

April 7, 2016
ALS1603480



Ft. Collins, Colorado

LIMS Version: 6.809

Page 1 of 1

Thursday, March 31, 2016

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

Re: ALS Workorder: 1603480
Project Name: FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis-Wa
Project Number: F16-007

Dear Mr. Todak:

One water sample was received from CH2M HILL Plateau Remediation Company, on 3/29/2016. 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,

A handwritten signature in black ink, appearing to read "Julie Ellingson", is written over a white background.

ALS Environmental
Julie Ellingson
Project Manager

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1603480

Client Name: CH2M HILL Plateau Remediation Company

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

Client Project Number: F16-007

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B34TH6	1603480-1		WATER	28-Mar-16	12:46

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR J.R. Agutter/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 7A	DATA TURNAROUND 3 Days / 15 Days
SAMPLING LOCATION C9416, I-001	PROJECT DESIGNATION FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water	FIELD LOGBOOK NO. ITWF-N-507-25/93	SAF NO. F16-025	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. 605-479	ACTUAL SAMPLE DEPTH 304.5'	OFFSITE PROPERTY NO. 6467	COA 303979	BILL OF LADING/AIR BILL NO. 775975148980	
SHIPPED TO ALS Environmental Ft. Collins	PRESERVATION HNO3 to pH <2	HOLDING TIME 6 Months	ORIGINAL		
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	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. NA	TYPE OF CONTAINER G/P			
SPECIAL HANDLING AND/OR STORAGE		NO. OF CONTAINER(S) 1			
		VOLUME 500mL			
		SAMPLE ANALYSIS			
SAMPLE NO. B34TH6 ①	MATRIX* WATER	SAMPLE DATE MAR 28 2016	SAMPLE TIME 1246		

FILTER

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM J.R. Agutter/CHPRC	DATE/TIME MAR 28 2016	RECEIVED BY/STORED IN Lesly Wall	DATE/TIME MAR 28 2016	FILTER	
RELINQUISHED BY/REMOVED FROM Lesly Wall	DATE/TIME 3/28/16 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME 3/28-16 9:45	(1) 6020_METALS_ICPMS: COMMON {Chromium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese};	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	
PRINTED ON 3/15/2016	FRS ID = FSR26274	TRVL NUM = TRVL-16-103		A-6003-618 (REV 2)	



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPEC

Workorder No: 1603480

Project Manager: JE

Initials: CDT Date: 3-29-16

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 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>8</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] 3/30/16

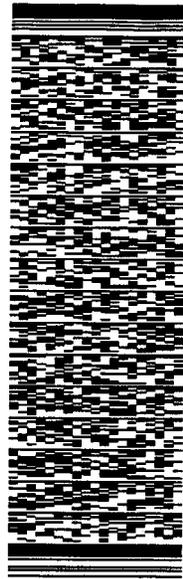
ORIGIN ID: PSCA (509) 528-9426
LESLY WALL
CH2M
6267 LATAH ST.
8269 LATAH ST.
RICHLAND WA 99354
UNITED STATES US

SHIP DATE: 28MAR16
ACTWGT: 10.00 LB
CAD: 10706605 INNET3730
BILL THIRD PARTY

1603480

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511
REF: PTR#6467
DEPT



540J1/CF34/727F

TRK# 7759 7514 8980
0201

TUE - 29 MAR 10:30A
PRIORITY OVERNIGHT

XH FTCA

DSR 80524
CO-US DEN



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

FY2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water -- F16-007

Work Order Number: 1603480

1. This report consists of 1 water sample.
2. The sample was received cool and intact by ALS on 03/29/16.
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 1603480-1 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

3/31/16
Date



Julie Ellinger
Inorganics Final Data Reviewer

3/31/16
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.

April 7, 2016
ALS1603480

Dissolved ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1603480

Client Name: CH2M HILL Plateau Remediation Company

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

Field ID: B34TH6

Lab ID: 1603480-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 28-Mar-16

Date Extracted: 30-Mar-16

Date Analyzed: 30-Mar-16

Prep Method: SW3005 Rev A

Prep Batch: IP160330-4

QCBatchID: IP160330-4-4

Run ID: IM160330-12A9

Cleanup: NONE

Basis: As Received

File Name: 045SMPL_

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	18	10	1.1		
7439-96-5	MANGANESE	10	19	5	0.3		

Data Package ID: IM1603480-1

Date Printed: Thursday, March 31, 2016

ALS Environmental -- FC

Page 1 of 1

LIMS Version: 6.809

April 7, 2016
ALS1603480

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1603480

Client Name: CH2M HILL Plateau Remediation Company

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

Lab ID: IP160330-4MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 30-Mar-16

Date Analyzed: 30-Mar-16

Prep Batch: IP160330-4

QCBatchID: IP160330-4-4

Run ID: IM160330-12A9

Cleanup: NONE

Basis: N/A

File Name: 021SMPL_

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: IM1603480-1

Date Printed: Thursday, March 31, 2016

ALS Environmental -- FC

Page 1 of 1

LIMS Version: 6.809

April 7, 2016

ALS1603480

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1603480

Client Name: CH2M HILL Plateau Remediation Company

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

Lab ID: IM160330-4LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 03/30/2016

Date Analyzed: 03/30/2016

Prep Method: SW3005A

Prep Batch: IP160330-4

QCBatchID: IP160330-4-4

Run ID: IM160330-12A9

Cleanup: NONE

Basis: N/A

File Name: 022SMPL_

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	520	10		104	80 - 120%
7439-96-5	MANGANESE	100	104	5		104	80 - 120%

Data Package ID: IM1603480-1

April 7, 2016
ALS1603480

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1603480

Client Name: CH2M HILL Plateau Remediation Company

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

Field ID: B34TH6
LabID: 1603480-1MS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Mar-16
Date Extracted: 30-Mar-16
Date Analyzed: 30-Mar-16
Prep Method: SW3005 Rev A

Prep Batch: IP160330-4
QCBatchID: IP160330-4-4
Run ID: IM160330-12A9
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 048SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-47-3	CHROMIUM	18		528		10	500	102	75 - 125%
7439-96-5	MANGANESE	19		121		5	100	102	75 - 125%

Field ID: B34TH6
LabID: 1603480-1MSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 28-Mar-16
Date Extracted: 30-Mar-16
Date Analyzed: 30-Mar-16
Prep Method: SW3005 Rev A

Prep Batch: IP160330-4
QCBatchID: IP160330-4-4
Run ID: IM160330-12A9
Cleanup: NONE
Basis: As Received

Sample Aliquot: 50 ml
Final Volume: 50 ml
Result Units: UG/L
File Name: 049SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-47-3	CHROMIUM	521		500	101	10	20	1
7439-96-5	MANGANESE	120		100	101	5	20	1

Data Package ID: IM1603480-1