



Thursday, October 15, 2020

John Mahoney
Mahoney Environmental
1601 10th Ave.
Greeley, CO 80631

Re: ALS Workorder: 2009442
Project Name: GAIL #1
Project Number: 2020.124

Dear Mr. Mahoney:

Two soil samples were received from Mahoney Environmental, on 9/22/2020. The samples were scheduled for the following analyses:

Inorganics

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. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. O'Brien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
AIHA	214884
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
PJ-LA (DoD ELAP/ISO 170250)	95377
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280



2009442

Metals:

The samples were analyzed following SW-846, 3rd Edition procedures. Analysis by Trace ICP followed method 6010D and the current revision of SOP 834. Mercury analysis by CVAA followed method 7471A and the current revision of SOP 812.

All acceptance criteria were met.

Inorganics:

The samples were analyzed following SW-846 and USDA Handbook 60 Chapter 6 procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Electrical conductivity	USDA60	810 Draft
Sodium Adsorption Ratio	USDA60	810 Draft
Paste pH	USDA60	810 Draft
Hexavalent chromium	7196A	1122

Chromium III is a calculated value derived from the subtraction of hexavalent chromium from total chromium.

All acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2009442

Client Name: Mahoney Environmental

Client Project Name: GAIL #1

Client Project Number: 2020.124

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
BKG-1	2009442-1		SOIL	17-Sep-20	10:10
BKG-2	2009442-2		SOIL	17-Sep-20	10:10
BKG-1	2009442-3		SatExtract	17-Sep-20	10:10
BKG-2	2009442-4		SatExtract	17-Sep-20	10:10



2225 Commerce Drive, Fort Collins, Colorado 80524
 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.

ALS WORKORDER #

200002

[illegible]



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client Name/ID:

Mahoney

Workorder No:

2009442

Project Manager:

KMO

Initials:

TM

Date:

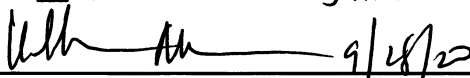
9/22/20

1. Are airbills / shipping documents present and/or removable?	<input checked="" type="checkbox"/> Drop Off	<input type="checkbox"/> YES	<input type="checkbox"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="checkbox"/> NONE	<input type="checkbox"/> YES	<input type="checkbox"/> NO*
3. Are custody seals on sample containers intact?	<input checked="" type="checkbox"/> NONE	<input type="checkbox"/> YES	<input type="checkbox"/> NO*
4. Is there a COC (chain-of-custody) present?		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO*
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO*
6. Are short-hold samples present?		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
7. Are all samples within holding times for the requested analyses?		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO*
8. Were all sample containers received intact? (not broken or leaking)		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO*
9. Is there sufficient sample for the requested analyses?		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO*
10. Are samples in proper containers for requested analyses? (form 250, Sample Handling Guidelines)		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO*
11. Are all aqueous samples preserved correctly, if required?	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> YES	<input type="checkbox"/> NO*
12. Were unpreserved samples pH checked, if required?	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> YES	<input type="checkbox"/> NO
13. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm in diameter?	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> YES	<input type="checkbox"/> NO
14. Were the samples shipped on ice?		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
15. Were cooler temperatures measured at 0.1 - 6.0°C?	IR gun used: <input type="checkbox"/> #3 <input checked="" type="checkbox"/> #5	<input type="checkbox"/> Rad Only	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Cooler #:	1
Temperature (°C):	7.0
# of custody seals on cooler:	0
External mR/hr reading:	-
Background mR/hr reading:	11
Were external mR/hr readings ≤ two times background and within DOT acceptance criteria? (If no, see Form 008)	
<input checked="" type="checkbox"/> N/A <input type="checkbox"/> YES <input type="checkbox"/> NO	

* Please provide details below for 'NO' responses in gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Metals = 910 list	
All client bottle ID's vs ALS lab ID's double-checked by: TM	

If applicable, was the client contacted?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> N/A	Contact Name	John	Date:	9/23 -> 28
Project Manager Signature / Date:		 9/28/20			

Client: Mahoney Environmental

Date: 15-Oct-20

Project: 2020.124 GAIL #1

Work Order: 2009442

Sample ID: BKG-1

Lab ID: 2009442-1

Legal Location:

Matrix: SOIL

Collection Date: 9/17/2020 10:10

Percent Moisture: 14.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexavalent Chromium		SW7196			Prep Date: 9/30/2020	PrepBy: KJS
CHROMIUM VI	ND		0.12	MG/KG	1	9/30/2020
ICP Metals		SW6010			Prep Date: 10/13/2020	PrepBy: JML
SILVER	ND		1.2	MG/KG	1	10/14/2020 13:38
ARSENIC	3.8		3.5	MG/KG	1	10/14/2020 13:38
BORON	ND		12	MG/KG	1	10/14/2020 13:38
BARIUM	130		12	MG/KG	1	10/14/2020 13:38
CADMIUM	ND		0.59	MG/KG	1	10/14/2020 13:38
CHROMIUM	9.9		1.2	MG/KG	1	10/14/2020 13:38
COPPER	9.3		1.2	MG/KG	1	10/14/2020 13:38
NICKEL	10		2.3	MG/KG	1	10/14/2020 13:38
LEAD	8.6		2.3	MG/KG	1	10/14/2020 13:38
SELENIUM	ND		3.5	MG/KG	1	10/14/2020 13:38
ZINC	32		2.3	MG/KG	1	10/14/2020 13:38
Mercury		SW7471			Prep Date: 10/2/2020	PrepBy: JRS
MERCURY	ND		0.034	MG/KG	1	10/7/2020 14:46
Sodium Adsorption Ratio		USDA60			Prep Date: 10/8/2020	PrepBy: LMC
PASTE PH	8.6		0.1	pH	1	10/8/2020
Trivalent Chromium (from Total Cr - Cr+6)		CRIII			Prep Date: 9/30/2020	PrepBy: KJS
CHROMIUM III	9.9		1.2	MG/KG	1	9/30/2020

Client: Mahoney Environmental

Date: 15-Oct-20

Project: 2020.124 GAIL #1

Work Order: 2009442

Sample ID: BKG-2

Lab ID: 2009442-2

Legal Location:

Matrix: SOIL

Collection Date: 9/17/2020 10:10

Percent Moisture: 15.2

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexavalent Chromium		SW7196			Prep Date: 9/30/2020	PrepBy: KJS
CHROMIUM VI	ND		0.11	MG/KG	1	9/30/2020
ICP Metals		SW6010			Prep Date: 10/13/2020	PrepBy: JML
SILVER	ND		1.1	MG/KG	1	10/14/2020 13:39
ARSENIC	4.4		3.4	MG/KG	1	10/14/2020 13:39
BORON	ND		11	MG/KG	1	10/14/2020 13:39
BARIUM	170		11	MG/KG	1	10/14/2020 13:39
CADMIUM	ND		0.56	MG/KG	1	10/14/2020 13:39
CHROMIUM	9.8		1.1	MG/KG	1	10/14/2020 13:39
COPPER	8.6		1.1	MG/KG	1	10/14/2020 13:39
NICKEL	10		2.3	MG/KG	1	10/14/2020 13:39
LEAD	8.4		2.3	MG/KG	1	10/14/2020 13:39
SELENIUM	ND		3.4	MG/KG	1	10/14/2020 13:39
ZINC	31		2.3	MG/KG	1	10/14/2020 13:39
Mercury		SW7471			Prep Date: 10/2/2020	PrepBy: JRS
MERCURY	ND		0.035	MG/KG	1	10/7/2020 14:48
Sodium Adsorption Ratio		USDA60			Prep Date: 10/8/2020	PrepBy: LMC
PASTE PH	8.6		0.1	pH	1	10/8/2020
Trivalent Chromium (from Total Cr - Cr+6)		CRIII			Prep Date: 9/30/2020	PrepBy: KJS
CHROMIUM III	9.8		1.1	MG/KG	1	9/30/2020

Client: Mahoney Environmental

Date: 15-Oct-20

Project: 2020.124 GAIL #1

Work Order: 2009442

Sample ID: BKG-1

Lab ID: 2009442-3

Legal Location:

Matrix: SATEXTRACT

Collection Date: 9/17/2020 10:10

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP Metals		USDA60			Prep Date: 10/6/2020	PrepBy: JML
CALCIUM	51		10	MG/L	10	10/7/2020 14:43
MAGNESIUM	140		10	MG/L	10	10/7/2020 14:43
SODIUM	1600		100	MG/L	100	10/7/2020 14:47
Sodium Adsorption Ratio		USDA60			Prep Date: 10/8/2020	PrepBy: LMC
ELECTRICAL CONDUCTIVITY @ SATURATION	9200		1	umhos/cm	1	10/8/2020
SODIUM ADSORPTION RATIO	25		5.4	NU	100	10/7/2020 14:47

Client: Mahoney Environmental

Date: 15-Oct-20

Project: 2020.124 GAIL #1

Work Order: 2009442

Sample ID: BKG-2

Lab ID: 2009442-4

Legal Location:

Matrix: SATEXTRACT

Collection Date: 9/17/2020 10:10

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP Metals						
		USDA60			Prep Date: 10/6/2020	PrepBy: JML
CALCIUM	72		10	MG/L	10	10/7/2020 14:44
MAGNESIUM	120		10	MG/L	10	10/7/2020 14:44
SODIUM	650		10	MG/L	10	10/7/2020 14:44
Sodium Adsorption Ratio						
		USDA60			Prep Date: 10/8/2020	PrepBy: LMC
ELECTRICAL CONDUCTIVITY @ SATURATION	4800		1	umhos/cm	1	10/8/2020
SODIUM ADSORPTION RATIO	11		0.54	NU	10	10/7/2020 14:44

Client: Mahoney Environmental

Date: 15-Oct-20

Project: 2020.124 GAIL #1

Work Order: 2009442

Sample ID: BKG-2

Lab ID: 2009442-4

Legal Location:

Matrix: SATEXTRACT

Collection Date: 9/17/2020 10:10

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

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.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:

- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

ALS -- Fort Collins

Date: 10/15/2020 12:3

Client: Mahoney Environmental

Work Order: 2009442

Project: 2020.124 GAIL #1

QC BATCH REPORT

Batch ID: HG201002-1-1

Instrument ID CETAC7500

Method: SW7471

LCS	Sample ID: HG201002-1				Units: MG/KG			Analysis Date: 10/7/2020 14:42			
Client ID:	Run ID: HG201007-1A1				Prep Date: 10/2/2020			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	0.165	0.0333	0.167		99	80-120				20	

LCSD	Sample ID: HG201002-1				Units: MG/KG		Analysis Date: 10/7/2020 14:44				
Client ID:	Run ID: HG201007-1A1				Prep Date: 10/2/2020			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	0.165	0.0333	0.167		99	80-120		0.165	0	20	

MB	Sample ID: HG201002-1				Units: MG/KG	Analysis Date: 10/7/2020 14:40		
Client ID:	Run ID: HG201007-1A1				Prep Date: 10/2/2020		DF: 1	
Analyte		Result	ReportLimit		Qual			
MERCURY		ND	0.033					

The following samples were analyzed in this batch:

2009442-1

2009442-2

Client: Mahoney Environmental
 Work Order: 2009442
 Project: 2020.124 GAIL #1

QC BATCH REPORT

Batch ID: **IP201013-3-2** Instrument ID **ICPTTrace2** Method: **SW6010**

LCS	Sample ID: IP201013-3			Units: MG/KG		Analysis Date: 10/14/2020 13:36					
Client ID:	Run ID: IT201014-1A5			Prep Date: 10/13/2020			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ARSENIC	96.7	3	100		97	80-120				20	
BARIUM	102	10	100		102	80-120				20	
BORON	89.6	10	100		90	80-120				20	
CADMIUM	5.21	0.5	5		104	80-120				20	
CHROMIUM	20.8	1	20		104	80-120				20	
COPPER	25.9	1	25		104	80-120				20	
LEAD	49.7	2	50		99	80-120				20	
NICKEL	52.5	2	50		105	80-120				20	
SELENIUM	180	3	200		90	80-120				20	
SILVER	9.47	1	10		95	80-120				20	
ZINC	50.5	2	50		101	80-120				20	

LCSD		Sample ID: IP201013-3			Units: MG/KG		Analysis Date: 10/14/2020 13:37				
Client ID:		Run ID: IT201014-1A5			Prep Date: 10/13/2020			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ARSENIC	96.6	3	100		97	80-120		96.7	0	20	
BARIUM	102	10	100		102	80-120		102	0	20	
BORON	89.7	10	100		90	80-120		89.6	0	20	
CADMIUM	5.27	0.5	5		105	80-120		5.21	1	20	
CHROMIUM	20.8	1	20		104	80-120		20.8	0	20	
COPPER	26	1	25		104	80-120		25.9	0	20	
LEAD	49.9	2	50		100	80-120		49.7	0	20	
NICKEL	52.5	2	50		105	80-120		52.5	0	20	
SELENIUM	181	3	200		91	80-120		180	0	20	
SILVER	9.67	1	10		97	80-120		9.47	2	20	
ZINC	50.8	2	50		102	80-120		50.5	0	20	

Client: Mahoney Environmental
Work Order: 2009442
Project: 2020.124 GAIL #1

QC BATCH REPORT

Batch ID: **IP201013-3-2** Instrument ID **ICPTTrace2** Method: **SW6010**

MB Sample ID: **IP201013-3** Units: **MG/KG** Analysis Date: **10/14/2020 13:35**
Client ID: Run ID: **IT201014-1A5** Prep Date: **10/13/2020** DF: **1**

Analyte	Result	ReportLimit	Qual
ARSENIC	ND	3	
BARIUM	ND	10	
BORON	ND	10	
CADMIUM	ND	0.5	
CHROMIUM	ND	1	
COPPER	ND	1	
LEAD	ND	2	
NICKEL	ND	2	
SELENIUM	ND	3	
SILVER	ND	1	
ZINC	ND	2	

The following samples were analyzed in this batch:

2009442-1 2009442-2

Client: Mahoney Environmental
Work Order: 2009442
Project: 2020.124 GAIL #1

QC BATCH REPORT

Batch ID: **CR200930-2-1** Instrument ID **Spec** Method: **SW7196**

LCS	Sample ID: CR200930-2			Units: MG/KG			Analysis Date: 9/30/2020				
Client ID:		Run ID: CR200930-1a1			Prep Date: 9/30/2020			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	3.04	0.1	3		101	80-120				20	

MB	Sample ID: CR200930-2	Units: MG/KG			Analysis Date: 9/30/2020		
Client ID:	Run ID: CR200930-1a1			Prep Date: 9/30/2020		DF: 1	
Analyte	Result	ReportLimit	Qual				
CHROMIUM VI	ND	0.1					

MS	Sample ID: 2009442-2			Units: MG/KG			Analysis Date: 9/30/2020				
Client ID: BKG-2		Run ID: CR200930-1a1			Prep Date: 9/30/2020			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	1.1	0.114	1.14	0.11	97	75-125				20	

MSD	Sample ID: 2009442-2			Units: MG/KG			Analysis Date: 9/30/2020				
Client ID: BKG-2		Run ID: CR200930-1a1			Prep Date: 9/30/2020			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	1.13	0.117	1.17	0.11	94	75-125		1.1	3	20	

The following samples were analyzed in this batch:

2009442-1	2009442-2
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