ALS Environmental

Saturday, June 25, 2016

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

Re: ALS Workorder: 1606226
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 6/13/2016. 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: 1606226
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
B35FW4	1606226-1		SOIL	09-Jun-16	13:37

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F16-040-012 | PAGE 1 OF 1

COLLECTOR E.L. Kauer/CHPRC	**COMPANY CONTACT** TODAK, D	**TELEPHONE NO.** 376-6427	**PROJECT COORDINATOR** TODAK, D
SAMPLING LOCATION C9542, I-002	**PROJECT DESIGNATION** 100-HR-3 Long Term & Interim Action Monitoring - Soil		**SAF NO.** F16-040
ICE CHEST NO. GWS-562	**FIELD LOGBOOK NO.** HNF-N-645 4-15	**ACTUAL SAMPLE DEPTH** 62.95-65.45	**COA** 300115
SHIPPED TO ALS Environmental Ft. Collins	**OFFSITE PROPERTY NO.** 64717		**BILL OF LADING/AIR BILL NO.** 7764 9789 9900

PRICE CODE 8C | **DATA TURNAROUND** 15 Days / 15 Days

AIR QUALITY ☐

METHOD OF SHIPMENT FEDERAL EXPRESS

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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	6020_METALS_ICPMS: COMMON {Chromium};

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B35FW4 (1)	SOIL	6-9-16	1337	✓

1606226

6/25/2016
ALS1606226

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E.L. Kauer/CHPRC	JUN 03 2016 1500	SSU-1	JUN 03 2016 1500
SSU-1	JUN 10 2016 1115	Troy Bacon CHPRC	JUN 10 2016 1115
Troy Bacon CHPRC	JUN 10 2016 1400	FEDEX	
Fedex 6-11-16	0930	Scott Melby	6-11-16 0930

SPECIAL INSTRUCTIONS

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

3 of 12

PRINTED ON 4/29/2016 | FSR ID = FSR32100 | TRVL NUM = TRVL-16-133 | A-6003-618 (REV 2)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1606226

Project Manager: JME Initials: SDM Date: 6-21-16

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	NONE	(YES)	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	(N/A)	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(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	NO
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	RAD ONLY	YES	(NO)

Cooler #:	1								
Temperature (°C):	Amb 20.6°C								
No. of custody seals on cooler:	2								
DOT Survey/ Acceptance Information — External µR/hr reading:	11								
Background µR/hr reading:	11								

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **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.

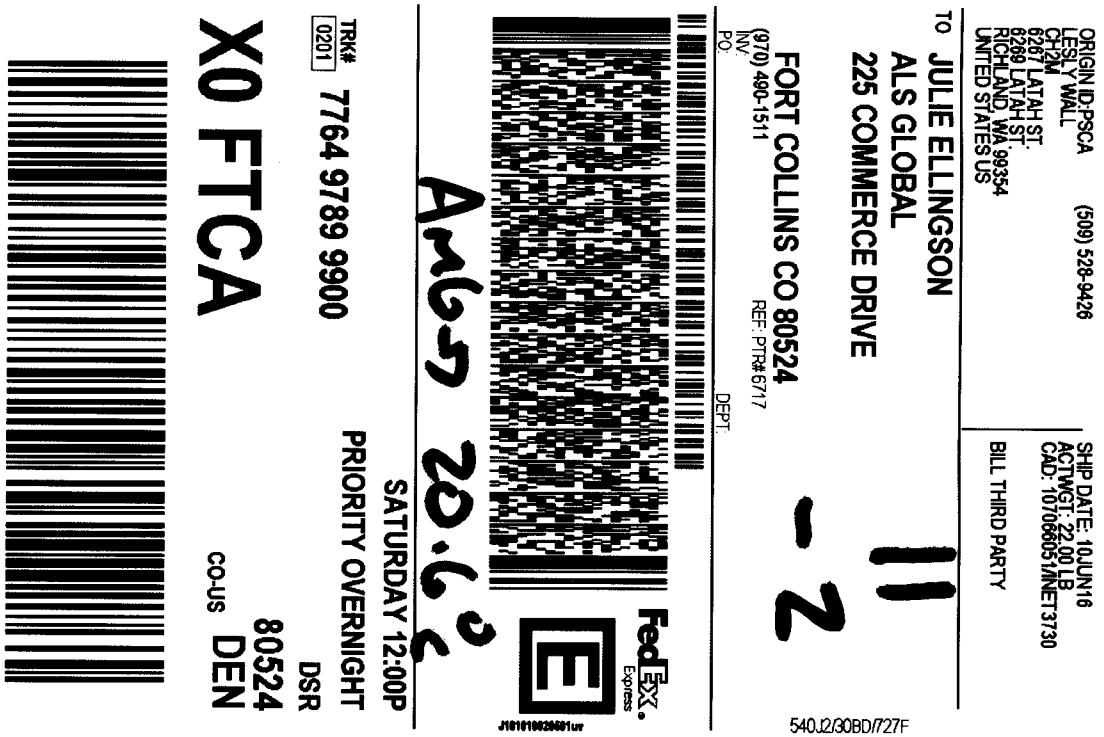
If applicable, was the client contacted? **YES** / **NO** / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: _____ 6-13-16

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

1606226



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 ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Metals
Case Narrative

CH2M HILL Plateau Remediation Company

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

Work Order Number: 1606226

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 — 6/24/16
Jill Latelle
Inorganics Primary Data Reviewer
Date

Inorganics Final Data Reviewer — 6/25/16
Inorganics Final Data Reviewer
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 <=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 ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1606226
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 100-HR-3 Long Term & Interim Action Monitoring - Soil F16-040

Field ID: B35FW4
Lab ID: 1606226-1

Analysis ReqCode: 6010_METALS_I

Sample Matrix: SOIL
% Moisture: 10.5
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: 219SMPL_

Analyst: Brent A. Stanfield
Sample Aliquot: 1.071 g
Final Volume: 100 ml
Result Units: UG/KG
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
7440-47-3	CHROMIUM	10	6400	1000	85		

Data Package ID: *im1606226-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC
Work Order Number: 1606226
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: *im1606226-1*

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC
Work Order Number: 1606226
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: *im1606226-1*

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1606226
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: *im1606226-1*