Wednesday, May 30, 2018

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

Re: ALS Workorder: 1804534
Project Name: RCRA_WAC, APRIL 2018
Project Number: W18-004

Dear Ms. Waters-Husted:

Five water samples were received from CH2M HILL Plateau Remediation Company, on 4/25/2018. The samples were scheduled for the following analyses:

Herbicides
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.

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR18-0668
Rev. Number: 0
Date Initiated: 05/08/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): W18-004

LABORATORY: ALS

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1

SAMPLE NUMBERS: B3HWH5

SAMPLE MATRIX: WATER

SDG NUM(S): ALS1804534

ISSUE BACKGROUND

CLASS: Laboratory Issue

TYPE: Quality Control Failure

DESCRIPTION: Dalapon was below the lower control limit of 17% at 13% in the LCS. No target compounds were present in the samples. Dalapon is unstable and historically breaks down during the extraction process.

RESOLUTION

PROPOSED RESOLUTION: Document and proceed.

FINAL RESOLUTION: Accept proposed resolution and provide comment in the narrative.

SUBMITTED BY:

OBRIAN, K 05/08/2018

ACCEPTED BY:

HEY, BE 05/08/2018

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1804534
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: RCRA_WAC, APRIL 2018
Client Project Number: W18-004
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B3HPX8	1804534-1		WATER	23-Apr-18	13:31
B3HWJ0	1804534-2		WATER	23-Apr-18	13:31
B3HPY4	1804534-3		WATER	23-Apr-18	11:57
B3HRB9	1804534-4		WATER	23-Apr-18	11:57
B3HWH5	1804534-5		WATER	24-Apr-18	8:06

1804334 53165

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # W18-004-303 Page 1 of 1

Collector:	Juan Aguilar /CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	W18-004	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071 PO. 4/24/18
Project Title:	RCRA_WAC, APRIL 2018	**Logbook No.:**	HNF-N-506-98178	**Ice Chest No.:**	GWS-3854 1660
Shipped To (Lab):	ALS Environmental Ft. Collins	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7720 6883 3491
Protocol	RCRA	**Priority:**	30 Days	**Offsite Property No.:**	9344

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	B3HPX8	Y	W	4-23-18	1331	1x500-mL G/P	7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	28 Days	HNO3 to pH <2
2	B3HWJ0	N	W	4-23-18	1331	1x500-mL G/P	7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	28 Days	HNO3 to pH <2

05/30/2018

Relinquished By:	Signature	Date/Time	Received By:	Signature	Date/Time
Juan Aguilar /CHPRC		APR 23 2018 1430	SSU #1		APR 23 2018 1430
SSU-1		APR 24 2018 0445	Tim Calloway /CHPRC FEDEX		APR 24 2018 0445
Tim Calloway /CHPRC		APR 24 2018 1400	FEDEX		
FEDEX			KELI JEAN SMITH		4.25.18 0920

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

REV.0

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

1804534

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# W18-004-017
		Page 1 of ~~1~~ 2

Collector:	Juan Aguilar /CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	W18-004	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071
Project Title:	RCRA_WAC, APRIL 2018	**Logbook No.:**	HNF-N-506-98178	**Ice Chest No.:**	GWS-389 600
Shipped To (Lab):	ALS Environmental Ft. Collins	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	77206883 3791
Protocol	RCRA	**Priority:**	30 Days	**Offsite Property No.:**	9344

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 B3HPY4	N	W	4-23-18	1157	1x500-mL G/P	7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	28 Days	HNO3 to pH <2
4 B3HRB9	Y	W	4-23-18	1157	1x500-mL G/P	7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	28 Days	HNO3 to pH <2

05/30/2018

Relinquished By:	Received By:	Matrix *
Juan Aguilar /CHPRC — APR 23 2018 1335 (Print First and Last Name / Signature / Date/Time)	Troy Bacon CHPRC — Troy L. Bacon — APR 23 2018 1335 (Print First and Last Name / Signature / Date/Time)	S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquid; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; X = Other
Troy Bacon CHPRC — Troy L. Bacon — APR 23 2018 1410 (Print First and Last Name / Signature / Date/Time)	SSU-1 — APR 23 2018 1410 (Print First and Last Name / Signature / Date/Time)	
SSU-1 — APR 24 2018 0945 (Print First and Last Name / Signature / Date/Time)	Tim Calloway /CHPRC — APR 24 2018 0945 (Print First and Last Name / Signature / Date/Time)	
Tim Calloway /CHPRC — APR 24 2018 1400 (Print First and Last Name / Signature / Date/Time)	FEDEX (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:

REV.0

1804534

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. W18-004-017

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FEDEX				KELI-JEAN SMITH		11.25.18 0720
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time

A-6003-962 (03/05)

05/30/2018 REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 180453	C.O.C. # W18-004-298 Page 1 of 1

Collector:	Kevin Patterson /CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	W18-004	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071 RW. 4/24/18
Project Title:	RCRA_WAC, APRIL 2018	**Logbook No.:**	HNF-N-506 100/14	**Ice Chest No.:**	GWS-3864 660
Shipped To (Lab):	ALS Environmental Ft. Collins	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7720 6883 3991
Protocol	RCRA	**Priority:**	30 Days	**Offsite Property No.:**	9344

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
B3HWH5	N		APR 24 2018	0806	4x1-L aG	8151_HERBICIDE_GC: COMMON	7/40 Days	Cool <=6C

Relinquished By:	Received By:
Kevin Patterson /CHPRC — APR 24 2018 0850 (Print First and Last Name / Signature / Date/Time)	Janelle Zunker CHPRC — APR 24 2018 0850 (Print First and Last Name / Signature / Date/Time)
Janelle Zunker CHPRC — APR 24 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)	KELI-JEAN SMITH — 4/25/18 0920 (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:

05/30/2018 REV.0 7 of 48

05/30/2018 REV.0

ALS Environmental - Fort Collins

CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1804534

Project Manager: KMC Initials: KS Date: 4.25.18

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	Amount	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*: #1 #3 #4	RAD ONLY		YES	NO

Cooler #:	1							
Temperature (°C):	1.1							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	8							
Background µR/hr reading:	9							

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] 4/26/18

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

ORIGIN ID:PSCA (509) 528-9428
LESLY WALL
CH2M
6267 LATAH ST.
6269 LATAH ST.
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 24APR18
ACTWGT: 53.00 LB
CAD: 107068051/INET3980

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE
FORT COLLINS CO 80524
(970) 490-1511
INV:
PO:
DEPT:
REF: PTR# 9344/COOLER# WS-660

552J1/9132/DCA5

FedEx Express

J101118012001uv

WED - 25 APR 10:30A
PRIORITY OVERNIGHT
DSR
80524
CO-US DEN

TRK# 0201 7720 6883 3991

XH FTCA

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.

Herbicides

Case Narrative

CH2M HILL Plateau Remediation Company

RCRA_WAC, APRIL 2018 -- W18-004

Work Order Number: 1804534

1. This sample was extracted according to SW-846, 3rd Edition procedures. Specifically, the water sample was extracted using separatory funnels according to the current revision of SOP 664 based on Method 8151A.

2. The extracts were then analyzed using GC/ECD (electron capture detectors) according to the current revision of SOP 434 based on SW-846 Method 8151A. All positive results were then confirmed on a second column. Unless interferences were present, the quantitation of each analyte is the higher of the concentrations obtained from each column that met initial and continuing calibration criteria. Note that analyst raw data annotation may provide further clarification.

3. All initial and continuing calibration criteria were met.

4. The method blank associated with this project was below the MDL for all analytes.

5. Dalapon was below the lower control limit of 17% at 13% in the LCS. No target compounds were present in the samples. Dalapon is unstable and historically breaks down during the extraction process.

   All remaining laboratory control sample recoveries were within the acceptance criteria.

6. Sample 1804534-5 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.

   All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria with the following exceptions:

Spiked Compound	QC Sample	Direction
Dalapon	MS/MSD	Low

Dalapon	RPD	High

No target compounds were present in the samples. Dalapon is unstable and historically breaks down during the extraction process.

7. All samples were extracted and analyzed within the established holding times.

8. All surrogate recoveries were within acceptance criteria.

9. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

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.

Shay Avery — 5/8/18
Organics Primary Data Reviewer — Date

Organics Final Data Reviewer — 5/24/18
Date

ALS
Data Qualifier Flags
Organics

U or ND:	**This flag indicates that the compound was analyzed for but not detected.**
J:	**This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.**
B:	**This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.**
E:	**This flag identifies compounds whose concentration exceeds the upper level of the calibration range.**
A:	**This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.**
X:	**This flag indicates that the analyte was diluted below an accurate quantitation level.**
***:**	**This flag indicates that a spike recovery is equal to or outside the control criteria used.**
+:	**This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.**

Chlorinated Herbicides by GC/ECD

Method SW8151A

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: EX180501-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 01-May-18
Date Analyzed: 04-May-18

Prep Batch: EX180501-1
QCBatchID: EX180501-1-1
Run ID: PT180504-10A
Cleanup: NONE
Basis: N/A
File Name: 11943.dat

Sample Aliquot: 1000 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
75-99-0	DALAPON	1	1.2	U	4	1.2
1918-00-9	DICAMBA	1	0.06	U	0.2	0.06
93-65-2	MCPP	1	30	U	100	30
94-74-6	MCPA	1	30	U	100	30
120-36-5	DICHLOROPROP	1	0.3	U	1	0.3
94-75-7	2,4-D	1	0.3	U	1	0.3
93-72-1	SILVEX	1	0.03	U	0.1	0.03
93-76-5	2,4,5-T	1	0.03	U	0.1	0.03
94-82-6	2,4-DB	1	0.3	U	1	0.3
88-85-7	DINOSEB	1	0.32	U	1	0.32

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
19719-28-9	2,4-DICHLOROPHENYLACETIC ACID	2.36		2	118	56 - 140

Data Package ID: *PT1804534-1*

Chlorinated Herbicides by GC/ECD

Method SW8151A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HWH5
Lab ID: 1804534-5

Analysis ReqCode: 8151_HERBICID

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-Apr-18
Date Extracted: 01-May-18
Date Analyzed: 04-May-18
Prep Method: METHOD

Prep Batch: EX180501-1
QCBatchID: EX180501-1-1
Run ID: PT180504-10A
Cleanup: NONE
Basis: As Received
File Name: 11945.dat

Analyst: Dan Sheneman
Sample Aliquot: 1035 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
75-99-0	DALAPON	1	1.2	U	3.9	1.2
1918-00-9	DICAMBA	1	0.058	U	0.19	0.058
93-65-2	MCPP	1	29	U	97	29
94-74-6	MCPA	1	29	U	97	29
120-36-5	DICHLOROPROP	1	0.29	U	0.97	0.29
94-75-7	2,4-D	1	0.29	U	0.97	0.29
93-72-1	SILVEX	1	0.029	U	0.097	0.029
93-76-5	2,4,5-T	1	0.029	U	0.097	0.029
94-82-6	2,4-DB	1	0.29	U	0.97	0.29
88-85-7	DINOSEB	1	0.31	U	0.97	0.31

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
19719-28-9	2,4-DICHLOROPHENYLACETIC ACID	2.11		1.93	109	56 - 140

Data Package ID: *PT1804534-1*

Surrogate Summary for Chlorinated Herbicides by GC/ECD

Method SW8151A

Lab Name: **ALS -- Fort Collins**
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

PrepBatchID: **EX180501-1**
QC Batch ID: **EX180501-1-1**
Date Extracted: **5/1/2018**

Surrogate Compound	Control Limits Lower	Control Limits Upper
2,4-dichlorophenylacetic ac	56	140

Lab ID	Client Sample ID	Date Collected	Date Received	% Recovery
EX180501-1MB	XXXXXXX	5/1/2018	4/25/2018	118
EX180501-1LCS	XXXXXXX	5/1/2018	4/25/2018	114
1804534-5	B3HWH5	4/24/2018	4/25/2018	109
1804534-5MS	B3HWH5	4/24/2018	4/25/2018	119
1804534-5MSD	B3HWH5	4/24/2018	4/25/2018	122

Data Package ID: *PT1804534-1*

Chlorinated Herbicides by GC/ECD

Method SW8151A

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: EX180501-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/01/2018
Date Analyzed: 05/04/2018
Prep Method: METHOD

Prep Batch: EX180501-1
QCBatchID: EX180501-1-1
Run ID: PT180504-10A
Cleanup: NONE
Basis: N/A
File Name: 11944.dat

Sample Aliquot: 1000 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
75-99-0	DALAPON	18.8	2.42	4	J*	13	17 - 100%
1918-00-9	DICAMBA	0.25	0.182	0.2	J	73	55 - 117%
93-65-2	MCPP	250	193	100		77	19 - 150%
94-74-6	MCPA	250	227	100		91	54 - 122%
120-36-5	DICHLOROPROP	2.5	2.06	1		82	63 - 136%
94-75-7	2,4-D	2.5	2.08	1		83	60 - 135%
93-72-1	SILVEX	0.25	0.217	0.1		87	58 - 123%
93-76-5	2,4,5-T	0.25	0.237	0.1		95	62 - 128%
94-82-6	2,4-DB	2.5	2.33	1		93	18 - 153%
88-85-7	DINOSEB	3.75	2.06	1		55	36 - 100%

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
19719-28-9	2,4-DICHLOROPHENYLACETIC ACID	2.29		2	114	56 - 140

Data Package ID: *PT1804534-1*

Chlorinated Herbicides by GC/ECD

Method SW8151A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HWH5
LabID: 1804534-5MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-Apr-18
Date Extracted: 01-May-18
Date Analyzed: 04-May-18
Prep Method: METHOD

Prep Batch: EX180501-1
QCBatchID: EX180501-1-1
Run ID: PT180504-10A
Cleanup: NONE
Basis: As Received

Sample Aliquot: 1060 ml
Final Volume: 10 ml
Result Units: UG/L
File Name: 11946.dat

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
75-99-0	DALAPON	1.13	U	1.91	J*	3.77	17.7	11	17 - 100%
1918-00-9	DICAMBA	0.0566	U	0.187	J	0.189	0.236	79	55 - 117%
93-65-2	MCPP	28.3	U	198		94.3	236	84	19 - 150%
94-74-6	MCPA	28.3	U	213		94.3	236	90	54 - 122%
120-36-5	DICHLOROPROP	0.283	U	2.02		0.943	2.36	86	63 - 136%
94-75-7	2,4-D	0.283	U	2.02		0.943	2.36	85	60 - 135%
93-72-1	SILVEX	0.0283	U	0.209		0.0943	0.236	89	58 - 123%
93-76-5	2,4,5-T	0.0283	U	0.241		0.0943	0.236	102	76 - 127%
94-82-6	2,4-DB	0.283	U	2.36		0.943	2.36	100	18 - 153%
88-85-7	DINOSEB	0.302	U	2.2		0.943	3.54	62	36 - 100%

Data Package ID: *PT1804534-1*

Chlorinated Herbicides by GC/ECD

Method SW8151A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HWH5
LabID: 1804534-5MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-Apr-18
Date Extracted: 01-May-18
Date Analyzed: 04-May-18
Prep Method: METHOD

Prep Batch: EX180501-1
QCBatchID: EX180501-1-1
Run ID: PT180504-10A
Cleanup: NONE
Basis: As Received

Sample Aliquot: 1065 ml
Final Volume: 10 ml
Result Units: UG/L
File Name: 11947.dat

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
75-99-0	DALAPON	2.42	J*	17.6	14	3.76	30	24
1918-00-9	DICAMBA	0.186	J	0.235	79	0.188	30	0
93-65-2	MCPP	198		235	84	93.9	30	0
94-74-6	MCPA	219		235	93	93.9	30	3
120-36-5	DICHLOROPROP	2.02		2.35	86	0.939	30	0
94-75-7	2,4-D	2.04		2.35	87	0.939	30	1
93-72-1	SILVEX	0.21		0.235	89	0.0939	30	0
93-76-5	2,4,5-T	0.236		0.235	100	0.0939	30	2
94-82-6	2,4-DB	2.29		2.35	98	0.939	30	3
88-85-7	DINOSEB	2.6		3.52	74	0.939	30	17

Surrogate Recovery MS/MSD

CASNO	Target Analyte	Spike Added	MS % Rec.	MS Flag	MSD % Rec.	MSD Flag	Control Limits
19719-28-9	2,4-DICHLOROPHENYLACETIC ACID	1.89	119		122		56 - 140

Data Package ID: *PT1804534-1*

Prep Batch ID: EX180501-1

Start Date: 05/01/18
Start Time: 9:10
Prep Analyst: Brendon Howard

End Date: 05/01/18
End Time: 12:15

Concentration Method: CKIS
Extract Method: METHOD
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: bch
Date Created: 04/30/18
Time Created: 12:37
Validated By: bch
Date Validated: 05/02/18
Time Validated: 11:36

Comments:

QC Batch ID: EX180501-1-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
EX180501-1	MB	XXXXXX	WATER	XXXXXX	1000	10	NONE	1	1804534
EX180501-1	LCS	XXXXXX	WATER	XXXXXX	1000	10	NONE	1	1804534
1804534-5	MS	B3HWH5	WATER	4/24/2018	1060	10	NONE	1	1804534
1804534-5	MSD	B3HWH5	WATER	4/24/2018	1065	10	NONE	1	1804534
1804534-5	SMP	B3HWH5	WATER	4/24/2018	1035	10	NONE	1	1804534

In generating this benchsheet, prep analyst states that all aspects of sample preparation as set forth in the appropriate SOP's (including Kuderna-Danish temperatures, proper flow settings on the N-evap, and final volumes) were properly adhered to (unless otherwise noted herein).

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		

Ft. Collins, Colorado

CONTROLLED
NON-CONFORMANCE REPORT

Non-Conformance

Initiated By: Dan M. Sheneman on 5/7/2018

Event Type: Lab QC Criteria Not Met -- LCS

Event Explanation: Dalapon was below the lower control limit of 17% at 13% in the LCS. No target compounds were present in the samples. Dalapon is unstable and historically breaks down during the extraction process.

Action To Prevent Reccurence: Not Applicable

Corrective Action

Corrective Action: Document in Narrative

Department Manager Approval:

Approval Date:

Corrective Action Comments:

Workorders Affected

Workorder -- Procedure		Approved By	Approval Date
1804534 -- METHOD 1804534 -- SW8151	No client contact information.	Katie M. OBrien	5/8/2018

Associated Batches

The samples were originally associated with the following Batch(es):

EX180501-1 created on 5/1/2018

All rework was completed in the following Batch(es):

Not Applicable

NCR Approval

Project Manager Approval:

Department Manager Approval:

QA Manager Approval:

225 Commerce Drive Ft. Collins, Colorado 80524

Phone (970) 490-1511 Fax (970) 490-1522 www.alsglobal.com

Metals

Case Narrative

CH2M HILL Plateau Remediation Company

RCRA_WAC, APRIL 2018 -- W18-004

Work Order Number: 1804534

1. 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.

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

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

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

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

4. The samples were prepared and analyzed within the established hold time.

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

5. 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 this digestion batch was below the reporting limit for the requested analytes. Sample results have been compared to the blank results and are flagged as appropriate. Tin 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.
- 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.
- The interference check samples associated with Method 6020A were analyzed.

6. Matrix specific quality control procedures.

   Sample 1804554-4 was designated as the quality control sample for the mercury analysis. Results for the shared quality control samples are included at the client's request. Sample 1804534-1 was designated as the quality control sample for the Trace ICP analysis. Sample 1804534-2 was designated as the quality control sample for the ICP-MS 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 each ICP batch. All acceptance criteria were met with the following exception:

Analyte	Sample ID
Molybdenum	-2L

   The associated sample results are flagged for serial dilution failure.

7. 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 — 5/24/18

Emily Lyons
Inorganics Primary Data Reviewer

Date

5/30/18

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: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HPX8
Lab ID: 1804534-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 27-Apr-18
Date Analyzed: 30-Apr-18
Prep Method: SW3005 Rev A

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	57000		1000	210
7439-89-6	IRON	1	58		50	30
7439-95-4	MAGNESIUM	1	17000		750	89
7440-09-7	POTASSIUM	1	6900		1000	130
7440-23-5	SODIUM	1	22000		500	38
7440-62-2	VANADIUM	1	15		10	0.43

Data Package ID: *IP1804534-1*

Dissolved ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HWJ0
Lab ID: 1804534-2

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 27-Apr-18
Date Analyzed: 30-Apr-18
Prep Method: SW3005 Rev A

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	58000		1000	210
7439-89-6	IRON	1	30	U	50	30
7439-95-4	MAGNESIUM	1	16000		750	89
7440-09-7	POTASSIUM	1	6900		1000	130
7440-23-5	SODIUM	1	21000		500	38
7440-62-2	VANADIUM	1	14		10	0.43

Data Package ID: *IP1804534-1*

Dissolved ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HPY4
Lab ID: 1804534-3

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 27-Apr-18
Date Analyzed: 30-Apr-18
Prep Method: SW3005 Rev A

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	60000		1000	210
7439-89-6	IRON	1	50		50	30
7439-95-4	MAGNESIUM	1	16000		750	89
7440-09-7	POTASSIUM	1	6800		1000	130
7440-23-5	SODIUM	1	22000		500	38
7440-62-2	VANADIUM	1	14		10	0.43

Data Package ID: *IP1804534-1*

Total Recoverable ICP Metals

Method SW6010B

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HRB9
Lab ID: 1804534-4

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 27-Apr-18
Date Analyzed: 30-Apr-18
Prep Method: SW3005 Rev A

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	61000		1000	210
7439-89-6	IRON	1	30	U	50	30
7439-95-4	MAGNESIUM	1	16000		750	89
7440-09-7	POTASSIUM	1	7000		1000	130
7440-23-5	SODIUM	1	22000		500	38
7440-62-2	VANADIUM	1	14		10	0.43

Data Package ID: *IP1804534-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HPX8
Lab ID: 1804534-1

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 21-May-18
Date Analyzed: 22-May-18
Prep Method: SW3005 Rev A

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
Cleanup: NONE
Basis: As Received
File Name: 035SMPL_

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

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	84	B	100	10
7440-36-0	ANTIMONY	10	0.32	B	1	0.12
7440-38-2	ARSENIC	10	2.9		2	0.39
7440-39-3	BARIUM	10	44		5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	9.5	B	10	0.46
7440-48-4	COBALT	10	0.11	U	5	0.11
7440-50-8	COPPER	10	0.35	B	8	0.32
7439-92-1	LEAD	10	0.079	U	2	0.079
7439-96-5	MANGANESE	10	1.4	B	5	0.36
7439-98-7	MOLYBDENUM	10	5.2		2	0.079
7440-02-0	NICKEL	10	0.92	U	20	0.92
7782-49-2	SELENIUM	10	2.6	B	10	0.65
7440-22-4	SILVER	10	0.029	U	0.5	0.029
7440-24-6	STRONTIUM	10	240		5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.02	B	0.2	0.016
7440-31-5	TIN	10	0.68	BC	10	0.12
7440-61-1	URANIUM	10	5.5		0.1	0.0049
7440-66-6	ZINC	10	5.8	BC	100	1.4

Data Package ID: *IM1804534-1*

Dissolved ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HWJ0
Lab ID: 1804534-2

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 21-May-18
Date Analyzed: 22-May-18
Prep Method: SW3005 Rev A

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
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	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	14	B	100	10
7440-36-0	ANTIMONY	10	0.13	B	1	0.12
7440-38-2	ARSENIC	10	2.8		2	0.39
7440-39-3	BARIUM	10	44		5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	9.1	B	10	0.46
7440-48-4	COBALT	10	0.11	U	5	0.11
7440-50-8	COPPER	10	0.32	U	8	0.32
7439-92-1	LEAD	10	0.079	U	2	0.079
7439-96-5	MANGANESE	10	0.86	B	5	0.36
7439-98-7	MOLYBDENUM	10	5.8	E	2	0.079
7440-02-0	NICKEL	10	0.92	U	20	0.92
7782-49-2	SELENIUM	10	3.2	B	10	0.65
7440-22-4	SILVER	10	0.029	U	0.5	0.029
7440-24-6	STRONTIUM	10	250		5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.43	BC	10	0.12
7440-61-1	URANIUM	10	5.6		0.1	0.0049
7440-66-6	ZINC	10	4	BC	100	1.4

Data Package ID: *IM1804534-1*

Dissolved ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HPY4
Lab ID: 1804534-3

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 21-May-18
Date Analyzed: 22-May-18
Prep Method: SW3005 Rev A

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
Cleanup: NONE
Basis: As Received
File Name: 043SMPL_

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	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	10	U	100	10
7440-36-0	ANTIMONY	10	0.12	U	1	0.12
7440-38-2	ARSENIC	10	2.7		2	0.39
7440-39-3	BARIUM	10	49		5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	9.2	B	10	0.46
7440-48-4	COBALT	10	0.11	U	5	0.11
7440-50-8	COPPER	10	0.32	U	8	0.32
7439-92-1	LEAD	10	0.079	U	2	0.079
7439-96-5	MANGANESE	10	0.62	B	5	0.36
7439-98-7	MOLYBDENUM	10	6.6		2	0.079
7440-02-0	NICKEL	10	0.92	U	20	0.92
7782-49-2	SELENIUM	10	3.4	B	10	0.65
7440-22-4	SILVER	10	0.029	U	0.5	0.029
7440-24-6	STRONTIUM	10	250		5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.72	BC	10	0.12
7440-61-1	URANIUM	10	6.2		0.1	0.0049
7440-66-6	ZINC	10	5.8	BC	100	1.4

Data Package ID: *IM1804534-1*

Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HRB9
Lab ID: 1804534-4

Analysis ReqCode: 6020_METALS_I

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 21-May-18
Date Analyzed: 22-May-18
Prep Method: SW3005 Rev A

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
Cleanup: NONE
Basis: As Received
File Name: 044SMPL_

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	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINUM	10	11	B	100	10
7440-36-0	ANTIMONY	10	0.42	B	1	0.12
7440-38-2	ARSENIC	10	2.6		2	0.39
7440-39-3	BARIUM	10	49		5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	8.8	B	10	0.46
7440-48-4	COBALT	10	0.11	U	5	0.11
7440-50-8	COPPER	10	0.32	U	8	0.32
7439-92-1	LEAD	10	0.079	U	2	0.079
7439-96-5	MANGANESE	10	0.36	U	5	0.36
7439-98-7	MOLYBDENUM	10	6.4		2	0.079
7440-02-0	NICKEL	10	0.92	U	20	0.92
7782-49-2	SELENIUM	10	3.1	B	10	0.65
7440-22-4	SILVER	10	0.029	U	0.5	0.029
7440-24-6	STRONTIUM	10	240		5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.6	BC	10	0.12
7440-61-1	URANIUM	10	6		0.1	0.0049
7440-66-6	ZINC	10	6.1	BC	100	1.4

Data Package ID: *IM1804534-1*

Dissolved MERCURY

Method SW7470A

Sample Results

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: RCRA_WAC, APRIL 2018 W18-004
Work Order Number: 1804534 **Final Volume:** 20 ml
Reporting Basis: As Received **Matrix:** WATER
Analyst: Kevin J. Meyer **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
B3HWJ0	1804534-2	4/23/2018	5/16/2018	05/16/2018	N/A	1	0.06	0.2	0.06	U	20 ml
B3HPY4	1804534-3	4/23/2018	5/16/2018	05/16/2018	N/A	1	0.06	0.2	0.06	U	20 ml

Comments:

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

Data Package ID: *HG1804534-1*

Total MERCURY

Method SW7470A

Sample Results

Lab Name: ALS -- Fort Collins
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: RCRA_WAC, APRIL 2018 W18-004
Work Order Number: 1804534 **Final Volume:** 20 ml
Reporting Basis: As Received **Matrix:** WATER
Analyst: Kevin J. Meyer **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
B3HPX8	1804534-1	4/23/2018	5/16/2018	05/16/2018	N/A	1	0.06	0.2	0.06	U	20 ml
B3HRB9	1804534-4	4/23/2018	5/16/2018	05/16/2018	N/A	1	0.06	0.2	0.06	U	20 ml

Comments:

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

Data Package ID: *HG1804534-1*

ICP Metals

Method SW6010B

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: IP180427-2MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 27-Apr-18
Date Analyzed: 30-Apr-18

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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
7440-42-8	BORON	1	36	U	50	36
7440-70-2	CALCIUM	1	210	U	1000	210
7439-89-6	IRON	1	30	U	50	30
7439-95-4	MAGNESIUM	1	89	U	750	89
7440-09-7	POTASSIUM	1	130	U	1000	130
7440-23-5	SODIUM	1	38	U	500	38
7440-62-2	VANADIUM	1	0.43	U	10	0.43

Data Package ID: *IP1804534-1*

ICP Metals

Method SW6010B

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: IP180427-2LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 04/27/2018
Date Analyzed: 04/30/2018
Prep Method: SW3005A

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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	935	50		94	80 - 120%
7440-70-2	CALCIUM	40000	36700	1000		92	80 - 120%
7439-89-6	IRON	1000	924	50		92	80 - 120%
7439-95-4	MAGNESIUM	40000	40500	750		101	80 - 120%
7440-09-7	POTASSIUM	40000	37900	1000		95	80 - 120%
7440-23-5	SODIUM	40000	37400	500		94	80 - 120%
7440-62-2	VANADIUM	500	456	10		91	80 - 120%

Data Package ID: *IP1804534-1*

ICP Metals

Method SW6010B

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HPX8
LabID: 1804534-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 27-Apr-18
Date Analyzed: 30-Apr-18
Prep Method: SW3005 Rev A

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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	36	U	943		50	1000	94	80 - 120%
7440-70-2	CALCIUM	57000		99900		1000	40000	108	80 - 120%
7439-89-6	IRON	58		990		50	1000	93	80 - 120%
7439-95-4	MAGNESIUM	17000		54200		750	40000	94	80 - 120%
7440-09-7	POTASSIUM	6900		46100		1000	40000	98	80 - 120%
7440-23-5	SODIUM	22000		59500		500	40000	93	80 - 120%
7440-62-2	VANADIUM	15		490		10	500	95	80 - 120%

Field ID: B3HPX8
LabID: 1804534-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 27-Apr-18
Date Analyzed: 30-Apr-18
Prep Method: SW3005 Rev A

Prep Batch: IP180427-2
QCBatchID: IP180427-2-5
Run ID: IP180430-1A3
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	901		1000	90	50	20	5
7440-70-2	CALCIUM	98500		40000	104	1000	20	1
7439-89-6	IRON	963		1000	90	50	20	3
7439-95-4	MAGNESIUM	53600		40000	92	750	20	1
7440-09-7	POTASSIUM	45700		40000	97	1000	20	1
7440-23-5	SODIUM	58400		40000	91	500	20	2
7440-62-2	VANADIUM	478		500	93	10	20	3

Data Package ID: *IP1804534-1*

Prep Batch ID: IP180427-2

Start Date: 04/27/18
Start Time: 11:45
Prep Analyst: Jill M. Latelle

End Date: 04/27/18
End Time: 18:00

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

Batch Created By: jml
Date Created: 04/27/18
Time Created: 11:45
Validated By: jml
Date Validated: 04/27/18
Time Validated: 12:32

Comments:

QC Batch ID: IP180427-2-5

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IP180427-2	MB	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1804534
IP180427-2	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1804534
1804534-1	MS	B3HPX8	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-1	MSD	B3HPX8	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-1	DUP	B3HPX8	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-1	SMP	B3HPX8	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-2	SMP	B3HWJ0	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-3	SMP	B3HPY4	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-4	SMP	B3HRB9	WATER	4/23/2018	50	50	NONE	1	1804534

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		

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: IP180521-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 21-May-18
Date Analyzed: 22-May-18

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
Cleanup: NONE
Basis: N/A
File Name: 019SMPL_

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
7429-90-5	ALUMINUM	10	10	U	100	10
7440-36-0	ANTIMONY	10	0.12	U	1	0.12
7440-38-2	ARSENIC	10	0.39	U	2	0.39
7440-39-3	BARIUM	10	0.56	U	5	0.56
7440-41-7	BERYLLIUM	10	0.054	U	0.5	0.054
7440-43-9	CADMIUM	10	0.083	U	2	0.083
7440-47-3	CHROMIUM	10	0.46	U	10	0.46
7440-48-4	COBALT	10	0.11	U	5	0.11
7440-50-8	COPPER	10	0.32	U	8	0.32
7439-92-1	LEAD	10	0.079	U	2	0.079
7439-96-5	MANGANESE	10	0.36	U	5	0.36
7439-98-7	MOLYBDENUM	10	0.079	U	2	0.079
7440-02-0	NICKEL	10	0.92	U	20	0.92
7782-49-2	SELENIUM	10	0.65	U	10	0.65
7440-22-4	SILVER	10	0.029	U	0.5	0.029
7440-24-6	STRONTIUM	10	0.32	U	5	0.32
7440-28-0	THALLIUM	10	0.0041	U	0.1	0.0041
7440-29-1	THORIUM	10	0.016	U	0.2	0.016
7440-31-5	TIN	10	0.95	B	10	0.12
7440-61-1	URANIUM	10	0.0049	U	0.1	0.0049
7440-66-6	ZINC	10	1.6	B	100	1.4

Data Package ID: *IM1804534-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: IM180521-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/21/2018
Date Analyzed: 05/22/2018
Prep Method: SW3005A

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
Cleanup: NONE
Basis: N/A
File Name: 020SMPL_

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	4510	100		90	80 - 120%
7440-36-0	ANTIMONY	30	27.3	1		91	80 - 120%
7440-38-2	ARSENIC	100	94.1	2		94	80 - 120%
7440-39-3	BARIUM	100	87.6	5		88	80 - 120%
7440-41-7	BERYLLIUM	50	50	0.5		100	80 - 120%
7440-43-9	CADMIUM	30	29.7	2		99	80 - 120%
7440-47-3	CHROMIUM	500	477	10		95	80 - 120%
7440-48-4	COBALT	100	98.9	5		99	80 - 120%
7440-50-8	COPPER	1000	992	8		99	80 - 120%
7439-92-1	LEAD	50	46.8	2		94	80 - 120%
7439-96-5	MANGANESE	100	94.3	5		94	80 - 120%
7439-98-7	MOLYBDENUM	100	87.5	2		87	80 - 120%
7440-02-0	NICKEL	500	483	20		97	80 - 120%
7782-49-2	SELENIUM	100	98	10		98	80 - 120%
7440-22-4	SILVER	10	9.72	0.5		97	80 - 120%
7440-24-6	STRONTIUM	100	90.2	5		90	80 - 120%
7440-28-0	THALLIUM	2	1.93	0.1		96	80 - 120%
7440-29-1	THORIUM	10	9.75	0.2		98	80 - 120%
7440-31-5	TIN	500	469	10		94	80 - 120%
7440-61-1	URANIUM	10	9.31	0.1		93	80 - 120%
7440-66-6	ZINC	2000	1880	100		94	80 - 120%

Data Package ID: *IM1804534-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HWJ0
LabID: 1804534-2MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 21-May-18
Date Analyzed: 22-May-18
Prep Method: SW3005 Rev A

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 039SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	14	B	4680		100	5000	93	75 - 125%
7440-36-0	ANTIMONY	0.13	B	28.7		1	30	95	75 - 125%
7440-38-2	ARSENIC	2.8		98.1		2	100	95	75 - 125%
7440-39-3	BARIUM	44		136		5	100	91	75 - 125%
7440-41-7	BERYLLIUM	0.054	U	50.1		0.5	50	100	75 - 125%
7440-43-9	CADMIUM	0.083	U	30.9		2	30	103	75 - 125%
7440-47-3	CHROMIUM	9.1	B	503		10	500	99	75 - 125%
7440-48-4	COBALT	0.11	U	99		5	100	99	75 - 125%
7440-50-8	COPPER	0.32	U	997		8	1000	100	75 - 125%
7439-92-1	LEAD	0.079	U	48.3		2	50	97	75 - 125%
7439-96-5	MANGANESE	0.86	B	96.9		5	100	96	75 - 125%
7439-98-7	MOLYBDENUM	5.8		96.2		2	100	90	75 - 125%
7440-02-0	NICKEL	0.92	U	493		20	500	99	75 - 125%
7782-49-2	SELENIUM	3.2	B	104		10	100	101	75 - 125%
7440-22-4	SILVER	0.029	U	9.84		0.5	10	98	75 - 125%
7440-24-6	STRONTIUM	250		345		5	100	96	75 - 125%
7440-28-0	THALLIUM	0.0041	U	1.97		0.1	2	99	75 - 125%
7440-29-1	THORIUM	0.016	U	10.1		0.2	10	101	75 - 125%
7440-31-5	TIN	0.43	BC	493		10	500	99	75 - 125%
7440-61-1	URANIUM	5.6		15.4		0.1	10	98	75 - 125%
7440-66-6	ZINC	4	BC	1910		100	2000	95	75 - 125%

Data Package ID: *IM1804534-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: B3HWJ0
LabID: 1804534-2MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Apr-18
Date Extracted: 21-May-18
Date Analyzed: 22-May-18
Prep Method: SW3005 Rev A

Prep Batch: IP180521-1
QCBatchID: IP180521-1-2
Run ID: IM180522-11A3
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 040SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMINUM	4640		5000	93	100	20	1
7440-36-0	ANTIMONY	28		30	93	1	20	3
7440-38-2	ARSENIC	95.2		100	92	2	20	3
7440-39-3	BARIUM	136		100	92	5	20	0
7440-41-7	BERYLLIUM	49.6		50	99	0.5	20	1
7440-43-9	CADMIUM	29.9		30	100	2	20	3
7440-47-3	CHROMIUM	504		500	99	10	20	0
7440-48-4	COBALT	100		100	100	5	20	1
7440-50-8	COPPER	981		1000	98	8	20	2
7439-92-1	LEAD	47.7		50	95	2	20	1
7439-96-5	MANGANESE	98.5		100	98	5	20	2
7439-98-7	MOLYBDENUM	95.2		100	89	2	20	1
7440-02-0	NICKEL	492		500	98	20	20	0
7782-49-2	SELENIUM	99.9		100	97	10	20	4
7440-22-4	SILVER	9.78		10	98	0.5	20	1
7440-24-6	STRONTIUM	342		100	93	5	20	1
7440-28-0	THALLIUM	1.95		2	98	0.1	20	1
7440-29-1	THORIUM	10.3		10	103	0.2	20	3
7440-31-5	TIN	491		500	98	10	20	0
7440-61-1	URANIUM	15.2		10	96	0.1	20	1
7440-66-6	ZINC	1890		2000	94	100	20	1

Data Package ID: *IM1804534-1*

Prep Batch ID: IP180521-1

Start Date: 05/21/18
Start Time: 10:38
Prep Analyst: Jill M. Latelle

End Date: 05/21/18
End Time: 18:00

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

Batch Created By: jml
Date Created: 05/21/18
Time Created: 10:38
Validated By: jml
Date Validated: 05/21/18
Time Validated: 11:01

Comments:

QC Batch ID: IP180521-1-2

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IP180521-1	MB	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1804534
IM180521-1	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1804534
1804534-2	MS	B3HWJ0	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-2	MSD	B3HWJ0	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-2	DUP	B3HWJ0	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-1	SMP	B3HPX8	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-2	SMP	B3HWJ0	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-3	SMP	B3HPY4	WATER	4/23/2018	50	50	NONE	1	1804534
1804534-4	SMP	B3HRB9	WATER	4/23/2018	50	50	NONE	1	1804534

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		

Mercury

Method SW7470A --Leachate

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: HG180516-1MB

LEACH DATE: 5/15/2018

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 16-May-18
Date Analyzed: 16-May-18

Prep Batch: HG180516-1
QCBatchID: HG180516-1-1
Run ID: HG180516-1A2
Cleanup: NONE
Basis: N/A
File Name: HG180516-1

Sample Aliquot: 20 ml
Final Volume: 20 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
7439-97-6	MERCURY	1	0.06	U	0.2	0.06

Data Package ID: *HG1804534-1*

Mercury

Method SW7470A --Leachate

Laboratory Control Sample

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Lab ID: HG180516-1LCS

LEACH DATE: 5/15/2018

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/16/2018
Date Analyzed: 05/16/2018
Prep Method: METHOD

Prep Batch: HG180516-1
QCBatchID: HG180516-1-1
Run ID: HG180516-1A2
Cleanup: NONE
Basis: N/A
File Name: HG180516-1

Sample Aliquot: 20 ml
Final Volume: 20 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	1.03	0.2		103	80 - 120%

Data Package ID: *HG1804534-1*

Mercury

Method SW7470A --Leachate
Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1804534
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: RCRA_WAC, APRIL 2018 W18-004

Field ID: SHARED QC
LabID: 1804554-4MS

LEACH DATE: 5/15/2018

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-Apr-18
Date Extracted: 16-May-18
Date Analyzed: 16-May-18
Prep Method: METHOD

Prep Batch: HG180516-1
QCBatchID: HG180516-1-1
Run ID: HG180516-1A2
Cleanup: NONE
Basis: As Received

Sample Aliquot: 20 ml
Final Volume: 20 ml
Result Units: UG/L
File Name: HG180516-1

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	2.16		0.2	2	108	80 - 120%

Field ID: SHARED QC
LabID: 1804554-4MSD

LEACH DATE: 5/15/2018

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 24-Apr-18
Date Extracted: 16-May-18
Date Analyzed: 16-May-18
Prep Method: METHOD

Prep Batch: HG180516-1
QCBatchID: HG180516-1-1
Run ID: HG180516-1A2
Cleanup: NONE
Basis: As Received

Sample Aliquot: 20 ml
Final Volume: 20 ml
Result Units: UG/L
File Name: HG180516-1

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7439-97-6	MERCURY	2.11		2	106	0.2	20	2

Data Package ID: *HG1804534-1*

Prep Batch ID: HG180516-1

Start Date: 05/16/18
Start Time: 10:24
Prep Analyst: Kevin J. Meyer

End Date: 05/16/18
End Time: 18:00

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

Batch Created By: kjm
Date Created: 05/16/18
Time Created: 10:24
Validated By: AJL2
Date Validated: 05/16/18
Time Validated: 16:44

Comments:

QC Batch ID: HG180516-1-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
EX180515-1	MB	XXXXXX	LEACHA	XXXXXX	20	20	NONE	1	1805216
HG180516-1	MB	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1804554
HG180516-1	LCS	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1804554
1804554-4	MS	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1804554
1804554-4	MSD	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1804554
1804554-4	DUP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1804554
1804534-1	SMP	B3HPX8	WATER	4/23/2018	20	20	NONE	1	1804534
1804534-2	SMP	B3HWJ0	WATER	4/23/2018	20	20	NONE	1	1804534
1804534-3	SMP	B3HPY4	WATER	4/23/2018	20	20	NONE	1	1804534
1804534-4	SMP	B3HRB9	WATER	4/23/2018	20	20	NONE	1	1804534
1804554-3	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1804554
1804554-4	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1804554
1805062-1	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805062
1805062-2	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805062
1805062-3	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805062
1805062-4	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805062
1805078-1	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805078
1805078-2	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805078
1805078-3	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805078
1805078-4	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805078
1805131-1	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805131
1805131-2	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805131
1805131-3	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805131
1805131-4	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1805131
1805216-3	SMP	XXXXXX	LEACHA	XXXXXX	20	20	NONE	1	1805216
1805216-4	SMP	XXXXXX	LEACHA	XXXXXX	20	20	NONE	1	1805216

Prep Batch ID: HG180516-1

Start Date: 05/16/18
Start Time: 10:24
Prep Analyst: Kevin J. Meyer

End Date: 05/16/18
End Time: 18:00

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

Batch Created By: kjm
Date Created: 05/16/18
Time Created: 10:24
Validated By: AJL2
Date Validated: 05/16/18
Time Validated: 16:44

Comments:

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		