



Tuesday, July 18, 2017

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

Re: ALS Workorder: 1706362
Project Name: SURV, JUNE 2017
Project Number: S17-006

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 6/15/2017. 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,

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: 1706362
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: SURV, JUNE 2017
Client Project Number: S17-006
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B39T17	1706362-1		WATER	14-Jun-17	9:57
B39T21	1706362-2		WATER	14-Jun-17	9:57

9/105
C.O.C. # **S17-006-038**
Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Contact/Requester: Karen Waters-Husted
 Telephone No. 509-376-4650
 Purchase Order/Charge Code 300071
 Sampling Origin Hanford Site
 Logbook No. HNF-N-506 93 / 5 3
 Ice Chest No. CWS-2015
 Method of Shipment Commercial Carrier
 Bill of Lading/Air Bill No. 7794 0464 3416
 Offsite Property No. 8044

Project Title: SURV, JUNE 2017
 Shipped To (Lab): ALS Environmental Ft. Collins
 Protocol: SURV
 Priority: 30 Days
 SPECIAL INSTRUCTIONS: **PRIORITY**
 Hold Time: N/A
 Total Activity Exemption: Yes No

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

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39T17	N	W JUN 14 2017	0957	1x500-mL G/P	6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2
B39T21	Y	W JUN 14 2017	↓	1x500-mL G/P	6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2

Relinquished By Chris Fulton CHPRC *[Signature]* **Date/Time** JUN 14 2017 1015
Relinquished By Janelle Zunker CHPRC *[Signature]* **Date/Time** JUN 14 2017 1100
Relinquished By *[Signature]* **Date/Time** JUN 14 2017 1100
Relinquished By *[Signature]* **Date/Time** JUN 14 2017 1100

Received By Janelle Zunker CHPRC *[Signature]* **Date/Time** JUN 14 2017 1015
Received By *[Signature]* **Date/Time** JUN 14 2017 1100
Received By *[Signature]* **Date/Time** JUN 14 2017 1100
Received By *[Signature]* **Date/Time** JUN 14 2017 1100

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

DISPOSITION
 Relinquished By: *[Signature]*
 Disposed By: *[Signature]*
 Date/Time: *[Signature]*

FRIDAY, JUN 16 2017
 JUN 14 2017
 JUN 14 2017
 JUN 14 2017

PRINTED ON 5/8/2017
 FSR ID = FSR45040
 A-6004-842 (REV 2)



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHRC

Workorder No: 1706362

Project Manager: SS

Initials: SS Date: 6/15/17

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/MEE, 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 Amount of sediment: ___ dusting ___ moderate ___ heavy	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: <u>10</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> 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.

* Original COC was damaged and wet upon arrival. Copy is used instead

SS
6/16/17

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

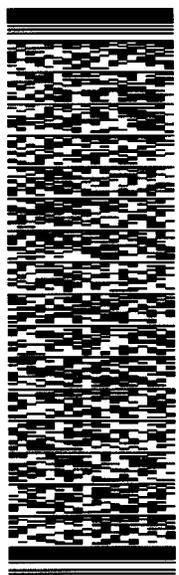
Project Manager Signature / Date: [Signature] 6/16/17

ORIGIN ID: PSCA (509) 373-3580
JANIE LE ZUNIKER
CH2M
6269 LATAH ST.
RICHLAND, WA 99334
UNITED STATES US

SHIP DATE: 14 JUN 17
ACTWGT: 7.00 LB
CAD: 107066051/NET3850
BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

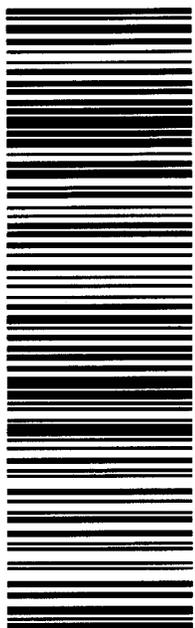
FORT COLLINS CO 80524
REF: 8044
DEPT:



J171117821401uv

TRK# 7794 0464 3476
0201
THU - 15 JUN 10:30A
PRIORITY OVERNIGHT
DSR
80524

XH FTCA
co-us DEN



10-2

1706362

546J1/A50263C1

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 Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



Metals

Case Narrative

CH2M HILL Plateau Remediation Company

SURV, JUNE 2017 -- S17-006

Work Order Number: 1706362

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 06/15/17.
3. The samples were filtered through a 0.45 micron filter and preserved with nitric acid to a pH less than two prior to analysis.
4. The samples were prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by ICP-MS, the samples were digested following method 3005A and the current revision of SOP 806.

5. Analysis by ICP-MS followed method 6020A and the current revision of SOP 827.
6. All standards and solutions are NIST traceable and were used within their recommended shelf life.
7. The samples were prepared and analyzed within the established hold times.

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

8. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes. Aluminum was detected above the MDL. Sample results have been compared to the blank results.
 - All laboratory control sample criteria were met.



- All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.
- The interference check samples associated with Method 6020A were analyzed.

9. Matrix specific quality control procedures.

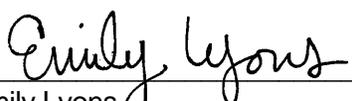
Sample 1706391-1 was designated as the quality control sample for this analysis. Results for the shared quality control samples are included at the client's request.

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. 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

7/18/17
Date



Leah Lomas
Inorganics Final Data Reviewer

7/18/17
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 $\leq 20X$ 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 ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1706362

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2017 S17-006

Field ID:	B39T17
Lab ID:	1706362-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 14-Jun-17

Date Extracted: 21-Jun-17

Date Analyzed: 29-Jun-17

Prep Method: SW3005 Rev A

Prep Batch: IP170621-11

QCBatchID: IP170621-11-1

Run ID: IM170628-10A4

Cleanup: NONE

Basis: As Received

File Name: 223SMPL_

Analyst: Brent A. Stanfield

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

Analysis ReqCode: 6020_METALS_I

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINIUM	10	20	BC	100	14
7440-36-0	ANTIMONY	10	0.3	U	1	0.3
7440-38-2	ARSENIC	10	2.6		2	0.6
7440-39-3	BARIUM	10	33		5	1.8
7440-41-7	BERYLLIUM	10	0.15	U	0.5	0.15
7440-43-9	CADMIUM	10	0.6	U	2	0.6
7440-47-3	CHROMIUM	10	83		10	3
7440-48-4	COBALT	10	1.5	U	5	1.5
7440-50-8	COPPER	10	6	U	8	6
7439-92-1	LEAD	10	0.85	U	2	0.85
7439-96-5	MANGANESE	10	1.5	U	5	1.5
7439-98-7	MOLYBDENUM	10	8.5		2	0.6
7440-02-0	NICKEL	10	11	U	20	11
7782-49-2	SELENIUM	10	3.5	U	10	3.5
7440-22-4	SILVER	10	0.15	U	0.5	0.15
7440-24-6	STRONTIUM	10	130		5	2
7440-28-0	THALLIUM	10	0.084	U	0.1	0.084
7440-29-1	THORIUM	10	0.06	U	0.2	0.06
7440-31-5	TIN	10	3	U	10	3
7440-61-1	URANIUM	10	3.6		0.1	0.03
7440-66-6	ZINC	10	48	U	100	48

Data Package ID: im1706362-1

JULY 18, 2017
ALS1706362

Dissolved ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1706362

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2017 S17-006

Field ID: B39T21

Lab ID: 1706362-2

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 14-Jun-17

Date Extracted: 21-Jun-17

Date Analyzed: 29-Jun-17

Prep Method: SW3005 Rev A

Prep Batch: IP170621-11

QCBatchID: IP170621-11-1

Run ID: IM170628-10A4

Cleanup: NONE

Basis: As Received

File Name: 224SMPL_

Analyst: Brent A. Stanfield

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

Analysis ReqCode: 6020_METALS_I

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
7429-90-5	ALUMINIUM	10	14	U	100	14
7440-36-0	ANTIMONY	10	0.3	U	1	0.3
7440-38-2	ARSENIC	10	2.7		2	0.6
7440-39-3	BARIUM	10	33		5	1.8
7440-41-7	BERYLLIUM	10	0.15	U	0.5	0.15
7440-43-9	CADMIUM	10	0.6	U	2	0.6
7440-47-3	CHROMIUM	10	83		10	3
7440-48-4	COBALT	10	1.5	U	5	1.5
7440-50-8	COPPER	10	6	U	8	6
7439-92-1	LEAD	10	0.85	U	2	0.85
7439-96-5	MANGANESE	10	1.5	U	5	1.5
7439-98-7	MOLYBDENUM	10	8.4		2	0.6
7440-02-0	NICKEL	10	11	U	20	11
7782-49-2	SELENIUM	10	3.5	U	10	3.5
7440-22-4	SILVER	10	0.15	U	0.5	0.15
7440-24-6	STRONTIUM	10	120		5	2
7440-28-0	THALLIUM	10	0.084	U	0.1	0.084
7440-29-1	THORIUM	10	0.06	U	0.2	0.06
7440-31-5	TIN	10	3	U	10	3
7440-61-1	URANIUM	10	3.6		0.1	0.03
7440-66-6	ZINC	10	48	U	100	48

Data Package ID: im1706362-1

Date Printed: Wednesday, July 12, 2017

ALS -- Fort Collins

Page 3 of 4

LIMS Version: 6.843

JULY 18, 2017

ALS1706362

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1706362

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2017 S17-006

Lab ID: IP170621-11MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jun-17

Date Analyzed: 29-Jun-17

Prep Batch: IP170621-11

QCBatchID: IP170621-11-1

Run ID: IM170628-10A4

Cleanup: NONE

Basis: N/A

File Name: 210SMPL_

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	17	B	100	14
7440-36-0	ANTIMONY	10	0.3	U	1	0.3
7440-38-2	ARSENIC	10	0.6	U	2	0.6
7440-39-3	BARIUM	10	1.8	U	5	1.8
7440-41-7	BERYLLIUM	10	0.15	U	0.5	0.15
7440-43-9	CADMIUM	10	0.6	U	2	0.6
7440-47-3	CHROMIUM	10	3	U	10	3
7440-48-4	COBALT	10	1.5	U	5	1.5
7440-50-8	COPPER	10	6	U	8	6
7439-96-5	MANGANESE	10	1.5	U	5	1.5
7439-98-7	MOLYBDENUM	10	0.6	U	2	0.6
7440-02-0	NICKEL	10	11	U	20	11
7782-49-2	SELENIUM	10	3.5	U	10	3.5
7440-22-4	SILVER	10	0.15	U	0.5	0.15
7440-24-6	STRONTIUM	10	2	U	5	2
7440-28-0	THALLIUM	10	0.084	U	0.1	0.084
7440-31-5	TIN	10	3	U	10	3
7440-61-1	URANIUM	10	0.03	U	0.1	0.03
7440-66-6	ZINC	10	48	U	100	48

Data Package ID: im1706362-1

JULY 18, 2017

ALS1706362

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1706362

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2017 S17-006

Lab ID: IP170621-11MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jun-17

Date Analyzed: 11-Jul-17

Prep Batch: IP170621-11

QCBatchID: IP170621-11-1

Run ID: IM170710-10A4

Cleanup: NONE

Basis: N/A

File Name: 193SMPL_

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
7439-92-1	LEAD	10	0.85	U	2	0.85
7440-29-1	THORIUM	10	0.06	U	0.2	0.06

Data Package ID: *im1706362-1*

Date Printed: Wednesday, July 12, 2017

ALS -- Fort Collins

Page 2 of 2

LIMS Version: 6.843

JULY 18, 2017

ALS1706362

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1706362

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2017 S17-006

Lab ID: IM170621-11LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 06/21/2017

Date Analyzed: 06/29/2017

Prep Method: SW3005A

Prep Batch: IP170621-11

QCBatchID: IP170621-11-1

Run ID: IM170628-10A4

Cleanup: NONE

Basis: N/A

File Name: 211SMPL_

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	4900	100		98	80 - 120%
7440-36-0	ANTIMONY	30	32	1		107	80 - 120%
7440-38-2	ARSENIC	100	105	2		105	80 - 120%
7440-39-3	BARIUM	100	105	5		105	80 - 120%
7440-41-7	BERYLLIUM	50	46.8	0.5		94	80 - 120%
7440-43-9	CADMIUM	30	30.4	2		101	80 - 120%
7440-47-3	CHROMIUM	500	492	10		98	80 - 120%
7440-48-4	COBALT	100	100	5		100	80 - 120%
7440-50-8	COPPER	1000	1030	8		103	80 - 120%
7439-92-1	LEAD	50	48.3	2		97	80 - 120%
7439-96-5	MANGANESE	100	99.5	5		99	80 - 120%
7439-98-7	MOLYBDENUM	100	95.3	2		95	80 - 120%
7440-02-0	NICKEL	500	495	20		99	80 - 120%
7782-49-2	SELENIUM	100	95.9	10		96	80 - 120%
7440-22-4	SILVER	10	10.3	0.5		103	80 - 120%
7440-24-6	STRONTIUM	100	98.1	5		98	80 - 120%
7440-28-0	THALLIUM	2	2.01	0.1		100	80 - 120%
7440-29-1	THORIUM	10	10.1	0.2		101	80 - 120%
7440-31-5	TIN	500	496	10		99	80 - 120%
7440-61-1	URANIUM	10	9.95	0.1		99	80 - 120%
7440-66-6	ZINC	2000	2030	100		102	80 - 120%

Data Package ID: im1706362-1

Date Printed: Wednesday, July 12, 2017

ALS -- Fort Collins

Page 1 of 1

LIMS Version: 6.843

JULY 18, 2017

ALS1706362

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1706362

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2017 S17-006

Field ID: SHARED QC	Sample Matrix: WATER	Prep Batch: IP170621-11	Sample Aliquot: 50 ml
LabID: 1706391-1MS	% Moisture: N/A	QC BatchID: IP170621-11-1	Final Volume: 50 ml
	Date Collected: 15-Jun-17	Run ID: IM170628-10A4	Result Units: UG/L
	Date Extracted: 21-Jun-17	Cleanup: NONE	File Name: 236SMPL_
	Date Analyzed: 29-Jun-17	Basis: As Received	
	Prep Method: SW3005 Rev A		

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7429-90-5	ALUMINUM	14	U	4770		100	5000	95	75 - 125%
7440-36-0	ANTIMONY	0.32	B	32.1		1	30	106	75 - 125%
7440-38-2	ARSENIC	7.2		111		2	100	104	75 - 125%
7440-39-3	BARIIUM	54		157		5	100	103	75 - 125%
7440-41-7	BERYLLIUM	0.15	U	46.2		0.5	50	92	75 - 125%
7440-43-9	CADMIUM	0.6	U	30		2	30	100	75 - 125%
7440-47-3	CHROMIUM	6.2	B	494		10	500	98	75 - 125%
7440-48-4	COBALT	1.5	U	97.6		5	100	98	75 - 125%
7440-50-8	COPPER	6	U	1010		8	1000	101	75 - 125%
7439-92-1	LEAD	0.85	U	50.1		2	50	100	75 - 125%
7439-96-5	MANGANESE	1.7	B	97.3		5	100	96	75 - 125%
7439-98-7	MOLYBDENUM	3.2		97.7		2	100	94	75 - 125%
7440-02-0	NICKEL	11	U	485		20	500	97	75 - 125%
7782-49-2	SELENIUM	5.4	B	102		10	100	97	75 - 125%
7440-22-4	SILVER	0.15	U	10.2		0.5	10	102	75 - 125%
7440-24-6	STRONTIUM	280		375		5	100	92	75 - 125%
7440-28-0	THALLIUM	0.084	U	1.95		0.1	2	98	75 - 125%
7440-29-1	THORIUM	0.06	U	10.2		0.2	10	102	75 - 125%
7440-31-5	TIN	3	U	498		10	500	100	75 - 125%
7440-61-1	URANIUM	3.2		13.2		0.1	10	100	75 - 125%
7440-66-6	ZINC	48	U	2000		100	2000	100	75 - 125%

Data Package ID: *im1706362-1*

JULY 18, 2017

ALS1706362

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1706362

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2017 S17-006

Field ID: SHARED QC

LabID: 1706391-1MSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 15-Jun-17

Date Extracted: 21-Jun-17

Date Analyzed: 29-Jun-17

Prep Method: SW3005 Rev A

Prep Batch: IP170621-11

QCBatchID: IP170621-11-1

Run ID: IM170628-10A4

Cleanup: NONE

Basis: As Received

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

File Name: 237SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7429-90-5	ALUMINUM	4780		5000	96	100	20	0
7440-36-0	ANTIMONY	31.9		30	105	1	20	1
7440-38-2	ARSENIC	113		100	106	2	20	2
7440-39-3	BARIUM	156		100	102	5	20	1
7440-41-7	BERYLLIUM	46.3		50	93	0.5	20	0
7440-43-9	CADMIUM	30.1		30	100	2	20	0
7440-47-3	CHROMIUM	499		500	99	10	20	1
7440-48-4	COBALT	98.3		100	98	5	20	1
7440-50-8	COPPER	1020		1000	102	8	20	1
7439-92-1	LEAD	50		50	100	2	20	0
7439-96-5	MANGANESE	99.1		100	97	5	20	2
7439-98-7	MOLYBDENUM	98.3		100	95	2	20	1
7440-02-0	NICKEL	490		500	98	20	20	1
7782-49-2	SELENIUM	103		100	98	10	20	1
7440-22-4	SILVER	10.2		10	102	0.5	20	0
7440-24-6	STRONTIUM	376		100	93	5	20	0
7440-28-0	THALLIUM	1.98		2	99	0.1	20	2
7440-29-1	THORIUM	10.4		10	104	0.2	20	3
7440-31-5	TIN	509		500	102	10	20	2
7440-61-1	URANIUM	13.1		10	99	0.1	20	1
7440-66-6	ZINC	2020		2000	101	100	20	1

Data Package ID: *im1706362-1*

Prep Batch ID: IP170621-11

Start Date: 06/21/17	End Date: 06/21/17	Concentration Method: NONE	Batch Created By: ajl2
Start Time: 11:27	End Time: 18:00	Extract Method: SW3005A	Date Created: 06/21/17
Prep Analyst: Amanda J. Lynn		Initial Volume Units: ml	Time Created: 11:27
Comments:		Final Volume Units: ml	Validated By: ajl2
			Date Validated: 06/21/17
			Time Validated: 11:57

QC Batch ID: IP170621-11-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IP170621-11	MB	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
IM170621-11	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-1	MS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-1	MSD	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-1	DUP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706320-1	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706320
1706320-2	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706320
1706320-3	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706320
1706320-4	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706320
1706362-1	SMP	B39T17	WATER	6/14/2017	50	50	NONE	1	1706362
1706362-2	SMP	B39T21	WATER	6/14/2017	50	50	NONE	1	1706362
1706391-1	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-2	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-3	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-4	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-5	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391
1706391-6	SMP	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706391

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				