



May 31, 2016
ALS1605526

Ft. Collins, Colorado

LIMS Version: 6.815

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Tuesday, May 31, 2016

Dave Todak
CH2M HILL Plateau Remediation Company
2420 Stevens Center
Richland, WA 99352

Re: ALS Workorder: 1605526
Project Name: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-Wa
Project Number: F16-025

Dear Mr. Todak:

One water sample was received from CH2M HILL Plateau Remediation Company, on 5/26/2016. 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
Julie Ellingson
Project Manager

May 31, 2016

ALS1605526

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1605526

Client Name: CH2M HILL Plateau Remediation Company

Client Project Name: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-

Client Project Number: F16-025

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B35N85	1605526-1		WATER	23-May-16	14:45

CH2M Hill Plateau Remediation Company		1605526		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-025-070	PAGE 1 OF 1
COLLECTOR	Troy Bacon CHPRC	COMPANY CONTACT	TODAK, D	TELEPHONE NO.	376-6427	PROJECT COORDINATOR	TODAK, D
SAMPLING LOCATION	C9413, I-007	PROJECT DESIGNATION	FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water			PRICE CODE	7A
ICE CHEST NO.	6255-202	FIELD LOGBOOK NO.	HNF-N-645 4-028	ACTUAL SAMPLE DEPTH	491.1	AIR QUALITY	<input type="checkbox"/>
SHIPPED TO	ALS Environmental Ft. Collins	OFFSITE PROPERTY NO.	6666			METHOD OF SHIPMENT	FEDERAL EXPRESS
MATRIX*	A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESCRIPTION	HR03 to pH	<2		SAF NO.	F16-025
POSSIBLE SAMPLE HAZARDS/ REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/1910A Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA	HOLDING TIME	6 Months			COA	303979
SPECIAL HANDLING AND/OR STORAGE		TYPE OF CONTAINER	GP			BILL OF LADING/AIR BILL NO.	77637516 2300
		NO. OF CONTAINER(S)	1				
		VOLUME	500mL				
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	①	MATRIX*	WATER				
B35N85		SAMPLE DATE	MAY 23 2016	SAMPLE TIME	1445		

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Troy Bacon CHPRC	SSU #1	RECEIVED BY/STORED IN J.C. Fulton/CHPRC	MAY 23 2016 1540	FILTER (1) 6020_METALS_ICPMS: COMMON {Chromium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese};
RELINQUISHED BY/REMOVED FROM J.C. Fulton/CHPRC	FEDEX	RECEIVED BY/STORED IN Rebecca Hoels	MAY 25 2016 1000	
RELINQUISHED BY/REMOVED FROM Fedex				
RELINQUISHED BY/REMOVED FROM				
RELINQUISHED BY/REMOVED FROM				
RELINQUISHED BY/REMOVED FROM				

FILTER



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC
Project Manager: JE

Workorder No: 1605526
Initials: RUM Date: 5/26/16

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?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>1.2°C</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>12</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: JE 5/27/16

ORIGIN D/PSCA (309) 373-3580
JANELLE ZUNKER
CH2U
8269 LATAM ST.
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 29MAY16
ACTWGHT: 50.00 LB
CAD: 107066805/INLET3730
BILL THIRD PARTY

1605526

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 480-1511 REF: 6666

1.20c
11
-2

540J163Z31727F



TRK# 7763 7516 2300
0201
THU - 26 MAY 10:30A
PRIORITY OVERNIGHT
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Metals Case Narrative

CH2M HILL Plateau Remediation Company

FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis – F16-025

Work Order Number: 1605526

1. This report consists of 1 water sample.
2. The sample was received cool and intact by ALS on 05/26/16.
3. The sample was to be analyzed for dissolved metals. The sample had been filtered prior to receipt, and 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 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 sample 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 1605526-1 was designated as the quality control sample for this analysis.

Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

- A matrix spike and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria for accuracy were met.
- A sample duplicate and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria for precision were met.
- A serial dilution was analyzed with this ICP batch. All acceptance criteria were met.

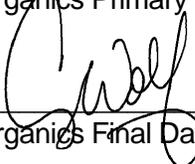
10. It is a standard practice that samples for ICP-MS are analyzed at a dilution. The 10X factor can be considered an artifact of the prep and does not indicate a secondary dilution and is therefore not flagged as a dilution.

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

5/31/16
Date



Inorganics Final Data Reviewer

5/31/16
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 $\leq 5X$ 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.

May 31, 2016
ALS1605526
Dissolved ICPMS Metals

Method SW6020A
Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1605526

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Field ID:	B35N85
Lab ID:	1605526-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 23-May-16
Date Extracted: 27-May-16
Date Analyzed: 28-May-16
Prep Method: SW3005 Rev A

Prep Batch: IP160527-2
QCBatchID: IP160527-2-4
Run ID: IM160528-11A12
Cleanup: NONE
Basis: As Received
File Name: 079SMPL_

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	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-47-3	CHROMIUM	10	1.1	10	1.1	U	
7439-96-5	MANGANESE	10	90	5	0.3		

Data Package ID: *im1605526-1*

May 31, 2016
ALS1605526
ICPMS Metals

Method SW6020A
Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1605526

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: IP160527-2MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 27-May-16

Date Analyzed: 28-May-16

Prep Batch: IP160527-2

QCBatchID: IP160527-2-4

Run ID: IM160528-11A12

Cleanup: NONE

Basis: N/A

File Name: 059SMPL_

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
7440-47-3	CHROMIUM	10	1.1	10	1.1	U	
7439-96-5	MANGANESE	10	0.3	5	0.3	U	

Data Package ID: *im1605526-1*

May 31, 2016
ALS1605526
ICPMS Metals

Method SW6020A
Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1605526

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis

Lab ID: IM160527-2LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 05/27/2016

Date Analyzed: 05/28/2016

Prep Method: SW3005A

Prep Batch: IP160527-2

QCBatchID: IP160527-2-4

Run ID: IM160528-11A12

Cleanup: NONE

Basis: N/A

File Name: 060SMPL_

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
7440-47-3	CHROMIUM	500	496	10		99	80 - 120%
7439-96-5	MANGANESE	100	101	5		101	80 - 120%

Data Package ID: *im1605526-1*

May 31, 2016
ALS1605526
ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1605526

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: FY2016 200-UP-1 Remedial Action Wells Sampling and Anal

Field ID: B35N85 LabID: 1605526-1MS	Sample Matrix: WATER % Moisture: N/A Date Collected: 23-May-16 Date Extracted: 27-May-16 Date Analyzed: 28-May-16 Prep Method: SW3005 Rev A	Prep Batch: IP160527-2 QCBatchID: IP160527-2-4 Run ID: IM160528-11A12 Cleanup: NONE Basis: As Received	Sample Aliquot: 50 ml Final Volume: 50 ml Result Units: UG/L File Name: 084SMPL_
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CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-47-3	CHROMIUM	1.1	U	546		10	500	109	75 - 125%
7439-96-5	MANGANESE	90		211		5	100	122	75 - 125%

Field ID: B35N85 LabID: 1605526-1MSD	Sample Matrix: WATER % Moisture: N/A Date Collected: 23-May-16 Date Extracted: 27-May-16 Date Analyzed: 28-May-16 Prep Method: SW3005 Rev A	Prep Batch: IP160527-2 QCBatchID: IP160527-2-4 Run ID: IM160528-11A12 Cleanup: NONE Basis: As Received	Sample Aliquot: 50 ml Final Volume: 50 ml Result Units: UG/L File Name: 085SMPL_
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CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-47-3	CHROMIUM	488		500	98	10	20	11
7439-96-5	MANGANESE	189		100	99	5	20	11

Data Package ID: *im1605526-1*