



Wednesday, July 12, 2017

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

Re: ALS Workorder: 1706245
Project Name: SURV, APRIL 2017
Project Number: S17-004

Dear Ms. Waters-Husted:

One water sample was received from CH2M HILL Plateau Remediation Company, on 6/10/2017. The sample was 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.

July 12, 2017

ALS1706245

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1706245

Client Name: CH2M HILL Plateau Remediation Company

Client Project Name: SURV, APRIL 2017

Client Project Number: S17-004

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B392R1	1706245-1		WATER	09-Jun-17	12:00

1706245

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# S17-004-026
Collector: Kevin Patterson CHPRC		Contact/Requester: Karen Waters-Husted	Telephone No. 509-376-4650	Page 1 of 1
SAF No. S17-004	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071		
Project Title: SURV, APRIL 2017	Logbook No. HNF-N-506 491-16	Ice Chest No. 625-409		
Shipped To (Lab): ALS Environmental Ft. Collins	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No. 77934889 0545		
Protocol: CERCLA	Priority: 30 Days	Offsite Property No. 8022		
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
*** 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		N/A		
Sample No. B392R1	Filter: N	Time: 6/9/17	1200	1x500-mL G/P
				6020_METALS_ICPMS: Uranium (1)
				6 Months
				HNO3 to pH <2

Relinquished By: Kevin Patterson CHPRC	Print: [Signature]	Sign: [Signature]	Date/Time: JUN 09 2017 1210	Received By: Leah Wald CHPRC	Print: Leah Wald	Sign: [Signature]	Date/Time: JUN 09 2017 1210	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By: [Signature]	Print: Leah Wald	Sign: [Signature]	Date/Time: JUN 09 2017 1400	Received By: FEDEX	Print: FEDEX	Sign: [Signature]	Date/Time: JUN 10 2017 1150		
Relinquished By: [Signature]	Print: [Signature]	Sign: [Signature]	Date/Time: [Signature]	Received By: [Signature]	Print: [Signature]	Sign: [Signature]	Date/Time: [Signature]		
Relinquished By: [Signature]	Print: [Signature]	Sign: [Signature]	Date/Time: [Signature]	Received By: [Signature]	Print: [Signature]	Sign: [Signature]	Date/Time: [Signature]		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)							Date/Time	



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CAPRC

Workorder No: CAPRC 1706245

Project Manager: _____

Initials: CDJ Date: 6-10-17

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	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?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <input checked="" type="radio"/> #2 <input type="radio"/> #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>13</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 <input type="radio"/> NO <input type="radio"/> 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] 6/12/17

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ALS1706245

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ORIGIN ID: PSCA (509) 373-3580
JANELLE ZUNKER
CH2M
6269 LATAH ST.

SHIP DATE: 09JUN17
ACTWGT: 67.00 LB
CAD: 107066051/NET3850

RICHLAND, WA 99354
UNITED STATES US

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

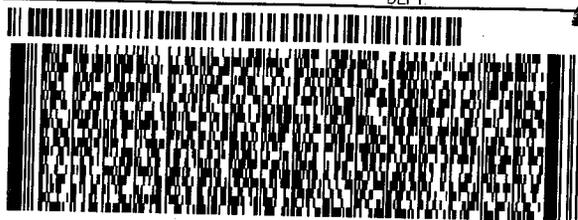
13
2

546.U/AS0263C1

FORT COLLINS CO 80524

(970) 490-1511 REF: 8022

INV. PC: DEPT:



FedEx Express



#17117824M100

2.0

SATURDAY 12:00P

PRIORITY OVERNIGHT

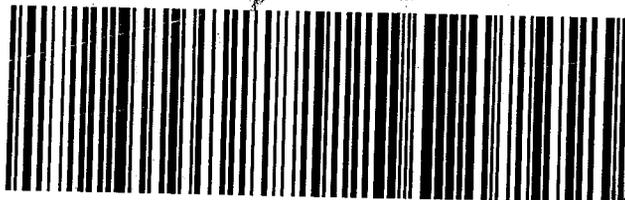
TRK# 7793 4859 0545
0201

DSR

80524

X0 FTCA

CO-US DEN





Metals Case Narrative

CH2M HILL Plateau Remediation Company

SURV, APRIL 2017 – S17-004

Work Order Number: 1706245

1. This report consists of 1 water sample.
2. The sample was received cool and intact by ALS on 06/10/17.
3. The sample had a pH less than 2 upon receipt.
4. The sample was prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by ICP-MS, the sample was 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 sample was 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 sample in this digestion batch.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analyte. 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 analyte.
- All initial and continuing calibration verifications were within the acceptance criteria for the requested analyte.
- The interference check samples associated with Method 6020A were analyzed.

9. Matrix specific quality control procedures.

Sample 1706245-1 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 each batch. All acceptance criteria for accuracy were met.
- A serial dilution was analyzed with each ICP batch. All acceptance criteria were met.

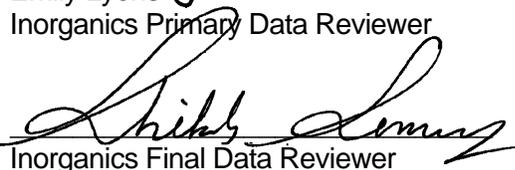
10. It is a standard practice that samples for ICP-MS are analyzed at a dilution. The 10X factor can be considered an artifact of the prep and does not indicate a secondary dilution and is therefore not flagged as a dilution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Emily Lyons
Inorganics Primary Data Reviewer

7/10/17
Date



Keith Lewis
Inorganics Final Data Reviewer

7/12/17
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.

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Total Recoverable ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1706245

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, APRIL 2017 S17-004

Field ID:	B392R1
Lab ID:	1706245-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 09-Jun-17

Date Extracted: 21-Jun-17

Date Analyzed: 29-Jun-17

Prep Method: SW3005 Rev A

Prep Batch: IP170621-11

QC Batch ID: IP170621-11-4

Run ID: IM170628-10A5

Cleanup: NONE

Basis: As Received

File Name: 212SMPL_

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
7440-61-1	URANIUM	10	1.2		0.1	0.03

Data Package ID: *im1706245-1*

Date Printed: Friday, July 07, 2017

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ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1706245

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, APRIL 2017 S17-004

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: IP170621-11-4

Run ID: IM170628-10A5

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
7440-61-1	URANIUM	10	0.03	U	0.1	0.03

Data Package ID: im1706245-1

Date Printed: Friday, July 07, 2017

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ALS1706245

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1706245

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, APRIL 2017 S17-004

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: IP170621-11-4

Run ID: IM170628-10A5

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
7440-61-1	URANIUM	10	9.95	0.1		99	80 - 120%

Data Package ID: *im1706245-1*

Date Printed: Friday, July 07, 2017

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ALS1706245

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1706245

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, APRIL 2017 S17-004

Field ID: B392R1
LabID: 1706245-1MS

Sample Matrix: WATER Prep Batch: IP170621-11 Sample Aliquot: 50 ml
 % Moisture: N/A QCBatchID: IP170621-11-4 Final Volume: 50 ml
 Date Collected: 09-Jun-17 Run ID: IM170628-10A5 Result Units: UG/L
 Date Extracted: 21-Jun-17 Cleanup: NONE File Name: 215SMPL_
 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
7440-61-1	URANIUM	1.2		11.2		0.1	10	100	75 - 125%

Field ID: B392R1
LabID: 1706245-1MSD

Sample Matrix: WATER Prep Batch: IP170621-11 Sample Aliquot: 50 ml
 % Moisture: N/A QCBatchID: IP170621-11-4 Final Volume: 50 ml
 Date Collected: 09-Jun-17 Run ID: IM170628-10A5 Result Units: UG/L
 Date Extracted: 21-Jun-17 Cleanup: NONE File Name: 216SMPL_
 Date Analyzed: 29-Jun-17 Basis: As Received
 Prep Method: SW3005 Rev A

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-61-1	URANIUM	11.5		10	103	0.1	20	2

Data Package ID: im1706245-1

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: IP170621-11-4

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	1706245
IM170621-11	LCS	XXXXXX	WATER	XXXXXX	50	50	NONE	1	1706245
1706245-1	MS	B392R1	WATER	6/9/2017	50	50	NONE	1	1706245
1706245-1	MSD	B392R1	WATER	6/9/2017	50	50	NONE	1	1706245
1706245-1	DUP	B392R1	WATER	6/9/2017	50	50	NONE	1	1706245
1706245-1	SMP	B392R1	WATER	6/9/2017	50	50	NONE	1	1706245

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		