

Saturday, June 25, 2016

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

Re: ALS Workorder: 1606219
Project Name: 100-HR-3 Long Term & Interim Action Monitoring - Soil
Project Number: F16-040

Dear Mr. Todak:

One soil sample was received from CH2M HILL Plateau Remediation Company, on 6/10/2016. 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

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1606219

Client Name: CH2M HILL Plateau Remediation Company

Client Project Name: 100-HR-3 Long Term & Interim Action Monitoring - Soil

Client Project Number: F16-040

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B35FW2	1606219-1		SOIL	09-Jun-16	10:25

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-040-010	PAGE 1 OF 1
COLLECTOR J.R. Aguilar/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C9542, I-001	PROJECT DESIGNATION 100-HR-3 Long Term & Interim Action Monitoring - Soil	FIELD LOGBOOK NO. HNF-N-645-3/86	SAF NO. F16-040	AIR QUALITY	
ICE CHEST NO. CWS-437	OFFSITE PROPERTY NO. 6713	ACTUAL SAMPLE DEPTH 49.25' - 51.75'	COA 300115	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO ALS Environmental Ft. Collins	BILL OF LADING/AIR BILL NO. 77048653 7354				

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	SAMPLE DATE	SAMPLE TIME	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	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	None 6 Months G/P 1 250ml 6020, METALS, COMMON (Chromium);	JUN 09 2016	1025	SOIL
SPECIAL HANDLING AND/OR STORAGE					

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM J.R. Aguilar/CHPRC	RECEIVED BY/STORED IN Leah West ACT/PRC	JUN 09 2016 1135
RELINQUISHED BY/REMOVED FROM Leah West	RECEIVED BY/STORED IN FEDEX	JUN 09 2016 1400
RELINQUISHED BY/REMOVED FROM J.R. Aguilar/CHPRC	RECEIVED BY/STORED IN Crimble Chamber	JUN 09 2016 6:10:11 PM
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
LABORATORY SECTION	RECEIVED BY	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DATE/TIME



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1606219
Project Manager: JE Initials: CS Date: 6-10-16

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)	<input checked="" type="radio"/> N/A	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	<input checked="" type="radio"/> N/A	YES	<input checked="" type="radio"/> NO <i>COC 6-10-16</i>
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		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>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: *JE* 6/10/16

ORIGIN ID: PSCA (509) 373-3580
JANELLE ZUNKER
CHRYSTAL
6289 LATAH ST.
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 09 JUN 16
ACT WGT: 13.00 LB
CAD: 10706605 / NET 3730

BILL THIRD PARTY

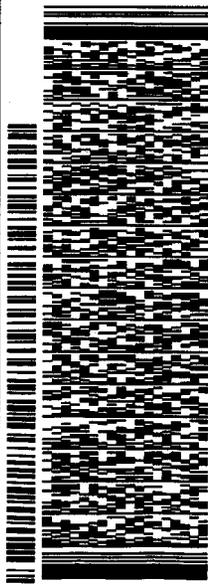
TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

102-2

FORT COLLINS CO 80524 REF: 6713
(970) 490-1511

540J2I30BD172F

PO: DEPT:



FRI - 10 JUN 10:30A

PRIORITY OVERNIGHT

DSR

80524

CO-US DEN

TRK# 7764 8653 7354

0201

XH FTCA



- After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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1606219



Metals Case Narrative

CH2M HILL Plateau Remediation Company

100-HR-3 Long Term & Interim Action Monitoring – Soil – F16-040

Work Order Number: 1606219

1. This report consists of 1 soil sample.
2. The sample was received intact at ambient temperature by ALS on 06/10/16.
3. The sample was prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by ICP-MS, the sample was digested following method 3050B and the current revision of SOP 806.

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

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

7. 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.
8. Matrix specific quality control procedures.

Sample 1606201-2 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.
9. 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

6/24/16
Date



Arlicia E. Eliza
Inorganics Final Data Reviewer

6/25/16
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.

6/25/2016
ALS1606219

Total ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1606219

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-HR-3 Long Term & Interim Action Monitoring - Soil F16-040

Field ID: B35FW2

Lab ID: 1606219-1

Sample Matrix: SOIL

% Moisture: 1.7

Date Collected: 09-Jun-16

Date Extracted: 14-Jun-16

Date Analyzed: 16-Jun-16

Prep Method: SW3050 Rev B

Prep Batch: IP160614-4

QCBatchID: IP160614-4-4

Run ID: IM160615-11A13

Cleanup: NONE

Basis: Dry Weight

File Name: 217SMPL_

Analyst: Brent A. Stanfield

Sample Aliquot: 1.082 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

Analysis ReqCode: 6010_METALS_I

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-47-3	CHROMIUM	10	1700	940	77		

Data Package ID: *im1606219-1*

Date Printed: Friday, June 24, 2016

ALS Environmental -- FC

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6/25/2016
ALS1606219

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1606219

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-HR-3 Long Term & Interim Action Monitoring - Soil F16-040

Lab ID: IP160614-4MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 14-Jun-16

Date Analyzed: 16-Jun-16

Prep Batch: IP160614-4

QCBatchID: IP160614-4-4

Run ID: IM160615-11A13

Cleanup: NONE

Basis: N/A

File Name: 201SMPL_

Sample Aliquot: 1 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-47-3	CHROMIUM	10	82	1000	82	U	

Data Package ID: *im1606219-1*

Date Printed: Friday, June 24, 2016

ALS Environmental -- FC

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6/25/2016
ALS1606219

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1606219

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-HR-3 Long Term & Interim Action Monitoring - Soil F16-040

Lab ID: IM160614-4LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 06/14/2016

Date Analyzed: 06/16/2016

Prep Method: SW3050B

Prep Batch: IP160614-4

QCBatchID: IP160614-4-4

Run ID: IM160615-11A13

Cleanup: NONE

Basis: N/A

File Name: 202SMPL_

Sample Aliquot: 1 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-47-3	CHROMIUM	50000	52600	1000		105	80 - 120%

Data Package ID: *im1606219-1*

Date Printed: Friday, June 24, 2016

ALS Environmental -- FC

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6/25/2016
ALS1606219

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1606219

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-HR-3 Long Term & Interim Action Monitoring - Soil F16-0

Field ID: SHARED QC
LabID: 1606201-2MS

Sample Matrix: SOIL
% Moisture: 0.8
Date Collected: 07-Jun-16
Date Extracted: 14-Jun-16
Date Analyzed: 16-Jun-16
Prep Method: SW3050 Rev B

Prep Batch: IP160614-4
QCBatchID: IP160614-4-4
Run ID: IM160615-11A13
Cleanup: NONE
Basis: Dry Weight

Sample Aliquot: 1.053 g
Final Volume: 100 ml
Result Units: UG/KG
File Name: 214SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-47-3	CHROMIUM	78	U	52200		957	47900	109	75 - 125%

Field ID: SHARED QC
LabID: 1606201-2MSD

Sample Matrix: SOIL
% Moisture: 0.8
Date Collected: 07-Jun-16
Date Extracted: 14-Jun-16
Date Analyzed: 16-Jun-16
Prep Method: SW3050 Rev B

Prep Batch: IP160614-4
QCBatchID: IP160614-4-4
Run ID: IM160615-11A13
Cleanup: NONE
Basis: Dry Weight

Sample Aliquot: 1.051 g
Final Volume: 100 ml
Result Units: UG/KG
File Name: 215SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-47-3	CHROMIUM	51300		48000	107	959	20	2

Data Package ID: *im1606219-1*