

Starkey Pit Frac Release (Location ID 335152)
Spill/Release Point ID 451920
Form 19 (Notice of Completion)
Narrative Attachment

This Form 19 (Notice of Completion) was prepared for the purpose of describing completed work associated with the release of produced water at the TEP Rocky Mountain LLC's (TEP) GR 14-28 pad location (Location ID 335152) in the Caerus Piceance LLC (Caerus) area of operations. TEP's pad was being used by Caerus as a staging area for water being pumped to the 697-26A pad location for completions. A Sample Location Map is included as an attachment to this form.

On September 1, 2017, confirmation soil samples (SS-01, SS-02, SS-03, and SS-04) were collected from the spill path area. Soil samples were submitted for laboratory analysis of all COGCC Table 910-1 analytes. Analytical results indicate all soil samples were in compliance with COGCC Table 910-1 Concentration Levels for all analytes or were within background concentrations, except the electrical conductivity (EC) measurement for samples SS-01, SS-02, and SS-03. However, the release occurred on the working pad surface and the elevated EC will have no impact on reclamation. Laboratory analytical results are summarized in the attached analytical table and laboratory analytical reports are included as an attachment.

Based on soil analytical results, Caerus requests an NFA designation for this project.

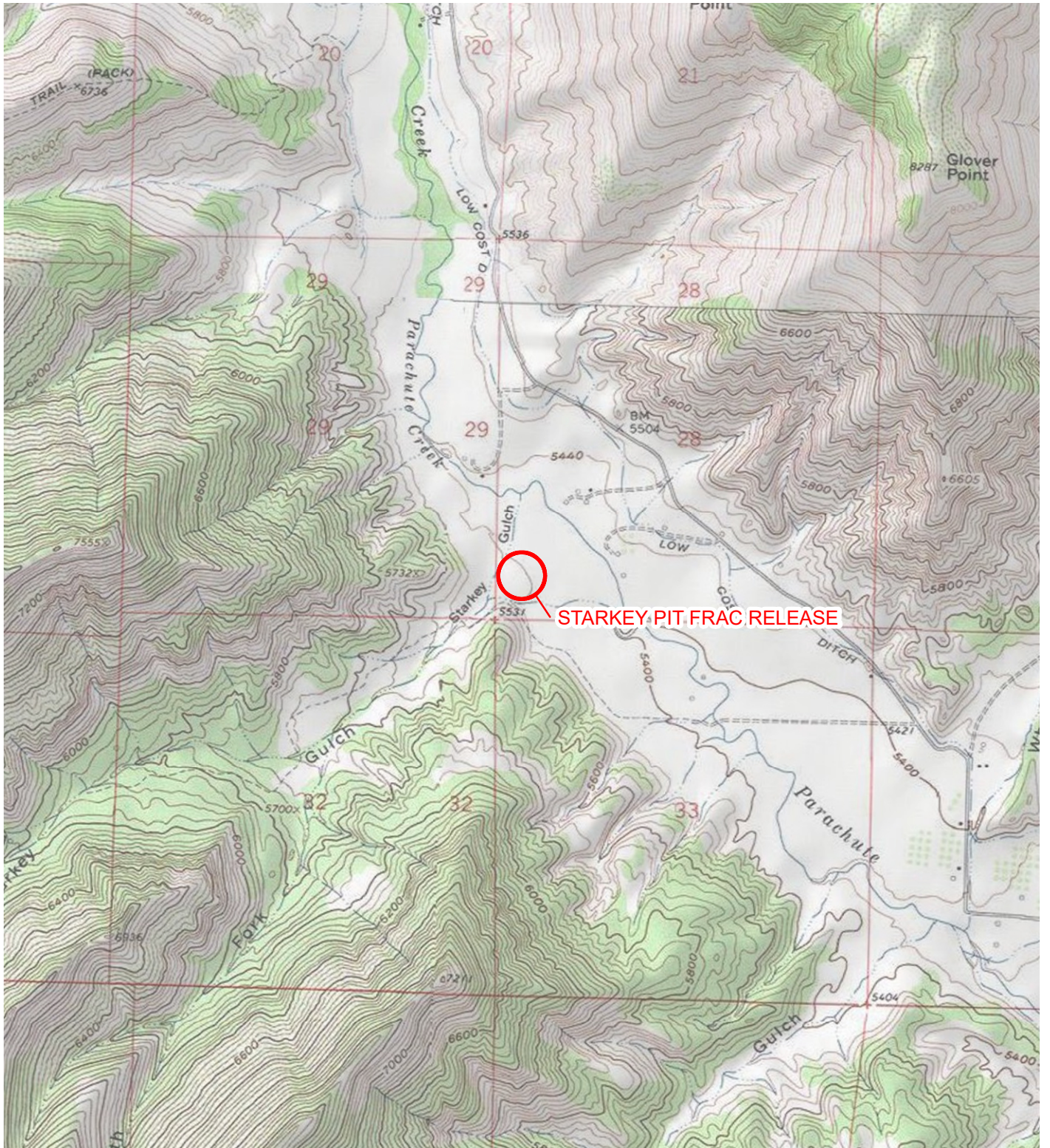


IMAGE COURTESY OF ESRI/USGS

LEGEND

 SITE LOCATION

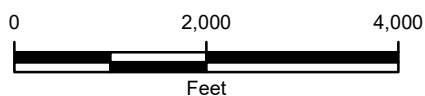


FIGURE 1
SITE LOCATION MAP
STARKEY PIT FRAC RELEASE
SWSW SEC 28 T6S R96W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS, LLC





IMAGE COURTESY OF GOOGLE EARTH 2016

LEGEND

- SAMPLE LOCATION
- RELEASE PATH

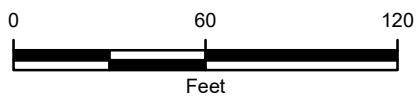


FIGURE 2
SITE MAP
 STARKEY PIT FRAC RELEASE
 SWSW SEC 28 T6S R96W
 GARFIELD COUNTY, COLORADO
 CAERUS OIL AND GAS, LLC



TABLE 1
 STARKEY PIT FRAC RELEASE
 SOIL ANALYTICAL RESULTS
 CAERUS OIL AND GAS
 PICEANCE BASIN, COLORADO

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	SS-01	SS-02	SS-03	SS-04	BKGD 1
Sample Date			9/1/2017	9/1/2017	9/1/2017	9/1/2017	7/22/2013
Sample Type			Confirmation	Confirmation	Confirmation	Confirmation	Background
Arsenic	0.39	mg/kg	9.6	7.4	8.6	12	39
Barium	15,000	mg/kg	2,400	5,300	5,400	5,800	NA
Cadmium	70	mg/kg	0.79	ND	ND	0.95	NA
Chromium (III)	120,000	mg/kg	11	10	9.3	11	NA
Chromium (VI)	23	mg/kg	ND	ND	ND	ND	NA
Copper	3,100	mg/kg	14	15	14	16	NA
Lead	400	mg/kg	8.8	8.9	7.5	9.2	NA
Mercury	23	mg/kg	ND	0.031	0.029	0.023	NA
Nickel	1,600	mg/kg	12	12	10	14	NA
Selenium	390	mg/kg	1.7	1.7	1.8	2.0	NA
Silver	390	mg/kg	ND	ND	ND	ND	NA
Zinc	23,000	mg/kg	54	56	48	60	NA
EC	4 or 2x background	mmhos/cm	5.3	6.1	5.9	4.0	1.2
pH	6-9	SU	8.41	8.77	8.40	8.52	9.1
SAR	12	unitless	6.4	8.6	8.9	6.7	2.8
TPH-DRO			25	52	36	30	NA
TPH-GRO			ND	ND	ND	ND	NA
TPH	500	mg/kg	25	52	36	30	NA
Benzene	0.17	mg/kg	ND	ND	ND	ND	NA
Toluene	85	mg/kg	ND	ND	ND	ND	NA
Ethylbenzene	100	mg/kg	ND	ND	ND	ND	NA
Total Xylenes	175	mg/kg	ND	ND	ND	ND	NA
Acenaphthene	1,000	mg/kg	ND	ND	ND	ND	NA
Anthracene	1,000	mg/kg	ND	ND	ND	ND	NA
Benzo(a)anthracene	0.22	mg/kg	ND	ND	ND	ND	NA
Benzo(b)fluoranthene	0.22	mg/kg	ND	ND	ND	ND	NA
Benzo(k)fluoranthene	2.2	mg/kg	ND	ND	ND	ND	NA
Benzo(a)pyrene	0.022	mg/kg	ND	ND	ND	ND	NA
Chrysene	22	mg/kg	ND	ND	ND	ND	NA
Dibenzo(a,h)anthracene	0.022	mg/kg	ND	ND	ND	ND	NA
Fluoranthene	1,000	mg/kg	ND	ND	ND	ND	NA
Fluorene	1,000	mg/kg	ND	ND	ND	ND	NA
Indeno(1,2,3,c,d)pyrene	0.22	mg/kg	ND	ND	ND	ND	NA
Naphthalene	23	mg/kg	0.17	ND	ND	ND	NA
Pyrene	1,000	mg/kg	ND	ND	ND	ND	NA

Notes:

* This background sample was collected near another pad location, Chevron 41-8D (COGCC Location ID 324198)

< - less than the stated reporting limit

Highlight - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC - electrical conductivity

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

NA - not analyzed

SAR - sodium adsorption ratio

SU - standard unit

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO and TPH-DRO



12-Sep-2017

Jake Janicek
Caerus Oil and Gas LLC
120 N. Railroad Ave. Suite D
Parachute, CO 81635

Re: **Starkey Pit Frac Release**

Work Order: **1709121**

Dear Jake,

ALS Environmental received 4 samples on 02-Sep-2017 09:35 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 27.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton", is written over a light blue horizontal line.

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

Report of Laboratory Analysis

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental The logo icon for ALS Environmental, a stylized blue triangle with a yellow flame-like shape inside.

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Caerus Oil and Gas LLC
Project: Starkey Pit Frac Release
Work Order: 1709121

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1709121-01	SS-01	Soil		9/1/2017 09:20	9/2/2017 09:35	<input type="checkbox"/>
1709121-02	SS-02	Soil		9/1/2017 09:30	9/2/2017 09:35	<input type="checkbox"/>
1709121-03	SS-03	Soil		9/1/2017 09:40	9/2/2017 09:35	<input type="checkbox"/>
1709121-04	SS-04	Soil		9/1/2017 09:45	9/2/2017 09:35	<input type="checkbox"/>

Client: Caerus Oil and Gas LLC
Project: Starkey Pit Frac Release
Work Order: 1709121

Case Narrative

Batch 107168, Method CR6_7196_S, Sample 1709121-01B MS/MSD: The MS and MSD recovery was below the lower control limit for Hexavalent Chromium. The corresponding result in the parent sample may be biased low.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

Client: Caerus Oil and Gas LLC
 Project: Starkey Pit Frac Release
 Sample ID: SS-01
 Collection Date: 9/1/2017 09:20 AM

Work Order: 1709121
 Lab ID: 1709121-01
 Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 9/6/17 14:13		Analyst: KB
DRO (C10-C28)	25		5.4	mg/Kg-dry	1	9/6/2017 10:08 PM
Surr: 4-Terphenyl-d14	95.1		34-130	%REC	1	9/6/2017 10:08 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 9/5/17 11:07		Analyst: KB
GRO (C6-C10)	ND		6.0	mg/Kg-dry	1	9/6/2017 04:44 PM
Surr: Toluene-d8	83.4		71-123	%REC	1	9/6/2017 04:44 PM
MERCURY BY CVAA			SW7471B	Prep: SW7471 9/8/17 13:05		Analyst: RSH
Mercury	ND		0.019	mg/Kg-dry	1	9/8/2017 06:29 PM
METALS ANALYSIS BY ICP			SW846 6010C	Prep: SW3050B 9/6/17 15:01		Analyst: RH
Arsenic	9.6		0.38	mg/Kg-dry	1	9/7/2017 09:26 PM
Barium	2,400		0.38	mg/Kg-dry	1	9/7/2017 09:26 PM
Cadmium	0.79		0.77	mg/Kg-dry	1	9/7/2017 09:26 PM
Chromium	11		0.38	mg/Kg-dry	1	9/7/2017 09:26 PM
Copper	14		0.77	mg/Kg-dry	1	9/7/2017 09:26 PM
Lead	8.8		0.38	mg/Kg-dry	1	9/7/2017 09:26 PM
Nickel	12		0.38	mg/Kg-dry	1	9/7/2017 09:26 PM
Selenium	1.7		0.77	mg/Kg-dry	1	9/7/2017 09:26 PM
Silver	ND		0.38	mg/Kg-dry	1	9/7/2017 09:26 PM
Zinc	54		0.77	mg/Kg-dry	1	9/7/2017 09:26 PM
SOLUBLE CATIONS FOR SAR			SW846 6010C	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Calcium	260		5.0	mg/L	10	9/7/2017 10:35 PM
Magnesium	83		2.0	mg/L	10	9/7/2017 10:35 PM
Sodium	460		2.0	mg/L	10	9/7/2017 10:35 PM
SODIUM ADSORPTION RATIO			USDA H60 MET	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Sodium Adsorption Ratio	6.4		0.010	none	1	9/7/2017
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D	Prep: SW3546 9/6/17 14:13		Analyst: RM
Acenaphthene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Anthracene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Benzo(a)anthracene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Benzo(a)pyrene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Benzo(b)fluoranthene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Benzo(k)fluoranthene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Chrysene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Dibenzo(a,h)anthracene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Fluoranthene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Caerus Oil and Gas LLC
Project: Starkey Pit Frac Release
Sample ID: SS-01
Collection Date: 9/1/2017 09:20 AM

Work Order: 1709121
Lab ID: 1709121-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Indeno(1,2,3-cd)pyrene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Naphthalene	170		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Pyrene	ND		45	µg/Kg-dry	1	9/7/2017 01:08 AM
Surr: 2-Fluorobiphenyl	94.4		20-140	%REC	1	9/7/2017 01:08 AM
Surr: 4-Terphenyl-d14	113		22-172	%REC	1	9/7/2017 01:08 AM
Surr: Nitrobenzene-d5	112		8-140	%REC	1	9/7/2017 01:08 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035	9/5/17 15:54	Analyst: BG
Benzene	ND		0.036	mg/Kg-dry	1	9/7/2017 09:10 AM
Ethylbenzene	ND		0.036	mg/Kg-dry	1	9/7/2017 09:10 AM
m,p-Xylene	ND		0.072	mg/Kg-dry	1	9/7/2017 09:10 AM
o-Xylene	ND		0.036	mg/Kg-dry	1	9/7/2017 09:10 AM
Toluene	ND		0.036	mg/Kg-dry	1	9/7/2017 09:10 AM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	9/7/2017 09:10 AM
Surr: 1,2-Dichloroethane-d4	95.1		70-130	%REC	1	9/7/2017 09:10 AM
Surr: 4-Bromofluorobenzene	97.5		70-130	%REC	1	9/7/2017 09:10 AM
Surr: Dibromofluoromethane	89.2		70-130	%REC	1	9/7/2017 09:10 AM
Surr: Toluene-d8	97.4		70-130	%REC	1	9/7/2017 09:10 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 MET	Prep: USDA Method 20B	9/7/17 12:50	Analyst: JB
Electrical Conductivity @ Saturation	5.3		0.25	mmhos/cm @2	50	9/8/2017 10:00 AM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	11		1.1	mg/Kg-dry	1	9/12/2017 08:15 AM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A	9/8/17 20:00	Analyst: LW
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	9/11/2017 03:00 PM
MOISTURE			SW3550C			Analyst: NW
Moisture	9.1		0.050	% of sample	1	9/7/2017 09:10 PM
PH			SW9045D	Prep: EXTRACT	9/5/17 14:30	Analyst: STP
pH	8.41		0.100	s.u.	1	9/5/2017 03:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Caerus Oil and Gas LLC
Project: Starkey Pit Frac Release
Sample ID: SS-02
Collection Date: 9/1/2017 09:30 AM

Work Order: 1709121
Lab ID: 1709121-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 9/6/17 14:13		Analyst: KB
DRO (C10-C28)	52		5.5	mg/Kg-dry	1	9/6/2017 10:37 PM
<i>Surr: 4-Terphenyl-d14</i>	<i>94.1</i>		<i>34-130</i>	<i>%REC</i>	<i>1</i>	9/6/2017 10:37 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 9/5/17 11:07		Analyst: KB
GRO (C6-C10)	ND		6.1	mg/Kg-dry	1	9/6/2017 05:13 PM
<i>Surr: Toluene-d8</i>	<i>96.0</i>		<i>71-123</i>	<i>%REC</i>	<i>1</i>	9/6/2017 05:13 PM
MERCURY BY CVAA			SW7471B	Prep: SW7471 9/8/17 13:05		Analyst: RSH
Mercury	0.031		0.018	mg/Kg-dry	1	9/8/2017 06:31 PM
METALS ANALYSIS BY ICP			SW846 6010C	Prep: SW3050B 9/6/17 15:01		Analyst: RH
Arsenic	7.4		0.35	mg/Kg-dry	1	9/7/2017 09:33 PM
Barium	5,300		3.5	mg/Kg-dry	10	9/8/2017 07:44 PM
Cadmium	ND		7.0	mg/Kg-dry	10	9/8/2017 07:44 PM
Chromium	10		0.35	mg/Kg-dry	1	9/7/2017 09:33 PM
Copper	15		0.70	mg/Kg-dry	1	9/7/2017 09:33 PM
Lead	8.9		0.35	mg/Kg-dry	1	9/7/2017 09:33 PM
Nickel	12		0.35	mg/Kg-dry	1	9/7/2017 09:33 PM
Selenium	1.7		0.70	mg/Kg-dry	1	9/7/2017 09:33 PM
Silver	ND		0.35	mg/Kg-dry	1	9/7/2017 09:33 PM
Zinc	56		0.70	mg/Kg-dry	1	9/7/2017 09:33 PM
SOLUBLE CATIONS FOR SAR			SW846 6010C	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Calcium	100		5.0	mg/L	10	9/7/2017 10:41 PM
Magnesium	33		2.0	mg/L	10	9/7/2017 10:41 PM
Sodium	390		2.0	mg/L	10	9/7/2017 10:41 PM
SODIUM ADSORPTION RATIO			USDA H60 MET	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Sodium Adsorption Ratio	8.6		0.010	none	1	9/7/2017
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D	Prep: SW3546 9/6/17 14:13		Analyst: RM
Acenaphthene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Benzo(a)anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Benzo(a)pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Benzo(b)fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Benzo(k)fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Chrysene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Dibenzo(a,h)anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 12-Sep-17

Client: Caerus Oil and Gas LLC
Project: Starkey Pit Frac Release
Sample ID: SS-02
Collection Date: 9/1/2017 09:30 AM

Work Order: 1709121
Lab ID: 1709121-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Indeno(1,2,3-cd)pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Naphthalene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:22 AM
Surr: 2-Fluorobiphenyl	95.4		20-140	%REC	1	9/7/2017 01:22 AM
Surr: 4-Terphenyl-d14	112		22-172	%REC	1	9/7/2017 01:22 AM
Surr: Nitrobenzene-d5	118		8-140	%REC	1	9/7/2017 01:22 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035	9/5/17 15:54	Analyst: BG
Benzene	ND		0.037	mg/Kg-dry	1	9/7/2017 09:37 AM
Ethylbenzene	ND		0.037	mg/Kg-dry	1	9/7/2017 09:37 AM
m,p-Xylene	ND		0.073	mg/Kg-dry	1	9/7/2017 09:37 AM
o-Xylene	ND		0.037	mg/Kg-dry	1	9/7/2017 09:37 AM
Toluene	ND		0.037	mg/Kg-dry	1	9/7/2017 09:37 AM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	9/7/2017 09:37 AM
Surr: 1,2-Dichloroethane-d4	93.8		70-130	%REC	1	9/7/2017 09:37 AM
Surr: 4-Bromofluorobenzene	96.2		70-130	%REC	1	9/7/2017 09:37 AM
Surr: Dibromofluoromethane	88.2		70-130	%REC	1	9/7/2017 09:37 AM
Surr: Toluene-d8	98.1		70-130	%REC	1	9/7/2017 09:37 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 MET	Prep: USDA Method 20B	9/7/17 12:50	Analyst: JB
Electrical Conductivity @ Saturation	6.1		0.25	mmhos/cm @2	50	9/8/2017 10:00 AM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	10		1.1	mg/Kg-dry	1	9/12/2017 08:15 AM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A	9/8/17 20:00	Analyst: LW
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	9/11/2017 03:00 PM
MOISTURE			SW3550C			Analyst: NW
Moisture	10		0.050	% of sample	1	9/7/2017 09:10 PM
PH			SW9045D	Prep: EXTRACT	9/5/17 14:30	Analyst: STP
pH	8.77		0.100	s.u.	1	9/5/2017 03:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Caerus Oil and Gas LLC
 Project: Starkey Pit Frac Release
 Sample ID: SS-03
 Collection Date: 9/1/2017 09:40 AM

Work Order: 1709121
 Lab ID: 1709121-03
 Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 9/6/17 14:13		Analyst: KB
DRO (C10-C28)	36		5.6	mg/Kg-dry	1	9/6/2017 11:06 PM
Surr: 4-Terphenyl-d14	90.1		34-130	%REC	1	9/6/2017 11:06 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 9/5/17 11:07		Analyst: KB
GRO (C6-C10)	ND		6.2	mg/Kg-dry	1	9/6/2017 05:42 PM
Surr: Toluene-d8	95.8		71-123	%REC	1	9/6/2017 05:42 PM
MERCURY BY CVAA			SW7471B	Prep: SW7471 9/8/17 13:05		Analyst: RSH
Mercury	0.029		0.017	mg/Kg-dry	1	9/8/2017 06:34 PM
METALS ANALYSIS BY ICP			SW846 6010C	Prep: SW3050B 9/6/17 15:01		Analyst: RH
Arsenic	8.6		0.41	mg/Kg-dry	1	9/7/2017 09:40 PM
Barium	5,400		4.1	mg/Kg-dry	10	9/8/2017 07:50 PM
Cadmium	ND		8.2	mg/Kg-dry	10	9/8/2017 07:50 PM
Chromium	9.3		0.41	mg/Kg-dry	1	9/7/2017 09:40 PM
Copper	14		0.82	mg/Kg-dry	1	9/7/2017 09:40 PM
Lead	7.5		0.41	mg/Kg-dry	1	9/7/2017 09:40 PM
Nickel	10		0.41	mg/Kg-dry	1	9/7/2017 09:40 PM
Selenium	1.8		0.82	mg/Kg-dry	1	9/7/2017 09:40 PM
Silver	ND		0.41	mg/Kg-dry	1	9/7/2017 09:40 PM
Zinc	48		0.82	mg/Kg-dry	1	9/7/2017 09:40 PM
SOLUBLE CATIONS FOR SAR			SW846 6010C	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Calcium	160		5.0	mg/L	10	9/7/2017 10:48 PM
Magnesium	54		2.0	mg/L	10	9/7/2017 10:48 PM
Sodium	510		2.0	mg/L	10	9/7/2017 10:48 PM
SODIUM ADSORPTION RATIO			USDA H60 MET	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Sodium Adsorption Ratio	8.9		0.010	none	1	9/7/2017
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D	Prep: SW3546 9/6/17 14:13		Analyst: RM
Acenaphthene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Benzo(a)anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Benzo(a)pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Benzo(b)fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Benzo(k)fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Chrysene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Dibenzo(a,h)anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 12-Sep-17

Client: Caerus Oil and Gas LLC
Project: Starkey Pit Frac Release
Sample ID: SS-03
Collection Date: 9/1/2017 09:40 AM

Work Order: 1709121
Lab ID: 1709121-03
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Indeno(1,2,3-cd)pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Naphthalene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:36 AM
Surr: 2-Fluorobiphenyl	92.9		20-140	%REC	1	9/7/2017 01:36 AM
Surr: 4-Terphenyl-d14	99.2		22-172	%REC	1	9/7/2017 01:36 AM
Surr: Nitrobenzene-d5	113		8-140	%REC	1	9/7/2017 01:36 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035	9/5/17 15:54	Analyst: BG
Benzene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:03 AM
Ethylbenzene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:03 AM
m,p-Xylene	ND		0.075	mg/Kg-dry	1	9/7/2017 10:03 AM
o-Xylene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:03 AM
Toluene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:03 AM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	9/7/2017 10:03 AM
Surr: 1,2-Dichloroethane-d4	93.6		70-130	%REC	1	9/7/2017 10:03 AM
Surr: 4-Bromofluorobenzene	95.4		70-130	%REC	1	9/7/2017 10:03 AM
Surr: Dibromofluoromethane	88.4		70-130	%REC	1	9/7/2017 10:03 AM
Surr: Toluene-d8	98.3		70-130	%REC	1	9/7/2017 10:03 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 MET	Prep: USDA Method 20B	9/7/17 12:50	Analyst: JB
Electrical Conductivity @ Saturation	5.9		0.25	mmhos/cm @2	50	9/8/2017 10:00 AM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	9.3		1.1	mg/Kg-dry	1	9/12/2017 08:15 AM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A	9/8/17 20:00	Analyst: LW
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	9/11/2017 03:00 PM
MOISTURE			SW3550C			Analyst: NW
Moisture	11		0.050	% of sample	1	9/7/2017 09:10 PM
PH			SW9045D	Prep: EXTRACT	9/5/17 14:30	Analyst: STP
pH	8.40		0.100	s.u.	1	9/5/2017 03:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Caerus Oil and Gas LLC
 Project: Starkey Pit Frac Release
 Sample ID: SS-04
 Collection Date: 9/1/2017 09:45 AM

Work Order: 1709121
 Lab ID: 1709121-04
 Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 9/6/17 14:13		Analyst: KB
DRO (C10-C28)	30		5.6	mg/Kg-dry	1	9/6/2017 11:35 PM
Surr: 4-Terphenyl-d14	93.1		34-130	%REC	1	9/6/2017 11:35 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 9/5/17 11:07		Analyst: KB
GRO (C6-C10)	ND		6.2	mg/Kg-dry	1	9/6/2017 06:11 PM
Surr: Toluene-d8	95.1		71-123	%REC	1	9/6/2017 06:11 PM
MERCURY BY CVAA			SW7471B	Prep: SW7471 9/8/17 13:05		Analyst: RSH
Mercury	0.023		0.018	mg/Kg-dry	1	9/8/2017 06:36 PM
METALS ANALYSIS BY ICP			SW846 6010C	Prep: SW3050B 9/6/17 15:01		Analyst: RH
Arsenic	12		0.44	mg/Kg-dry	1	9/7/2017 09:47 PM
Barium	5,800		4.4	mg/Kg-dry	10	9/8/2017 07:57 PM
Cadmium	0.95		0.88	mg/Kg-dry	1	9/7/2017 09:47 PM
Chromium	11		0.44	mg/Kg-dry	1	9/7/2017 09:47 PM
Copper	16		0.88	mg/Kg-dry	1	9/7/2017 09:47 PM
Lead	9.2		0.44	mg/Kg-dry	1	9/7/2017 09:47 PM
Nickel	14		0.44	mg/Kg-dry	1	9/7/2017 09:47 PM
Selenium	2.0		0.88	mg/Kg-dry	1	9/7/2017 09:47 PM
Silver	ND		0.44	mg/Kg-dry	1	9/7/2017 09:47 PM
Zinc	60		0.88	mg/Kg-dry	1	9/7/2017 09:47 PM
SOLUBLE CATIONS FOR SAR			SW846 6010C	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Calcium	120		5.0	mg/L	10	9/7/2017 10:54 PM
Magnesium	37		2.0	mg/L	10	9/7/2017 10:54 PM
Sodium	320		2.0	mg/L	10	9/7/2017 10:54 PM
SODIUM ADSORPTION RATIO			USDA H60 MET	Prep: USDA Method 20B 9/7/17 12:50		Analyst: RH
Sodium Adsorption Ratio	6.7		0.010	none	1	9/7/2017
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D	Prep: SW3546 9/6/17 14:13		Analyst: RM
Acenaphthene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Benzo(a)anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Benzo(a)pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Benzo(b)fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Benzo(k)fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Chrysene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Dibenzo(a,h)anthracene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Fluoranthene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 12-Sep-17

Client: Caerus Oil and Gas LLC
Project: Starkey Pit Frac Release
Sample ID: SS-04
Collection Date: 9/1/2017 09:45 AM

Work Order: 1709121
Lab ID: 1709121-04
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Indeno(1,2,3-cd)pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Naphthalene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Pyrene	ND		46	µg/Kg-dry	1	9/7/2017 01:50 AM
Surr: 2-Fluorobiphenyl	94.9		20-140	%REC	1	9/7/2017 01:50 AM
Surr: 4-Terphenyl-d14	117		22-172	%REC	1	9/7/2017 01:50 AM
Surr: Nitrobenzene-d5	112		8-140	%REC	1	9/7/2017 01:50 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035	9/5/17 15:54	Analyst: BG
Benzene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:29 AM
Ethylbenzene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:29 AM
m,p-Xylene	ND		0.075	mg/Kg-dry	1	9/7/2017 10:29 AM
o-Xylene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:29 AM
Toluene	ND		0.037	mg/Kg-dry	1	9/7/2017 10:29 AM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	9/7/2017 10:29 AM
Surr: 1,2-Dichloroethane-d4	94.4		70-130	%REC	1	9/7/2017 10:29 AM
Surr: 4-Bromofluorobenzene	97.0		70-130	%REC	1	9/7/2017 10:29 AM
Surr: Dibromofluoromethane	88.2		70-130	%REC	1	9/7/2017 10:29 AM
Surr: Toluene-d8	96.2		70-130	%REC	1	9/7/2017 10:29 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 MET	Prep: USDA Method 20B	9/7/17 12:50	Analyst: JB
Electrical Conductivity @ Saturation	4.0		0.25	mmhos/cm @2	50	9/8/2017 10:00 AM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	11		1.1	mg/Kg-dry	1	9/12/2017 08:15 AM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A	9/8/17 20:00	Analyst: LW
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	9/11/2017 03:00 PM
MOISTURE			SW3550C			Analyst: NW
Moisture	11		0.050	% of sample	1	9/7/2017 09:10 PM
PH			SW9045D	Prep: EXTRACT	9/5/17 14:30	Analyst: STP
pH	8.52		0.100	s.u.	1	9/5/2017 03:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Caerus Oil and Gas LLC
Work Order: 1709121
Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **106979** Instrument ID **GC8** Method: **SW8015C**

MBLK		Sample ID: DBLKS1-106979-106979				Units: mg/Kg		Analysis Date: 9/6/2017 04:21 PM		
Client ID:		Run ID: GC8_170906A		SeqNo: 4626051		Prep Date: 9/6/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.75	0	3.33	0	82.6	34-130	0			

LCS		Sample ID: DLCSS1-106979-106979				Units: mg/Kg		Analysis Date: 9/6/2017 04:50 PM		
Client ID:		Run ID: GC8_170906A		SeqNo: 4626057		Prep Date: 9/6/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	274.9	5.0	333	0	82.6	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	1.517	0	3.33	0	45.5	34-130	0			

MS		Sample ID: 17081638-11B MS				Units: mg/Kg		Analysis Date: 9/6/2017 05:19 PM		
Client ID:		Run ID: GC8_170906A		SeqNo: 4626059		Prep Date: 9/6/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	252.2	5.0	330.7	0.1126	76.2	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	1.788	0	3.307	0	54.1	34-130	0			

MSD		Sample ID: 17081638-11B MSD				Units: mg/Kg		Analysis Date: 9/6/2017 05:48 PM		
Client ID:		Run ID: GC8_170906A		SeqNo: 4626060		Prep Date: 9/6/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	296.3	4.9	328.2	0.1126	90.2	65-122	252.2	16.1	30	
<i>Surr: 4-Terphenyl-d14</i>	2.037	0	3.282	0	62.1	34-130	1.788	13	30	

The following samples were analyzed in this batch:

1709121-01B	1709121-02B	1709121-03B
1709121-04B		

Client: Caerus Oil and Gas LLC
 Work Order: 1709121
 Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **106990** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-106990-106990				Units: µg/Kg-dry		Analysis Date: 9/6/2017 04:14 PM		
Client ID:		Run ID: GC9_170906A				SeqNo: 4625960		Prep Date: 9/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	5,000								
<i>Surr: Toluene-d8</i>	4350	0	5000	0	87	71-123	0			

LCS		Sample ID: LCS-106990-106990				Units: µg/Kg-dry		Analysis Date: 9/6/2017 03:15 PM		
Client ID:		Run ID: GC9_170906A				SeqNo: 4625958		Prep Date: 9/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	583200	5,000	500000	0	117	71-123	0			
<i>Surr: Toluene-d8</i>	4892	0	5000	0	97.8	71-123	0			

MS		Sample ID: 1709122-02A MS				Units: µg/Kg-dry		Analysis Date: 9/7/2017 12:04 PM		
Client ID:		Run ID: GC9_170906A				SeqNo: 4625999		Prep Date: 9/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	745200	6,800	676500	0	110	71-123	0			
<i>Surr: Toluene-d8</i>	6874	0	6765	0	102	71-123	0			

MSD		Sample ID: 1709122-02A MSD				Units: µg/Kg-dry		Analysis Date: 9/7/2017 12:34 PM		
Client ID:		Run ID: GC9_170906A				SeqNo: 4626001		Prep Date: 9/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	796200	6,800	676500	0	118	71-123	745200	6.62	30	
<i>Surr: Toluene-d8</i>	6953	0	6765	0	103	71-123	6874	1.14	30	

The following samples were analyzed in this batch:

1709121-01A	1709121-02A	1709121-03A
1709121-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 1709121
 Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **107012** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-107012-107012				Units: mg/Kg		Analysis Date: 9/7/2017 12:36 PM		
Client ID:		Run ID: ICP2_170907A			SeqNo: 4628162		Prep Date: 9/6/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	0.05795	0.50								J
Chromium	0.06402	0.25								J
Copper	ND	0.50								
Lead	ND	0.25								
Nickel	ND	0.25								
Selenium	ND	0.50								
Silver	ND	0.25								
Zinc	0.1606	0.50								J

LCS		Sample ID: LCS-107012-107012				Units: mg/Kg		Analysis Date: 9/7/2017 12:43 PM		
Client ID:		Run ID: ICP2_170907A			SeqNo: 4628163		Prep Date: 9/6/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.993	0.25	5	0	99.9	80-120	0			
Barium	5.046	0.25	5	0	101	80-120	0			
Cadmium	5.329	0.50	5	0	107	80-120	0			
Chromium	5.758	0.25	5	0	115	80-120	0			
Copper	5.191	0.50	5	0	104	80-120	0			
Lead	5.191	0.25	5	0	104	80-120	0			
Nickel	5.329	0.25	5	0	107	80-120	0			
Selenium	4.541	0.50	5	0	90.8	80-120	0			
Silver	5.059	0.25	5	0	101	80-120	0			
Zinc	5.314	0.50	5	0	106	80-120	0			

MS		Sample ID: 1709019-03BMS				Units: mg/Kg		Analysis Date: 9/7/2017 07:56 PM		
Client ID:		Run ID: ICP2_170907A			SeqNo: 4628829		Prep Date: 9/6/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.04	0.38	7.508	5.112	92.2	75-125	0			
Barium	15.2	0.38	7.508	7.632	101	75-125	0			
Cadmium	8.699	0.75	7.508	0.3982	111	75-125	0			
Chromium	14.2	0.38	7.508	8.299	78.6	75-125	0			
Copper	13.21	0.75	7.508	7.549	75.4	75-125	0			
Lead	10.48	0.38	7.508	2.837	102	75-125	0			
Nickel	13.91	0.38	7.508	5.747	109	75-125	0			
Selenium	7.723	0.75	7.508	0.9473	90.3	75-125	0			
Silver	7.259	0.38	7.508	-0.173	99	75-125	0			
Zinc	30.21	0.75	7.508	18.38	158	75-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 1709121
Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **107012** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 1709019-03BMSD				Units: mg/Kg		Analysis Date: 9/7/2017 08:03 PM		
Client ID:		Run ID: ICP2_170907A			SeqNo: 4628836		Prep Date: 9/6/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.07	0.38	7.576	5.112	91.8	75-125	12.04	0.284	20	
Barium	14.11	0.38	7.576	7.632	85.5	75-125	15.2	7.41	20	
Cadmium	8.552	0.76	7.576	0.3982	108	75-125	8.699	1.71	20	
Chromium	13.08	0.38	7.576	8.299	63.1	75-125	14.2	8.2	20	S
Copper	13.05	0.76	7.576	7.549	72.6	75-125	13.21	1.25	20	S
Lead	9.525	0.38	7.576	2.837	88.3	75-125	10.48	9.52	20	
Nickel	12.06	0.38	7.576	5.747	83.3	75-125	13.91	14.2	20	
Selenium	7.883	0.76	7.576	0.9473	91.6	75-125	7.723	2.05	20	
Silver	7.383	0.38	7.576	-0.173	99.7	75-125	7.259	1.69	20	
Zinc	24.26	0.76	7.576	18.38	77.7	75-125	30.21	21.8	20	R

The following samples were analyzed in this batch:

1709121-01B	1709121-02B	1709121-03B
1709121-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 1709121
 Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: 106978 Instrument ID SVMS6 Method: SW846 8270D

MBLK		Sample ID: SBLKS1-106978-106978				Units: µg/Kg		Analysis Date: 9/6/2017 05:23 PM		
Client ID:		Run ID: SVMS6_170906B		SeqNo: 4626903		Prep Date: 9/6/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	42								
Anthracene	ND	42								
Benzo(a)anthracene	ND	42								
Benzo(a)pyrene	ND	42								
Benzo(b)fluoranthene	ND	42								
Benzo(k)fluoranthene	ND	42								
Chrysene	ND	42								
Dibenzo(a,h)anthracene	ND	42								
Fluoranthene	ND	42								
Fluorene	ND	42								
Indeno(1,2,3-cd)pyrene	ND	42								
Naphthalene	ND	42								
Pyrene	ND	42								
Surr: 2-Fluorobiphenyl	3151	0	3333	0	94.5	20-140	0			
Surr: 4-Terphenyl-d14	3940	0	3333	0	118	22-172	0			
Surr: Nitrobenzene-d5	3364	0	3333	0	101	8-140	0			

LCS		Sample ID: SLCSS1-106978-106978				Units: µg/Kg		Analysis Date: 9/6/2017 05:37 PM		
Client ID:		Run ID: SVMS6_170906B		SeqNo: 4626904		Prep Date: 9/6/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1133	42	1333	0	85	40-140	0			
Anthracene	1195	42	1333	0	89.6	40-140	0			
Benzo(a)anthracene	1168	42	1333	0	87.6	40-140	0			
Benzo(a)pyrene	1182	42	1333	0	88.7	40-140	0			
Benzo(b)fluoranthene	1201	42	1333	0	90.1	40-140	0			
Benzo(k)fluoranthene	1114	42	1333	0	83.5	40-140	0			
Chrysene	1122	42	1333	0	84.2	40-140	0			
Dibenzo(a,h)anthracene	958.5	42	1333	0	71.9	40-140	0			
Fluoranthene	902.3	42	1333	0	67.7	40-140	0			
Fluorene	1227	42	1333	0	92.1	40-140	0			
Indeno(1,2,3-cd)pyrene	1091	42	1333	0	81.8	40-140	0			
Naphthalene	1125	42	1333	0	84.4	40-140	0			
Pyrene	1153	42	1333	0	86.5	40-140	0			
Surr: 2-Fluorobiphenyl	2954	0	3333	0	88.6	20-140	0			
Surr: 4-Terphenyl-d14	3489	0	3333	0	105	22-172	0			
Surr: Nitrobenzene-d5	3298	0	3333	0	99	8-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 1709121
 Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: 106978 Instrument ID SVMS6 Method: SW846 8270D

MS				Sample ID: 17081988-21B MS			Units: µg/Kg		Analysis Date: 9/6/2017 05:51 PM		
Client ID:		Run ID: SVMS6_170906B		SeqNo: 4626905		Prep Date: 9/6/2017		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1344	41	1308	0	103	40-140	0				
Anthracene	1290	41	1308	506.1	59.9	40-140	0				
Benzo(a)anthracene	1703	41	1308	300.8	107	40-140	0				
Benzo(a)pyrene	1572	41	1308	250.2	101	40-140	0				
Benzo(b)fluoranthene	1730	41	1308	375.5	104	40-140	0				
Benzo(k)fluoranthene	1375	41	1308	214.1	88.7	40-140	0				
Chrysene	1565	41	1308	310.6	95.9	40-140	0				
Dibenzo(a,h)anthracene	1590	41	1308	61.65	117	40-140	0				
Fluoranthene	1757	41	1308	603.1	88.2	40-140	0				
Fluorene	2094	41	1308	174	147	40-140	0			S	
Indeno(1,2,3-cd)pyrene	1709	41	1308	163.1	118	40-140	0				
Naphthalene	1382	41	1308	0	106	40-140	0				
Pyrene	2233	41	1308	627.1	123	40-140	0				
Surr: 2-Fluorobiphenyl	2919	0	3271	0	89.2	20-140	0				
Surr: 4-Terphenyl-d14	3966	0	3271	0	121	22-172	0				
Surr: Nitrobenzene-d5	3283	0	3271	0	100	8-140	0				

MSD				Sample ID: 17081988-21B MSD			Units: µg/Kg		Analysis Date: 9/6/2017 06:05 PM		
Client ID:		Run ID: SVMS6_170906B		SeqNo: 4626906		Prep Date: 9/6/2017		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1360	41	1312	0	104	40-140	1344	1.21	30		
Anthracene	1419	41	1312	506.1	69.6	40-140	1290	9.54	30		
Benzo(a)anthracene	1761	41	1312	300.8	111	40-140	1703	3.34	30		
Benzo(a)pyrene	1762	41	1312	250.2	115	40-140	1572	11.4	30		
Benzo(b)fluoranthene	1805	41	1312	375.5	109	40-140	1730	4.24	30		
Benzo(k)fluoranthene	1496	41	1312	214.1	97.7	40-140	1375	8.46	30		
Chrysene	1653	41	1312	310.6	102	40-140	1565	5.48	30		
Dibenzo(a,h)anthracene	1920	41	1312	61.65	142	40-140	1590	18.8	30	S	
Fluoranthene	1734	41	1312	603.1	86.2	40-140	1757	1.33	30		
Fluorene	1685	41	1312	174	115	40-140	2094	21.6	30		
Indeno(1,2,3-cd)pyrene	1742	41	1312	163.1	120	40-140	1709	1.87	30		
Naphthalene	1364	41	1312	0	104	40-140	1382	1.28	30		
Pyrene	2092	41	1312	627.1	112	40-140	2233	6.55	30		
Surr: 2-Fluorobiphenyl	3462	0	3282	0	106	20-140	2919	17	0		
Surr: 4-Terphenyl-d14	3527	0	3282	0	107	22-172	3966	11.7	0		
Surr: Nitrobenzene-d5	3254	0	3282	0	99.2	8-140	3283	0.878	0		

The following samples were analyzed in this batch:

1709121-01B	1709121-02B	1709121-03B
1709121-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 1709121
 Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: 106965 Instrument ID VMS6 Method: SW8260B

MBLK		Sample ID: MBLK-106965-106965				Units: µg/Kg-dry		Analysis Date: 9/5/2017 12:28 PM		
Client ID:		Run ID: VMS6_170905A			SeqNo: 4624165		Prep Date: 9/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30	0	0	0	0-0	0			
Ethylbenzene	ND	30	0	0	0	0-0	0			
m,p-Xylene	ND	60	0	0	0	0-0	0			
o-Xylene	ND	30	0	0	0	0-0	0			
Toluene	ND	30	0	0	0	0-0	0			
Xylenes, Total	ND	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	958	0	1000	0	95.8	70-130	0			
Surr: 4-Bromofluorobenzene	980	0	1000	0	98	70-130	0			
Surr: Dibromofluoromethane	939	0	1000	0	93.9	70-130	0			
Surr: Toluene-d8	965	0	1000	0	96.5	70-130	0			

LCS		Sample ID: LCS-106965-106965				Units: µg/Kg-dry		Analysis Date: 9/5/2017 11:10 AM		
Client ID:		Run ID: VMS6_170905A			SeqNo: 4624164		Prep Date: 9/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	970.5	30	1000	0	97	75-125	0			
Ethylbenzene	896.5	30	1000	0	89.6	75-125	0			
m,p-Xylene	1830	60	2000	0	91.5	80-125	0			
o-Xylene	914.5	30	1000	0	91.4	75-125	0			
Toluene	937.5	30	1000	0	93.8	70-125	0			
Xylenes, Total	2744	90	3000	0	91.5	75-125	0			
Surr: 1,2-Dichloroethane-d4	938	0	1000	0	93.8	70-130	0			
Surr: 4-Bromofluorobenzene	992.5	0	1000	0	99.2	70-130	0			
Surr: Dibromofluoromethane	976	0	1000	0	97.6	70-130	0			
Surr: Toluene-d8	973	0	1000	0	97.3	70-130	0			

MS		Sample ID: 1709122-02A MS				Units: µg/Kg-dry		Analysis Date: 9/8/2017 12:27 PM		
Client ID:		Run ID: VMS6_170907A			SeqNo: 4628715		Prep Date: 9/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1339	41	1353	37.21	96.2	75-125	0			
Ethylbenzene	1200	41	1353	0	88.7	75-125	0			
m,p-Xylene	2469	81	2706	26.38	90.3	80-125	0			
o-Xylene	1222	41	1353	0	90.3	75-125	0			
Toluene	1337	41	1353	79.15	93	70-125	0			
Xylenes, Total	3691	120	4059	26	90.3	75-125	0			
Surr: 1,2-Dichloroethane-d4	1266	0	1353	0	93.6	70-130	0			
Surr: 4-Bromofluorobenzene	1322	0	1353	0	97.7	70-130	0			
Surr: Dibromofluoromethane	1249	0	1353	0	92.3	70-130	0			
Surr: Toluene-d8	1306	0	1353	0	96.6	70-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 1709121
Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **106965** Instrument ID **VMS6** Method: **SW8260B**

MSD		Sample ID: 1709122-02A MSD				Units: µg/Kg-dry		Analysis Date: 9/8/2017 12:53 PM		
Client ID:		Run ID: VMS6_170907A			SeqNo: 4628717		Prep Date: 9/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1325	41	1353	37.21	95.2	75-125	1339	1.12	30	
Ethylbenzene	1191	41	1353	0	88	75-125	1200	0.736	30	
m,p-Xylene	2435	81	2706	26.38	89	80-125	2469	1.38	30	
o-Xylene	1225	41	1353	0	90.6	75-125	1222	0.276	30	
Toluene	1284	41	1353	79.15	89	70-125	1337	4.08	30	
Xylenes, Total	3660	120	4059	26	89.5	75-125	3691	0.828	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	1279	0	1353	0	94.5	70-130	1266	0.957	30	
<i>Surr: 4-Bromofluorobenzene</i>	1365	0	1353	0	101	70-130	1322	3.22	30	
<i>Surr: Dibromofluoromethane</i>	1262	0	1353	0	93.3	70-130	1249	1.08	30	
<i>Surr: Toluene-d8</i>	1302	0	1353	0	96.2	70-130	1306	0.363	30	

The following samples were analyzed in this batch:

1709121-01A	1709121-02A	1709121-03A
1709121-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 1709121
Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **106954** Instrument ID **WETCHEM** Method: **SW9045D**

LCS	Sample ID: LCS-106954-106954				Units: s.u.			Analysis Date: 9/5/2017 03:45 PM		
Client ID:	Run ID: WETCHEM_170905F			SeqNo: 4622593		Prep Date: 9/5/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 3.93 0.10 4 0 98.2 90-110 0

DUP	Sample ID: 17081959-01A DUP				Units: s.u.			Analysis Date: 9/5/2017 03:45 PM		
Client ID:	Run ID: WETCHEM_170905F			SeqNo: 4622596		Prep Date: 9/5/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 7.98 0.10 0 0 0 0-0 7.89 1.13 20

DUP	Sample ID: 1709082-01A DUP				Units: s.u.			Analysis Date: 9/5/2017 03:45 PM		
Client ID:	Run ID: WETCHEM_170905F			SeqNo: 4622601		Prep Date: 9/5/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 7.64 0.10 0 0 0 0-0 7.68 0.522 20

The following samples were analyzed in this batch:

1709121-01B	1709121-02B	1709121-03B
1709121-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 1709121
Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **107066** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP	Sample ID: 1709121-04B DUP		Units: mmhos/cm @25°		Analysis Date: 9/8/2017 10:00 AM					
Client ID: SS-04	Run ID: WETCHEM_170908H		SeqNo: 4629538		Prep Date: 9/7/2017 DF: 50					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	4.925	0.25	0	0	0		4.005	20.6	50	

The following samples were analyzed in this batch:

1709121-01B	1709121-02B	1709121-03B
1709121-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 1709121
 Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **107168** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK	Sample ID: MBLK-107168-107168		Units: mg/Kg		Analysis Date: 9/11/2017 03:00 PM					
Client ID:	Run ID: WETCHEM_170911K		SeqNo: 4633165		Prep Date: 9/8/2017 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 1.0

LCS	Sample ID: LCS-107168-107168		Units: mg/Kg		Analysis Date: 9/11/2017 03:00 PM					
Client ID:	Run ID: WETCHEM_170911K		SeqNo: 4633166		Prep Date: 9/8/2017 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.81 1.0 5 0 96.2 80-120 0

MS	Sample ID: 1709121-01B MS		Units: mg/Kg		Analysis Date: 9/11/2017 03:00 PM					
Client ID: SS-01	Run ID: WETCHEM_170911K		SeqNo: 4633168		Prep Date: 9/8/2017 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.495 1.0 5.051 0.0396 68.4 75-125 0 S

MS	Sample ID: 1709121-01B MSI		Units: mg/Kg		Analysis Date: 9/11/2017 03:00 PM					
Client ID: SS-01	Run ID: WETCHEM_170911K		SeqNo: 4633170		Prep Date: 9/8/2017 DF: 100					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1832 100 1837 0.0396 99.8 75-125 0

MSD	Sample ID: 1709121-01B MSD		Units: mg/Kg		Analysis Date: 9/11/2017 03:00 PM					
Client ID: SS-01	Run ID: WETCHEM_170911K		SeqNo: 4633169		Prep Date: 9/8/2017 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.653 1.0 5.102 0.0396 70.8 75-125 3.495 4.42 20 S

The following samples were analyzed in this batch:

1709121-01B	1709121-02B	1709121-03B
1709121-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 1709121
Project: Starkey Pit Frac Release

QC BATCH REPORT

Batch ID: **R219617** Instrument ID **MOIST** Method: **SW3550C**

MBLK	Sample ID: WBLKS-R219617				Units: % of sample			Analysis Date: 9/7/2017 09:10 PM		
Client ID:	Run ID: MOIST_170907E			SeqNo: 4629921		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

LCS	Sample ID: LCS-R219617				Units: % of sample			Analysis Date: 9/7/2017 09:10 PM		
Client ID:	Run ID: MOIST_170907E			SeqNo: 4629920		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP	Sample ID: 1709322-01A DUP				Units: % of sample			Analysis Date: 9/7/2017 09:10 PM		
Client ID:	Run ID: MOIST_170907E			SeqNo: 4629913		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 17.93 0.050 0 0 0 0-0 17.79 0.784 5

DUP	Sample ID: 1709322-03A DUP				Units: % of sample			Analysis Date: 9/7/2017 09:10 PM		
Client ID:	Run ID: MOIST_170907E			SeqNo: 4629915		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 29.69 0.050 0 0 0 0-0 29.26 1.46 5

The following samples were analyzed in this batch:

1709121-01B	1709121-02B	1709121-03B
1709121-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



CHAIN OF CUSTODY

Failure to complete all section of this form may delay analysis.

1709121

CLIENT CONTACT AND REPORTING INFORMATION		INVOICE ADDRESS (if other than reporting address)		ANALYSIS REQUIRED (suite codes must be listed to attract suite prices)																		
Company Name: Caerus Oil and Gas LLC		Company Name: Same		TPH-GRO/DRO	BTEX	TABLE 910- PAH's	SAR	EC, PH	TABLE 910- Metals													
Project Manager: Jake Janicek		Contact Name: Same																				
Address: 143 Diamond Avenue		Address: Same																				
Parachute, CO 81635																						
Phone: 970-285-8808		PROJECT INFORMATION																				
Email 1: jjanicek@caerusoilandgas.com		Project ID: Starkey Pit Frac Release																				
Email 2: cmckisson@ltenv.com		Site: Starkey Pit Frac Release																				
		PO No: 050817014																				
<input checked="" type="checkbox"/> Regular (default) 5 Day Standard TAT		ALS Quote No:																				
<input type="checkbox"/> Express (Please specify date required) (express fee will apply)																						

ALS ID #	SAMPLE IDENTIFICATION (this description will appear on report)	MATRIX (a)	SAMPLING AND CONTAINER INFO			REMARKS	CROSS THE REQUESTED ANALYSIS															
			Date	Time	Tot Bottle																	
SS-01		SS	9/1/2017	920	2	4"	X	X	X	X	X	X										
SS-02		SS	9/1/2017	930	2	5"	X	X	X	X	X	X										
SS-03		SS	9/1/2017	940	2	6"	X	X	X	X	X	X										
SS-04		SS	9/1/2017	945	2	6"	X	X	X	X	X	X										

CLIENT SIGNATURES		For lab use only			
Client's Signature:	Cooler Security Seal <input type="checkbox"/> sealed <input type="checkbox"/> broken <input type="checkbox"/> not available	Sample Temp <input type="checkbox"/> chilled deg °C <input type="checkbox"/> ambient	No of Cooler Received	Received by (lab)	Date and Time
Client's Date and Time of Completion: 9/1/17 1430			carton / cooler box		9/2/17 0935
			Courier Name: ALS	Committed by	Date and Time

Note: (a) DW (Drinking water), SW (Surface water), GW (Ground water), WW (Waste water), S (Soil), SL (Sludge), SE (Sediment), OS (Other solid material)

ALS Technichem (HK) Pty Ltd Address: 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Tel: +852 2610 1044 Fax: +852 2610 2021 Email: HongKong@alsglobal.com

1.8c



30-Jul-2013

Herman Lucero
HRL Compliance Solutions
2385 F 1/2 Road
Grand Junction, CO 81505

Re: **Caerus Chevron 41-8D 13-199 7/22/13**

Work Order: **1307799**

Dear Herman,

ALS Environmental received 3 samples on 23-Jul-2013 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston
Project Manager



Certificate No: MN 532786

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental ALS

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: HRL Compliance Solutions
Project: Caerus Chevron 41-8D 13-199 7/22/13
Work Order: 1307799

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1307799-01	BKGD 1	Soil		7/22/2013 13:45	7/23/2013 10:00	<input type="checkbox"/>
1307799-02	BKGD 2	Soil		7/22/2013 13:35	7/23/2013 10:00	<input type="checkbox"/>
1307799-03	BKGD 3	Soil		7/22/2013 13:30	7/23/2013 10:00	<input type="checkbox"/>

Client: HRL Compliance Solutions
Project: Caerus Chevron 41-8D 13-199 7/22/13
WorkOrder: 1307799

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCS D	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

ALS Group USA, Corp

Date: 30-Jul-13

Client: HRL Compliance Solutions
 Project: Caerus Chevron 41-8D 13-199 7/22/13
 Sample ID: BKGD 1
 Collection Date: 7/22/2013 01:45 PM

Work Order: 1307799
 Lab ID: 1307799-01
 Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020A		Prep Date: 7/25/2013	Analyst: ML
Arsenic	39		9.2	mg/Kg-dry	5	7/27/2013 02:20 AM
SOLUBLE CATIONS FOR SAR			SW6020A		Prep Date: 7/25/2013	Analyst: RH
Calcium	81		10	mg/L	20	7/26/2013 03:49 PM
Magnesium	28		4.0	mg/L	20	7/26/2013 03:49 PM
Sodium	120		4.0	mg/L	20	7/26/2013 03:49 PM
SODIUM ADSORPTION RATIO			USDA H60 METHO		Prep Date: 7/25/2013	Analyst: RH
Sodium Adsorption Ratio	2.8		0.010	none	1	7/26/2013
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO		Prep Date: 7/25/2013	Analyst: JB
Electrical Conductivity @ Saturation	1.2		0.050	mmhos/cm @25	10	7/25/2013 03:10 PM
MOISTURE			A2540 G			Analyst: BD
Moisture	82		0.050	% of sample	1	7/23/2013 12:40 PM
PH			SW9045D		Prep Date: 7/23/2013	Analyst: JB
pH	9.1			s.u.	1	7/23/2013 11:00 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 30-Jul-13

Client: HRL Compliance Solutions**Project:** Caerus Chevron 41-8D 13-199 7/22/13**Work Order:** 1307799**Sample ID:** BKGD 2**Lab ID:** 1307799-02**Collection Date:** 7/22/2013 01:35 PM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020A		Prep Date: 7/25/2013	Analyst: ML
Arsenic	8.3		2.0	mg/Kg-dry	5	7/27/2013 02:44 AM
MOISTURE			A2540 G			Analyst: BD
Moisture	7.3		0.050	% of sample	1	7/23/2013

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 30-Jul-13

Client: HRL Compliance Solutions**Project:** Caerus Chevron 41-8D 13-199 7/22/13**Work Order:** 1307799**Sample ID:** BKGD 3**Lab ID:** 1307799-03**Collection Date:** 7/22/2013 01:30 PM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020A		Prep Date: 7/25/2013	Analyst: ML
Arsenic	8.6		1.8	mg/Kg-dry	5	7/27/2013 02:50 AM
MOISTURE			A2540 G			Analyst: BD
Moisture	5.2		0.050	% of sample	1	7/23/2013

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: HRL Compliance Solutions

QC BATCH REPORT

Work Order: 1307799

Project: Caerus Chevron 41-8D 13-199 7/22/13

Batch ID: **50013** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK	Sample ID: MBLK-50013-50013				Units: mg/Kg			Analysis Date: 7/26/2013 02:01 PM		
Client ID:	Run ID: ICPMS1_130726A			SeqNo: 2392468		Prep Date: 7/25/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.03916	0.25								J

LCS	Sample ID: LCS-50013-50013				Units: mg/Kg			Analysis Date: 7/26/2013 02:07 PM		
Client ID:	Run ID: ICPMS1_130726A			SeqNo: 2392469		Prep Date: 7/25/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.799	0.25	5	0	96	80-120	0			

MS	Sample ID: 1307769-02BMS				Units: mg/Kg			Analysis Date: 7/26/2013 02:19 PM		
Client ID:	Run ID: ICPMS1_130726A			SeqNo: 2392471		Prep Date: 7/25/2013		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.8	1.9	7.418	5.276	101	75-125	0			

MSD	Sample ID: 1307769-02BMSD				Units: mg/Kg			Analysis Date: 7/26/2013 02:25 PM		
Client ID:	Run ID: ICPMS1_130726A			SeqNo: 2392472		Prep Date: 7/25/2013		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	13.82	1.9	7.645	5.276	112	75-125	12.8	7.68	25	

The following samples were analyzed in this batch: 1307799-01A 1307799-02A 1307799-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
Work Order: 1307799
Project: Caerus Chevron 41-8D 13-199 7/22/13

QC BATCH REPORT

Batch ID: **49915** Instrument ID **WETCHEM** Method: **USDA H60 Method**

DUP	Sample ID: 1307634-01B DUP		Units: mmhos/cm @25°C		Analysis Date: 7/25/2013 03:10 PM					
Client ID:	Run ID: WETCHEM_130725J		SeqNo: 2390794		Prep Date: 7/25/2013 DF: 10					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	1.583	0.050	0	0	0		1.847	15.4	50	

The following samples were analyzed in this batch:

Client: HRL Compliance Solutions
Work Order: 1307799
Project: Caerus Chevron 41-8D 13-199 7/22/13

QC BATCH REPORT

Batch ID: **49934** Instrument ID **WETCHEM** Method: **SW9045D**

LCS	Sample ID: LCS-49934-49934		Units: s.u.		Analysis Date: 7/23/2013 11:00 AM					
Client ID:	Run ID: WETCHEM_130723L		SeqNo: 2388161		Prep Date: 7/23/2013 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 4.53 0 4.4 0 103 90-110 0

DUP	Sample ID: 1307798-01B DUP		Units: s.u.		Analysis Date: 7/23/2013 11:00 AM					
Client ID:	Run ID: WETCHEM_130723L		SeqNo: 2388163		Prep Date: 7/23/2013 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 9.13 0 0 0 0 0-0 9.13 0 20

The following samples were analyzed in this batch:

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
 Work Order: 1307799
 Project: Caerus Chevron 41-8D 13-199 7/22/13

QC BATCH REPORT

Batch ID: **R124049** Instrument ID **MOIST** Method: **A2540 G**

MBLK	Sample ID: WBLKS-R124049		Units: % of sample				Analysis Date: 7/23/2013 12:40 PM			
Client ID:	Run ID: MOIST_130723A		SeqNo: 2388372		Prep Date:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

LCS	Sample ID: LCS-R124049		Units: % of sample				Analysis Date: 7/23/2013 12:40 PM			
Client ID:	Run ID: MOIST_130723A		SeqNo: 2388371		Prep Date:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP	Sample ID: 1307776-06A DUP		Units: % of sample				Analysis Date: 7/23/2013 12:40 PM			
Client ID:	Run ID: MOIST_130723A		SeqNo: 2388357		Prep Date:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 48.63 0.050 0 0 0 0-0 49.35 1.47 20

DUP	Sample ID: 1307798-01B DUP		Units: % of sample				Analysis Date: 7/23/2013 12:40 PM			
Client ID:	Run ID: MOIST_130723A		SeqNo: 2388365		Prep Date:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 19.99 0.050 0 0 0 0-0 20.28 1.44 20

The following samples were analyzed in this batch: 1307799-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions
 Work Order: 1307799
 Project: Caerus Chevron 41-8D 13-199 7/22/13

QC BATCH REPORT

Batch ID: **R124058** Instrument ID **MOIST** Method: **A2540 G**

MBLK		Sample ID: WBLKS-R124058				Units: % of sample			Analysis Date: 7/23/2013		
Client ID:		Run ID: MOIST_130723C				SeqNo: 2388576		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture ND 0.050

LCS		Sample ID: LCS-R124058				Units: % of sample			Analysis Date: 7/23/2013		
Client ID:		Run ID: MOIST_130723C				SeqNo: 2388574		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1307794-01B DUP				Units: % of sample			Analysis Date: 7/23/2013		
Client ID:		Run ID: MOIST_130723C				SeqNo: 2388528		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 15.1 0.050 0 0 0 0-0 15.45 2.29 20

DUP		Sample ID: 1307801-04A DUP				Units: % of sample			Analysis Date: 7/23/2013		
Client ID:		Run ID: MOIST_130723C				SeqNo: 2388551		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 32.26 0.050 0 0 0 0-0 31.81 1.4 20

The following samples were analyzed in this batch: 1307799-02A 1307799-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



ALS Laboratory Group

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

Chain-of-Custody

Form 202r8

WORKORDER #	1307799
PAGE	1 of 1

PROJECT NAME	CAERUS CHEVRON 41-8D	SAMPLER	Casey Richardson				DATE	7-22-13				TURNAROUND	5 DAY				DISPOSAL	Lab or Return to Client			
PROJECT No.	13-199	SITE ID																			
		EDD FORMAT																			
		PURCHASE ORDER																			
COMPANY NAME	HCSI	BILL TO COMPANY	PDC Energy																		
SEND REPORT TO	Herman Lucero	INVOICE ATTN TO	Ed Winters																		
ADDRESS	2385 F 1/2 Road	ADDRESS	120 Railroad Ave. Suite D																		
CITY / STATE / ZIP	Grand Junction, CO. 81505	CITY / STATE / ZIP	Parachute, CO 81635																		
PHONE	970-243-3271	PHONE	970-285-9606																		
FAX	970-243-3280	FAX																			
E-MAIL	hlucero@hrlcomp.com	E-MAIL	ewinters@petd.com																		
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	SAR/EC/PAH	ARSENIC												
1	BKGD 1	SOIL	7-22-13	1345	2	8		X	X												
2	BKGD 2	SOIL	7-22-13	1335	1	8			X												
3	BKGD 3	SOIL	7-22-13	1330	1	8			X												

*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: 5.02	QC PACKAGE (check below)	
	<input checked="" type="checkbox"/>	LEVEL II (Standard QC)
	<input type="checkbox"/>	LEVEL III (Std QC + forms)
	<input type="checkbox"/>	LEVEL IV (Std QC + forms + raw data)
	<input type="checkbox"/>	
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
RELINQUISHED BY		Casey Richardson	7-22-13	1625
RECEIVED BY		Colby Koerner	7/22/13	1625
RELINQUISHED BY		Colby Koerner	7/22/13	1625
RECEIVED BY	Fed Ex			
RELINQUISHED BY				
RECEIVED BY		Diane F Shaw	7/23/13	1000

Sample Receipt Checklist

Client Name: **HRL**

Date/Time Received: **23-Jul-13 10:00**

Work Order: **1307799**

Received by: **DS**

Checklist completed by Diane Shaw 23-Jul-13
eSignature Date

Reviewed by: Ann Preston 28-Jul-13
eSignature Date

Matrices: Soil
Carrier name: FedEx

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container/Temp Blank temperature in compliance? Yes No

Temperature(s)/Thermometer(s): 5.0 c

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 7/23/2013 10:56:26 AM

Water - VOA vials have zero headspace? Yes No No VOA vials submitted

Water - pH acceptable upon receipt? Yes No N/A

pH adjusted? Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

From: (970) 424-4749
Lab Hub, LLC

Origin ID: RILA



Ship Date: 22JUL13
ActWgt: 80.0 LB
CAD: 103923490/INET3370

Dims: 25 X 14 X 15 IN

127 E First Street
PARACHUTE, CO 81635



J13111302120326

Delivery Address Bar Code



SHIP TO: (616) 399-6070

BILL RECIPIENT

Sample receiving
ALS Holland
3352 128TH AVE

HOLLAND, MI 49424

Ref # 1001-072213-3
Invoice #
PO #
Dept #

TUE - 23 JUL 3:00P
STANDARD OVERNIGHT

TRK# 7962 8879 8431

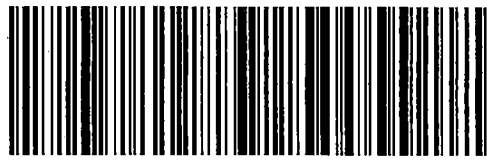
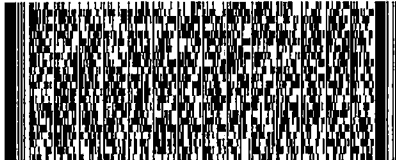
0201

49424

MI-US

GRR

XX GRRR



518G1/AA04/53AB

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