prep Batch ID: IP180320-2

Start Date: 03/20/18
Start Time: 14:52
Prep Analyst: Jill M. Latelle

End Date: 03/20/18
End Time: 18:00

Concentration Method: NONE
Extract Method: SW3005A
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: jml
Date Created: 03/20/18
Time Created: 14:52
Validated By: jml
Date Validated: 03/20/18
Time Validated: 15:16

Comments:

QC Batch ID: IP180320-2-2

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IP180320-2	MB	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1803296
IP180320-2	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1803296
1803296-1	MS	B3HKK3	WATER	3/13/2018	50	50	NONE	1	1803296
1803296-1	MSD	B3HKK3	WATER	3/13/2018	50	50	NONE	1	1803296
1803296-1	DUP	B3HKK3	WATER	3/13/2018	50	50	NONE	1	1803296
1803296-1	SMP	B3HKK3	WATER	3/13/2018	50	50	NONE	1	1803296
1803296-2	SMP	B3HKL0	WATER	3/13/2018	50	50	NONE	1	1803296
1803296-3	SMP	B3HKK9	WATER	3/13/2018	50	50	NONE	1	1803296
1803296-4	SMP	B3HKK2	WATER	3/13/2018	50	50	NONE	1	1803296
1803309-1	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1803309
1803309-2	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1803309

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		