



Wednesday, July 20, 2016

Karen Waters-Husted
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1607010
Project Name: SURV, JUNE 2016
Project Number: S16-006

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 7/1/2016. 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,

A handwritten signature in black ink, appearing to read "Julie Ellingson".

ALS Environmental
Julie Ellingson
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
AIHA	214884
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1607010
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: SURV, JUNE 2016
Client Project Number: S16-006
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B35D66	1607010-1		WATER	30-Jun-16	9:06
B35D67	1607010-2		WATER	30-Jun-16	9:06

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# S16-006-050	
1607010				Page 1 of 1	
Collector	Dave Floyd CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2016	Logbook No.	HNF-N-506 95T SB	Ice Chest No.	GWS-446
Shipped To (Lab)	ALS Environmental Ft. Collins	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	776650347078
Protocol	SURV	Priority:	15 Days	Offsite Property No.	6790
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input type="checkbox"/> No <input checked="" 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.	Filter	Date	Time	No/Type Container	Sample Analysis
B35D67 (2)	N	6-30-16	0906	1x500-mL G/P	6020_METALS_ICPMS: Uranium (1)
				6 Months	HNO3 to pH <2

Relinquished By Dave Floyd CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time JUN 30 2016 0919	Received By Frank Hall CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time JUN 30 2016 0919	Matrix *
Relinquished By Frank Hall CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time 6-30-16 1030	Received By SSUH	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time 6-30-16 1030	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By SSUH	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time JUN 30 2016 1300	Received By Janelle Zunker CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time JUN 30 2016 1300	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By Janelle Zunker CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time JUN 30 2016 1400	Received By FEDEX	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time JUN 30 2016 1400	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		
				Janelle Zunker CHPRC		JUN 30 2016 1030		
				FEDEX / Relinquished / Received		JUN 30 2016 1300		
				Janelle Zunker CHPRC		JUN 30 2016 1300		
				FEDEX / Fedex		JUN 30 2016 1400		
				Janelle Zunker CHPRC		JUN 30 2016 1400		
				Janelle Zunker CHPRC		JUN 30 2016 1400		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM



Client: CHPRC

Workorder No: 1607010

Project Manager: JE

Initials: RW Date: 7/11/16

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 of sediment: ___ dusting ___ moderate ___ heavy	Amount N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>4.15</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>10</u>			
Background µR/hr reading: <u>11</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.

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

Project Manager Signature / Date: [Signature] 7/1/16

1607010

ORIGIN ID: PSCA (509) 373-3580

JANELLE ZUNKER
CH2M
6289 LATAH ST.
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 30 JUN 16
ACTWGT: 13.00 LB
CAD: 10706605/MNET3730

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

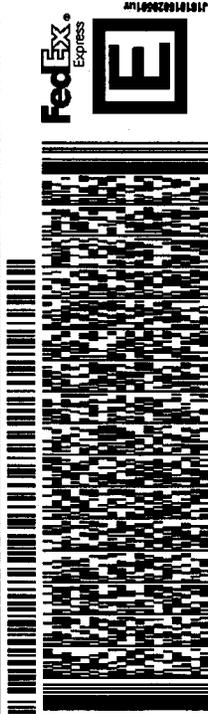
10-2

FORT COLLINS CO 80524

(970) 490-1511 REF: 6790

INV. PO:

DEPT:



FRI - 01 JUL 10:30A

PRIORITY OVERNIGHT

TRK# 7766 5034 7078

DSR

80524

XH FTCA

co-us DEN



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Metals Case Narrative

CH2M HILL Plateau Remediation Company

SURV, JUNE 2016 – S16-006

Work Order Number: 1607010

1. This report consists of 2 water samples.
2. The samples were received intact at ambient temperature by ALS on 07/01/16.
3. The samples had a pH less than 2 upon receipt.
4. The samples were prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by 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 time.

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

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

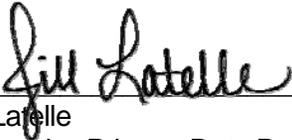
Sample 1606502-1 was designated as the quality control sample for this analysis. Due to conflicting analyte lists, matrix QC results were included for uranium only.

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.



Jill Latelle
Inorganics Primary Data Reviewer

7/13/16
Date



Julie Elliza
Inorganics Final Data Reviewer

7/20/16
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 URANIUM

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: SURV, JUNE 2016 S16-006
Work Order Number: 1607010 **Final Volume:** 50 ml
Reporting Basis: As Received **Matrix:** WATER
Analyst: Brent A. Stanfield **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
B35D66	1607010-1	6/30/2016	7/2/2016	07/11/2016	N/A	10	34	0.1	0.027		50 ml
B35D67	1607010-2	6/30/2016	7/2/2016	07/11/2016	N/A	10	34	0.1	0.027		50 ml

Comments:

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

Data Package ID: *IM1607010-1*

7/20/2016
ALS1607010

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1607010

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2016 S16-006

Lab ID: IP160702-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 02-Jul-16

Date Analyzed: 11-Jul-16

Prep Batch: IP160702-1

QCBatchID: IP160702-1-4

Run ID: IM160711-11A13

Cleanup: NONE

Basis: N/A

File Name: 037SMPL_

Sample Aliquot: 50 ml

Final Volume: 50 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-61-1	URANIUM	10	0.027	0.1	0.027	U	

Data Package ID: IM1607010-1

Date Printed: Wednesday, July 13, 2016

ALS Environmental -- FC

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7/20/2016
ALS1607010

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1607010

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2016 S16-006

Lab ID: IM160702-1LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/02/2016

Date Analyzed: 07/11/2016

Prep Method: SW3005A

Prep Batch: IP160702-1

QCBatchID: IP160702-1-4

Run ID: IM160711-11A13

Cleanup: NONE

Basis: N/A

File Name: 038SMPL_

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	10.1	0.1		101	80 - 120%

Data Package ID: IM1607010-1

Date Printed: Wednesday, July 13, 2016

ALS Environmental -- FC

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LIMS Version: 6.819

7/20/2016
ALS1607010

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1607010

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: SURV, JUNE 2016 S16-006

Field ID: SHARED QC
LabID: 1606502-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Jun-16
Date Extracted: 02-Jul-16
Date Analyzed: 11-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160702-1
QCBatchID: IP160702-1-4
Run ID: IM160711-11A13
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 043SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-61-1	URANIUM	1.3		11.5		0.1	10	101	75 - 125%

Field ID: SHARED QC
LabID: 1606502-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-Jun-16
Date Extracted: 02-Jul-16
Date Analyzed: 11-Jul-16
Prep Method: SW3005 Rev A

Prep Batch: IP160702-1
QCBatchID: IP160702-1-4
Run ID: IM160711-11A13
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 044SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-61-1	URANIUM	11.5		10	102	0.1	20	0

Data Package ID: IM1607010-1