



Monday, May 08, 2017

Dave Todak
CH2M HILL Plateau Remediation Company
825 Jadwin Avenue
Richland, WA 99352

Re: ALS Workorder: 1704474
Project Name: 100-KR-4 Long Term & Interim Action Monitoring - Soil
Project Number: F16-037

Dear Mr. Todak:

One soil sample was received from CH2M HILL Plateau Remediation Company, on 4/21/2017. The sample was scheduled for the following analysis:

Inorganics

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
Shiloh J. Summy
Project Manager

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1704474

Client Name: CH2M HILL Plateau Remediation Company

Client Project Name: 100-KR-4 Long Term & Interim Action Monitoring - Soil

Client Project Number: F16-037

Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B39KH0	1704474-1		SOIL	20-Apr-17	8:00

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST **1704474** **F16-037-134** **PAGE 1 OF 1**

COLLECTOR Dave Floyd
CHPRC

COMPANY CONTACT TODAY, D
376-6427

PROJECT COORDINATOR TODAY, D

PRICE CODE 8C

DATA TURNAROUND 15 Days / 15 Days

SAMPLING LOCATION C9714, I-003 SPLIT

PROJECT DESIGNATION 100-KR-4 Long Term & Interim Action Monitoring - Soil

AIR QUALITY

METHOD OF SHIPMENT FEDERAL EXPRESS

ICE CHEST NO. 605-2016

FIELD LOGBOOK NO. HNF-N-645-4/80

ACTUAL SAMPLE DEPTH 95.0 to 96.0 ft

SAF NO. F16-037

COA 300085

ORIGINAL

SHIPPED TO 7816

BILL OF LADING/AIR BILL NO. 7789 5135 7694

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=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.	Cool <=6C	28 Days/48 Hours	G/P	1	1.20mL	300.0 ANIONS, IC. COMMON (Nitrogen in Nitrate);	APR 20 2017	0800

SAMPLE NO.	MATRIX*	SPECIAL HANDLING AND/OR STORAGE
B39KH0 ①	SOIL	na

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Dave Floyd CHPRC	RECEIVED BY/STORED IN Ledy Wad CHPRC	TRVL-17-104
RELINQUISHED BY/REMOVED FROM Ledy Wad	RECEIVED BY/STORED IN Ledy Wad	APR 20 2017 1005
RELINQUISHED BY/REMOVED FROM Ledy Wad	RECEIVED BY/STORED IN FEDEX	APR 20 2017 1400
RELINQUISHED BY/REMOVED FROM Ledy Wad	RECEIVED BY/STORED IN C. Trunkle C	APR 20 2017 1000
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC
Project Manager: _____

Workorder No: 1704474
Initials: CS Date: 4-21-17

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 of sediment: ___ dusting ___ moderate ___ heavy	Amount <input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO ^{CS}
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <input checked="" type="radio"/> #2 #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>4.5</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>10</u>			
Background µR/hr reading: <u>10</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: Shelab Jimmy 4/24/17

1704474
10-2

ORIGIN ID: PSCA
JANELLE ZUNKER
CH 2M
8269 LATAH ST.
RICHLAND, WA 99354
UNITED STATES US

(509) 373-3580

SHIP DATE: 20APR17
ACTWGT: 10.00 LB
CAD: 107068051/NET3850

BILL THIRD PARTY

TO JULIE ELLINGSON
ALS GLOBAL
225 COMMERCE DRIVE

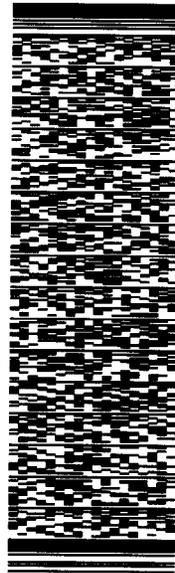
FORT COLLINS CO 80524
REF: 7792

PO

DEPT

4.50

546.I2/CFD653C1



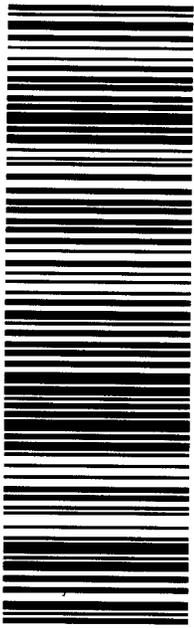
417117821414

TRK# 7789 5135 7694
0201

FRI - 21 APR 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.
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Inorganics Case Narrative

CH2M HILL Plateau Remediation Company 100-KR-4 Long Term & Interim Action Monitoring - Soil -- F16-037

Work Order Number: 1704474

1. This section of the report consists of 1 soil sample.
2. The sample was received cool and intact by ALS on 04/21/17.
3. The sample was prepared for analysis based on Environmental Monitoring Systems Laboratory (EMSL) Rev 2.1 procedures.
4. The sample was analyzed following EMSL procedures for the current revision of the following SOP and method:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Nitrate as N	300.0 Revision 2.1	1113

5. All standards and solutions were used within their recommended shelf life.
6. The sample was prepared and analyzed within the established hold time for this analysis.

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

7. General quality control procedures.
 - n A preparation (method) blank, laboratory control sample (LCS) and laboratory control sample duplicate were prepared and analyzed with the samples in this preparation batch.
 - n The method blank associated with this batch was below the reporting limit for the requested analysis.
 - n All laboratory control sample criteria were met.



- n All initial and continuing calibration blanks were below the reporting limit for the requested analyte.
 - n All initial and continuing calibration verifications were within the acceptance criteria for the requested analyte.
8. Matrix specific quality control procedures.
- Sample 1704474-1 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.
- n A matrix spike (MS) and matrix spike duplicate (MSD) were prepared and analyzed with this batch. All guidance criteria for precision and accuracy were met.
9. Sample dilutions were not required for the requested analysis.
10. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

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.



Megan Johnstone
Inorganics Primary Data Reviewer

5/1/17
Date



Shihb Lomuz
Inorganics Final Data Reviewer

5/8/17
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used as needed by the laboratory when reporting results of inorganic analyses.

- Concentration 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 ALS's Method Detection Limit. If the analyte was analyzed for but not detected a "U" is entered.
- 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.

Ion Chromatography

Method EPA300.0 Revision 2.1

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1704474

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4 Long Term & Interim Action Monitoring - Soil F16-037

Field ID:	B39KH0
Lab ID:	1704474-1

Sample Matrix: SOIL
 % Moisture: 28.3
 Date Collected: 20-Apr-17
 Date Extracted: 27-Apr-17
 Date Analyzed: 28-Apr-17
 Prep Method: METHOD

Prep Batch: IC170427-1
 QCBatchID: IC170427-1-1
 Run ID: IC170427-1A3
 Cleanup: NONE
 Basis: Dry Weight
 File Name: 70427_083.dxd

Analyst: Alyssa M. Gruziano
 Sample Aliquot: 4.03 g
 Final Volume: 40 ml
 Result Units: MG/KG
 Clean DF: 1

Analysis ReqCode: 300.0_ANIONS_I

CASNO	Target Analyte	Dilution Factor	Result	Report Limit	MDL/DL	Result Qualifier	EPA Qualifier
14797-55-8	NITRATE AS N AnalysisTime: 07:51	1	0.84	2.8	0.84	U	

Data Package ID: IC1704474-1

Ion Chromatography

Method EPA300.0 Revision 2.1

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1704474

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4 Long Term & Interim Action Monitoring - Soil F16-037

Lab ID: IC170427-1MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 27-Apr-17

Date Analyzed: 28-Apr-17

Prep Batch: IC170427-1

QCBatchID: IC170427-1-1

Run ID: IC170427-1A3

Cleanup: NONE

Basis: N/A

File Name: 70427_080.dxd

Sample Aliquot: 4 g

Final Volume: 40 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
14797-55-8	NITRATE AS N	1	0.61	2	0.61	U	

Data Package ID: IC1704474-1

Ion Chromatography

Method EPA300.0 Revision 2.1

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1704474

Client Name: CH2M HILL Plateau Remediation Company

ClientProject ID: 100-KR-4 Long Term & Interim Action Monitoring - Soil F16-037

Lab ID: IC170427-1LCS	Sample Matrix: SOIL % Moisture: N/A Date Collected: N/A Date Extracted: 04/27/2017 Date Analyzed: 04/28/2017 Prep Method: METHOD	Prep Batch: IC170427-1 QCBatchID: IC170427-1-1 Run ID: IC170427-1A3 Cleanup: NONE Basis: N/A File Name: 70427_081.dxd	Sample Aliquot: 4 g Final Volume: 40 ml Result Units: MG/KG Clean DF: 1
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CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
14797-55-8	NITRATE AS N	50	52.7	2		105	85 - 115%

Lab ID: IC170427-1LCSD	Sample Matrix: SOIL % Moisture: N/A Date Collected: N/A Date Extracted: 04/27/2017 Date Analyzed: 04/28/2017 Prep Method: METHOD	Prep Batch: IC170427-1 QCBatchID: IC170427-1-1 Run ID: IC170427-1A3 Cleanup: NONE Basis: N/A File Name: 70427_082.dxd	Sample Aliquot: 4 g Final Volume: 40 ml Result Units: MG/KG Clean DF: 1
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CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
14797-55-8	NITRATE AS N	50	49.9	2		100	30	5

Data Package ID: IC1704474-1

Ion Chromatography

Method EPA300.0 Revision 2.1

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1704474
Client Name: CH2M HILL Plateau Remediation Company
Client Project ID: 100-KR-4 Long Term & Interim Action Monitoring - Soil F16-

Field ID: B39KH0
LabID: 1704474-1MS

Sample Matrix: SOIL	Prep Batch: IC170427-1	Sample Aliquot: 4.14 g
% Moisture: 28.3	QCBatchID: IC170427-1-1	Final Volume: 40 ml
Date Collected: 20-Apr-17	Run ID: IC170427-1A3	Result Units: MG/KG
Date Extracted: 27-Apr-17	Cleanup: NONE	File Name: 70427_086.dxd
Date Analyzed: 28-Apr-17	Basis: Dry Weight	
Prep Method: METHOD		

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
14797-55-8	NITRATE AS N	0.822	U	72.4		2.69	67.3	108	85 - 115%

Field ID: B39KH0
LabID: 1704474-1MSD

Sample Matrix: SOIL	Prep Batch: IC170427-1	Sample Aliquot: 4.14 g
% Moisture: 28.3	QCBatchID: IC170427-1-1	Final Volume: 40 ml
Date Collected: 20-Apr-17	Run ID: IC170427-1A3	Result Units: MG/KG
Date Extracted: 27-Apr-17	Cleanup: NONE	File Name: 70427_087.dxd
Date Analyzed: 28-Apr-17	Basis: Dry Weight	
Prep Method: METHOD		

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
14797-55-8	NITRATE AS N	68.6		67.3	102	2.69	30	5

Data Package ID: IC1704474-1

Prep Batch ID: IC170427-1

Start Date: 04/27/17	End Date: 04/27/17	Concentration Method: NONE	Batch Created By: amg
Start Time: 9:00	End Time: 9:21	Extract Method: METHOD	Date Created: 04/27/17
Prep Analyst: Alyssa M. Gruziano		Initial Volume Units: g	Time Created: 9:21
Comments:		Final Volume Units: ml	Validated By: amg
<div style="border: 1px solid black; height: 30px; width: 100%;"></div>			Date Validated: 04/28/17
			Time Validated: 12:32

QC Batch ID: IC170427-1-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IC170427-1	MB	XXXXXX	SOIL	XXXXXX	4	40	NONE	1	1704474
IC170427-1	LCS	XXXXXX	SOIL	XXXXXX	4	40	NONE	1	1704474
IC170427-1	LCSD	XXXXXX	SOIL	XXXXXX	4	40	NONE	1	1704474
1704474-1	MS	B39KH0	SOIL	4/20/2017	4.14	40	NONE	1	1704474
1704474-1	MSD	B39KH0	SOIL	4/20/2017	4.14	40	NONE	1	1704474
1704474-1	SMP	B39KH0	SOIL	4/20/2017	4.03	40	NONE	1	1704474

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicate
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standard	SMP	Field Sample
SYS	Sample Yield Spike		