



# Inorganics

## Case Narrative

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### COGCC

#### Foundation Hoffman Pit

Work Order Number: 1411490

1. This report consists of 1 soil and 1 extract.
2. The samples were received cool and intact by ALS on 11/26/14.
3. The samples were prepared for analysis based on USDA Handbook 60 Chapter 6.
4. The samples were analyzed following USDA Handbook 60 Chapter 6 procedures for the current revision of the following SOP and method:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Paste pH	USDA60	810 Draft
Electrical conductivity	USDA60	810 Draft
Sodium Adsorption Ratio	USDA60	810 Draft

5. All standards and solutions were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold time for each analysis.
7. It is a standard practice that samples for electrical conductivity at saturation are analyzed at a dilution.
11. Sodium Adsorption Ratio (SAR) was determined by calculation based on a reference from the client. Calcium, magnesium, and sodium concentrations were determined by ICP, Method USDA60.

$$SAR = Na / (((Ca + Mg) / 2)^{1/2})$$

The analyte results are the me/L concentrations based on conversions from their mg/L concentrations. Please note that the SAR value is unitless.



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

Megan Johnstone  
Inorganics Primary Data Reviewer

12/5/14

Date

Steve Workman

Inorganics Final Data Reviewer

12/8/14

Date



### **Inorganic Data Reporting Qualifiers**

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

- Concentration qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
  - N - Spiked sample recovery not within control limits.
  - \* - Duplicate analysis (relative percent difference) not within control limits.
  - Z - Calibration spike recovery 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.

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1411490

**Client Name:** COGCC

**Client Project Name:** Foundation Hoffman Pit

**Client Project Number:**

**Client PO Number:** PHAA061114PHA-04

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Hoffman Pit Water	1411490-1		WATER	24-Nov-14	11:55
Hoffman Pit Soil	1411490-2		SOIL	24-Nov-14	11:55
Hoffman Pit Soil	1411490-3		SatExtract	24-Nov-14	11:55



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

## Chain-of-Custody

Form 202r8

**ALS Environmental**

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

**Chain-of-Custody**

WORKORDER #  
**PAGE**  
**DISPOSAL**

By Lab or Return to Client  
**DATE**  
**TURNAROUND**

SAMPLER	SITE ID	EDD FORMAT	COGCC	PURCHASE ORDER	BILL TO COMPANY	INVOICE ATTN TO	ADDRESS	CITY / STATE / ZIP	PHONE	FAX	E-MAIL	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC
---------	---------	------------	-------	----------------	-----------------	-----------------	---------	--------------------	-------	-----	--------	--------	-------------	-------------	-----------	-------	----

PROJECT NAME	Foundation Hoffman Pit
PROJECT No.	
COMPANY NAME	COGCC
SEND REPORT TO	Rick Allison
ADDRESS	1120 Lincoln St, Ste 801
CITY / STATE / ZIP	Denver, CO 80203
PHONE	970-461-2970
FAX	970-461-4781
E-MAIL	rick.allison@state.co.us

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC
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①	Hoffman Pit Water	N	11/24/2014	11:55	2	g "	X
②	Hoffman Pit Soil	S	11/24/2014	11:55	2	g "	X X Y

WORKORDER #	1411490
PAGE	1 of 1
DISPOSAL	
By Lab or Return to Client	

DATE	11/24/2014
TURNAROUND	

BTEX	BT TH-GC, PBO BQISW	SAR, ES, PH
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[illegible]



**For metals or anions, please detail analytes below.**

**Comments:**

~~X~~ NoA vials contain headspace + gtl. Please proceed with analysis of 9

**Preservative Key:**

Run	NaOH	NaHSO <sub>4</sub>	7-Other	8-4 degrees C	9-5035
1	0.1000	0.1000	0.1000	0.1000	0.1000
2	0.1000	0.1000	0.1000	0.1000	0.1000
3	0.1000	0.1000	0.1000	0.1000	0.1000
4	0.1000	0.1000	0.1000	0.1000	0.1000
5	0.1000	0.1000	0.1000	0.1000	0.1000
6	0.1000	0.1000	0.1000	0.1000	0.1000
7	0.1000	0.1000	0.1000	0.1000	0.1000
8	0.1000	0.1000	0.1000	0.1000	0.1000
9	0.1000	0.1000	0.1000	0.1000	0.1000
10	0.1000	0.1000	0.1000	0.1000	0.1000
11	0.1000	0.1000	0.1000	0.1000	0.1000
12	0.1000	0.1000	0.1000	0.1000	0.1000
13	0.1000	0.1000	0.1000	0.1000	0.1000
14	0.1000	0.1000	0.1000	0.1000	0.1000
15	0.1000	0.1000	0.1000	0.1000	0.1000
16	0.1000	0.1000	0.1000	0.1000	0.1000
17	0.1000	0.1000	0.1000	0.1000	0.1000
18	0.1000	0.1000	0.1000	0.1000	0.1000
19	0.1000	0.1000	0.1000	0.1000	0.1000
20	0.1000	0.1000	0.1000	0.1000	0.1000
21	0.1000	0.1000	0.1000	0.1000	0.1000
22	0.1000	0.1000	0.1000	0.1000	0.1000
23	0.1000	0.1000	0.1000	0.1000	0.1000
24	0.1000	0.1000	0.1000	0.1000	0.1000
25	0.1000	0.1000	0.1000	0.1000	0.1000
26	0.1000	0.1000	0.1000	0.1000	0.1000
27	0.1000	0.1000	0.1000	0.1000	0.1000
28	0.1000	0.1000	0.1000	0.1000	0.1000
29	0.1000	0.1000	0.1000	0.1000	0.1000
30	0.1000	0.1000	0.1000	0.1000	0.1000
31	0.1000	0.1000	0.1000	0.1000	0.1000
32	0.1000	0.1000	0.1000	0.1000	0.1000
33	0.1000	0.1000	0.1000	0.1000	0.1000
34	0.1000	0.1000	0.1000	0.1000	0.1000
35	0.1000	0.1000	0.1000	0.1000	0.1000
36	0.1000	0.1000	0.1000	0.1000	0.1000
37	0.1000	0.1000	0.1000	0.1000	0.1000
38	0.1000	0.1000	0.1000	0.1000	0.1000
39	0.1000	0.1000	0.1000	0.1000	0.1000
40	0.1000	0.1000	0.1000	0.1000	0.1000
41	0.1000	0.1000	0.1000	0.1000	0.1000
42	0.1000	0.1000	0.1000	0.1000	0.1000
43	0.1000	0.1000	0.1000	0.1000	0.1000
44	0.1000	0.1000	0.1000	0.1000	0.1000
45	0.1000	0.1000	0.1000	0.1000	0.1000
46	0.1000	0.1000	0.1000	0.1000	0.1000
47	0.1000	0.1000	0.1000	0.1000	0.1000
48	0.1000	0.1000	0.1000	0.1000	0.1000
49	0.1000	0.1000	0.1000	0.1000	0.1000
50	0.1000	0.1000	0.1000	0.1000	0.1000
51	0.1000	0.1000	0.1000	0.1000	0.1000
52	0.1000	0.1000	0.1000	0.1000	0.1000
53	0.1000	0.1000	0.1000	0.1000	0.1000
54	0.1000	0.1000	0.1000		

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Julie A. Wilson	11/26/14	1200
RECEIVED BY		Jacob Roddy	11/26/14	1200
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1411490

Project Manager: ARW

Initials: ECP

Date: 11/26/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	<u>DROP OFF</u>	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea <u>X</u> > green pea	N/A	YES	<u>NO</u>
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate <u>X</u> heavy	N/A	<u>YES</u>	NO
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <u>#4</u>	RAD ONLY	<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.40</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>14</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO <u>NA</u> (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

14) 1-1, 1-2  
15) 1-1, 1-2 ≈ 1"

If applicable, was the client contacted? YES / NO / NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: Gudy 11/29/14

# Total ICP Metals

Method SW6010B

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID: Hoffman Pit Soil

Lab ID: 1411490-3

Sample Matrix: SatExtract

% Moisture: N/A

Date Collected: 24-Nov-14

Date Extracted: 01-Dec-14

Date Analyzed: 02-Dec-14

Prep Method: SW3010 Rev A

Prep Batch: IP141201-10

QCBatchID: IP141201-10-1

Run ID: IT141202-2A2

Cleanup: NONE

Basis: As Received

File Name: 141202A.

Analyst: Steve Workman

Sample Aliquot: 5 ml

Final Volume: 5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/ LOD/DL	Result Qualifier	EPA Qualifier
7440-70-2	CALCIUM	10	13	10	0.15		
7439-95-4	MAGNESIUM	10	1.2	10	0.14	B	
7440-23-5	SODIUM	100	1500	100	1.2		
	SODIUM ADSORPTION RATIO	100	110	5.4	0.55		

Data Package ID: *it1411490-1*

Date Printed: Friday, December 05, 2014

ALS Environmental -- FC

LIMS Version: 6.730

Page 1 of 1

# Sodium Adsorption Ratio

Method USDA60

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID:	Hoffman Pit Soil
Lab ID:	1411490-2

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: 24-Nov-14

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Method: NONE

Prep Batch: pH141201-1

QCBatchID: pH141201-1-4

Run ID: pH141201-1A1

Cleanup: NONE

Basis: Dry Weight

File Name:

Analyst: Kerry M. Petrie

Sample Aliquot: 20 ML

Final Volume: 20 ML

Result Units: pH

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	Result Qualifier	EPA Qualifier
10-29-7	PASTE PH	1	8.4	0.1		

Data Package ID: *ph1411490-1*



# Sodium Adsorption Ratio

Method USDA60

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID:	Hoffman Pit Soil
Lab ID:	1411490-3

Sample Matrix: SatExtract

% Moisture: N/A

Date Collected: 24-Nov-14

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Method: NONE

Prep Batch: SC141201-1

QCBatchID: SC141201-1-4

Run ID: SC141201-1A1

Cleanup: NONE

Basis: As Received

File Name:

Analyst: Kerry M. Petrie

Sample Aliquot: 45 ML

Final Volume: 45 ML

Result Units: umhos/cm

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	Result Qualifier	EPA Qualifier
	ELECTRICAL CONDUCTIVITY @ SATURATION	10	10000	1		

Data Package ID: sc1411490-1



# GC/MS Volatiles

## Case Narrative

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### COGCC

#### Foundation Hoffman Pit

Work Order Number: 1411490

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 11/26/14.

The water sample was free of headspace prior to analysis and had a pH > 2 at the time of analysis.

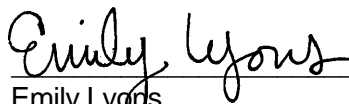
2. The sample was prepared according to SW-846, 3rd Edition procedures. Specifically, the water sample was prepared using purge and trap procedures based on Method 5030C.
3. The sample was analyzed using GC/MS with an RTX-624, RTX-VMS, or equivalent capillary column according to the current revision of SOP 525 based on SW-846 Method 8260. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.
4. All initial calibration criteria were met.
5. All initial calibrations are verified by comparing a second source standard calibration verification (ICV) against the calibration curve. All criteria for initial calibration verification were met.
6. All compounds in the continuing calibration verification had a %D of less than 20%.
7. Methylene chloride, acetone and 2-butanone are common laboratory contaminants. In order to minimize the levels of these compounds detected in the gc/ms analysis, ALS has designated its volatile laboratory as a restricted access area. In addition, the laboratory has been equipped with a dedicated, air intake and exhaust system that operates under positive pressure in order to minimize cross contamination of these compounds. Due to fluctuations in ambient laboratory conditions, reported sample values for common laboratory contaminants may be due to lab contamination even if the compound in question is not detected in the associated method blank.



All method blank criteria were met.

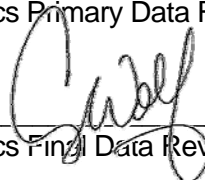
8. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.
9. A matrix spike and matrix spike duplicate were not performed because of insufficient sample. A laboratory control sample and laboratory control sample duplicate were performed instead.
10. The sample was analyzed within the established holding time.
11. All surrogate recoveries were within acceptance criteria.
12. All internal standard recoveries were within acceptance criteria.
13. 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.



Emily Lyons  
Organics Primary Data Reviewer

12/3/14  
Date

  
Organics Final Data Reviewer

12/9/14  
Date



**ALS**  
**Data Qualifier Flags**  
**Organics**

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is equal to or outside the control criteria used.
- +:** This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1411490

**Client Name:** COGCC

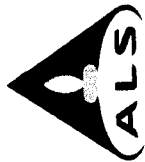
**Client Project Name:** Foundation Hoffman Pit

**Client Project Number:**

**Client PO Number:** PHAA061114PHA-04

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Hoffman Pit Water	1411490-1		WATER	24-Nov-14	11:55
Hoffman Pit Soil	1411490-2		SOIL	24-Nov-14	11:55
Hoffman Pit Soil	1411490-3		SatExtract	24-Nov-14	11:55



# ALS Environmental

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

## Chain-of-Custody

Form 202/8

PROJECT NAME <u>Foundation Hoffman Pit</u>		SAMPLER <u>R. ALLISON</u>	DATE <u>11/24/2014</u>		WORKORDER # <u>1411490</u>
PROJECT NO.		SITE ID <u>273442</u>	TURNAROUND		PAGE <u>1</u> of <u>1</u>
COMPANY NAME	COGCC	EDD FORMAT COGCC			DISPOSAL
SEND REPORT TO	Rick Allison	PURCHASE ORDER PHAA061114PHAA0000004			
ADDRESS	1120 Lincoln St, Ste 801	BILL TO COMPANY COGCC			
CITY / STATE / ZIP	Denver, CO 80203	INVOICE ATTN TO Rick Allison			
PHONE	970-461-2970	ADDRESS 1120 Lincoln St, Ste 801			
FAX	970-461-4781	CITY / STATE / ZIP Denver, CO 80203			
E-MAIL	rick.allison@state.co.us	PHONE 970-461-2970			
		FAX 970-461-4781			
		E-MAIL rick.allison@state.co.us			

\*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

### Comments:

200A vials contain headspace + silt. Please proceed with analysis

Preservative Key:

1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

### QC PACKAGE (check below)

LEVEL II (Standard QC)  
LEVEL III (Std QC + forms)  
LEVEL IV (Std QC + forms + raw data)

RELINQUISHED BY  
RECEIVED BY  
RELINQUISHED BY  
RECEIVED BY  
RELINQUISHED BY  
RECEIVED BY

### SIGNATURE

PRINTED NAME

DATE

TIME

[Signature]  
Rick Allison  
11/26/14 1200

[Signature]  
Jacob Roddy  
11/26/14 1200



**ALS Environmental - Fort Collins**  
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: COGCC

Workorder No: 1411490

Project Manager: ARW

Initials: ECP Date: 11/26/14

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?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	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?	<input checked="" type="radio"/> DROP OFF	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 <input checked="" type="radio"/> > green pea	N/A	YES	<input checked="" type="radio"/> NO
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate <input checked="" type="radio"/> heavy	N/A	<input checked="" type="radio"/> YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.40</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>14</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO <input checked="" type="radio"/> NA (If no, see Form 008.)			

**Additional Information:** PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

14) 1-1, 1-2  
15) 1-1, 1-2 ≈ 1"

If applicable, was the client contacted? YES / NO / ☒ NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: Gudy 11/29/14

# GC/MS Volatiles

Method SW8260\_25C

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Lab ID: VL141201-3MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Batch: VL141201-3

QCBatchID: VL141201-3-1

Run ID: VL141201-3A

Cleanup: NONE

Basis: N/A

File Name: C56842

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL	Result Qualifier	EPA Qualifier
71-43-2	BENZENE	1	1	1	0.3	U	
100-41-4	ETHYLBENZENE	1	1	1	0.3	U	
136777-61-2	M+P-XYLENE	1	1	1	0.3	U	
95-47-6	O-XYLENE	1	1	1	0.3	U	
108-88-3	TOLUENE	1	1	1	0.3	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	26.4		25	106	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	26.2		25	105	84 - 118
2037-26-5	TOLUENE-D8	24		25	96	85 - 115

Data Package ID: VL1411490-1

Date Printed: Wednesday, December 03, 2014

ALS Environmental -- FC

LIMS Version: 6.729

Page 1 of 1



# GC/MS Volatiles

Method SW8260\_25C

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID: Hoffman Pit Water

Lab ID: 1411490-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 24-Nov-14

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Method: SW5030 Rev C

Prep Batch: VL141201-3

QCBatchID: VL141201-3-1

Run ID: VL141201-3A

Cleanup: NONE

Basis: As Received

File Name: C56863

Analyst: Steven D. White

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/LOD/DL	Result Qualifier	EPA Qualifier
71-43-2	BENZENE	1	36	1	0.3		
100-41-4	ETHYLBENZENE	1	5	1	0.3		
136777-61-2	M+P-XYLENE	1	36	1	0.3		
95-47-6	O-XYLENE	1	13	1	0.3		
108-88-3	TOLUENE	1	50	1	0.3		

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	26.2		25	105	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25.9		25	104	84 - 118
2037-26-5	TOLUENE-D8	24		25	96	85 - 115

Data Package ID: VL1411490-1

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Lab ID: VL141201-3LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/01/2014

Date Analyzed: 12/01/2014

Prep Method: SW5030C

Prep Batch: VL141201-3

QCBatchID: VL141201-3-1

Run ID: VL141201-3A

Cleanup: NONE

Basis: N/A

File Name: C56839

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
71-43-2	BENZENE	10	9.95	1		99	83 - 117%
100-41-4	ETHYLBENZENE	10	10.2	1		102	81 - 113%
136777-61-	M+P-XYLENE	20	19.7	1		98	82 - 115%
95-47-6	O-XYLENE	10	10	1		100	81 - 115%
108-88-3	TOLUENE	10	9.82	1		98	82 - 113%

Lab ID: VL141201-3LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/01/2014

Date Analyzed: 12/01/2014

Prep Method: SW5030C

Prep Batch: VL141201-3

QCBatchID: VL141201-3-1

Run ID: VL141201-3A

Cleanup: NONE

Basis: N/A

File Name: C56840

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
71-43-2	BENZENE	10	9.79	1		98	20	2
100-41-4	ETHYLBENZENE	10	9.95	1		99	20	3
136777-61-	M+P-XYLENE	20	19.4	1		97	20	1
95-47-6	O-XYLENE	10	10.1	1		101	20	0
108-88-3	TOLUENE	10	9.59	1		96	20	2

Data Package ID: VL1411490-1

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

### Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25	104		104		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	108		106		84 - 118
2037-26-5	TOLUENE-D8	25	95		97		85 - 115

Data Package ID: VL1411490-1

Date Printed: Wednesday, December 03, 2014

ALS Environmental -- FC

LIMS Version: 6.729

Page 2 of 2



# Total Extractable Petroleum Hydrocarbons (Diesel)

## Case Narrative

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### **COGCC**

#### Foundation Hoffman Pit

Work Order Number: 1411490

1. This report consists of 1 soil sample. The sample was received cool and intact by ALS on 11/26/2014.
2. The soil sample was extracted by adding a methanol/water solution to the soil followed by hexane according to the current revision of SOP 603, which was developed at ALS. This mixture is shaken and the hexane portion of the two-phase solution is removed for analysis.
3. The sample was analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.
4. All initial and continuing calibration criteria were met.
5. The method blank associated with this project was below the MDL for diesel range organics.
6. All laboratory control sample recoveries were within the acceptance criteria.
7. Sample 1411490-2 was designated as the quality control sample for this analysis.
8. The sample was extracted and analyzed within the established holding time.
9. All surrogate recoveries were within the acceptance criteria.
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.

Mindy Norton  
Mindy Norton  
Organics Primary Data Reviewer

12/8/14  
Date

G. Wolf  
Organics Final Data Reviewer

12/9/14  
Date



**ALS**  
**Data Qualifier Flags**  
**Organics**

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is equal to or outside the control criteria used.
- +:**  This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.



**ALS**  
**Data Qualifier Flags**  
**Fuels**

- G:** This flag indicates that a pattern resembling gasoline was detected in this sample.
- D:** This flag indicates that a pattern resembling diesel was detected in this sample.
- M:** This flag indicates that a pattern resembling motor oil was detected in this sample.
- C:** This flag indicates that a pattern resembling crude oil was detected in this sample.
- 4:** This flag indicates that a pattern resembling JP-4 was detected in this sample.
- 5:** This flag indicates that a pattern resembling JP-5 was detected in this sample.
- H:** This flag indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L:** This flag 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

Multiple flags may be used to indicate the presence of more than one product or component.

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

---

**OrderNum:** 1411490

**Client Name:** COGCC

**Client Project Name:** Foundation Hoffman Pit

**Client Project Number:**

**Client PO Number:** PHAA061114PHA-04

---

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Hoffman Pit Water	1411490-1		WATER	24-Nov-14	11:55
Hoffman Pit Soil	1411490-2		SOIL	24-Nov-14	11:55
Hoffman Pit Soil	1411490-3		SatExtract	24-Nov-14	11:55





# ALS Environmental

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

## Chain-of-Custody

Form 202/8

PROJECT NAME <u>Foundation Hoffman Pit</u>		SAMPLER <u>R. ALLISON</u>	DATE <u>11/24/2014</u>		WORKORDER # <u>1411490</u>
PROJECT NO.		SITE ID <u>273442</u>	TURNAROUND		PAGE <u>1</u> of <u>1</u>
COMPANY NAME	COGCC	EDD FORMAT COGCC			DISPOSAL
SEND REPORT TO	Rick Allison	PURCHASE ORDER PHAA061114PHAA0000004			
ADDRESS	1120 Lincoln St, Ste 801	BILL TO COMPANY COGCC			
CITY / STATE / ZIP	Denver, CO 80203	INVOICE ATTN TO Rick Allison			
PHONE	970-461-2970	ADDRESS 1120 Lincoln St, Ste 801			
FAX	970-461-4781	CITY / STATE / ZIP Denver, CO 80203			
E-MAIL	rick.allison@state.co.us	PHONE 970-461-2970			
		FAX 970-461-4781			
		E-MAIL rick.allison@state.co.us			

\*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:

WGA vials contain headspace + silt. Please proceed with analysis.

11

Preservative Key:

1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

SIGNATURE	PRINTED NAME	DATE	TIME
<u>[Signature]</u>	<u>Rick Allison</u>	<u>11/26/14</u>	<u>1200</u>
	<u>Jacob Roddy</u>	<u>11/26/14</u>	<u>1200</u>
RELINQUISHED BY			
RECEIVED BY			
RELINQUISHED BY			
RECEIVED BY			
RELINQUISHED BY			
RECEIVED BY			



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1411490

Project Manager: ARW

Initials: ECP

Date: 11/26/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	<u>DROP OFF</u>	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <u>    </u> < green pea <u>X</u> > green pea	N/A	YES	<u>NO</u>
15. Do any water samples contain sediment? Amount of sediment: <u>    </u> dusting <u>    </u> moderate <u>X</u> heavy	N/A	<u>YES</u>	NO
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <u>#4</u>	RAD ONLY	<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.40</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>14</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO <u>NA</u> (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

14) 1-1, 1-2  
15) 1-1, 1-2 ≈ 1"

If applicable, was the client contacted? YES / NO / NA Contact: Gudy Date/Time: 11/29/14

Project Manager Signature / Date: Gudy 11/29/14

# Diesel Range Organics

Method SW8015MD

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Lab ID: EX141203-99MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 03-Dec-14

Date Analyzed: 05-Dec-14

Prep Batch: EX141203-99

QCBatchID: EX141203-99-1

Run ID: HC141205-7A

Cleanup: NONE

Basis: N/A

File Name: 07630.dat

Sample Aliquot: 20 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL	Result Qualifier	EPA Qualifier
68334-30-5	Diesel Range Organics	1	5	5	1.5	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	8.51		12.5	68	53 - 116

Data Package ID: HCD1411490-1

Date Printed: Monday, December 08, 2014

ALS Environmental -- FC

LIMS Version: 6.730

Page 1 of 1

# Diesel Range Organics

Method SW8015MD

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID: Hoffman Pit Soil

Lab ID: 1411490-2

Sample Matrix: SOIL

% Moisture: 31.4

Date Collected: 24-Nov-14

Date Extracted: 03-Dec-14

Date Analyzed: 05-Dec-14

Prep Method: METHOD

Prep Batch: EX141203-99

QCBatchID: EX141203-99-1

Run ID: HC141205-7A

Cleanup: NONE

Basis: Dry Weight

File Name: 07634.dat

Analyst: Joel F. Nolte

Sample Aliquot: 20.2 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/LOD/DL	Result Qualifier	EPA Qualifier
68334-30-5	Diesel Range Organics	1	12	7.2	2.2	DZH	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	15.5		18.1	86	53 - 116

The chromatogram for Diesel Range Organics indicates the presence of hydrocarbons in the range of C14-C38.

Data Package ID: HCD1411490-1

Date Printed: Monday, December 08, 2014

ALS Environmental -- FC

LIMS Version: 6.730

Page 1 of 1

# Diesel Range Organics

Method SW8015MD

## Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Lab ID: EX141203-99LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/03/2014

Date Analyzed: 12/05/2014

Prep Method: METHOD

Prep Batch: EX141203-99

QCBatchID: EX141203-99-1

Run ID: HC141205-7A

Cleanup: NONE

Basis: N/A

File Name: 07632.dat

Sample Aliquot: 20 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
68334-30-5	Diesel Range Organics	125	126	5		101	76 - 124%

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	9.29		12.5	74	53 - 116

Data Package ID: HCD1411490-1

Date Printed: Monday, December 08, 2014

ALS Environmental -- FC

LIMS Version: 6.730

Page 1 of 1

# Diesel Range Organics

Method SW8015MD

## Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID: Hoffman Pit Soil

LabID: 1411490-2MS

Sample Matrix: SOIL

% Moisture: 31.4

Date Collected: 24-Nov-14

Date Extracted: 03-Dec-14

Date Analyzed: 05-Dec-14

Prep Method: METHOD

Prep Batch: EX141203-99

QCBatchID: EX141203-99-1

Run ID: HC141205-7A

Cleanup: NONE

Basis: Dry Weight

Sample Aliquot: 20.76 g

Final Volume: 5 ml

Result Units: MG/KG

File Name: 07636.dat

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
68334-30-5	Diesel Range Organics	12	DZH	171		7.03	176	91	76 - 124%

Field ID: Hoffman Pit Soil

LabID: 1411490-2MSD

Sample Matrix: SOIL

% Moisture: 31.4

Date Collected: 24-Nov-14

Date Extracted: 03-Dec-14

Date Analyzed: 05-Dec-14

Prep Method: METHOD

Prep Batch: EX141203-99

QCBatchID: EX141203-99-1

Run ID: HC141205-7A

Cleanup: NONE

Basis: Dry Weight

Sample Aliquot: 20.26 g

Final Volume: 5 ml

Result Units: MG/KG

File Name: 07637.dat

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
68334-30-5	Diesel Range Organics	171		180	88	7.2	20	0

## Surrogate Recovery MS/MSD

CASNO	Target Analyte	Spike Added	MS % Rec.	MS Flag	MSD % Rec.	MSD Flag	Control Limits
84-15-1	O-TERPHENYL	17.6	90		88		53 - 116

Data Package ID: HCD1411490-1

Date Printed: Monday, December 08, 2014

ALS Environmental -- FC

Page 1 of 1

LIMS Version: 6.730



# Total Volatile Petroleum Hydrocarbons (Gasoline) Case Narrative

---

## COGCC

### Foundation Hoffman Pit

Work Order Number: 1411490

1. This report consists of 1 soil sample. The sample was received cool and intact by ALS on 11/26/2014.
2. The sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil sample was prepared by heating and purging 1g of sample mixed with 5ml of reagent water using purge and trap procedures based on Method 5035A. The calibration curve was also prepared using the heated purge.
3. The sample was analyzed following the current revision of SOP 425 generally based on SW-846 Methods 8000C and 8015D. TVPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C6 to C10.
4. All initial and continuing calibration criteria were met.
5. The method blank associated with this project was below the MDL for gasoline range organics.
6. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.
7. Sample 1411490-2 was designated as the quality control sample for this analysis.

All matrix spike and matrix spike duplicate recoveries and RPDs were within the acceptance criteria with the following exception:

Spiked Compound	QC Sample	Direction
Gasoline range organics	MS/MSD	Low



The recoveries for gasoline range organics in the laboratory control sample and laboratory control sample duplicate were within control limits, which suggest the outlier in the matrix spikes may have been due to matrix effects. No further action was taken. Laboratory control sample and laboratory control sample duplicate results have been included.

8. The sample was extracted and analyzed within the established holding time.
9. All surrogate recoveries were within acceptance criteria.
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.

Mindy Norton  
Mindy Norton  
Organics Primary Data Reviewer

12/8/14  
Date

[Signature]  
Organics Final Data Reviewer

12/9/14  
Date





**ALS**  
**Data Qualifier Flags**  
**Organics**

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is equal to or outside the control criteria used.
- +:**  This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.



**ALS**  
**Data Qualifier Flags**  
**Fuels**

- G:** This flag indicates that a pattern resembling gasoline was detected in this sample.
- D:** This flag indicates that a pattern resembling diesel was detected in this sample.
- M:** This flag indicates that a pattern resembling motor oil was detected in this sample.
- C:** This flag indicates that a pattern resembling crude oil was detected in this sample.
- 4:** This flag indicates that a pattern resembling JP-4 was detected in this sample.
- 5:** This flag indicates that a pattern resembling JP-5 was detected in this sample.
- H:** This flag indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L:** This flag 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

Multiple flags may be used to indicate the presence of more than one product or component.

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

---

**OrderNum:** 1411490

**Client Name:** COGCC

**Client Project Name:** Foundation Hoffman Pit

**Client Project Number:**

**Client PO Number:** PHAA061114PHA-04

---

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Hoffman Pit Water	1411490-1		WATER	24-Nov-14	11:55
Hoffman Pit Soil	1411490-2		SOIL	24-Nov-14	11:55
Hoffman Pit Soil	1411490-3		SatExtract	24-Nov-14	11:55



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

## Chain-of-Custody

Form 202r8

[illegible]

**Legend:**

NC = non-cell solid	W = water	L = liquid	E = extract	F = filter
---------------------	-----------	------------	-------------	------------

**For metals or anions, please detail analytes below.**



Comments:

~~X~~ NGA vials contain headspace + gill. Please proceed with analysis

11

**Preservative Key:**

Chemical	Concentration	Temperature	Time
5-NaHSO <sub>4</sub>	1 N	8-4 degrees C	9-5035
1 NaOH	3 M		
2 H <sub>2</sub> SO <sub>4</sub>	2 M		
7-Other			

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Julie Arison	11/26/14	1200
RECEIVED BY		Jacob Roddy	11/26/14	1200
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



**ALS Environmental - Fort Collins**  
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: COGCC

Workorder No: 1411490

Project Manager: ARW

Initials: ECP Date: 11/26/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	<u>DROP OFF</u>	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea <u>X</u> > green pea	N/A	YES	<u>NO</u>
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate <u>X</u> heavy	N/A	<u>YES</u>	NO
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <u>#4</u>	RAD ONLY	<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.40</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>14</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO <u>NA</u> (If no, see Form 008.)			

**Additional Information:** PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

14) 1-1, 1-2  
15) 1-1, 1-2 ≈ 1"

If applicable, was the client contacted? YES / NO / NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: Gudy 11/29/14

# Gasoline Range Organics

Method SW8015D

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Lab ID: HC141201-6MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Batch: HC141201-6

QCBatchID: HC141201-6-1

Run ID: HC141201-6A

Cleanup: NONE

Basis: N/A

File Name: 14434.dat

Sample Aliquot: 1 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL	Result Qualifier	EPA Qualifier
8006-61-9	GASOLINE RANGE ORGANICS	1	0.5	0.5	0.075	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
193533-92-5	2,3,4-TRIFLUOROTOLUENE	0.462		0.5	92	76 - 126

Data Package ID: HCG1411490-1

Date Printed: Monday, December 08, 2014

ALS Environmental -- FC

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# Gasoline Range Organics

Method SW8015D

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID:	Hoffman Pit Soil
Lab ID:	1411490-2

Sample Matrix: SOIL

% Moisture: 31.4

Date Collected: 24-Nov-14

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Method: SW5035 Rev A

Prep Batch: HC141201-6

QC Batch ID: HC141201-6-1

Run ID: HC141201-6A

Cleanup: NONE

Basis: Dry Weight

File Name: 14441.dat

Analyst: Joel F. Nolte

Sample Aliquot: 1.04 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/LOD/DL	Result Qualifier	EPA Qualifier
8006-61-9	GASOLINE RANGE ORGANICS	1	0.24	0.7	0.11	J	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
193533-92-5	2,3,4-TRIFLUOROTOLUENE	0.618		0.701	88	76 - 126

Data Package ID: HCG1411490-1

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# Gasoline Range Organics

## Method SW8015D

### Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Lab ID: HC141201-6LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/01/2014

Date Analyzed: 12/01/2014

Prep Method: SW5035A

Prep Batch: HC141201-6

QCBatchID: HC141201-6-1

Run ID: HC141201-6A

Cleanup: NONE

Basis: N/A

File Name: 14433.dat

Sample Aliquot: 1 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
8006-61-9	GASOLINE RANGE ORGANICS	2.5	2.37	0.5		95	79 - 118%

Lab ID: HC141201-6LCSD

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/01/2014

Date Analyzed: 12/01/2014

Prep Method: SW5035A

Prep Batch: HC141201-6

QCBatchID: HC141201-6-1

Run ID: HC141201-6A

Cleanup: NONE

Basis: N/A

File Name: 14444.dat

Sample Aliquot: 1 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
8006-61-9	GASOLINE RANGE ORGANICS	2.5	2.32	0.5		93	20	2

### Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
193533-92-	2,3,4-TRIFLUOROTOLUENE	0.5	101		104		76 - 126

Data Package ID: HCG1411490-1

Date Printed: Monday, December 08, 2014

ALS Environmental -- FC

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# Gasoline Range Organics

Method SW8015D

## Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1411490

Client Name: COGCC

ClientProject ID: Foundation Hoffman Pit

Field ID: Hoffman Pit Soil

LabID: 1411490-2MS

Sample Matrix: SOIL

% Moisture: 31.4

Date Collected: 24-Nov-14

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Method: SW5035 Rev A

Prep Batch: HC141201-6

QCBatchID: HC141201-6-1

Run ID: HC141201-6A

Cleanup: NONE

Basis: Dry Weight

Sample Aliquot: 1.14 g

Final Volume: 5 ml

Result Units: MG/KG

File Name: 14442.dat

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
8006-61-9	GASOLINE RANGE ORGANICS	0.24	J	2.69	*	0.64	3.2	77	79 - 118%

Field ID: Hoffman Pit Soil

LabID: 1411490-2MSD

Sample Matrix: SOIL

% Moisture: 31.4

Date Collected: 24-Nov-14

Date Extracted: 01-Dec-14

Date Analyzed: 01-Dec-14

Prep Method: SW5035 Rev A

Prep Batch: HC141201-6

QCBatchID: HC141201-6-1

Run ID: HC141201-6A

Cleanup: NONE

Basis: Dry Weight

Sample Aliquot: 1.05 g

Final Volume: 5 ml

Result Units: MG/KG

File Name: 14443.dat

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
8006-61-9	GASOLINE RANGE ORGANICS	2.85	*	3.47	75	0.695	40	6

## Surrogate Recovery MS/MSD

CASNO	Target Analyte	Spike Added	MS % Rec.	MS Flag	MSD % Rec.	MSD Flag	Control Limits
193533-92-	2,3,4-TRIFLUOROTOLUENE	0.64	93		96		76 - 126

Data Package ID: HCG1411490-1

Date Printed: Monday, December 08, 2014

ALS Environmental -- FC

LIMS Version: 6.730

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