ALS Environmental

Ft. Collins, Colorado | LIMS Version: 6.815 | Page 1 of 1

Sunday, May 29, 2016

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

Re: ALS Workorder: 1605471
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 5/24/2016. 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 for
Julie Ellingson
Project Manager

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1605471
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
B35VB2	1605471-1		SOIL	23-May-16	10:22

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-040-054	PAGE 1 OF 1
COLLECTOR Chris Fulton CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION C9544, I-005 SECOND TIME	PROJECT DESIGNATION 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO. F16-040	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO. GWS-237	FIELD LOGBOOK NO. HNF-N-645-3/75	ACTUAL SAMPLE DEPTH 82.5-85 ft	COA 300115	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO ALS Environmental Ft. Collins	OFFSITE PROPERTY NO. 6658		BILL OF LADING/AIR BILL NO. 7763 5115 3640		

160471

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 to 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	
B35VB2 (1)	SOIL	MAY 23 2016	1022	✓

5/30/2016
ALS160547

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Chris Fulton CHPRC	DATE/TIME MAY 23 2016 1120	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME MAY 23 2016 1120	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME MAY 20 2016 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM Fed EX	DATE/TIME 5-24-16 0930	RECEIVED BY/STORED IN Scott Maltby	DATE/TIME 5-24-16 0930	
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	
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

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PRINTED ON 5/23/2016 | FSR ID = FSR32399 | TRVL NUM = TRVL-16-134 | A-6003-618 (REV 2)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1605471

Project Manager: JRE Initials: SDM Date: 5-24-16

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):	Arb > 10.6°C								
No. of custody seals on cooler:	2								
DOT Survey/ Acceptance Information — External µR/hr reading:	12								
Background µR/hr reading:	12								

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: 5/24/16

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

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

1605471

Page 1 of 2

ORIGIN ID:PSCA (509) 373-7409
BARBARA BRIGGS
CH2M
6267 LATAH ST

RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 23MAY16
ACTWGT: 25.00 LB
CAD: 107066051/INET3730

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511 REF: GWS-237/PTR 6658
INV:
PO: DEPT:

12
-2

540J163231/27F

FedEx Express

Amb 18.6°C

TUE - 24 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7763 5115 3640

DSR

XH FTCA

80524
CO-US DEN

Metals
Case Narrative

CH2M HILL Plateau Remediation Company

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

Work Order Number: 1605471

1. This report consists of 1 soil sample.
2. The sample was received intact at ambient temperature by ALS on 05/24/16.
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 time.

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 1605471-1 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.

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 Lafelle — 5/28/16
Jill Lafelle — Date
Inorganics Primary Data Reviewer

5/29/16
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 <=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.

ALS1605471

Total ICPMS Metals

Method SW6020A

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1605471

Client Name: CH2M HILL Plateau Remediation Company

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

Field ID: B35VB2
Lab ID: 1605471-1

Analysis ReqCode: 6010_METALS_I

Sample Matrix: SOIL
% Moisture: 4.2
Date Collected: 23-May-16
Date Extracted: 26-May-16
Date Analyzed: 28-May-16
Prep Method: SW3050 Rev B

Prep Batch: IP160526-4
QCBatchID: IP160526-4-3
Run ID: IM160527-12A5
Cleanup: NONE
Basis: Dry Weight
File Name: 273SMPL_

Analyst: Brent A. Stanfield
Sample Aliquot: 1.024 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	16000	1000	83		

Data Package ID: *im1605471-1*

ALS1605471

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1605471

Client Name: CH2M HILL Plateau Remediation Company

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

Lab ID: IP160526-4MB

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: N/A
Date Extracted: 26-May-16
Date Analyzed: 28-May-16

Prep Batch: IP160526-4
QCBatchID: IP160526-4-3
Run ID: IM160527-12A5
Cleanup: NONE
Basis: N/A
File Name: 249SMPL_

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: *im1605471-1*

ALS1605471

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1605471

Client Name: CH2M HILL Plateau Remediation Company

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

Lab ID: IM160526-4LCS

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: N/A
Date Extracted: 05/26/2016
Date Analyzed: 05/28/2016
Prep Method: SW3050B

Prep Batch: IP160526-4
QCBatchID: IP160526-4-3
Run ID: IM160527-12A5
Cleanup: NONE
Basis: N/A
File Name: 250SMPL_

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	51400	1000		103	80 - 120%

Data Package ID: *im1605471-1*

ALS1605471

ICPMS Metals

Method SW6020A

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC
Work Order Number: 1605471
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: 100-HR-3 Long Term & Interim Action Monitoring - Soil F16-0

Field ID: B35VB2
LabID: 1605471-1MS

Sample Matrix: SOIL
% Moisture: 4.2
Date Collected: 23-May-16
Date Extracted: 26-May-16
Date Analyzed: 28-May-16
Prep Method: SW3050 Rev B

Prep Batch: IP160526-4
QCBatchID: IP160526-4-3
Run ID: IM160527-12A5
Cleanup: NONE
Basis: Dry Weight

Sample Aliquot: 1.02 g
Final Volume: 100 ml
Result Units: UG/KG
File Name: 276SMPL_

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-47-3	CHROMIUM	16000		69700		1020	51200	106	75 - 125%

Field ID: B35VB2
LabID: 1605471-1MSD

Sample Matrix: SOIL
% Moisture: 4.2
Date Collected: 23-May-16
Date Extracted: 26-May-16
Date Analyzed: 28-May-16
Prep Method: SW3050 Rev B

Prep Batch: IP160526-4
QCBatchID: IP160526-4-3
Run ID: IM160527-12A5
Cleanup: NONE
Basis: Dry Weight

Sample Aliquot: 1.025 g
Final Volume: 100 ml
Result Units: UG/KG
File Name: 277SMPL_

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
7440-47-3	CHROMIUM	68300		50900	104	1020	20	2

Data Package ID: *im1605471-1*