

**Divide Road Pipeline Release (Form 27)  
(REM 10691)**

This Form 27 (Site Investigation and Remediation Workplan) was prepared for the purpose of presenting site assessment data and associated with hydrocarbon impacts discovered at the Divide Road pipeline in the Caerus Oil and Gas LLC (Caerus) North Parachute Mountain area of operation in Garfield County (Figure 1).

**REMEDIATION WORKPLAN**

**Describe initial action taken (if previously provided, refer to that form or document)**

Refer to Form 19 document numbers 401461492 and 401463609

From November 6 through December 8, 2017, LTE installed 17 soil borings in the project area advanced to depths ranging from 34 to 75 ft. below ground surface (bgs). (Figure 2). The soil borings were logged by an LTE geologist who inspected the soil for the presence or absence of petroleum hydrocarbon odor and/or staining. The soil was characterized by visually inspecting the soil samples and field screening the soil headspace using a photo-ionization detector (PID) to monitor for the presence of volatile organic vapors. Soil samples were collected from each soil boring and submitted to ALS Environmental in Holland, Michigan (ALS) for laboratory analysis of constituents identified in Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1. Monitoring wells were constructed in 16 boreholes by installing screened casing across the groundwater interface and solid casing to surface. Each well was protected by installing a solid steel riser over the well to approximately 3 feet above ground surface. Soil boring logs are included as an attachment. A summary of soil laboratory analytical data is included as Table 1.

On December 1, 2017, Caerus personnel conducted excavation activities around the release point. Soil was excavated to a depth of 6.5 ft. bgs. One soil sample collected from the excavation near the point of release and submitted to ALS for laboratory analysis of constituents identified in COGCC Table 910-1. Laboratory analytical results of excavation soil samples indicated hydrocarbon impacts to soil.

Following well construction, each groundwater monitoring well was developed using a foot valve pump and surge block. During well development, ten well casing volumes of groundwater were removed from each well. Depth to water and product thickness were measured in all wells during this sampling event utilizing an oil water interface probe. Product had been observed in monitoring wells MW-02 and MW-10 with product thicknesses ranging from droplets (MW-10) to 0.30 ft. (MW-02). Groundwater samples were submitted to ALS for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), major anions and major cations. A summary of groundwater laboratory analytical data is included as Table 2.

Weather permitting, assessment activities are planned to continue through 12/22/2017.

**Describe how source is to be removed:**

The segment of pipeline that failed has been identified, removed and replaced.

**Describe how remediation of existing impact is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:**

Obtained assessment data will be used to develop an appropriate remediation strategy.

**Divide Road Pipeline Release (Form 27)**  
**(REM 10691)**

**If groundwater has been impacted, described proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):**

Groundwater data indicates hydrocarbon impacts in the project area. Following the completion of site assessment activities, a groundwater sampling schedule will be proposed.

**Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.**

Any disturbances will be backfilled to match preexisting grade. Site reclamation will be carried out when appropriate, based on productivity and plans for future development.

**Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing. Is further site investigation required? If yes, describe:**

All laboratory analytical reports received up to December 13, 2017 are included as an attachment and summarized in the attached tables. Figures 2 and 3 depict soil and groundwater data associated with each sample location.

**Final disposition of E&P waste (land treated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):**

Final disposition of E&P waste will be detailed following the completion of this project.

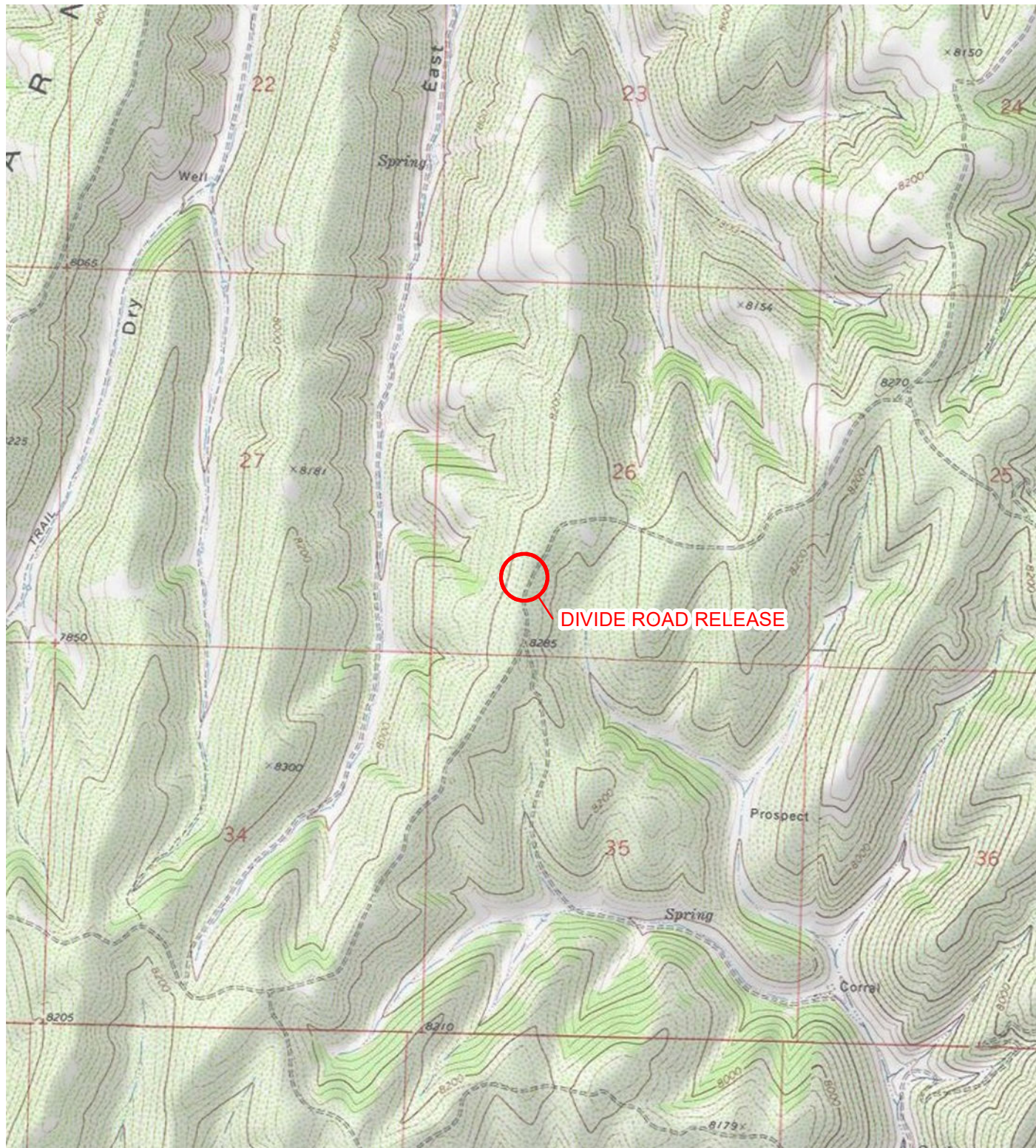
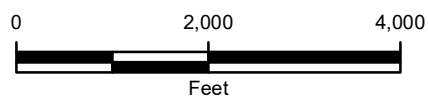


IMAGE COURTESY OF ESRI/USGS

# LEGEND

○ SITE LOCATION



COLORADO

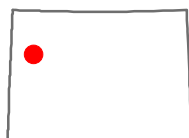
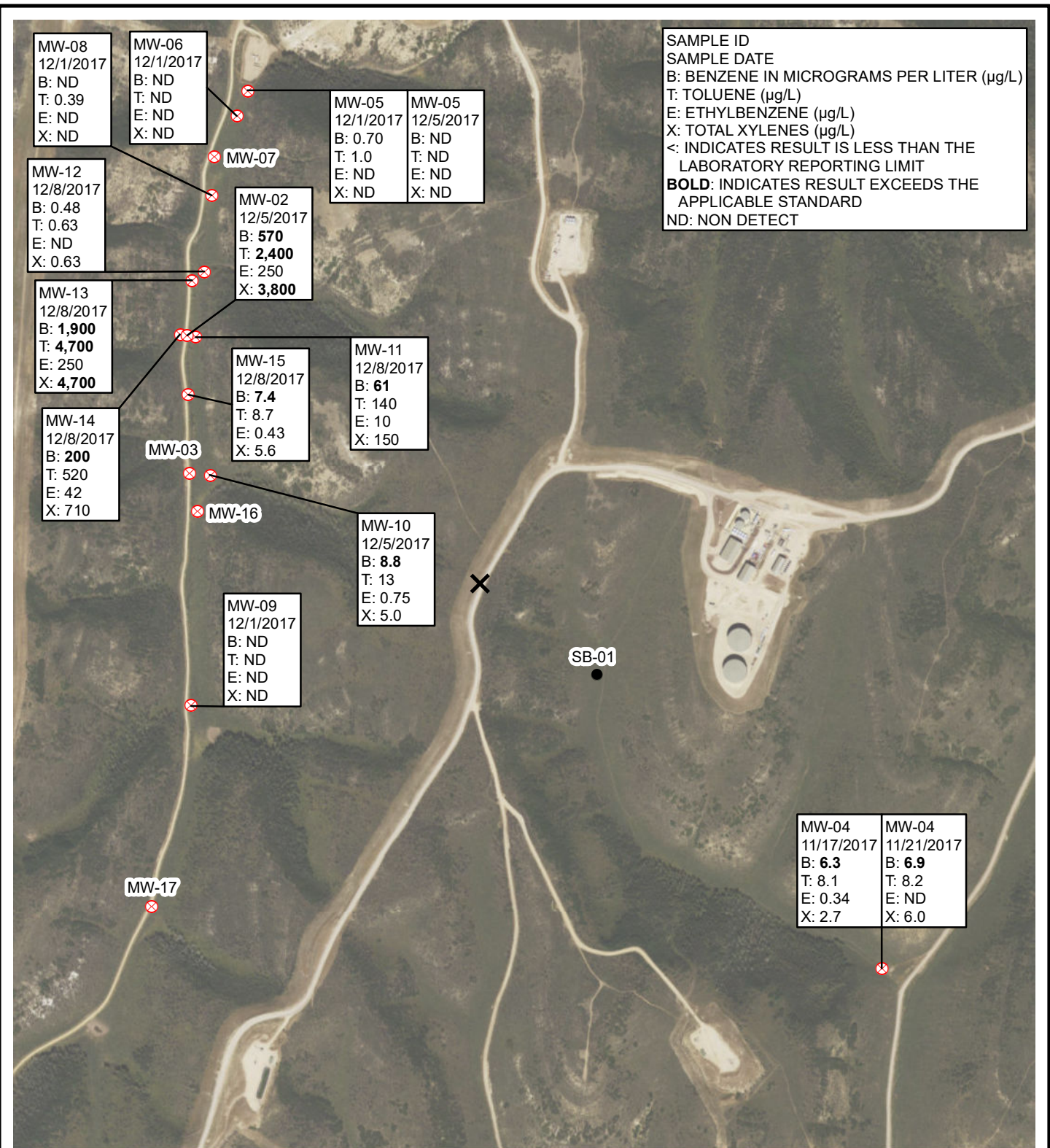


FIGURE 1  
SITE LOCATION MAP  
DIVIDE ROAD RELEASE  
GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS, LLC







SAMPLE ID  
SAMPLE DATE  
B: BENZENE IN MICROGRAMS PER LITER (µg/L)  
T: TOLUENE (µg/L)  
E: ETHYLBENZENE (µg/L)  
X: TOTAL XYLENES (µg/L)  
<: INDICATES RESULT IS LESS THAN THE  
LABORATORY REPORTING LIMIT  
**BOLD**: INDICATES RESULT EXCEEDS THE  
APPLICABLE STANDARD  
ND: NON DETECT

MW-08  
12/1/2017  
B: ND  
T: 0.39  
E: ND  
X: ND

MW-06  
12/1/2017  
B: ND  
T: ND  
E: ND  
X: ND

MW-05  
12/1/2017  
B: 0.70  
T: 1.0  
E: ND  
X: ND

MW-05  
12/5/2017  
B: ND  
T: ND  
E: ND  
X: ND

MW-12  
12/8/2017  
B: 0.48  
T: 0.63  
E: ND  
X: 0.63

MW-02  
12/5/2017  
B: **570**  
T: **2,400**  
E: 250  
X: **3,800**

MW-13  
12/8/2017  
B: **1,900**  
T: **4,700**  
E: 250  
X: **4,700**

MW-15  
12/8/2017  
B: **7.4**  
T: 8.7  
E: 0.43  
X: 5.6

MW-11  
12/8/2017  
B: **61**  
T: 140  
E: 10  
X: 150

MW-14  
12/8/2017  
B: **200**  
T: 520  
E: 42  
X: 710

MW-03

MW-16

MW-10  
12/5/2017  
B: **8.8**  
T: 13  
E: 0.75  
X: 5.0

MW-09  
12/1/2017  
B: ND  
T: ND  
E: ND  
X: ND

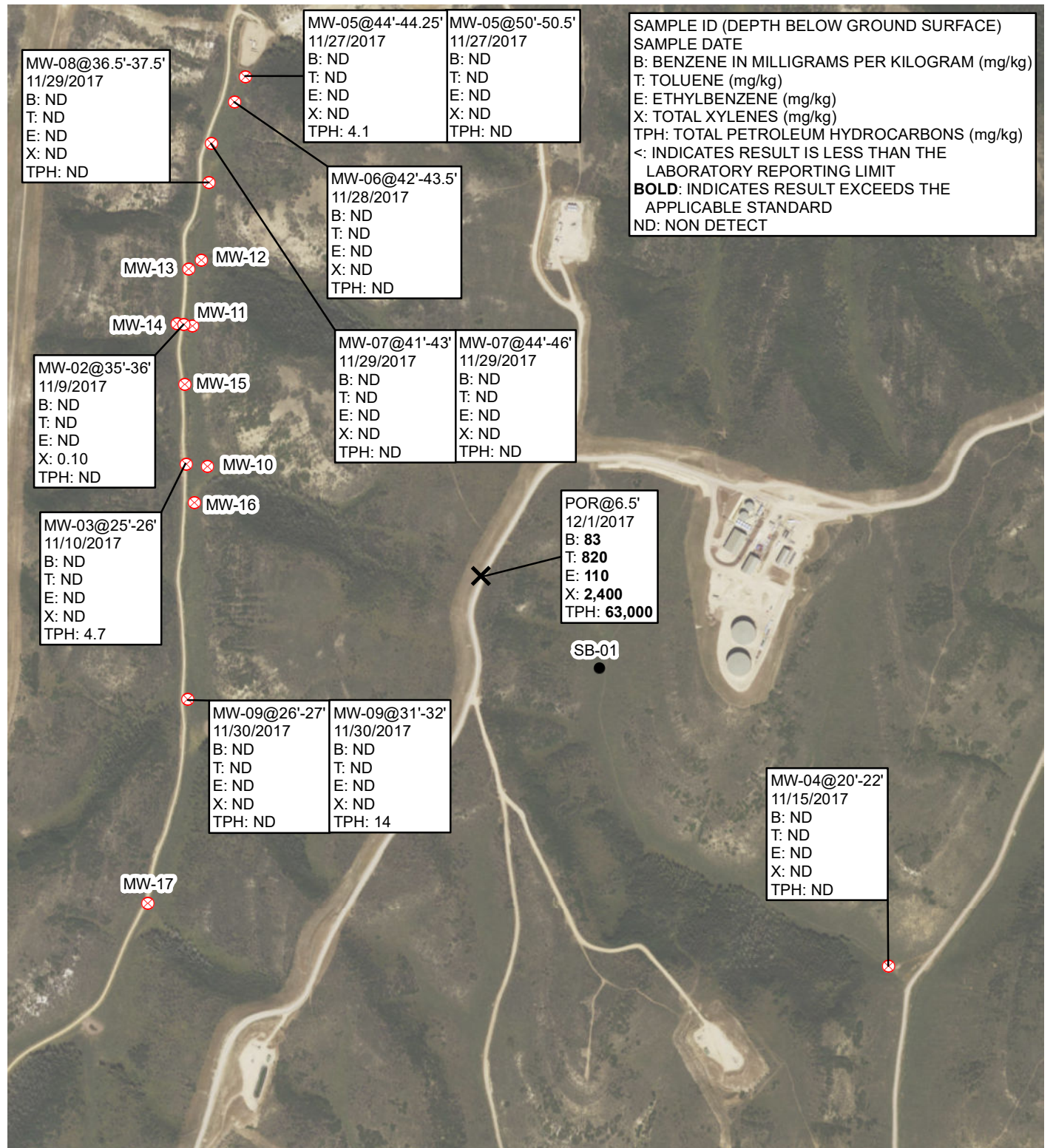
SB-01

MW-17

MW-04  
11/17/2017  
B: **6.3**  
T: 8.1  
E: 0.34  
X: 2.7

MW-04  
11/21/2017  
B: **6.9**  
T: 8.2  
E: ND  
X: 6.0





**FIGURE 3**  
**SOIL ANALYTICAL RESULTS**  
**DIVIDE ROAD RELEASE**  
**GARFIELD COUNTY, COLORADO**

**CAERUS OIL AND GAS, LLC**



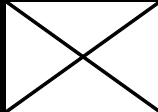
TABLE 1  
SOIL LABORATORY RESULTS SUMMARY TABLE  
DIVIDE ROAD PIPELINE RELEASE  
GARFIELD, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	Point of Release	MW-02	MW-03	MW-04	MW-05	MW-05	MW-06	MW-07	MW-07	MW-08	MW-09	MW-09
Sample Date			12/1/2017	11/9/2017	11/10/2017	11/15/2017	11/27/2017	11/27/2017	11/28/2017	11/29/2017	11/29/2017	11/29/2017	11/30/2017	11/30/2017
Sample Depth		FEET	6.5	35-36	25-26	20-22	44-44.25	50-50.5	42-43.5	41-43	44-46	36.5-37.5	26-27	31-32
Sample Type			EXCAVATION	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING	SOIL BORING
Arsenic	0.39	mg/kg	NA	13	4.4	11	5.9	3.5	8.2	6.7	12	11	9.4	8.7
Barium	15,000	mg/kg	NA	400	300	330	630	370	310	230	290	210	250	260
Cadmium	70	mg/kg	NA	0.54	2.3	0.25	2.1	1.6	0.44	0.34	0.53	0.45	0.54	0.57
Chromium (III)	120,000	mg/kg	NA	56	36	32	50	41	52	43	42	38	32	29
Chromium (VI)	23	mg/kg	NA	0.94	ND	0.95	ND	ND	ND	ND	ND	1.5	ND	ND
Copper	3,100	mg/kg	NA	18	2.4	17	14	20	24	15	15	24	20	22
Lead	400	mg/kg	NA	15	14	13	6.5	14	8.6	11	14	14	14	14
Mercury	23	mg/kg	NA	0.0083	0.014	0.017	0.010	0.0080	0.0093	0.011	0.015	0.028	0.015	0.0074
Nickel	1,600	mg/kg	NA	18	26	24	35	19	38	19	23	28	28	26
Selenium	390	mg/kg	NA	2.5	9.8	1.6	2.1	2.2	2.3	1.9	2.3	2	2.3	2.4
Silver	390	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	23,000	mg/kg	NA	55	67	62	55	36	68	100	71	77	75	81
EC	4.0	mmhos/cm	NA	0.69	1.1	0.87	6.8	5.9	1.2	0.70	0.72	0.74	0.64	1.4
pH	6 - 9	SU	NA	8.28	9.00	8.28	9.15	8.94	8.81	8.62	8.36	8.32	8.24	8.18
SAR	12	unitless	NA	1.7	1.9	1.7	2.5	3.4	4.0	1.8	1.8	2.1	1.8	1.6
TPH-GRO		mg/kg	28,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TPH-DRO		mg/kg	35,000	ND	4.7	ND	4.1	ND	ND	ND	ND	ND	ND	14
TPH	500	mg/kg	63,000	ND	4.7	ND	4.1	ND	ND	ND	ND	ND	ND	14
Benzene	0.17	mg/kg	83	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	85	mg/kg	820	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	100	mg/kg	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	175	mg/kg	2,400	0.10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	1000	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	1000	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(A)anthracene	0.22	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(B)fluoranthene	0.22	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(K)fluoranthene	2.2	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.022	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	22	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.022	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1000	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	1000	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,C,D)pyrene	0.22	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	23	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	1000	mg/kg	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:  
ND - analyte not detected  
**BOLD** - indicates result exceeds the COGCC concentration level  
SU - standard unit  
COGCC - Colorado Oil and Gas Conservation Commission  
EC- electrical conductivity  
SAR - sodium adsorption ratio  
mmhos/cm - millimhos per centimeter  
NA - not analyzed  
mg/kg - milligrams per kilogram



TABLE 2  
LABORATORY RESULTS SUMMARY TABLE  
DIVIDE ROAD PIPELINE RELEASE  
GARFIELD, COLORADO  
CAERUS OIL AND GAS LLC

Sample ID	Date	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Total Xylenes µg/L
MW-02	12/5/17	<b>570</b>	<b>2,400</b>	250	<b>3,800</b>
MW-04	11/17/17	<b>6.3</b>	8.1	0.34	2.7
	11/21/17	<b>6.9</b>	8.2	ND	6.0
MW-05	12/1/17	0.70	1.0	ND	ND
	12/5/17	ND	ND	ND	ND
MW-06	12/1/17	ND	ND	ND	ND
MW-08	12/1/17	ND	0.39	ND	ND
MW-09	12/1/17	ND	ND	ND	ND
MW-10	12/5/17	<b>8.8</b>	13	0.75	5.0
MW-11	12/8/17	<b>61</b>	140	10	150
MW-12	12/8/17	0.48	0.63	ND	0.63
MW-13	12/8/17	<b>1,900</b>	<b>4,700</b>	250	<b>4,700</b>
MW-14	12/8/17	<b>200</b>	520	42	710
MW-15	12/8/17	<b>7.4</b>	8.7	0.43	5.6
COGCC CONCENTRATION LEVELS		5	560	700	1,400

**Notes:**

ND - analyte not detected

**BOLD** - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

µg/L - micrograms per liter

SU - standard unit

highlighted - preliminary results



20-Nov-2017

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

Re: **K35 CDP Pipeline Release**

Work Order: **1711827**

Dear Brett,

ALS Environmental received 1 sample on 11-Nov-2017 09:30 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 22.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



---

**Client:** Caerus Oil and Gas LLC  
**Project:** K35 CDP Pipeline Release  
**Work Order:** 1711827

---

**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>
1711827-01	20171109-Divide Rd (MW-02) @ 35'-36'	Soil		11/9/2017 15:00	11/11/2017 09:30	<input type="checkbox"/>

---

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
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

Date: 20-Nov-17

**Client:** Caerus Oil and Gas LLC  
**Project:** K35 CDP Pipeline Release  
**Sample ID:** 20171109-Divide Rd (MW-02) @ 35'-36'  
**Collection Date:** 11/9/2017 03:00 PM

**Work Order:** 1711827  
**Lab ID:** 1711827-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 11/13/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		5.4	9.3	mg/Kg-dry	1	11/13/2017 21:01
Surr: 4-Terphenyl-d14	99.6			34-130	%REC	1	11/13/2017 21:01
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 11/13/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		3.0	7.2	mg/Kg	1	11/14/2017 11:48
Surr: Toluene-d8	97.2			71-123	%REC	1	11/14/2017 11:48
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 11/14/17		Analyst: <b>RSB</b>
Mercury	0.0083	J	0.0020	0.020	mg/Kg-dry	1	11/14/2017 12:38
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 11/14/17		Analyst: <b>HBA</b>
Arsenic	13		0.12	0.46	mg/Kg-dry	1	11/16/2017 15:15
Barium	400		0.18	0.46	mg/Kg-dry	1	11/16/2017 15:15
Cadmium	0.54	J	0.044	0.92	mg/Kg-dry	1	11/16/2017 15:15
Chromium	57		0.026	0.46	mg/Kg-dry	1	11/16/2017 15:15
Copper	18		0.20	0.92	mg/Kg-dry	1	11/16/2017 15:15
Lead	15		0.097	0.46	mg/Kg-dry	1	11/16/2017 15:15
Nickel	18		0.18	0.46	mg/Kg-dry	1	11/16/2017 15:15
Selenium	2.5		0.26	0.92	mg/Kg-dry	1	11/16/2017 15:15
Silver	U		0.057	0.46	mg/Kg-dry	1	11/16/2017 15:15
Zinc	55		0.074	0.92	mg/Kg-dry	1	11/16/2017 15:15
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/15/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	1.7		0.010	0.010	none	1	11/14/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 11/15/17		Analyst: <b>JF</b>
Calcium	50		0.86	5.0	mg/L	10	11/15/2017 11:57
Magnesium	15		0.068	2.0	mg/L	10	11/15/2017 11:57
Sodium	54		0.34	2.0	mg/L	10	11/15/2017 11:57
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 11/13/17		Analyst: <b>RM</b>
Acenaphthene	U		0.0055	0.078	mg/Kg-dry	1	11/14/2017 02:25
Anthracene	U		0.0028	0.078	mg/Kg-dry	1	11/14/2017 02:25
Benzo(a)anthracene	U		0.0048	0.078	mg/Kg-dry	1	11/14/2017 02:25
Benzo(a)pyrene	U		0.0019	0.078	mg/Kg-dry	1	11/14/2017 02:25
Benzo(b)fluoranthene	U		0.0030	0.078	mg/Kg-dry	1	11/14/2017 02:25
Benzo(k)fluoranthene	U		0.0040	0.078	mg/Kg-dry	1	11/14/2017 02:25
Chrysene	U		0.0030	0.078	mg/Kg-dry	1	11/14/2017 02:25
Dibenzo(a,h)anthracene	U		0.0025	0.078	mg/Kg-dry	1	11/14/2017 02:25
Fluoranthene	U		0.0022	0.078	mg/Kg-dry	1	11/14/2017 02:25

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



# ALS Group, USA

Date: 20-Nov-17

**Client:** Caerus Oil and Gas LLC  
**Project:** K35 CDP Pipeline Release  
**Sample ID:** 20171109-Divide Rd (MW-02) @ 35'-36'  
**Collection Date:** 11/9/2017 03:00 PM

**Work Order:** 1711827  
**Lab ID:** 1711827-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0025	0.078	mg/Kg-dry	1	11/14/2017 02:25
Indeno(1,2,3-cd)pyrene	U		0.0024	0.078	mg/Kg-dry	1	11/14/2017 02:25
Naphthalene	U		0.015	0.078	mg/Kg-dry	1	11/14/2017 02:25
Pyrene	U		0.0028	0.078	mg/Kg-dry	1	11/14/2017 02:25
Surr: 2-Fluorobiphenyl	94.5			20-140	%REC	1	11/14/2017 02:25
Surr: 4-Terphenyl-d14	133			22-172	%REC	1	11/14/2017 02:25
Surr: Nitrobenzene-d5	68.3			28-140	%REC	1	11/14/2017 02:25
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 11/13/17		Analyst: <b>EMR</b>
Benzene	U		0.0074	0.043	mg/Kg	1	11/14/2017 03:47
Ethylbenzene	U		0.0091	0.043	mg/Kg	1	11/14/2017 03:47
<b>m,p-Xylene</b>	<b>0.10</b>		<b>0.021</b>	<b>0.086</b>	<b>mg/Kg</b>	1	11/14/2017 03:47
o-Xylene	U		0.017	0.043	mg/Kg	1	11/14/2017 03:47
Toluene	U		0.012	0.043	mg/Kg	1	11/14/2017 03:47
<b>Xylenes, Total</b>	<b>0.10</b>	J	<b>0.037</b>	<b>0.13</b>	<b>mg/Kg</b>	1	11/14/2017 03:47
Surr: 1,2-Dichloroethane-d4	101			70-130	%REC	1	11/14/2017 03:47
Surr: 4-Bromofluorobenzene	99.6			70-130	%REC	1	11/14/2017 03:47
Surr: Dibromofluoromethane	94.3			70-130	%REC	1	11/14/2017 03:47
Surr: Toluene-d8	93.8			70-130	%REC	1	11/14/2017 03:47
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/15/17		Analyst: <b>JB</b>
<b>Electrical Conductivity @ Saturation</b>	<b>0.69</b>		<b>0.011</b>	<b>0.10</b>	<b>mmhos/cm @25°</b>	20	11/16/2017 08:50
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JB</b>
<b>Chromium, Trivalent</b>	<b>56</b>		<b>0.38</b>	<b>1.2</b>	<b>mg/Kg-dry</b>	1	11/17/2017 08:45
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 11/14/17		Analyst: <b>RP</b>
<b>Chromium, Hexavalent</b>	<b>0.94</b>	J	<b>0.38</b>	<b>1.2</b>	<b>mg/Kg-dry</b>	1	11/15/2017 12:20
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>MT</b>
<b>Moisture</b>	<b>18</b>		<b>0.025</b>	<b>0.050</b>	<b>% of sample</b>	1	11/13/2017 17:23
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 11/14/17		Analyst: <b>RZM</b>
<b>pH</b>	<b>8.28</b>		<b>0.10</b>	<b>0.100</b>	<b>s.u.</b>	1	11/14/2017 11:50

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

**QC BATCH REPORT**

Batch ID: **110436** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-110436-110436</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 05:08 PM</b>		
Client ID:		Run ID: <b>GC8_171113A</b>				SeqNo: <b>4757093</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) U 5.0  
 Surr: 4-Terphenyl-d14 2.95 0 3.33 0 88.6 34-130 0

<b>LCS</b>		Sample ID: <b>DLCSS1-110436-110436</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 05:37 PM</b>		
Client ID:		Run ID: <b>GC8_171113A</b>				SeqNo: <b>4757095</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 400.6 5.0 333 0 120 65-122 0  
 Surr: 4-Terphenyl-d14 3.617 0 3.33 0 109 34-130 0

<b>MS</b>		Sample ID: <b>1711786-04A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 06:35 PM</b>		
Client ID:		Run ID: <b>GC8_171113A</b>				SeqNo: <b>4757099</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 476.3 4.8 317.2 140.5 106 65-122 0  
 Surr: 4-Terphenyl-d14 3.572 0 3.172 0 113 34-130 0

<b>MSD</b>		Sample ID: <b>1711786-04A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 07:05 PM</b>		
Client ID:		Run ID: <b>GC8_171113A</b>				SeqNo: <b>4757101</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 467.6 4.9 324.3 140.5 101 65-122 476.3 1.84 30  
 Surr: 4-Terphenyl-d14 3.441 0 3.243 0 106 34-130 3.572 3.75 30

The following samples were analyzed in this batch: 1711827-01A

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110477** Instrument ID **GC9** Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-110477-110477</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 11:18 A</b>		
Client ID:		Run ID: <b>GC9_171113A</b>				SeqNo: <b>4757791</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000	0	0	0		0			
Surr: Toluene-d8	4748	0	5000	0	95	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-110477-110477</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 10:19 A</b>		
Client ID:		Run ID: <b>GC9_171113A</b>				SeqNo: <b>4757790</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	439100	5,000	500000	0	87.8	71-123	0			
Surr: Toluene-d8	5004	0	5000	0	100	71-123	0			

<b>MS</b>		Sample ID: <b>1711827-01A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 06:16 PM</b>		
Client ID: <b>20171109-Divide Rd (MW-02) @ 35'-36'</b>		Run ID: <b>GC10_171114A</b>				SeqNo: <b>4760088</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	745600	7,200	719500	0	104	71-123	0			
Surr: Toluene-d8	7943	0	7195	0	110	71-123	0			

<b>MSD</b>		Sample ID: <b>1711827-01A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 06:42 PM</b>		
Client ID: <b>20171109-Divide Rd (MW-02) @ 35'-36'</b>		Run ID: <b>GC10_171114A</b>				SeqNo: <b>4760089</b>		Prep Date: <b>11/13/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	706600	7,200	719500	0	98.2	71-123	745600	5.37	30	
Surr: Toluene-d8	7923	0	7195	0	110	71-123	7943	0.254	30	

The following samples were analyzed in this batch: 1711827-01A

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110481** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>mblk-110481-110481</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 11:26 A</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4757688</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>lcs-110481-110481</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 11:29 A</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4757689</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1867 0.020 0.1665 0 112 80-120 0

<b>MS</b>		Sample ID: <b>1711648-02ams</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 11:37 A</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4757692</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1897 0.016 0.133 0.05757 99.4 75-125 0

<b>MSD</b>		Sample ID: <b>1711648-02amsd</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 11:39 A</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4757693</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.224 0.016 0.1332 0.05757 125 75-125 0.1897 16.6 35

The following samples were analyzed in this batch:

1711827-01a

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110529** Instrument ID **ICP2** Method: **SW846 6010C**

<b>MBLK</b>		Sample ID: <b>MBLK-110529-110529</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:13 A</b>		
Client ID:		Run ID: <b>ICP2_171114B</b>				SeqNo: <b>4759343</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.1225	0.50								J
Chromium	0.0875	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	0.166	0.50								J

<b>MBLK</b>		Sample ID: <b>MBLK-110529-110529</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 07:19 PM</b>		
Client ID:		Run ID: <b>ICP2_171115A</b>				SeqNo: <b>4762097</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cadmium	0.03375	0.50								J

<b>LCS</b>		Sample ID: <b>LCS-110529-110529</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 07:26 PM</b>		
Client ID:		Run ID: <b>ICP2_171115A</b>				SeqNo: <b>4762098</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cadmium	5.007	0.50	5	0	100	80-120	0			

<b>MS</b>		Sample ID: <b>1711828-01AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 08:03 PM</b>		
Client ID:		Run ID: <b>ICP2_171115A</b>				SeqNo: <b>4762596</b>		Prep Date: <b>11/14/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	284.3	3.4	6.887	322.3	-552	75-125	0			SO

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110529** Instrument ID **ICP2** Method: **SW846 6010C**

MS				Sample ID: 1711828-01AMS			Units: mg/Kg		Analysis Date: 11/16/2017 03:30 PM		
Client ID:			Run ID: ICP2_171116A			SeqNo: 4764397		Prep Date: 11/14/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	12.75	0.34	6.887	7.495	76.3	75-125	0				
Barium	304.2	0.34	6.887	351.4	-687	75-125	0			SO	
Cadmium	8.581	0.69	6.887	0.6593	115	75-125	0				
Chromium	37.06	0.34	6.887	26.01	160	75-125	0			S	
Copper	28.76	0.69	6.887	21	113	75-125	0				
Lead	16.3	0.34	6.887	11.17	74.4	75-125	0			S	
Nickel	29.04	0.34	6.887	26.62	35.1	75-125	0			S	
Selenium	8.027	0.69	6.887	1.607	93.2	75-125	0				
Silver	7.452	0.34	6.887	-0.3578	113	75-125	0				
Zinc	80.09	0.69	6.887	72.65	108	75-125	0			O	

MSD				Sample ID: 1711828-01AMSD			Units: mg/Kg		Analysis Date: 11/16/2017 03:38 PM		
Client ID:			Run ID: ICP2_171116A			SeqNo: 4764398		Prep Date: 11/14/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	12.18	0.34	6.878	7.495	68.2	75-125	12.75	4.55	20	S	
Barium	263	0.34	6.878	351.4	-1290	75-125	304.2	14.5	20	SO	
Cadmium	8.359	0.69	6.878	0.6593	112	75-125	8.581	2.63	20		
Chromium	36.62	0.34	6.878	26.01	154	75-125	37.06	1.19	20	S	
Copper	28.31	0.69	6.878	21	106	75-125	28.76	1.57	20		
Lead	17.18	0.34	6.878	11.17	87.4	75-125	16.3	5.29	20		
Nickel	29.85	0.34	6.878	26.62	47	75-125	29.04	2.77	20	S	
Selenium	7.968	0.69	6.878	1.607	92.5	75-125	8.027	0.737	20		
Silver	7.399	0.34	6.878	-0.3578	113	75-125	7.452	0.715	20		
Zinc	86.87	0.69	6.878	72.65	207	75-125	80.09	8.12	20	SO	

The following samples were analyzed in this batch:

1711827-01A

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110579** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1711732-02ADUP</b>				Units: <b>none</b>		Analysis Date: <b>11/14/2017</b>		
Client ID:		Run ID: <b>SAR_171115A</b>				SeqNo: <b>4761550</b>		Prep Date: <b>11/15/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	2.021	0.010	0	0	0		1.855	8.56	50	

The following samples were analyzed in this batch:

1711827-01A

Batch ID: **110579** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>1711732-02ADUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>11/15/2017 11:56 A</b>		
Client ID:		Run ID: <b>ICPMS3_171115A</b>				SeqNo: <b>4761027</b>		Prep Date: <b>11/15/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	61.05	5.0	0	0	0	0-0	66.14	8		
Magnesium	5.944	2.0	0	0	0	0-0	6.569	10		
Sodium	61.76	2.0	0	0	0	0-0	59.09	4.42		

The following samples were analyzed in this batch:

1711827-01A

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

Client: Caerus Oil and Gas LLC  
 Work Order: 1711827  
 Project: K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: 110434 Instrument ID SVMS6 Method: SW846 8270D

MBLK		Sample ID: SBLKS1-110434-110434				Units: µg/Kg		Analysis Date: 11/13/2017 04:39 PM		
Client ID:		Run ID: SVMS6_171113A				SeqNo: 4756747		Prep Date: 11/13/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	42								
Anthracene	U	42								
Benzo(a)anthracene	U	42								
Benzo(a)pyrene	U	42								
Benzo(b)fluoranthene	U	42								
Benzo(k)fluoranthene	U	42								
Chrysene	U	42								
Dibenzo(a,h)anthracene	U	42								
Fluoranthene	U	42								
Fluorene	U	42								
Indeno(1,2,3-cd)pyrene	U	42								
Naphthalene	U	42								
Pyrene	U	42								
Surr: 2-Fluorobiphenyl	3101	0	3333	0	93	20-140	0			
Surr: 4-Terphenyl-d14	4729	0	3333	0	142	22-172	0			
Surr: Nitrobenzene-d5	2629	0	3333	0	78.9	28-140	0			

LCS		Sample ID: SLCSS1-110434-110434				Units: µg/Kg		Analysis Date: 11/13/2017 04:53 PM		
Client ID:		Run ID: SVMS6_171113A				SeqNo: 4756748		Prep Date: 11/13/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1129	42	1333	0	84.7	40-140	0			
Anthracene	1268	42	1333	0	95.2	40-140	0			
Benzo(a)anthracene	1288	42	1333	0	96.6	40-140	0			
Benzo(a)pyrene	1725	42	1333	0	129	40-140	0			
Benzo(b)fluoranthene	1286	42	1333	0	96.5	40-140	0			
Benzo(k)fluoranthene	1462	42	1333	0	110	40-140	0			
Chrysene	1332	42	1333	0	99.9	40-140	0			
Dibenzo(a,h)anthracene	1002	42	1333	0	75.2	40-140	0			
Fluoranthene	1211	42	1333	0	90.8	40-140	0			
Fluorene	1345	42	1333	0	101	40-140	0			
Indeno(1,2,3-cd)pyrene	1096	42	1333	0	82.2	40-140	0			
Naphthalene	1175	42	1333	0	88.2	40-140	0			
Pyrene	1489	42	1333	0	112	40-140	0			
Surr: 2-Fluorobiphenyl	3321	0	3333	0	99.6	20-140	0			
Surr: 4-Terphenyl-d14	4151	0	3333	0	125	22-172	0			
Surr: Nitrobenzene-d5	2467	0	3333	0	74	28-140	0			

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

Client: Caerus Oil and Gas LLC  
 Work Order: 1711827  
 Project: K35 CDP Pipeline Release

# QC BATCH REPORT

Batch ID: 110434 Instrument ID SVMS6 Method: SW846 8270D

MS				Sample ID: 1711807-02B MS			Units: µg/Kg		Analysis Date: 11/13/2017 05:07 PM	
Client ID:				Run ID: SVMS6_171113A			SeqNo: 4756749		Prep Date: 11/13/2017	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1217	41	1309	0	92.9	40-140	0			
Anthracene	1299	41	1309	0	99.2	40-140	0			
Benzo(a)anthracene	1277	41	1309	0	97.5	40-140	0			
Benzo(a)pyrene	1465	41	1309	0	112	40-140	0			
Benzo(b)fluoranthene	1171	41	1309	0	89.4	40-140	0			
Benzo(k)fluoranthene	1420	41	1309	0	108	40-140	0			
Chrysene	1410	41	1309	0	108	40-140	0			
Dibenzo(a,h)anthracene	1182	41	1309	0	90.3	40-140	0			
Fluoranthene	1217	41	1309	0	93	40-140	0			
Fluorene	1290	41	1309	0	98.5	40-140	0			
Indeno(1,2,3-cd)pyrene	1057	41	1309	0	80.7	40-140	0			
Naphthalene	1274	41	1309	0	97.3	40-140	0			
Pyrene	1552	41	1309	0	119	40-140	0			
Surr: 2-Fluorobiphenyl	2918	0	3274	0	89.1	20-140	0			
Surr: 4-Terphenyl-d14	3994	0	3274	0	122	22-172	0			
Surr: Nitrobenzene-d5	2959	0	3274	0	90.4	28-140	0			

MSD				Sample ID: 1711807-02B MSD			Units: µg/Kg		Analysis Date: 11/13/2017 05:22 PM	
Client ID:				Run ID: SVMS6_171113A			SeqNo: 4756750		Prep Date: 11/13/2017	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1130	41	1309	0	86.3	40-140	1217	7.42	30	
Anthracene	1216	41	1309	0	92.9	40-140	1299	6.64	30	
Benzo(a)anthracene	1194	41	1309	0	91.2	40-140	1277	6.7	30	
Benzo(a)pyrene	1354	41	1309	0	103	40-140	1465	7.84	30	
Benzo(b)fluoranthene	1226	41	1309	0	93.7	40-140	1171	4.64	30	
Benzo(k)fluoranthene	1342	41	1309	0	103	40-140	1420	5.65	30	
Chrysene	1382	41	1309	0	106	40-140	1410	2.02	30	
Dibenzo(a,h)anthracene	1153	41	1309	0	88.1	40-140	1182	2.52	30	
Fluoranthene	1151	41	1309	0	87.9	40-140	1217	5.58	30	
Fluorene	1200	41	1309	0	91.6	40-140	1290	7.27	30	
Indeno(1,2,3-cd)pyrene	1035	41	1309	0	79	40-140	1057	2.15	30	
Naphthalene	1208	41	1309	0	92.3	40-140	1274	5.33	30	
Pyrene	1450	41	1309	0	111	40-140	1552	6.75	30	
Surr: 2-Fluorobiphenyl	2956	0	3273	0	90.3	20-140	2918	1.29	0	
Surr: 4-Terphenyl-d14	3816	0	3273	0	117	22-172	3994	4.55	0	
Surr: Nitrobenzene-d5	2787	0	3273	0	85.1	28-140	2959	5.99	0	

The following samples were analyzed in this batch: 1711827-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110476**      Instrument ID **VMS9**      Method: **SW8260B**

MBLK				Sample ID: MBLK-110476-110476				Units: µg/Kg-dry			Analysis Date: 11/14/2017 12:57 PM			
Client ID:				Run ID: VMS9_171113B				SeqNo: 4757546			Prep Date: 11/13/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	U	30	0	0	0	0-0	0							
Ethylbenzene	U	30	0	0	0	0-0	0							
m,p-Xylene	U	60	0	0	0	0-0	0							
o-Xylene	U	30	0	0	0	0-0	0							
Toluene	U	30	0	0	0	0-0	0							
Xylenes, Total	U	90	0	0	0	0-0	0							
Surr: 1,2-Dichloroethane-d4	998.5	0	1000	0	99.8	70-130	0							
Surr: 4-Bromofluorobenzene	966.5	0	1000	0	96.6	70-130	0							
Surr: Dibromofluoromethane	983	0	1000	0	98.3	70-130	0							
Surr: Toluene-d8	933	0	1000	0	93.3	70-130	0							

LCS				Sample ID: LCS-110476-110476			Units: µg/Kg-dry		Analysis Date: 11/13/2017 11:45 PM		
Client ID:			Run ID: VMS9_171113B			SeqNo: 4757536		Prep Date: 11/13/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1000	30	1000	0	100	75-125	0				
Ethylbenzene	930	30	1000	0	93	75-125	0				
m,p-Xylene	1952	60	2000	0	97.6	80-125	0				
o-Xylene	953	30	1000	0	95.3	75-125	0				
Toluene	945.5	30	1000	0	94.6	70-125	0				
Xylenes, Total	2906	90	3000	0	96.8	75-125	0				
Surr: 1,2-Dichloroethane-d4	1012	0	1000	0	101	70-130	0				
Surr: 4-Bromofluorobenzene	1028	0	1000	0	103	70-130	0				
Surr: Dibromofluoromethane	1063	0	1000	0	106	70-130	0				
Surr: Toluene-d8	973.5	0	1000	0	97.4	70-130	0				

MS				Sample ID: 1711827-01A MS			Units: µg/Kg-dry		Analysis Date: 11/14/2017 09:28 PM		
Client ID: 20171109-Divide Rd (MW-02) @ 35'-36'				Run ID: VMS9_171114A			SeqNo: 4760450		Prep Date: 11/13/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1553	43	1439	0	108	75-125	0				
Ethylbenzene	1402	43	1439	0	97.4	75-125	0				
m,p-Xylene	3300	86	2878	100.7	111	80-125	0				
o-Xylene	1473	43	1439	0	102	75-125	0				
Toluene	1417	43	1439	0	98.5	70-125	0				
Xylenes, Total	4773	130	4317	100	108	75-125	0				
Surr: 1,2-Dichloroethane-d4	1566	0	1439	0	109	70-130	0				
Surr: 4-Bromofluorobenzene	1561	0	1439	0	108	70-130	0				
Surr: Dibromofluoromethane	1536	0	1439	0	107	70-130	0				
Surr: Toluene-d8	1394	0	1439	0	96.9	70-130	0				

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110476**      Instrument ID **VMS9**      Method: **SW8260B**

MSD		Sample ID: 1711827-01A MSD				Units: µg/Kg-dry		Analysis Date: 11/14/2017 09:52 PM		
Client ID: 20171109-Divide Rd (MW-02) @ 35'-36'		Run ID: VMS9_171114A				SeqNo: 4760452		Prep Date: 11/13/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1489	43	1439	0	104	75-125	1553	4.16	30	
Ethylbenzene	1435	43	1439	0	99.8	75-125	1402	2.38	30	
m,p-Xylene	3251	86	2878	100.7	109	80-125	3300	1.49	30	
o-Xylene	1510	43	1439	0	105	75-125	1473	2.46	30	
Toluene	1423	43	1439	0	98.9	70-125	1417	0.405	30	
Xylenes, Total	4760	130	4317	100	108	75-125	4773	0.257	30	
Surr: 1,2-Dichloroethane-d4	1481	0	1439	0	103	70-130	1566	5.62	30	
Surr: 4-Bromofluorobenzene	1556	0	1439	0	108	70-130	1561	0.277	30	
Surr: Dibromofluoromethane	1479	0	1439	0	103	70-130	1536	3.82	30	
Surr: Toluene-d8	1409	0	1439	0	97.9	70-130	1394	1.03	30	

The following samples were analyzed in this batch: 1711827-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110523** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-110523-110523				Units: s.u.			Analysis Date: 11/14/2017 11:50 A			
Client ID:				Run ID: WETCHEM_171114E				SeqNo: 4757936			Prep Date: 11/14/2017		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		3.97	0.10	4	0	99.2	90-110	0						

DUP				Sample ID: 1711827-01A DUP				Units: s.u.		Analysis Date: 11/14/2017 11:50 A			
Client ID: 20171109-Divide Rd (MW-02) @ 35'-36'				Run ID: WETCHEM_171114E				SeqNo: 4757943		Prep Date: 11/14/2017		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
pH		8.24	0.10	0	0	0	0-0	8.28	0.484	20			

The following samples were analyzed in this batch:

1711827-01A

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

# QC BATCH REPORT

Batch ID: **110539** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-110539-110539</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171115G</b>				SeqNo: <b>4760965</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-110539-110539</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171115G</b>				SeqNo: <b>4760966</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 5.42 1.0 5 0 108 80-120 0

<b>MS</b>		Sample ID: <b>1711732-02A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171115G</b>				SeqNo: <b>4760972</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2.97 1.0 5 -0.09 61.2 75-125 0 S

<b>MS</b>		Sample ID: <b>1711732-02A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171115G</b>				SeqNo: <b>4760974</b>		Prep Date: <b>11/14/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2450 100 2188 -0.09 112 75-125 0

<b>MS</b>		Sample ID: <b>1711910-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171115G</b>				SeqNo: <b>4760981</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2.61 1.0 5 -0.21 56.4 75-125 0 S

<b>MS</b>		Sample ID: <b>1711910-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171115G</b>				SeqNo: <b>4760983</b>		Prep Date: <b>11/14/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1789 100 1866 -0.21 95.9 75-125 0

<b>MSD</b>		Sample ID: <b>1711732-02A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/15/2017 12:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171115G</b>				SeqNo: <b>4760973</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.87 1.0 5 -0.09 39.2 75-125 2.97 45.5 20 SR

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

Client: Caerus Oil and Gas LLC  
Work Order: 1711827  
Project: K35 CDP Pipeline Release

QC BATCH REPORT

Batch ID: 110539 Instrument ID WETCHEM Method: SW7196A

MSD		Sample ID: 1711910-01A MSD				Units: mg/Kg		Analysis Date: 11/15/2017 12:20 PM			
Client ID:		Run ID: WETCHEM_171115G			SeqNo: 4760982		Prep Date: 11/14/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Chromium, Hexavalent	2.24	1.0	5	-0.21	49	75-125	2.61	15.3	20	S	

The following samples were analyzed in this batch: 1711827-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **110579** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1711732-02A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>11/16/2017 08:50 A</b>		
Client ID:		Run ID: <b>WETCHEM_171116C</b>				SeqNo: <b>4763173</b>		Prep Date: <b>11/15/2017</b>		DF: <b>20</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	0.732	0.10	0	0	0		0.726	0.823	50	

The following samples were analyzed in this batch:

1711827-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711827  
**Project:** K35 CDP Pipeline Release

## QC BATCH REPORT

Batch ID: **R224471** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R224471</b>				Units: % of sample		Analysis Date: <b>11/13/2017 05:23 PM</b>		
Client ID:		Run ID: <b>MOIST_171113E</b>		SeqNo: <b>4757156</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

<b>LCS</b>		Sample ID: <b>LCS-R224471</b>				Units: % of sample		Analysis Date: <b>11/13/2017 05:23 PM</b>		
Client ID:		Run ID: <b>MOIST_171113E</b>		SeqNo: <b>4757153</b>		Prep Date:		DF: <b>1</b>		
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

<b>DUP</b>		Sample ID: <b>1711828-01A DUP</b>				Units: % of sample		Analysis Date: <b>11/13/2017 05:23 PM</b>		
Client ID:		Run ID: <b>MOIST_171113E</b>		SeqNo: <b>4757151</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 18.68 0.050 0 0 0 0-0 19.18 2.64 5

The following samples were analyzed in this batch:

1711827-01A

**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.**

COC number (for client tracking)

171182-

Page 1 of 1

[illegible]

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

LS 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: [ls@lschem.com](mailto:ls@lschem.com)

SR2/4.0

9

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **11-Nov-17 09:30**

Work Order: **1711827**

Received by: **NCF**

Checklist completed by Nicole Fredericks  
eSignature

11-Nov-17  
Date

Reviewed by: Chad Whelton  
eSignature

13-Nov-17  
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.0/4.0</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/11/2017 11:12:45 AM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:





21-Nov-2017

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

Re: **Divide Rd Pipeline Release**

Work Order: **1711908**

Dear Jake,

ALS Environmental received 1 sample on 14-Nov-2017 09:30 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 23.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1711908

---

**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>
1711908-01	20171110-Divide Rd(MW-03) @ 25'- 26'	Soil		11/10/2017 11:16	11/14/2017 09:30	<input type="checkbox"/>

---

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1711908

---

**Case Narrative**

Batch 110535, Method ICP\_6010\_S, Sample 1711908-01A MS/MSD: The MS/MSD recoveries were outside of the control limits for Barium, Chromium, and Zinc; however, the results in the parent sample are greater than 4x the spike amount. No qualification is required.

Batch 110535, Method ICP\_6010\_S, Sample 1711908-01A MS/MSD: The MS/MSD recovery was above the upper control limit for Nickel. The corresponding result in the parent sample may be biased high.

Batch 110643, Method CR6\_7196\_S, Sample 1711908-01A MS/MSD: The MS/MSD recovery was below the lower control limit for Hexavalent Chromium. The corresponding result in the parent sample may be biased low.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
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

Date: 21-Nov-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171110-Divide Rd(MW-03) @ 25'-26'  
**Collection Date:** 11/10/2017 11:16 AM

**Work Order:** 1711908  
**Lab ID:** 1711908-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>			Prep: SW3546 / 11/14/17	Analyst: <b>KB</b>
<b>DRO (C10-C28)</b>	<b>4.7</b>	J	<b>3.3</b>	<b>5.8</b>	<b>mg/Kg-dry</b>	1	11/14/2017 21:57
Surr: 4-Terphenyl-d14	93.1			34-130	%REC	1	11/14/2017 21:57
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>			Prep: SW5035 / 11/14/17	Analyst: <b>KB</b>
<b>GRO (C6-C10)</b>	U		2.8	6.6	mg/Kg	1	11/15/2017 12:47
Surr: Toluene-d8	102			71-123	%REC	1	11/15/2017 12:47
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>			Prep: SW7471 / 11/14/17	Analyst: <b>RSB</b>
<b>Mercury</b>	<b>0.014</b>	J	<b>0.0019</b>	<b>0.019</b>	<b>mg/Kg-dry</b>	1	11/14/2017 17:52
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>			Prep: SW3050B / 11/14/17	Analyst: <b>HBA</b>
<b>Arsenic</b>	<b>4.4</b>	J	<b>1.2</b>	<b>4.6</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>Barium</b>	<b>300</b>		<b>1.8</b>	<b>4.6</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>Cadmium</b>	<b>2.3</b>	J	<b>0.44</b>	<b>9.1</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>Chromium</b>	<b>36</b>		<b>0.26</b>	<b>4.6</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>Copper</b>	<b>24</b>		<b>2.0</b>	<b>9.1</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>Lead</b>	<b>14</b>		<b>0.97</b>	<b>4.6</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>Nickel</b>	<b>26</b>		<b>1.8</b>	<b>4.6</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>Selenium</b>	<b>9.8</b>		<b>2.6</b>	<b>9.1</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
Silver	U		0.57	4.6	mg/Kg-dry	10	11/15/2017 05:37
<b>Zinc</b>	<b>67</b>		<b>0.73</b>	<b>9.1</b>	<b>mg/Kg-dry</b>	10	11/15/2017 05:37
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>			Prep: USDA Method 20B / 11/16/17	Analyst: <b>RH</b>
<b>Sodium Adsorption Ratio</b>	<b>1.9</b>		<b>0.010</b>	<b>0.010</b>	<b>none</b>	1	11/16/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>			Prep: USDA Method 20B / 11/16/17	Analyst: <b>JF</b>
<b>Calcium</b>	<b>84</b>		<b>0.86</b>	<b>5.0</b>	<b>mg/L</b>	10	11/16/2017 16:44
<b>Magnesium</b>	<b>22</b>		<b>0.068</b>	<b>2.0</b>	<b>mg/L</b>	10	11/16/2017 16:44
<b>Sodium</b>	<b>78</b>		<b>0.34</b>	<b>2.0</b>	<b>mg/L</b>	10	11/16/2017 16:44
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>			Prep: SW3546 / 11/14/17	Analyst: <b>RM</b>
Acenaphthene	U		0.0034	0.048	mg/Kg-dry	1	11/15/2017 02:59
Anthracene	U		0.0018	0.048	mg/Kg-dry	1	11/15/2017 02:59
Benzo(a)anthracene	U		0.0029	0.048	mg/Kg-dry	1	11/15/2017 02:59
Benzo(a)pyrene	U		0.0012	0.048	mg/Kg-dry	1	11/15/2017 02:59
Benzo(b)fluoranthene	U		0.0018	0.048	mg/Kg-dry	1	11/15/2017 02:59
Benzo(k)fluoranthene	U		0.0025	0.048	mg/Kg-dry	1	11/15/2017 02:59
Chrysene	U		0.0018	0.048	mg/Kg-dry	1	11/15/2017 02:59
Dibenzo(a,h)anthracene	U		0.0016	0.048	mg/Kg-dry	1	11/15/2017 02:59
Fluoranthene	U		0.0014	0.048	mg/Kg-dry	1	11/15/2017 02:59

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

# ALS Group, USA

Date: 21-Nov-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171110-Divide Rd(MW-03) @ 25'-26'  
**Collection Date:** 11/10/2017 11:16 AM

**Work Order:** 1711908  
**Lab ID:** 1711908-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0016	0.048	mg/Kg-dry	1	11/15/2017 02:59
Indeno(1,2,3-cd)pyrene	U		0.0015	0.048	mg/Kg-dry	1	11/15/2017 02:59
Naphthalene	U		0.0090	0.048	mg/Kg-dry	1	11/15/2017 02:59
Pyrene	U		0.0018	0.048	mg/Kg-dry	1	11/15/2017 02:59
Surr: 2-Fluorobiphenyl	98.6			20-140	%REC	1	11/15/2017 02:59
Surr: 4-Terphenyl-d14	119			22-172	%REC	1	11/15/2017 02:59
Surr: Nitrobenzene-d5	80.6			28-140	%REC	1	11/15/2017 02:59
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 11/14/17		Analyst: <b>AK</b>
Benzene	U		0.0068	0.040	mg/Kg	1	11/15/2017 03:06
Ethylbenzene	U		0.0084	0.040	mg/Kg	1	11/15/2017 03:06
m,p-Xylene	U		0.019	0.080	mg/Kg	1	11/15/2017 03:06
o-Xylene	U		0.015	0.040	mg/Kg	1	11/15/2017 03:06
Toluene	U		0.011	0.040	mg/Kg	1	11/15/2017 03:06
Xylenes, Total	U		0.034	0.12	mg/Kg	1	11/15/2017 03:06
Surr: 1,2-Dichloroethane-d4	107			70-130	%REC	1	11/15/2017 03:06
Surr: 4-Bromofluorobenzene	102			70-130	%REC	1	11/15/2017 03:06
Surr: Dibromofluoromethane	95.6			70-130	%REC	1	11/15/2017 03:06
Surr: Toluene-d8	96.4			70-130	%REC	1	11/15/2017 03:06
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/16/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	1.1		0.011	0.10	mmhos/cm @25°	20	11/17/2017 10:45
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JB</b>
Chromium, Trivalent	36		0.36	1.2	mg/Kg-dry	1	11/17/2017 08:45
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 11/15/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.36	1.2	mg/Kg-dry	1	11/16/2017 16:20
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>MT</b>
Moisture	14		0.025	0.050	% of sample	1	11/14/2017 12:14
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 11/15/17		Analyst: <b>RZM</b>
pH	9.00		0.10	0.100	s.u.	1	11/15/2017 15:45

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **110531** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-110531-110531</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 03:38 PM</b>		
Client ID:		Run ID: <b>GC8_171114A</b>				SeqNo: <b>4759777</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	U	5.0								
Surr: 4-Terphenyl-d14	3.183	0	3.33	0	95.6	34-130	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-110531-110531</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 04:07 PM</b>		
Client ID:		Run ID: <b>GC8_171114A</b>				SeqNo: <b>4759778</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	389.2	5.0	333	0	117	65-122	0			
Surr: 4-Terphenyl-d14	3.267	0	3.33	0	98.1	34-130	0			

<b>MS</b>		Sample ID: <b>1711907-06A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 05:05 PM</b>		
Client ID:		Run ID: <b>GC8_171114A</b>				SeqNo: <b>4759780</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	332.8	4.9	327.4	0	102	65-122	0			
Surr: 4-Terphenyl-d14	2.343	0	3.274	0	71.6	34-130	0			

<b>MSD</b>		Sample ID: <b>1711907-06A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 05:34 PM</b>		
Client ID:		Run ID: <b>GC8_171114A</b>				SeqNo: <b>4759781</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	328.6	4.8	319.7	0	103	65-122	332.8	1.27	30	
Surr: 4-Terphenyl-d14	2.192	0	3.197	0	68.6	34-130	2.343	6.65	30	

The following samples were analyzed in this batch: 1711908-01A

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110557** Instrument ID **GC10** Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-110557-110557</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 08:01 PM</b>		
Client ID:		Run ID: <b>GC10_171114A</b>				SeqNo: <b>4760093</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4876	0	5000	0	97.5	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-110557-110557</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 07:08 PM</b>		
Client ID:		Run ID: <b>GC10_171114A</b>				SeqNo: <b>4760091</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	565600	5,000	500000	0	113	71-123	0			
Surr: Toluene-d8	5622	0	5000	0	112	71-123	0			

<b>MS</b>		Sample ID: <b>1711909-03A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/15/2017 06:53 A</b>		
Client ID:		Run ID: <b>GC10_171114A</b>				SeqNo: <b>4760123</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	824200	8,200	815800	18690	98.7	71-123	0			
Surr: Toluene-d8	8845	0	8158	0	108	71-123	0			

<b>MSD</b>		Sample ID: <b>1711909-03A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/15/2017 07:19 A</b>		
Client ID:		Run ID: <b>GC10_171114A</b>				SeqNo: <b>4760124</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	855200	8,200	815800	18690	103	71-123	824200	3.69	30	
Surr: Toluene-d8	9024	0	8158	0	111	71-123	8845	2.01	30	

The following samples were analyzed in this batch: 1711908-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110548** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-110548-110548</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 05:36 PM</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4760494</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>LCS-110548-110548</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 05:39 PM</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4760495</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1925 0.020 0.1665 0 116 80-120 0

<b>MS</b>		Sample ID: <b>1711912-01AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 06:15 PM</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4760515</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1688 0.017 0.1388 0.01574 110 75-125 0

<b>MSD</b>		Sample ID: <b>1711912-01AMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/14/2017 06:17 PM</b>		
Client ID:		Run ID: <b>HG1_171114A</b>				SeqNo: <b>4760517</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1662 0.017 0.1378 0.01574 109 75-125 0.1688 1.52 35

The following samples were analyzed in this batch:

1711908-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **110535** Instrument ID **ICP2** Method: **SW846 6010C**

Sample ID: MBLK-110535-110535				Units: mg/Kg			Analysis Date: 11/15/2017 03:42 A			
Client ID:		Run ID: ICP2_171114B			SeqNo: 4759382		Prep Date: 11/14/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.113	0.50								J
Chromium	0.064	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	0.0865	0.50								J

LCS				Sample ID: LCS-110535-110535				Units: mg/Kg		Analysis Date: 11/15/2017 08:16 PM	
Client ID:			Run ID: ICP2_171115A			SeqNo: 4762599		Prep Date: 11/14/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	4.585	0.25	5	0	91.7	80-120	0				
Barium	4.75	0.25	5	0	95	80-120	0				
Cadmium	4.958	0.50	5	0	99.2	80-120	0				
Chromium	5.086	0.25	5	0	102	80-120	0				
Copper	4.76	0.50	5	0	95.2	80-120	0				
Lead	4.995	0.25	5	0	99.9	80-120	0				
Nickel	4.9	0.25	5	0	98	80-120	0				
Selenium	4.51	0.50	5	0	90.2	80-120	0				
Silver	4.685	0.25	5	0	93.7	80-120	0				
Zinc	4.935	0.50	5	0	98.7	80-120	0				

MS				Sample ID: 1711908-01AMS				Units: mg/Kg		Analysis Date: 11/15/2017 05:44 A			
Client ID: 20171110-Divide Rd(MW-03) @ 25'-26'				Run ID: ICP2_171114B				SeqNo: 4759422		Prep Date: 11/14/2017		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Arsenic	10.9	3.9	7.899	3.748	90.5	75-125	0						
Barium	196.5	3.9	7.899	257.8	-777	75-125	0			SO			
Cadmium	10.11	7.9	7.899	1.953	103	75-125	0						
Copper	30.41	7.9	7.899	20.71	123	75-125	0						
Lead	19.51	3.9	7.899	12.44	89.5	75-125	0						
Nickel	32.23	3.9	7.899	22.2	127	75-125	0			S			
Silver	7.409	3.9	7.899	-0.2709	97.2	75-125	0						
Zinc	71.19	7.9	7.899	57.72	171	75-125	0			SO			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110535** Instrument ID **ICP2** Method: **SW846 6010C**

MS				Sample ID: 1711908-01AMS			Units: mg/Kg		Analysis Date: 11/15/2017 08:28 PM	
Client ID: 20171110-Divide Rd(MW-03) @ 25'-26'				Run ID: ICP2_171115A			SeqNo: 4762601		Prep Date: 11/14/2017	
									DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	44.31	3.9	7.899	32.13	154	75-125	0			SO
Selenium	16.35	7.9	7.899	8.74	96.3	75-125	0			

MSD				Sample ID: 1711908-01AMSD			Units: mg/Kg		Analysis Date: 11/15/2017 06:09 A	
Client ID: 20171110-Divide Rd(MW-03) @ 25'-26'				Run ID: ICP2_171114B			SeqNo: 4759426		Prep Date: 11/14/2017	
									DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	11.71	4.0	7.911	3.748	101	75-125	10.9	7.15	20	
Barium	213.7	4.0	7.911	257.8	-558	75-125	196.5	8.4	20	SO
Cadmium	9.968	7.9	7.911	1.953	101	75-125	10.11	1.42	20	
Copper	29.98	7.9	7.911	20.71	117	75-125	30.41	1.41	20	
Lead	20.63	4.0	7.911	12.44	104	75-125	19.51	5.59	20	
Nickel	32.52	4.0	7.911	22.2	130	75-125	32.23	0.891	20	S
Silver	7.263	4.0	7.911	-0.2709	95.2	75-125	7.409	2	20	
Zinc	69.07	7.9	7.911	57.72	143	75-125	71.19	3.02	20	SO

MSD				Sample ID: 1711908-01AMSD			Units: mg/Kg		Analysis Date: 11/15/2017 08:34 PM	
Client ID: 20171110-Divide Rd(MW-03) @ 25'-26'				Run ID: ICP2_171115A			SeqNo: 4762602		Prep Date: 11/14/2017	
									DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	46.76	4.0	7.911	32.13	185	75-125	44.31	5.37	20	SO
Selenium	16.77	7.9	7.911	8.74	102	75-125	16.35	2.54	20	

The following samples were analyzed in this batch:

1711908-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110644** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1711912-01ADUP</b>				Units: <b>none</b>		Analysis Date: <b>11/16/2017</b>		
Client ID:		Run ID: <b>SAR_171116A</b>				SeqNo: <b>4766402</b>		Prep Date: <b>11/16/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	4.38	0.010	0	0	0			0		

The following samples were analyzed in this batch:

1711908-01A

Batch ID: **110644** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>1711912-01ADUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>11/16/2017 04:57 PM</b>		
Client ID:		Run ID: <b>ICPMS3_171116A</b>				SeqNo: <b>4764891</b>		Prep Date: <b>11/16/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	389.2	5.0	0	0	0	0-0	337.4	14.2		
Magnesium	28.84	2.0	0	0	0	0-0	24.64	15.7		
Sodium	332.4	2.0	0	0	0	0-0	300.6	10.1		

The following samples were analyzed in this batch:

1711908-01A

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110499**      Instrument ID **SVMS6**      Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-110499-110499</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>11/14/2017 09:58 PM</b>		
Client ID:		Run ID: <b>SVMS6_171114A</b>				SeqNo: <b>4761840</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	42								
Anthracene	U	42								
Benzo(a)anthracene	U	42								
Benzo(a)pyrene	U	42								
Benzo(b)fluoranthene	U	42								
Benzo(k)fluoranthene	U	42								
Chrysene	U	42								
Dibenzo(a,h)anthracene	U	42								
Fluoranthene	U	42								
Fluorene	U	42								
Indeno(1,2,3-cd)pyrene	U	42								
Naphthalene	U	42								
Pyrene	U	42								
Surr: 2-Fluorobiphenyl	3161	0	3333	0	94.8	20-140	0			
Surr: 4-Terphenyl-d14	4347	0	3333	0	130	22-172	0			
Surr: Nitrobenzene-d5	2087	0	3333	0	62.6	28-140	0			

LCS		Sample ID: <b>SLCSS1-110499-110499</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>11/14/2017 10:13 PM</b>		
Client ID:		Run ID: <b>SVMS6_171114A</b>				SeqNo: <b>4761841</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1099	42	1333	0	82.4	40-140	0			
Anthracene	1230	42	1333	0	92.3	40-140	0			
Benzo(a)anthracene	1256	42	1333	0	94.2	40-140	0			
Benzo(a)pyrene	1220	42	1333	0	91.5	40-140	0			
Benzo(b)fluoranthene	1107	42	1333	0	83	40-140	0			
Benzo(k)fluoranthene	1324	42	1333	0	99.3	40-140	0			
Chrysene	1308	42	1333	0	98.1	40-140	0			
Dibenzo(a,h)anthracene	1014	42	1333	0	76.1	40-140	0			
Fluoranthene	1170	42	1333	0	87.8	40-140	0			
Fluorene	1364	42	1333	0	102	40-140	0			
Indeno(1,2,3-cd)pyrene	1026	42	1333	0	77	40-140	0			
Naphthalene	1180	42	1333	0	88.5	40-140	0			
Pyrene	1328	42	1333	0	99.6	40-140	0			
Surr: 2-Fluorobiphenyl	2981	0	3333	0	89.4	20-140	0			
Surr: 4-Terphenyl-d14	3536	0	3333	0	106	22-172	0			
Surr: Nitrobenzene-d5	2239	0	3333	0	67.2	28-140	0			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **110499** Instrument ID **SVMS6** Method: **SW846 8270D**

MS				Sample ID: 1711648-02A MS			Units: µg/Kg		Analysis Date: 11/14/2017 10:27 PM		
Client ID:			Run ID: SVMS6_171114A			SeqNo: 4761842		Prep Date: 11/14/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1102	42	1327	0	83.1	40-140	0				
Anthracene	1228	42	1327	0	92.6	40-140	0				
Benzo(a)anthracene	1205	42	1327	63.44	86.1	40-140	0				
Benzo(a)pyrene	1074	42	1327	57.66	76.6	40-140	0				
Benzo(b)fluoranthene	1000	42	1327	91.11	68.5	40-140	0				
Benzo(k)fluoranthene	1131	42	1327	57.77	80.9	40-140	0				
Chrysene	1276	42	1327	88.39	89.5	40-140	0				
Dibenzo(a,h)anthracene	1036	42	1327	41.74	75	40-140	0				
Fluoranthene	1192	42	1327	161.9	77.7	40-140	0				
Fluorene	1282	42	1327	0	96.6	40-140	0				
Indeno(1,2,3-cd)pyrene	1041	42	1327	62.46	73.8	40-140	0				
Naphthalene	1222	42	1327	0	92.1	40-140	0				
Pyrene	1813	42	1327	142.2	126	40-140	0				
Surr: 2-Fluorobiphenyl	2871	0	3317	0	86.5	20-140	0				
Surr: 4-Terphenyl-d14	4576	0	3317	0	138	22-172	0				
Surr: Nitrobenzene-d5	2221	0	3317	0	67	28-140	0				

MSD				Sample ID: 1711648-02A MSD		Units: µg/Kg		Analysis Date: 11/14/2017 10:41 PM		
Client ID:			Run ID: SVMS6_171114A		SeqNo: 4761843		Prep Date: 11/14/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1121	41	1316	0	85.2	40-140	1102	1.66	30	
Anthracene	1350	41	1316	0	103	40-140	1228	9.41	30	
Benzo(a)anthracene	1261	41	1316	63.44	91.1	40-140	1205	4.57	30	
Benzo(a)pyrene	1274	41	1316	57.66	92.5	40-140	1074	17.1	30	
Benzo(b)fluoranthene	1209	41	1316	91.11	85	40-140	1000	18.9	30	
Benzo(k)fluoranthene	1336	41	1316	57.77	97.2	40-140	1131	16.6	30	
Chrysene	1320	41	1316	88.39	93.6	40-140	1276	3.41	30	
Dibenzo(a,h)anthracene	987.8	41	1316	41.74	71.9	40-140	1036	4.79	30	
Fluoranthene	1378	41	1316	161.9	92.5	40-140	1192	14.5	30	
Fluorene	1116	41	1316	0	84.9	40-140	1282	13.8	30	
Indeno(1,2,3-cd)pyrene	994.4	41	1316	62.46	70.8	40-140	1041	4.62	30	
Naphthalene	1251	41	1316	0	95.1	40-140	1222	2.34	30	
Pyrene	1455	41	1316	142.2	99.8	40-140	1813	21.9	30	
Surr: 2-Fluorobiphenyl	2979	0	3290	0	90.5	20-140	2871	3.69	0	
Surr: 4-Terphenyl-d14	3618	0	3290	0	110	22-172	4576	23.4	0	
Surr: Nitrobenzene-d5	2220	0	3290	0	67.5	28-140	2221	0.0553	0	

The following samples were analyzed in this batch:

1711908-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110556**      Instrument ID **VMS9**      Method: **SW8260B**

MBLK				Sample ID: <b>MBLK-110556-110556</b>			Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 01:50 PM</b>	
Client ID:		Run ID: <b>VMS9_171114A</b>			SeqNo: <b>4760428</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	1056	0	1000	0	106	70-130	0			
Surr: 4-Bromofluorobenzene	1014	0	1000	0	101	70-130	0			
Surr: Dibromofluoromethane	987	0	1000	0	98.7	70-130	0			
Surr: Toluene-d8	956.5	0	1000	0	95.6	70-130	0			

LCS				Sample ID: <b>LCS-110556-110556</b>			Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/14/2017 12:38 PM</b>	
Client ID:		Run ID: <b>VMS9_171114A</b>			SeqNo: <b>4760427</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1036	30	1000	0	104	75-125	0			
Ethylbenzene	986.5	30	1000	0	98.6	75-125	0			
m,p-Xylene	2058	60	2000	0	103	80-125	0			
o-Xylene	987.5	30	1000	0	98.8	75-125	0			
Toluene	990.5	30	1000	0	99	70-125	0			
Xylenes, Total	3046	90	3000	0	102	75-125	0			
Surr: 1,2-Dichloroethane-d4	1087	0	1000	0	109	70-130	0			
Surr: 4-Bromofluorobenzene	1042	0	1000	0	104	70-130	0			
Surr: Dibromofluoromethane	1088	0	1000	0	109	70-130	0			
Surr: Toluene-d8	1018	0	1000	0	102	70-130	0			

MS				Sample ID: <b>1711909-03A MS</b>			Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/15/2017 10:47 A</b>	
Client ID:		Run ID: <b>VMS9_171114B</b>			SeqNo: <b>4760907</b>		Prep Date: <b>11/14/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1723	49	1632	0	106	75-125	0			
Ethylbenzene	1670	49	1632	0	102	75-125	0			
m,p-Xylene	3551	98	3263	0	109	80-125	0			
o-Xylene	1765	49	1632	0	108	75-125	0			
Toluene	1666	49	1632	0	102	70-125	0			
Xylenes, Total	5316	150	4895	0	109	75-125	0			
Surr: 1,2-Dichloroethane-d4	1707	0	1632	0	105	70-130	0			
Surr: 4-Bromofluorobenzene	1791	0	1632	0	110	70-130	0			
Surr: Dibromofluoromethane	1597	0	1632	0	97.9	70-130	0			
Surr: Toluene-d8	1583	0	1632	0	97	70-130	0			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110556** Instrument ID **VMS9** Method: **SW8260B**

MSD				Sample ID: 1711909-03A MSD			Units: µg/Kg-dry		Analysis Date: 11/15/2017 11:11 A		
Client ID:			Run ID: VMS9_171114B			SeqNo: 4760908		Prep Date: 11/14/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1567	49	1632	0	96	75-125	1723	9.47	30		
Ethylbenzene	1535	49	1632	0	94.1	75-125	1670	8.4	30		
m,p-Xylene	3217	98	3263	0	98.6	80-125	3551	9.86	30		
o-Xylene	1597	49	1632	0	97.9	75-125	1765	9.95	30		
Toluene	1490	49	1632	0	91.4	70-125	1666	11.1	30		
Xylenes, Total	4815	150	4895	0	98.4	75-125	5316	9.89	30		
Surr: 1,2-Dichloroethane-d4	1685	0	1632	0	103	70-130	1707	1.25	30		
Surr: 4-Bromofluorobenzene	1798	0	1632	0	110	70-130	1791	0.409	30		
Surr: Dibromofluoromethane	1605	0	1632	0	98.4	70-130	1597	0.459	30		
Surr: Toluene-d8	1590	0	1632	0	97.4	70-130	1583	0.411	30		

The following samples were analyzed in this batch: 1711908-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110603** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-110603-110603				Units: s.u.			Analysis Date: 11/15/2017 03:45 PM		
Client ID:				Run ID: WETCHEM_171115R				SeqNo: 4761712		Prep Date: 11/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH	4.02	0.10	4	0	100	90-110	0						

DUP				Sample ID: 1711916-02B DUP				Units: s.u.			Analysis Date: 11/15/2017 03:45 PM			
Client ID:				Run ID: WETCHEM_171115R				SeqNo: 4761728			Prep Date: 11/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
pH	8.8	0.10	0	0	0	0-0	8.79	0.114	20					

DUP				Sample ID: 1711938-01A DUP				Units: s.u.			Analysis Date: 11/15/2017 03:45 PM		
Client ID:				Run ID: WETCHEM_171115R				SeqNo: 4761730		Prep Date: 11/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH	8.14	0.10	0	0	0	0-0	8.15	0.123	20				

The following samples were analyzed in this batch:

1711908-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **110643** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-110643-110643</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_1711160</b>				SeqNo: <b>4764241</b>		Prep Date: <b>11/15/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 0.98

<b>LCS</b>		Sample ID: <b>LCS-110643-110643</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_1711160</b>				SeqNo: <b>4764242</b>		Prep Date: <b>11/15/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.2 1.0 5 0 84 80-120 0

<b>MS</b>		Sample ID: <b>17111017-04A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_1711160</b>				SeqNo: <b>4764250</b>		Prep Date: <b>11/15/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 0.7549 0.98 4.902 0.2745 9.8 75-125 0 JS

<b>MS</b>		Sample ID: <b>17111017-04A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_1711160</b>				SeqNo: <b>4764252</b>		Prep Date: <b>11/15/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1777 100 1802 0.2745 98.6 75-125 0

<b>MS</b>		Sample ID: <b>1711908-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID: <b>20171110-Divide Rd(MW-03) @ 25'-26'</b>		Run ID: <b>WETCHEM_1711160</b>				SeqNo: <b>4764259</b>		Prep Date: <b>11/15/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2.85 1.0 5 0.16 53.8 75-125 0 S

<b>MS</b>		Sample ID: <b>1711908-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID: <b>20171110-Divide Rd(MW-03) @ 25'-26'</b>		Run ID: <b>WETCHEM_1711160</b>				SeqNo: <b>4764261</b>		Prep Date: <b>11/15/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1851 100 2011 0.16 92 75-125 0

<b>MSD</b>		Sample ID: <b>17111017-04A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID:		Run ID: <b>WETCHEM_1711160</b>				SeqNo: <b>4764251</b>		Prep Date: <b>11/15/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.248 0.99 4.95 0.2745 19.7 75-125 0.7549 49.2 20 SR

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110643** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MSD</b>		Sample ID: <b>1711908-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/16/2017 04:20 PM</b>		
Client ID: <b>20171110-Divide Rd(MW-03) @ 25'-26'</b>		Run ID: <b>WETCHEM_1711160</b>		SeqNo: <b>4764260</b>		Prep Date: <b>11/15/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	3.22	1.0	5	0.16	61.2	75-125	2.85	12.2	20	S

The following samples were analyzed in this batch:

1711908-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1711908  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110644** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1711912-01A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>11/17/2017 10:45 A</b>		
Client ID:		Run ID: <b>WETCHEM_171117H</b>				SeqNo: <b>4766156</b>		Prep Date: <b>11/16/2017</b>		DF: <b>20</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	3.83	0.10	0	0	0		4	4.34	50	

The following samples were analyzed in this batch:

1711908-01A

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



Client: Caerus Oil and Gas LLC  
 Work Order: 1711908  
 Project: Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R224568** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R224568				Units: % of sample		Analysis Date: 11/14/2017 12:14 PM		
Client ID:		Run ID: MOIST_171114B				SeqNo: 4760115		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS				Sample ID: LCS-R224568				Units: % of sample				Analysis Date: 11/14/2017 12:14 PM											
Client ID:				Run ID: MOIST_171114B				SeqNo: 4760114				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

<b>DUP</b>				Sample ID: <b>1711907-07A DUP</b>				Units: % of sample			Analysis Date: <b>11/14/2017 12:14 PM</b>			
Client ID:				Run ID: <b>MOIST_171114B</b>				SeqNo: <b>4760084</b>			Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Moisture 5.59 0.050 0 0 0 0-0 5.67 1.42 5

<b>DUP</b>				Sample ID: <b>1711912-02A DUP</b>				Units: % of sample			Analysis Date: <b>11/14/2017 12:14 PM</b>			
Client ID:				Run ID: <b>MOIST_171114B</b>				SeqNo: <b>4760110</b>			Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Moisture 9.39 0.050 0 0 0 0-0 9.3 0.963 5

The following samples were analyzed in this batch:

1711908-01A

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.**

COC number (for client tracking)

Page 1 of 1

[illegible]

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

LS 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: [ls@lschem.com](mailto:ls@lschem.com)

22 2.8:

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **14-Nov-17 09:30**

Work Order: **1711908**

Received by: **DS**

Checklist completed by Diane Shaw 14-Nov-17  
eSignature Date

Reviewed by: Bill Carey 14-Nov-17  
eSignature Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.8/2.8 c</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/14/2017 10:44:12 AM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



08-Dec-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **1712062**

Dear Brett,

ALS Environmental received 3 samples on 01-Dec-2017 09:30 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 25.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712062

---

**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>
1712062-01	20171129-Divide Rd. (MW-07) @ 41'-43'	Soil		11/29/2017 11:10	12/1/2017 09:30	<input type="checkbox"/>
1712062-02	20171129-Divide Rd. (MW-07) @ 44'-46'	Soil		11/29/2017 11:35	12/1/2017 09:30	<input type="checkbox"/>
1712062-03	20171129-Divide Rd. (MW-08) @ 36.5'-37.5'	Soil		11/29/2017 16:05	12/1/2017 09:30	<input type="checkbox"/>

---

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
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

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171129-Divide Rd. (MW-07) @ 41'-43'  
**Collection Date:** 11/29/2017 11:10 AM

**Work Order:** 1712062  
**Lab ID:** 1712062-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/4/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		3.6	6.3	mg/Kg-dry	1	12/5/2017 18:24
Surr: 4-Terphenyl-d14	55.1			34-130	%REC	1	12/5/2017 18:24
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 12/4/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		3.3	7.8	mg/Kg	1	12/6/2017 06:13
Surr: Toluene-d8	86.8			71-123	%REC	1	12/6/2017 06:13
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/6/17		Analyst: <b>RSB</b>
Mercury	0.011	J	0.0019	0.019	mg/Kg-dry	1	12/6/2017 12:40
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/5/17		Analyst: <b>HBA</b>
Arsenic	6.7		0.10	0.40	mg/Kg-dry	1	12/6/2017 20:36
Barium	230		0.16	0.40	mg/Kg-dry	1	12/6/2017 20:36
Cadmium	0.34	J	0.039	0.81	mg/Kg-dry	1	12/6/2017 20:36
Chromium	43		0.023	0.40	mg/Kg-dry	1	12/6/2017 20:36
Copper	15		0.18	0.81	mg/Kg-dry	1	12/6/2017 20:36
Lead	11		0.086	0.40	mg/Kg-dry	1	12/6/2017 20:36
Nickel	19		0.16	0.40	mg/Kg-dry	1	12/6/2017 20:36
Selenium	1.9		0.23	0.81	mg/Kg-dry	1	12/6/2017 20:36
Silver	U		0.050	0.40	mg/Kg-dry	1	12/6/2017 20:36
Zinc	100		0.065	0.81	mg/Kg-dry	1	12/6/2017 20:36
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JF</b>
Calcium	31		0.86	5.0	mg/L	10	12/6/2017 18:12
Magnesium	11		0.068	2.0	mg/L	10	12/6/2017 18:12
Sodium	45		0.34	2.0	mg/L	10	12/6/2017 18:12
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	1.8		0.010	0.010	none	1	12/6/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/4/17		Analyst: <b>RM</b>
Acenaphthene	U		0.0037	0.053	mg/Kg-dry	1	12/4/2017 20:23
Anthracene	U		0.0019	0.053	mg/Kg-dry	1	12/4/2017 20:23
Benzo(a)anthracene	U		0.0032	0.053	mg/Kg-dry	1	12/4/2017 20:23
Benzo(a)pyrene	U		0.0013	0.053	mg/Kg-dry	1	12/4/2017 20:23
Benzo(b)fluoranthene	U		0.0020	0.053	mg/Kg-dry	1	12/4/2017 20:23
Benzo(k)fluoranthene	U		0.0027	0.053	mg/Kg-dry	1	12/4/2017 20:23
Chrysene	U		0.0020	0.053	mg/Kg-dry	1	12/4/2017 20:23
Dibenzo(a,h)anthracene	U		0.0017	0.053	mg/Kg-dry	1	12/4/2017 20:23
Fluoranthene	U		0.0015	0.053	mg/Kg-dry	1	12/4/2017 20:23

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

# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171129-Divide Rd. (MW-07) @ 41'-43'  
**Collection Date:** 11/29/2017 11:10 AM

**Work Order:** 1712062  
**Lab ID:** 1712062-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0017	0.053	mg/Kg-dry	1	12/4/2017 20:23
Indeno(1,2,3-cd)pyrene	U		0.0016	0.053	mg/Kg-dry	1	12/4/2017 20:23
Naphthalene	U		0.0099	0.053	mg/Kg-dry	1	12/4/2017 20:23
Pyrene	U		0.0019	0.053	mg/Kg-dry	1	12/4/2017 20:23
Surr: 2-Fluorobiphenyl	86.6			20-140	%REC	1	12/4/2017 20:23
Surr: 4-Terphenyl-d14	124			22-172	%REC	1	12/4/2017 20:23
Surr: Nitrobenzene-d5	135			28-140	%REC	1	12/4/2017 20:23
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 12/4/17		Analyst: <b>EMR</b>
Benzene	U		0.0080	0.047	mg/Kg	1	12/5/2017 02:01
Ethylbenzene	U		0.0099	0.047	mg/Kg	1	12/5/2017 02:01
m,p-Xylene	U		0.022	0.094	mg/Kg	1	12/5/2017 02:01
o-Xylene	U		0.018	0.047	mg/Kg	1	12/5/2017 02:01
Toluene	U		0.013	0.047	mg/Kg	1	12/5/2017 02:01
Xylenes, Total	U		0.040	0.14	mg/Kg	1	12/5/2017 02:01
Surr: 1,2-Dichloroethane-d4	93.7			70-130	%REC	1	12/5/2017 02:01
Surr: 4-Bromofluorobenzene	91.3			70-130	%REC	1	12/5/2017 02:01
Surr: Dibromofluoromethane	91.6			70-130	%REC	1	12/5/2017 02:01
Surr: Toluene-d8	99.4			70-130	%REC	1	12/5/2017 02:01
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.70		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	43		0.39	1.3	mg/Kg-dry	1	12/7/2017 17:20
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 12/5/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.39	1.3	mg/Kg-dry	1	12/6/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>BTG</b>
Moisture	22		0.025	0.050	% of sample	1	12/6/2017 12:45
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/1/17		Analyst: <b>JJG</b>
pH	8.62		0.10	0.100	s.u.	1	12/1/2017 16:30

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



# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171129-Divide Rd. (MW-07) @ 44'-46'  
**Collection Date:** 11/29/2017 11:35 AM

**Work Order:** 1712062  
**Lab ID:** 1712062-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/4/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		3.6	6.3	mg/Kg-dry	1	12/5/2017 18:53
Surr: 4-Terphenyl-d14	62.6			34-130	%REC	1	12/5/2017 18:53
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 12/4/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		3.3	7.8	mg/Kg	1	12/6/2017 05:44
Surr: Toluene-d8	87.1			71-123	%REC	1	12/6/2017 05:44
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/6/17		Analyst: <b>RSB</b>
Mercury	0.015	J	0.0020	0.020	mg/Kg-dry	1	12/6/2017 12:43
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/5/17		Analyst: <b>HBA</b>
Arsenic	12		0.11	0.44	mg/Kg-dry	1	12/6/2017 20:43
Barium	290		0.17	0.44	mg/Kg-dry	1	12/6/2017 20:43
Cadmium	0.53	J	0.042	0.87	mg/Kg-dry	1	12/6/2017 20:43
Chromium	42		0.024	0.44	mg/Kg-dry	1	12/6/2017 20:43
Copper	15		0.19	0.87	mg/Kg-dry	1	12/6/2017 20:43
Lead	14		0.093	0.44	mg/Kg-dry	1	12/6/2017 20:43
Nickel	23		0.17	0.44	mg/Kg-dry	1	12/6/2017 20:43
Selenium	2.3		0.24	0.87	mg/Kg-dry	1	12/6/2017 20:43
Silver	U		0.054	0.44	mg/Kg-dry	1	12/6/2017 20:43
Zinc	71		0.070	0.87	mg/Kg-dry	1	12/6/2017 20:43
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JF</b>
Calcium	55		0.86	5.0	mg/L	10	12/6/2017 18:14
Magnesium	17		0.068	2.0	mg/L	10	12/6/2017 18:14
Sodium	61		0.34	2.0	mg/L	10	12/6/2017 18:14
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	1.8		0.010	0.010	none	1	12/6/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/4/17		Analyst: <b>RM</b>
Acenaphthene	U		0.0038	0.053	mg/Kg-dry	1	12/4/2017 20:36
Anthracene	U		0.0019	0.053	mg/Kg-dry	1	12/4/2017 20:36
Benzo(a)anthracene	U		0.0033	0.053	mg/Kg-dry	1	12/4/2017 20:36
Benzo(a)pyrene	U		0.0013	0.053	mg/Kg-dry	1	12/4/2017 20:36
Benzo(b)fluoranthene	U		0.0020	0.053	mg/Kg-dry	1	12/4/2017 20:36
Benzo(k)fluoranthene	U		0.0028	0.053	mg/Kg-dry	1	12/4/2017 20:36
Chrysene	U		0.0020	0.053	mg/Kg-dry	1	12/4/2017 20:36
Dibenzo(a,h)anthracene	U		0.0017	0.053	mg/Kg-dry	1	12/4/2017 20:36
Fluoranthene	U		0.0015	0.053	mg/Kg-dry	1	12/4/2017 20:36

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

# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171129-Divide Rd. (MW-07) @ 44'-46'  
**Collection Date:** 11/29/2017 11:35 AM

**Work Order:** 1712062  
**Lab ID:** 1712062-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0017	0.053	mg/Kg-dry	1	12/4/2017 20:36
Indeno(1,2,3-cd)pyrene	U		0.0016	0.053	mg/Kg-dry	1	12/4/2017 20:36
Naphthalene	U		0.010	0.053	mg/Kg-dry	1	12/4/2017 20:36
Pyrene	U		0.0019	0.053	mg/Kg-dry	1	12/4/2017 20:36
Surr: 2-Fluorobiphenyl	81.8			20-140	%REC	1	12/4/2017 20:36
Surr: 4-Terphenyl-d14	116			22-172	%REC	1	12/4/2017 20:36
Surr: Nitrobenzene-d5	140			28-140	%REC	1	12/4/2017 20:36
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 12/4/17		Analyst: <b>EMR</b>
Benzene	U		0.0080	0.047	mg/Kg	1	12/5/2017 02:17
Ethylbenzene	U		0.0099	0.047	mg/Kg	1	12/5/2017 02:17
m,p-Xylene	U		0.022	0.094	mg/Kg	1	12/5/2017 02:17
o-Xylene	U		0.018	0.047	mg/Kg	1	12/5/2017 02:17
Toluene	U		0.013	0.047	mg/Kg	1	12/5/2017 02:17
Xylenes, Total	U		0.040	0.14	mg/Kg	1	12/5/2017 02:17
Surr: 1,2-Dichloroethane-d4	91.8			70-130	%REC	1	12/5/2017 02:17
Surr: 4-Bromofluorobenzene	93.6			70-130	%REC	1	12/5/2017 02:17
Surr: Dibromofluoromethane	94.6			70-130	%REC	1	12/5/2017 02:17
Surr: Toluene-d8	98.4			70-130	%REC	1	12/5/2017 02:17
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.72		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	42		0.40	1.3	mg/Kg-dry	1	12/7/2017 17:20
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 12/5/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.40	1.3	mg/Kg-dry	1	12/6/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>BTG</b>
Moisture	22		0.025	0.050	% of sample	1	12/6/2017 12:45
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/1/17		Analyst: <b>JJG</b>
pH	8.36		0.10	0.100	s.u.	1	12/1/2017 16:30

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

# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171129-Divide Rd. (MW-08) @ 36.5'-37.5'  
**Collection Date:** 11/29/2017 04:05 PM

**Work Order:** 1712062  
**Lab ID:** 1712062-03  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/4/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		3.8	6.5	mg/Kg-dry	1	12/5/2017 19:22
Surr: 4-Terphenyl-d14	64.1			34-130	%REC	1	12/5/2017 19:22
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 12/4/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		3.3	8.0	mg/Kg	1	12/6/2017 05:14
Surr: Toluene-d8	86.7			71-123	%REC	1	12/6/2017 05:14
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/6/17		Analyst: <b>RSB</b>
Mercury	0.028		0.0020	0.020	mg/Kg-dry	1	12/6/2017 12:53
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/5/17		Analyst: <b>HBA</b>
Arsenic	11		0.11	0.44	mg/Kg-dry	1	12/6/2017 21:15
Barium	210		0.18	0.44	mg/Kg-dry	1	12/6/2017 21:15
Cadmium	0.45	J	0.042	0.88	mg/Kg-dry	1	12/6/2017 21:15
Chromium	40		0.025	0.44	mg/Kg-dry	1	12/6/2017 21:15
Copper	24		0.19	0.88	mg/Kg-dry	1	12/6/2017 21:15
Lead	14		0.093	0.44	mg/Kg-dry	1	12/6/2017 21:15
Nickel	28		0.18	0.44	mg/Kg-dry	1	12/6/2017 21:15
Selenium	2.0		0.25	0.88	mg/Kg-dry	1	12/6/2017 21:15
Silver	U		0.054	0.44	mg/Kg-dry	1	12/6/2017 21:15
Zinc	77		0.070	0.88	mg/Kg-dry	1	12/6/2017 21:15
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JF</b>
Calcium	48		0.86	5.0	mg/L	10	12/6/2017 18:15
Magnesium	15		0.068	2.0	mg/L	10	12/6/2017 18:15
Sodium	66		0.34	2.0	mg/L	10	12/6/2017 18:15
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	2.1		0.010	0.010	none	1	12/6/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/4/17		Analyst: <b>RM</b>
Acenaphthene	U		0.0038	0.054	mg/Kg-dry	1	12/4/2017 20:50
Anthracene	U		0.0020	0.054	mg/Kg-dry	1	12/4/2017 20:50
Benzo(a)anthracene	U		0.0033	0.054	mg/Kg-dry	1	12/4/2017 20:50
Benzo(a)pyrene	U		0.0014	0.054	mg/Kg-dry	1	12/4/2017 20:50
Benzo(b)fluoranthene	U		0.0021	0.054	mg/Kg-dry	1	12/4/2017 20:50
Benzo(k)fluoranthene	U		0.0028	0.054	mg/Kg-dry	1	12/4/2017 20:50
Chrysene	U		0.0021	0.054	mg/Kg-dry	1	12/4/2017 20:50
Dibenzo(a,h)anthracene	U		0.0018	0.054	mg/Kg-dry	1	12/4/2017 20:50
Fluoranthene	U		0.0016	0.054	mg/Kg-dry	1	12/4/2017 20:50

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

# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171129-Divide Rd. (MW-08) @ 36.5'-37.5'  
**Collection Date:** 11/29/2017 04:05 PM

**Work Order:** 1712062  
**Lab ID:** 1712062-03  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0018	0.054	mg/Kg-dry	1	12/4/2017 20:50
Indeno(1,2,3-cd)pyrene	U		0.0017	0.054	mg/Kg-dry	1	12/4/2017 20:50
Naphthalene	U		0.010	0.054	mg/Kg-dry	1	12/4/2017 20:50
Pyrene	U		0.0020	0.054	mg/Kg-dry	1	12/4/2017 20:50
Surr: 2-Fluorobiphenyl	92.7			20-140	%REC	1	12/4/2017 20:50
Surr: 4-Terphenyl-d14	131			22-172	%REC	1	12/4/2017 20:50
Surr: Nitrobenzene-d5	129			28-140	%REC	1	12/4/2017 20:50
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 12/4/17		Analyst: <b>EMR</b>
Benzene	U		0.0082	0.048	mg/Kg	1	12/5/2017 02:32
Ethylbenzene	U		0.010	0.048	mg/Kg	1	12/5/2017 02:32
m,p-Xylene	U		0.023	0.096	mg/Kg	1	12/5/2017 02:32
o-Xylene	U		0.019	0.048	mg/Kg	1	12/5/2017 02:32
Toluene	U		0.013	0.048	mg/Kg	1	12/5/2017 02:32
Xylenes, Total	U		0.041	0.14	mg/Kg	1	12/5/2017 02:32
Surr: 1,2-Dichloroethane-d4	92.6			70-130	%REC	1	12/5/2017 02:32
Surr: 4-Bromofluorobenzene	93.4			70-130	%REC	1	12/5/2017 02:32
Surr: Dibromofluoromethane	94.2			70-130	%REC	1	12/5/2017 02:32
Surr: Toluene-d8	101			70-130	%REC	1	12/5/2017 02:32
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.74		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	38		0.40	1.3	mg/Kg-dry	1	12/7/2017 17:20
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 12/5/17		Analyst: <b>RP</b>
Chromium, Hexavalent	1.5		0.40	1.3	mg/Kg-dry	1	12/6/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>BTG</b>
Moisture	23		0.025	0.050	% of sample	1	12/6/2017 12:45
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/1/17		Analyst: <b>JJG</b>
pH	8.32		0.10	0.100	s.u.	1	12/1/2017 16:30

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **111331** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-111331-111331</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 03:58 PM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794497</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	U	5.0	0	0	0		0			
<i>Surr: 4-Terphenyl-d14</i>	2.85	0	3.33	0	85.6	34-130	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-111331-111331</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 04:27 PM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794498</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	317.1	5.0	333	0	95.2	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	2.683	0	3.33	0	80.6	34-130	0			

<b>MS</b>		Sample ID: <b>1712089-02B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:26 PM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794500</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	323.3	4.9	327.7	0	98.7	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	2.69	0	3.277	0	82.1	34-130	0			

<b>MSD</b>		Sample ID: <b>1712089-02B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:55 PM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794501</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	329.8	5.0	330.3	0	99.9	65-122	323.3	1.98	30	
<i>Surr: 4-Terphenyl-d14</i>	2.761	0	3.303	0	83.6	34-130	2.69	2.6	30	

The following samples were analyzed in this batch:

1712062-01A 1712062-02A 1712062-03A

Client: Caerus Oil and Gas LLC  
 Work Order: 1712062  
 Project: Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: 111343 Instrument ID GC9 Method: SW8015D

<b>MBLK</b>		Sample ID: <b>MBLK-111343-111343</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 10:50 AM</b>		
Client ID:		Run ID: <b>GC9_171205A</b>				SeqNo: <b>4792900</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4244	0	5000	0	84.9	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-111343-111343</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 09:51 AM</b>		
Client ID:		Run ID: <b>GC9_171205A</b>				SeqNo: <b>4792899</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	489300	5,000	500000	0	97.9	71-123	0			
Surr: Toluene-d8	5341	0	5000	0	107	71-123	0			

<b>MS</b>		Sample ID: <b>1712064-01A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/6/2017 07:42 AM</b>		
Client ID:		Run ID: <b>GC9_171205A</b>				SeqNo: <b>4794852</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	940700	8,900	888900	0	106	71-123	0			
Surr: Toluene-d8	9666	0	8889	0	109	71-123	0			

<b>MSD</b>		Sample ID: <b>1712064-01A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/6/2017 08:11 AM</b>		
Client ID:		Run ID: <b>GC9_171205A</b>				SeqNo: <b>4794853</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	928100	8,900	888900	0	104	71-123	940700	1.35	30	
Surr: Toluene-d8	9626	0	8889	0	108	71-123	9666	0.415	30	

The following samples were analyzed in this batch:

1712062-01A	1712062-02A	1712062-03A
-------------	-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111464** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-111464-111464</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 12:25 PM</b>		
Client ID:		Run ID: <b>HG1_171206A</b>				SeqNo: <b>4795457</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>LCS-111464-111464</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 12:27 PM</b>		
Client ID:		Run ID: <b>HG1_171206A</b>				SeqNo: <b>4795458</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1567 0.020 0.1665 0 94.1 80-120 0

<b>MS</b>		Sample ID: <b>1712062-03AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 12:55 PM</b>		
Client ID: <b>20171129-Divide Rd. (MW-08) @ 36.5'-37.5'</b>		Run ID: <b>HG1_171206A</b>				SeqNo: <b>4795469</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1331 0.015 0.1249 0.02169 89.2 75-125 0

<b>MSD</b>		Sample ID: <b>1712062-03AMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 12:58 PM</b>		
Client ID: <b>20171129-Divide Rd. (MW-08) @ 36.5'-37.5'</b>		Run ID: <b>HG1_171206A</b>				SeqNo: <b>4795470</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1362 0.015 0.1249 0.02169 91.7 75-125 0.1331 2.32 35

The following samples were analyzed in this batch:

1712062-01A	1712062-02A	1712062-03A
-------------	-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111383** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK				Sample ID: MBLK-111383-111383			Units: mg/Kg		Analysis Date: 12/6/2017 01:18 PM		
Client ID:			Run ID: ICP2_171206A			SeqNo: 4796024		Prep Date: 12/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	U	0.25									
Barium	U	0.25									
Cadmium	U	0.50									
Chromium	0.0142	0.25								J	
Copper	U	0.50									
Lead	U	0.25									
Nickel	U	0.25									
Selenium	U	0.50									
Silver	U	0.25									
Zinc	0.0785	0.50								J	

LCS				Sample ID: LCS-111383-111383				Units: mg/Kg			Analysis Date: 12/6/2017 01:44 PM			
Client ID:				Run ID: ICP2_171206A				SeqNo: 4796029			Prep Date: 12/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Arsenic	4.905	0.25	5	0	98.1	80-120	0							
Barium	4.97	0.25	5	0	99.4	80-120	0							
Cadmium	5.095	0.50	5	0	102	80-120	0							
Chromium	5.471	0.25	5	0	109	80-120	0							
Copper	4.945	0.50	5	0	98.9	80-120	0							
Lead	5.369	0.25	5	0	107	80-120	0							
Nickel	5.266	0.25	5	0	105	80-120	0							
Selenium	4.515	0.50	5	0	90.3	80-120	0							
Silver	4.82	0.25	5	0	96.4	80-120	0							
Zinc	5.25	0.50	5	0	105	80-120	0							

MS				Sample ID: 17111856-01BMS			Units: mg/Kg		Analysis Date: 12/6/2017 02:11 PM		
Client ID:			Run ID: ICP2_171206A			SeqNo: 4796035		Prep Date: 12/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	9.099	0.37	7.485	1.222	105	75-125		0			
Barium	22.12	0.37	7.485	12.33	131	75-125		0		S	
Cadmium	7.932	0.75	7.485	0.0967	105	75-125		0			
Chromium	10.45	0.37	7.485	2.121	111	75-125		0			
Copper	9.765	0.75	7.485	2.166	102	75-125		0			
Lead	14.25	0.37	7.485	5.495	117	75-125		0			
Nickel	9.941	0.37	7.485	1.657	111	75-125		0			
Selenium	7.737	0.75	7.485	0.6132	95.2	75-125		0			
Silver	7.328	0.37	7.485	-0.06034	98.7	75-125		0			
Zinc	25.37	0.75	7.485	14.04	151	75-125		0		S	

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111383** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 17111856-01BMSD				Units: mg/Kg		Analysis Date: 12/6/2017 02:17 PM		
Client ID:		Run ID: ICP2_171206A				SeqNo: 4796036		Prep Date: 12/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.104	0.37	7.463	1.222	106	75-125	9.099	0.0562	20	
Barium	19.37	0.37	7.463	12.33	94.4	75-125	22.12	13.3	20	
Cadmium	7.829	0.75	7.463	0.0967	104	75-125	7.932	1.31	20	
Chromium	10.76	0.37	7.463	2.121	116	75-125	10.45	2.93	20	
Copper	9.61	0.75	7.463	2.166	99.7	75-125	9.765	1.59	20	
Lead	14.22	0.37	7.463	5.495	117	75-125	14.25	0.217	20	
Nickel	9.842	0.37	7.463	1.657	110	75-125	9.941	1.01	20	
Selenium	7.69	0.75	7.463	0.6132	94.8	75-125	7.737	0.608	20	
Silver	7.224	0.37	7.463	-0.06034	97.6	75-125	7.328	1.43	20	
Zinc	25	0.75	7.463	14.04	147	75-125	25.37	1.46	20	S

The following samples were analyzed in this batch:

1712062-01A 1712062-02A 1712062-03A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111452** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>1712107-01CDUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/6/2017 06:18 PM</b>		
Client ID:		Run ID: <b>ICPMS3_171206A</b>				SeqNo: <b>4797060</b>		Prep Date: <b>12/6/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	325.6	5.0	0	0	0	0-0	298.2	8.78		
Magnesium	41.13	2.0	0	0	0	0-0	38.6	6.35		
Sodium	14.69	2.0	0	0	0	0-0	13.96	5.09		

The following samples were analyzed in this batch:

1712062-01A 1712062-02A 1712062-03A

Batch ID: **111452** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1712107-01CDUP</b>				Units: <b>none</b>		Analysis Date: <b>12/6/2017</b>		
Client ID:		Run ID: <b>SAR_171206A</b>				SeqNo: <b>4798474</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.2039	0.010	0	0	0		0.202	0.91	50	

The following samples were analyzed in this batch:

1712062-01A 1712062-02A 1712062-03A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111260**      Instrument ID **SVMS6**      Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-111260-111260</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>12/4/2017 04:31 PM</b>		
Client ID:		Run ID: <b>SVMS6_171204A</b>				SeqNo: <b>4793596</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	42								
Anthracene	U	42								
Benzo(a)anthracene	U	42								
Benzo(a)pyrene	U	42								
Benzo(b)fluoranthene	U	42								
Benzo(k)fluoranthene	U	42								
Chrysene	U	42								
Dibenzo(a,h)anthracene	U	42								
Fluoranthene	U	42								
Fluorene	U	42								
Indeno(1,2,3-cd)pyrene	U	42								
Naphthalene	U	42								
Pyrene	U	42								
<i>Surr: 2-Fluorobiphenyl</i>	2753	0	3333	0	82.6	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	4398	0	3333	0	132	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	4557	0	3333	0	137	28-140	0			

LCS		Sample ID: <b>SLCSS1-111260-111260</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>12/4/2017 04:45 PM</b>		
Client ID:		Run ID: <b>SVMS6_171204A</b>				SeqNo: <b>4793597</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1068	42	1333	0	80.1	40-140	0			
Anthracene	1204	42	1333	0	90.3	40-140	0			
Benzo(a)anthracene	1387	42	1333	0	104	40-140	0			
Benzo(a)pyrene	1679	42	1333	0	126	40-140	0			
Benzo(b)fluoranthene	1125	42	1333	0	84.4	40-140	0			
Benzo(k)fluoranthene	1058	42	1333	0	79.3	40-140	0			
Chrysene	1122	42	1333	0	84.1	40-140	0			
Dibenzo(a,h)anthracene	1589	42	1333	0	119	40-140	0			
Fluoranthene	1039	42	1333	0	78	40-140	0			
Fluorene	1314	42	1333	0	98.6	40-140	0			
Indeno(1,2,3-cd)pyrene	1514	42	1333	0	114	40-140	0			
Naphthalene	1147	42	1333	0	86	40-140	0			
Pyrene	1152	42	1333	0	86.5	40-140	0			
<i>Surr: 2-Fluorobiphenyl</i>	2512	0	3333	0	75.4	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	3329	0	3333	0	99.9	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	4492	0	3333	0	135	28-140	0			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111260**      Instrument ID: **SVMS6**      Method: **SW846 8270D**

MS				Sample ID: 17111856-02B MS			Units: µg/Kg		Analysis Date: 12/4/2017 04:59 PM	
Client ID:				Run ID: SVMS6_171204A			SeqNo: 4793598		Prep Date: 12/4/2017	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1252	42	1329	0	94.2	40-140	0			
Anthracene	1657	42	1329	0	125	40-140	0			
Benzo(a)anthracene	1885	42	1329	86.37	135	40-140	0			
Benzo(a)pyrene	1764	42	1329	53.61	129	40-140	0			
Benzo(b)fluoranthene	1719	42	1329	176.4	116	40-140	0			
Benzo(k)fluoranthene	1400	42	1329	0	105	40-140	0			
Chrysene	1547	42	1329	66.74	111	40-140	0			
Dibenzo(a,h)anthracene	1576	42	1329	0	119	40-140	0			
Fluoranthene	2095	42	1329	138.1	147	40-140	0			S
Fluorene	1581	42	1329	0	119	40-140	0			
Indeno(1,2,3-cd)pyrene	1550	42	1329	0	117	40-140	0			
Naphthalene	1296	42	1329	0	97.5	40-140	0			
Pyrene	2359	42	1329	115.7	169	40-140	0			S
Surr: 2-Fluorobiphenyl	2673	0	3323	0	80.4	20-140	0			
Surr: 4-Terphenyl-d14	3427	0	3323	0	103	22-172	0			
Surr: Nitrobenzene-d5	4564	0	3323	0	137	28-140	0			

MSD				Sample ID: 17111856-02B MSD			Units: µg/Kg		Analysis Date: 12/4/2017 05:12 PM	
Client ID:				Run ID: SVMS6_171204A			SeqNo: 4793599		Prep Date: 12/4/2017	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1069	41	1315	0	81.3	40-140	1252	15.8	30	
Anthracene	1208	41	1315	0	91.9	40-140	1657	31.3	30	R
Benzo(a)anthracene	1488	41	1315	86.37	107	40-140	1885	23.5	30	
Benzo(a)pyrene	1596	41	1315	53.61	117	40-140	1764	10	30	
Benzo(b)fluoranthene	1331	41	1315	176.4	87.9	40-140	1719	25.4	30	
Benzo(k)fluoranthene	1304	41	1315	0	99.2	40-140	1400	7.14	30	
Chrysene	1186	41	1315	66.74	85.1	40-140	1547	26.5	30	
Dibenzo(a,h)anthracene	1161	41	1315	0	88.3	40-140	1576	30.3	30	R
Fluoranthene	1211	41	1315	138.1	81.6	40-140	2095	53.5	30	R
Fluorene	1284	41	1315	0	97.7	40-140	1581	20.8	30	
Indeno(1,2,3-cd)pyrene	1453	41	1315	0	111	40-140	1550	6.48	30	
Naphthalene	1178	41	1315	0	89.6	40-140	1296	9.55	30	
Pyrene	1363	41	1315	115.7	94.9	40-140	2359	53.5	30	R
Surr: 2-Fluorobiphenyl	2822	0	3287	0	85.8	20-140	2673	5.43	0	
Surr: 4-Terphenyl-d14	3556	0	3287	0	108	22-172	3427	3.69	0	
Surr: Nitrobenzene-d5	4474	0	3287	0	136	28-140	4564	1.99	0	

The following samples were analyzed in this batch:

1712062-01A	1712062-02A	1712062-03A
-------------	-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111335**      Instrument ID **VMS9**      Method: **SW8260B**

Sample ID: <b>MBLK-111335-111335</b>				Units: <b>µg/Kg-dry</b>			Analysis Date: <b>12/4/2017 12:32 PM</b>			
Client ID:		Run ID: <b>VMS9_171204A</b>			SeqNo: <b>4792098</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>1044</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>104</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>924</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>92.4</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Dibromofluoromethane</i>	<i>963</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>96.3</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Toluene-d8</i>	<i>927</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>92.7</i>	<i>70-130</i>	<i>0</i>			

LCS				Sample ID: LCS-111335-111335			Units: µg/Kg-dry		Analysis Date: 12/4/2017 07:45 PM		
Client ID:			Run ID: VMS9_171204A			SeqNo: 4792101		Prep Date: 12/4/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	961	30	1000	0	96.1	75-125	0				
Ethylbenzene	878.5	30	1000	0	87.8	75-125	0				
m,p-Xylene	1854	60	2000	0	92.7	80-125	0				
o-Xylene	905.5	30	1000	0	90.6	75-125	0				
Toluene	875	30	1000	0	87.5	70-125	0				
Xylenes, Total	2759	90	3000	0	92	75-125	0				
Surr: 1,2-Dichloroethane-d4	1064	0	1000	0	106	70-130	0				
Surr: 4-Bromofluorobenzene	1024	0	1000	0	102	70-130	0				
Surr: Dibromofluoromethane	1056	0	1000	0	106	70-130	0				
Surr: Toluene-d8	974	0	1000	0	97.4	70-130	0				

MS				Sample ID: 1712064-01A MS				Units: µg/Kg-dry		Analysis Date: 12/4/2017 08:09 PM	
Client ID:			Run ID: VMS9_171204A		SeqNo: 4792102		Prep Date: 12/4/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1695	53	1778	0	95.4	75-125	0				
Ethylbenzene	1764	53	1778	0	99.2	75-125	0				
m,p-Xylene	3772	110	3556	0	106	80-125	0				
o-Xylene	1817	53	1778	0	102	75-125	0				
Toluene	1737	53	1778	0	97.7	70-125	0				
Xylenes, Total	5589	160	5333	0	105	75-125	0				
Surr: 1,2-Dichloroethane-d4	1797	0	1778	0	101	70-130	0				
Surr: 4-Bromofluorobenzene	1866	0	1778	0	105	70-130	0				
Surr: Dibromofluoromethane	1769	0	1778	0	99.5	70-130	0				
Surr: Toluene-d8	1687	0	1778	0	94.9	70-130	0				

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111335** Instrument ID **VMS9** Method: **SW8260B**

MSD				Sample ID: <b>1712064-01A MSD</b>			Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/4/2017 08:33 PM</b>	
Client ID:				Run ID: <b>VMS9_171204A</b>			SeqNo: <b>4792103</b>		Prep Date: <b>12/4/2017</b>	
									DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1756	53	1778	0	98.8	75-125	1695	3.55	30	
Ethylbenzene	1748	53	1778	0	98.4	75-125	1764	0.911	30	
m,p-Xylene	3741	110	3556	0	105	80-125	3772	0.828	30	
o-Xylene	1782	53	1778	0	100	75-125	1817	1.93	30	
Toluene	1641	53	1778	0	92.3	70-125	1737	5.68	30	
Xylenes, Total	5524	160	5333	0	104	75-125	5589	1.18	30	
Surr: 1,2-Dichloroethane-d4	1864	0	1778	0	105	70-130	1797	3.64	30	
Surr: 4-Bromofluorobenzene	1944	0	1778	0	109	70-130	1866	4.11	30	
Surr: Dibromofluoromethane	1738	0	1778	0	97.8	70-130	1769	1.77	30	
Surr: Toluene-d8	1701	0	1778	0	95.7	70-130	1687	0.839	30	

The following samples were analyzed in this batch:

1712062-01A	1712062-02A	1712062-03A
-------------	-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111275** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-111275-111275				Units: s.u.			Analysis Date: 12/1/2017 04:30 PM			
Client ID:				Run ID: WETCHEM_171201P				SeqNo: 4788724			Prep Date: 12/1/2017		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		3.94	0.10	4	0	98.5	90-110	0						

DUP				Sample ID: 17111777-02A DUP				Units: s.u.			Analysis Date: 12/1/2017 04:30 PM			
Client ID:				Run ID: WETCHEM_171201P				SeqNo: 4788728			Prep Date: 12/1/2017		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		10.47	0.10	0	0	0	0-0	10.45	0.191	20				

The following samples were analyzed in this batch:

1712062-01A	1712062-02A	1712062-03A
-------------	-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111401** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-111401-111401</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795293</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-111401-111401</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795294</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.2 1.0 5 0 84 80-120 0

<b>MS</b>		Sample ID: <b>17111791-01B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795296</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 5.05 1.0 5 0.16 97.8 75-125 0

<b>MS</b>		Sample ID: <b>17111791-01B MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795298</b>		Prep Date: <b>12/5/2017</b>		DF: <b>100</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1973 100 1818 0.16 109 75-125 0

<b>MSD</b>		Sample ID: <b>17111791-01B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795297</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 5.05 1.0 5 0.16 97.8 75-125 5.05 0 20

The following samples were analyzed in this batch:

1712062-01A	1712062-02A	1712062-03A
-------------	-------------	-------------

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111452** Instrument ID **Titration 1** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1712107-01C DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>12/7/2017 12:06 PM</b>		
Client ID:		Run ID: <b>TITRATOR 1_171207A</b>			SeqNo: <b>4798360</b>		Prep Date: <b>12/6/2017</b>		DF: <b>20</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	2.063	0.10	0	0	0		1.938	6.29	50	

The following samples were analyzed in this batch:

1712062-01A	1712062-02A	1712062-03A
-------------	-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712062  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225919** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R225919</b>				Units: % of sample		Analysis Date: <b>12/6/2017 12:45 PM</b>		
Client ID:		Run ID: <b>MOIST_171206A</b>				SeqNo: <b>4796329</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

<b>LCS</b>		Sample ID: <b>LCS-R225919</b>				Units: % of sample		Analysis Date: <b>12/6/2017 12:45 PM</b>		
Client ID:		Run ID: <b>MOIST_171206A</b>				SeqNo: <b>4796328</b>		Prep Date:		DF: <b>1</b>
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

<b>DUP</b>		Sample ID: <b>17111886-22B Dup</b>				Units: % of sample		Analysis Date: <b>12/6/2017 12:45 PM</b>		
Client ID:		Run ID: <b>MOIST_171206A</b>				SeqNo: <b>4796312</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 17.18 0.050 0 0 0 0-0 17.95 4.38 5

<b>DUP</b>		Sample ID: <b>1712062-02A DUP</b>				Units: % of sample		Analysis Date: <b>12/6/2017 12:45 PM</b>		
Client ID: <b>20171129-Divide Rd. (MW-07) @ 44'-46'</b>		Run ID: <b>MOIST_171206A</b>				SeqNo: <b>4797576</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 22.21 0.050 0 0 0 0-0 22.23 0.09 5

The following samples were analyzed in this batch:

1712062-01A 1712062-02A 1712062-03A

**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.

COC number (for client tracking)

1712062

Page 1 of 1

[illegible][illegible]

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 <input type="checkbox"/> ambient	No of Cooler Received carton / cooler box	Received by (lab) 	Date and Time 12/1/17 0930
Client's Date and Time of Completion: 12/1/17 11/29/17			Courier Name R/S-	Committed by	Date and Time

Notes: (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: [als@als.com.hk](mailto:als@als.com.hk)

*A Analyze for Brix / TPA First &*

SP2 2.4'



Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **01-Dec-17 09:30**

Work Order: **1712062**

Received by: **DS**

Checklist completed by Diane Shaw 01-Dec-17  
eSignature Date

Reviewed by: Alex Coaszar 01-Dec-17  
eSignature Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.4/2.4 c</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>12/1/2017 12:53:04 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



06-Dec-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **1712128**

Dear Brett,

ALS Environmental received 1 sample on 02-Dec-2017 10:30 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 11.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712128

**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>
1712128-01	20171201-Divide Rd (POR) @ 6.5'	Soil		12/1/2017 15:00	12/2/2017 10:30	<input type="checkbox"/>

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712128

---

**Case Narrative**

Batch 111404, Method DRLVI\_8015\_S, Sample 1712128-01A: The DRO surrogate recoveries are unavailable due to dilution below the calibration range.

Batch R225854, Method MOISTURE, Sample 1712128-01A DUP: RPD for moisture is outside of laboratory test defined limits. Results should be considered estimated.

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**WorkOrder:** 1712128

## **QUALIFIERS, ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight



# ALS Group, USA

Date: 06-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171201-Divide Rd (POR) @ 6.5'  
**Collection Date:** 12/1/2017 03:00 PM

**Work Order:** 1712128  
**Lab ID:** 1712128-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>			Prep: SW3546 / 12/5/17	Analyst: <b>KB</b>
<b>DRO (C10-C28)</b>	<b>28,000</b>		<b>72</b>	<b>130</b>	<b>mg/Kg-dry</b>	20	12/6/2017 02:38
Surr: 4-Terphenyl-d14	30.0	S		34-130	%REC	20	12/6/2017 02:38
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>			Prep: SW5035 / 12/4/17	Analyst: <b>KB</b>
<b>GRO (C6-C10)</b>	<b>35,000</b>		<b>350</b>	<b>830</b>	<b>mg/Kg-dry</b>	100	12/5/2017 11:49
Surr: Toluene-d8	117			71-123	%REC	100	12/5/2017 11:49
<b>VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW8260B</b>			Prep: SW5035 / 12/4/17	Analyst: <b>WH</b>
<b>Benzene</b>	<b>83</b>		<b>0.86</b>	<b>5.0</b>	<b>mg/Kg-dry</b>	100	12/5/2017 12:50
<b>Ethylbenzene</b>	<b>110</b>		<b>1.1</b>	<b>5.0</b>	<b>mg/Kg-dry</b>	100	12/5/2017 12:50
<b>m,p-Xylene</b>	<b>2,100</b>		<b>12</b>	<b>50</b>	<b>mg/Kg-dry</b>	500	12/5/2017 14:46
<b>o-Xylene</b>	<b>320</b>		<b>1.9</b>	<b>5.0</b>	<b>mg/Kg-dry</b>	100	12/5/2017 12:50
<b>Toluene</b>	<b>820</b>		<b>1.4</b>	<b>5.0</b>	<b>mg/Kg-dry</b>	100	12/5/2017 12:50
<b>Xylenes, Total</b>	<b>2,400</b>		<b>22</b>	<b>75</b>	<b>mg/Kg-dry</b>	500	12/5/2017 14:46
Surr: 1,2-Dichloroethane-d4	102			70-130	%REC	100	12/5/2017 12:50
Surr: 1,2-Dichloroethane-d4	98.3			70-130	%REC	500	12/5/2017 14:46
Surr: 4-Bromofluorobenzene	99.2			70-130	%REC	100	12/5/2017 12:50
Surr: 4-Bromofluorobenzene	98.7			70-130	%REC	500	12/5/2017 14:46
Surr: Dibromofluoromethane	98.6			70-130	%REC	100	12/5/2017 12:50
Surr: Dibromofluoromethane	96.6			70-130	%REC	500	12/5/2017 14:46
Surr: Toluene-d8	112			70-130	%REC	100	12/5/2017 12:50
Surr: Toluene-d8	100			70-130	%REC	500	12/5/2017 14:46
<b>MOISTURE</b>							
			Method: <b>SW3550C</b>				Analyst: <b>BTG</b>
<b>Moisture</b>	<b>25</b>		<b>0.025</b>	<b>0.050</b>	<b>% of sample</b>	1	12/5/2017 12:35

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712128  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **111404** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-111404-111404</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 03:07 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794516</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	U	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.85	0	3.33	0	85.6	34-130	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-111404-111404</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 03:36 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794517</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	320.7	5.0	333	0	96.3	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	2.833	0	3.33	0	85.1	34-130	0			

<b>MS</b>		Sample ID: <b>1712145-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 04:34 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794519</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	578.9	4.7	314.4	271.4	97.8	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	1.92	0	3.144	0	61.1	34-130	0			

<b>MSD</b>		Sample ID: <b>1712145-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 05:03 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794520</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	587.4	4.9	327.2	271.4	96.6	65-122	578.9	1.46	30	
<i>Surr: 4-Terphenyl-d14</i>	3.226	0	3.272	0	98.6	34-130	1.92	50.8	30	R

The following samples were analyzed in this batch: 1712128-01A

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712128  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111343** Instrument ID **GC9** Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-111343-111343</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 10:50 AM</b>		
Client ID:		Run ID: <b>GC9_171205A</b>				SeqNo: <b>4792900</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
<i>Surr: Toluene-d8</i>	<i>4244</i>	<i>0</i>	<i>5000</i>	<i>0</i>	<i>84.9</i>	<i>71-123</i>	<i>0</i>			

<b>LCS</b>		Sample ID: <b>LCS-111343-111343</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 09:51 AM</b>		
Client ID:		Run ID: <b>GC9_171205A</b>				SeqNo: <b>4792899</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	489300	5,000	500000	0	97.9	71-123	0			
<i>Surr: Toluene-d8</i>	<i>5341</i>	<i>0</i>	<i>5000</i>	<i>0</i>	<i>107</i>	<i>71-123</i>	<i>0</i>			

The following samples were analyzed in this batch: | 1712128-01A |

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712128  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111342**      Instrument ID **VMS7**      Method: **SW8260B**

<b>MBLK</b>		Sample ID: <b>MBLK-111342-111342</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 12:29 PM</b>		
Client ID:		Run ID: <b>VMS7_171205A</b>				SeqNo: <b>4793480</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	1006	0	1000	0	101	70-130	0			
Surr: 4-Bromofluorobenzene	994.5	0	1000	0	99.4	70-130	0			
Surr: Dibromofluoromethane	976.5	0	1000	0	97.6	70-130	0			
Surr: Toluene-d8	989	0	1000	0	98.9	70-130	0			

<b>LCS</b>		Sample ID: <b>LCS-111342-111342</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 11:26 AM</b>		
Client ID:		Run ID: <b>VMS7_171205A</b>				SeqNo: <b>4793478</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	964.5	30	1000	0	96.4	75-125	0			
Ethylbenzene	976	30	1000	0	97.6	75-125	0			
m,p-Xylene	1928	60	2000	0	96.4	80-125	0			
o-Xylene	987	30	1000	0	98.7	75-125	0			
Toluene	966	30	1000	0	96.6	70-125	0			
Xylenes, Total	2914	90	3000	0	97.2	75-125	0			
Surr: 1,2-Dichloroethane-d4	991.5	0	1000	0	99.2	70-130	0			
Surr: 4-Bromofluorobenzene	1018	0	1000	0	102	70-130	0			
Surr: Dibromofluoromethane	1028	0	1000	0	103	70-130	0			
Surr: Toluene-d8	1025	0	1000	0	102	70-130	0			

The following samples were analyzed in this batch:

1712128-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712128  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225854** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R225854					Units: % of sample		Analysis Date: 12/5/2017 12:35 PM	
Client ID:			Run ID: MOIST_171205A			SeqNo: 4794682		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R225854					Units: % of sample		Analysis Date: 12/5/2017 12:35 PM		
Client ID:			Run ID: MOIST_171205A			SeqNo: 4794681		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 99.99 0.050 100 0 100 99.5-100.5 0

DUP				Sample ID: 17111885-09A DUP				Units: % of sample			Analysis Date: 12/5/2017 12:35 PM		
Client ID:				Run ID: MOIST_171205A				SeqNo: 4794669			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			

Moisture 18.03 0.050 0 0 0 0-0 17.45 3.27 5

DUP				Sample ID: 1712128-01A DUP				Units: % of sample			Analysis Date: 12/5/2017 12:35 PM			
Client ID: 20171201-Divide Rd (POR) @ 6.5'				Run ID: MOIST_171205A				SeqNo: 4794679			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Moisture 28.03 0.050 0 0 0 0-0 25.01 11.4 5 R

The following samples were analyzed in this batch:

1712128-01A

**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.

COC number (for client tracking)

1712138

Page 1 of 1

[illegible][illegible]

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 <input type="checkbox"/> ambient	No of Cooler Received carton / cooler box	Received by (lab) 	Date and Time 12-2-17 1030
Client's Date and Time of Completion: 12/1/17 1620			Courier Name	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)

LS 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: [ls@lschem.com.hk](mailto:ls@lschem.com.hk)

SR2 / 4.4

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **02-Dec-17 10:30**

Work Order: **1712128**

Received by: **NCF**

Checklist completed by Nicole Fredericks  
eSignature

04-Dec-17  
Date

Reviewed by: Chad Whelton  
eSignature

05-Dec-17  
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 ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): 4.4/4.4 SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 12/4/2017 10:57:08 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:



12-Dec-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **1712139**

Dear Brett,

ALS Environmental received 4 samples on 02-Dec-2017 10:30 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 15.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712139

---

**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>
1712139-01	20171201-Divide Rd (MW05)	Groundwater		12/1/2017 13:45	12/2/2017 10:30	<input type="checkbox"/>
1712139-02	20171201-Divide Rd (MW06)	Groundwater		12/1/2017 14:00	12/2/2017 10:30	<input type="checkbox"/>
1712139-03	20171201-Divide Rd (MW08)	Groundwater		12/1/2017 14:05	12/2/2017 10:30	<input type="checkbox"/>
1712139-04	20171201-Divide Rd (MW09)	Groundwater		12/1/2017 14:15	12/2/2017 10:30	<input type="checkbox"/>

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**WorkOrder:** 1712139

## QUALIFIERS, ACRONYMS, UNITS

<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>
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

# ALS Group, USA

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171201-Divide Rd (MW05)  
**Collection Date:** 12/1/2017 01:45 PM

**Work Order:** 1712139  
**Lab ID:** 1712139-01  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>						
			<b>SW6020A</b>		Prep: SW3005A 12/6/17 13:04	Analyst: <b>JF</b>
Calcium	1,500		5.0	mg/L	1	12/6/2017 05:12 PM
Magnesium	450		2.0	mg/L	1	12/6/2017 05:12 PM
Potassium	29		2.0	mg/L	1	12/6/2017 05:12 PM
Sodium	660		2.0	mg/L	1	12/6/2017 05:12 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>			Analyst: <b>BG</b>
Benzene	0.70	J	1.0	µg/L	1	12/4/2017 02:36 PM
Ethylbenzene	U		1.0	µg/L	1	12/4/2017 02:36 PM
m,p-Xylene	U		2.0	µg/L	1	12/4/2017 02:36 PM
o-Xylene	U		1.0	µg/L	1	12/4/2017 02:36 PM
Toluene	1.0		1.0	µg/L	1	12/4/2017 02:36 PM
Xylenes, Total	U		3.0	µg/L	1	12/4/2017 02:36 PM
Surr: 1,2-Dichloroethane-d4	99.3		75-120	%REC	1	12/4/2017 02:36 PM
Surr: 4-Bromofluorobenzene	99.3		80-110	%REC	1	12/4/2017 02:36 PM
Surr: Dibromofluoromethane	96.4		85-115	%REC	1	12/4/2017 02:36 PM
Surr: Toluene-d8	96.0		85-110	%REC	1	12/4/2017 02:36 PM
<b>ANIONS BY ION CHROMATOGRAPHY</b>						
			<b>SW9056A</b>			Analyst: <b>EE</b>
Bromide	U		0.40	mg/L	2	12/11/2017 08:02 PM
Chloride	3.5		2.0	mg/L	2	12/11/2017 08:02 PM
Fluoride	0.16	J	0.20	mg/L	2	12/11/2017 08:02 PM
Sulfate	150		20	mg/L	20	12/11/2017 08:21 PM
<b>NITROGEN, NITRATE</b>						
			<b>E353.2 R2.0</b>			Analyst: <b>JJG</b>
Nitrogen, Nitrate	U		0.020	mg/L	1	12/5/2017 01:28 PM

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

# ALS Group, USA

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171201-Divide Rd (MW06)  
**Collection Date:** 12/1/2017 02:00 PM

**Work Order:** 1712139  
**Lab ID:** 1712139-02  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>						
			<b>SW6020A</b>		Prep: SW3005A 12/6/17 13:04	Analyst: <b>JF</b>
Calcium	170		0.50	mg/L	1	12/6/2017 05:14 PM
Magnesium	50		0.20	mg/L	1	12/6/2017 05:14 PM
Potassium	2.7		0.20	mg/L	1	12/6/2017 05:14 PM
Sodium	92		0.20	mg/L	1	12/6/2017 05:14 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>			Analyst: <b>BG</b>
Benzene	U		1.0	µg/L	1	12/4/2017 03:01 PM
Ethylbenzene	U		1.0	µg/L	1	12/4/2017 03:01 PM
m,p-Xylene	U		2.0	µg/L	1	12/4/2017 03:01 PM
o-Xylene	U		1.0	µg/L	1	12/4/2017 03:01 PM
Toluene	U		1.0	µg/L	1	12/4/2017 03:01 PM
Xylenes, Total	U		3.0	µg/L	1	12/4/2017 03:01 PM
Surr: 1,2-Dichloroethane-d4	99.8		75-120	%REC	1	12/4/2017 03:01 PM
Surr: 4-Bromofluorobenzene	98.2		80-110	%REC	1	12/4/2017 03:01 PM
Surr: Dibromofluoromethane	94.0		85-115	%REC	1	12/4/2017 03:01 PM
Surr: Toluene-d8	96.4		85-110	%REC	1	12/4/2017 03:01 PM
<b>ANIONS BY ION CHROMATOGRAPHY</b>						
			<b>SW9056A</b>			Analyst: <b>EE</b>
Bromide	U		0.40	mg/L	2	12/11/2017 08:40 PM
Chloride	4.8		2.0	mg/L	2	12/11/2017 08:40 PM
Fluoride	U		0.20	mg/L	2	12/11/2017 08:40 PM
Sulfate	180		20	mg/L	20	12/11/2017 08:59 PM
<b>NITROGEN, NITRATE</b>						
			<b>E353.2 R2.0</b>			Analyst: <b>JJG</b>
Nitrogen, Nitrate	U		0.020	mg/L	1	12/5/2017 01:28 PM

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

# ALS Group, USA

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171201-Divide Rd (MW08)  
**Collection Date:** 12/1/2017 02:05 PM

**Work Order:** 1712139  
**Lab ID:** 1712139-03  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>						
			<b>SW6020A</b>		Prep: SW3005A 12/6/17 13:04	Analyst: <b>JF</b>
Calcium	91		0.50	mg/L	1	12/6/2017 05:16 PM
Magnesium	38		0.20	mg/L	1	12/6/2017 05:16 PM
Potassium	3.2		0.20	mg/L	1	12/6/2017 05:16 PM
Sodium	92		0.20	mg/L	1	12/6/2017 05:16 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>			Analyst: <b>BG</b>
Benzene	U		1.0	µg/L	1	12/4/2017 03:25 PM
Ethylbenzene	U		1.0	µg/L	1	12/4/2017 03:25 PM
m,p-Xylene	U		2.0	µg/L	1	12/4/2017 03:25 PM
o-Xylene	U		1.0	µg/L	1	12/4/2017 03:25 PM
Toluene	0.39	J	1.0	µg/L	1	12/4/2017 03:25 PM
Xylenes, Total	U		3.0	µg/L	1	12/4/2017 03:25 PM
Surr: 1,2-Dichloroethane-d4	101		75-120	%REC	1	12/4/2017 03:25 PM
Surr: 4-Bromofluorobenzene	99.0		80-110	%REC	1	12/4/2017 03:25 PM
Surr: Dibromofluoromethane	95.5		85-115	%REC	1	12/4/2017 03:25 PM
Surr: Toluene-d8	95.7		85-110	%REC	1	12/4/2017 03:25 PM
<b>ANIONS BY ION CHROMATOGRAPHY</b>						
			<b>SW9056A</b>			Analyst: <b>EE</b>
Bromide	U		0.40	mg/L	2	12/11/2017 09:18 PM
Chloride	8.4		2.0	mg/L	2	12/11/2017 09:18 PM
Fluoride	0.14	J	0.20	mg/L	2	12/11/2017 09:18 PM
Sulfate	180		20	mg/L	20	12/11/2017 09:38 PM
<b>NITROGEN, NITRATE</b>						
			<b>E353.2 R2.0</b>			Analyst: <b>JJG</b>
Nitrogen, Nitrate	0.67		0.020	mg/L	1	12/5/2017 01:28 PM

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

# ALS Group, USA

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171201-Divide Rd (MW09)  
**Collection Date:** 12/1/2017 02:15 PM

**Work Order:** 1712139  
**Lab ID:** 1712139-04  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>						
			<b>SW6020A</b>		Prep: SW3005A 12/6/17 13:04	Analyst: <b>JF</b>
Calcium	70		0.50	mg/L	1	12/6/2017 05:18 PM
Magnesium	30		0.20	mg/L	1	12/6/2017 05:18 PM
Potassium	1.9		0.20	mg/L	1	12/6/2017 05:18 PM
Sodium	48		0.20	mg/L	1	12/6/2017 05:18 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>			Analyst: <b>BG</b>
Benzene	U		1.0	µg/L	1	12/4/2017 03:50 PM
Ethylbenzene	U		1.0	µg/L	1	12/4/2017 03:50 PM
m,p-Xylene	U		2.0	µg/L	1	12/4/2017 03:50 PM
o-Xylene	U		1.0	µg/L	1	12/4/2017 03:50 PM
Toluene	U		1.0	µg/L	1	12/4/2017 03:50 PM
Xylenes, Total	U		3.0	µg/L	1	12/4/2017 03:50 PM
Surr: 1,2-Dichloroethane-d4	100		75-120	%REC	1	12/4/2017 03:50 PM
Surr: 4-Bromofluorobenzene	98.5		80-110	%REC	1	12/4/2017 03:50 PM
Surr: Dibromofluoromethane	96.9		85-115	%REC	1	12/4/2017 03:50 PM
Surr: Toluene-d8	95.6		85-110	%REC	1	12/4/2017 03:50 PM
<b>ANIONS BY ION CHROMATOGRAPHY</b>						
			<b>SW9056A</b>			Analyst: <b>EE</b>
Bromide	U		0.20	mg/L	1	12/11/2017 09:57 PM
Chloride	7.6		1.0	mg/L	1	12/11/2017 09:57 PM
Fluoride	0.11		0.10	mg/L	1	12/11/2017 09:57 PM
Sulfate	110		10	mg/L	10	12/11/2017 11:13 PM
<b>NITROGEN, NITRATE</b>						
			<b>E353.2 R2.0</b>			Analyst: <b>JJG</b>
Nitrogen, Nitrate	0.54		0.020	mg/L	1	12/5/2017 01:28 PM

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712139  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **111450** Instrument ID **ICPMS3** Method: **SW6020A**

MBLK		Sample ID: MBLK-111450-111450				Units: mg/L		Analysis Date: 12/6/2017 04:46 PM		
Client ID:			Run ID: ICPMS3_171206A			SeqNo: 4796964		Prep Date: 12/6/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	U	0.50								
Magnesium	U	0.20								
Potassium	U	0.20								
Sodium	U	0.20								

LCS				Sample ID: LCS-111450-111450				Units: mg/L			Analysis Date: 12/6/2017 04:48 PM			
Client ID:				Run ID: ICPMS3_171206A				SeqNo: 4796965			Prep Date: 12/6/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Calcium	9.157	0.50	10	0	91.6	80-120	0							
Magnesium	9.695	0.20	10	0	97	80-120	0							
Potassium	9.261	0.20	10	0	92.6	80-120	0							
Sodium	9.856	0.20	10	0	98.6	80-120	0							

MS				Sample ID: 1712185-01BMS				Units: mg/L			Analysis Date: 12/6/2017 05:33 PM		
Client ID:			Run ID: ICPMS3_171206A			SeqNo: 4797000		Prep Date: 12/6/2017		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Calcium	64.13	0.50	10	53.2	109	75-125		0		O			
Magnesium	23.74	0.20	10	14.07	96.7	75-125		0					
Potassium	12.05	0.20	10	2.443	96.1	75-125		0					
Sodium	17.87	0.20	10	7.761	101	75-125		0					

MSD				Sample ID: 1712185-01BMSD				Units: mg/L		Analysis Date: 12/6/2017 05:35 PM	
Client ID:			Run ID: ICPMS3_171206A			SeqNo: 4797002		Prep Date: 12/6/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	62.74	0.50	10	53.2	95.4	75-125	64.13	2.2	20	O	
Magnesium	23.16	0.20	10	14.07	90.9	75-125	23.74	2.47	20		
Potassium	11.75	0.20	10	2.443	93.1	75-125	12.05	2.51	20		
Sodium	17.41	0.20	10	7.761	96.5	75-125	17.87	2.63	20		

The following samples were analyzed in this batch:

1712139-01C	1712139-02C	1712139-03C
1712139-04C		

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712139  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **R225705** Instrument ID **VMS6** Method: **SW8260B**

MBLK		Sample ID: <b>VLKWW1-171204-R225705</b>				Units: <b>µg/L</b>		Analysis Date: <b>12/4/2017 01:59 PM</b>		
Client ID:		Run ID: <b>VMS6_171204A</b>				SeqNo: <b>4791297</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	19.86	0	20	0	99.3	75-120	0			
Surr: 4-Bromofluorobenzene	19.33	0	20	0	96.6	80-110	0			
Surr: Dibromofluoromethane	18.6	0	20	0	93	85-115	0			
Surr: Toluene-d8	19.16	0	20	0	95.8	85-110	0			

LCS		Sample ID: <b>VLCSW1-171204-R225705</b>				Units: <b>µg/L</b>		Analysis Date: <b>12/4/2017 01:10 PM</b>		
Client ID:		Run ID: <b>VMS6_171204A</b>				SeqNo: <b>4791296</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.15	1.0	20	0	101	85-125	0			
Ethylbenzene	19.26	1.0	20	0	96.3	78-113	0			
m,p-Xylene	38.86	2.0	40	0	97.2	75-130	0			
o-Xylene	19.36	1.0	20	0	96.8	80-125	0			
Toluene	19.08	1.0	20	0	95.4	85-125	0			
Xylenes, Total	58.22	3.0	60	0	97	80-126	0			
Surr: 1,2-Dichloroethane-d4	19.28	0	20	0	96.4	75-120	0			
Surr: 4-Bromofluorobenzene	20.27	0	20	0	101	80-110	0			
Surr: Dibromofluoromethane	19.71	0	20	0	98.6	85-115	0			
Surr: Toluene-d8	19.34	0	20	0	96.7	85-110	0			

MS		Sample ID: <b>1712139-02A MS</b>				Units: <b>µg/L</b>		Analysis Date: <b>12/4/2017 11:26 PM</b>		
Client ID: <b>20171201-Divide Rd (MW06)</b>		Run ID: <b>VMS6_171204A</b>				SeqNo: <b>4792058</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	22.85	1.0	20	0	114	85-125	0			
Ethylbenzene	21.58	1.0	20	0	108	78-113	0			
m,p-Xylene	44.41	2.0	40	0	111	75-130	0			
o-Xylene	21.74	1.0	20	0	109	80-125	0			
Toluene	21.2	1.0	20	0.26	105	85-125	0			
Xylenes, Total	66.15	3.0	60	0	110	80-126	0			
Surr: 1,2-Dichloroethane-d4	19.94	0	20	0	99.7	75-120	0			
Surr: 4-Bromofluorobenzene	20.7	0	20	0	104	80-110	0			
Surr: Dibromofluoromethane	19.41	0	20	0	97	85-115	0			
Surr: Toluene-d8	19.42	0	20	0	97.1	85-110	0			

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712139  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225705**      Instrument ID **VMS6**      Method: **SW8260B**

DUP				Sample ID: 1712139-01ADUP			Units: µg/L		Analysis Date: 12/4/2017 11:01 PM		
Client ID: 20171201-Divide Rd (MW05)			Run ID: VMS6_171204A			SeqNo: 4792057		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	0.82	1.0	0	0	0		0.7	0	30	J	
Ethylbenzene	U	1.0	0	0	0		0	0	30		
m,p-Xylene	U	2.0	0	0	0		0.33	0	30		
o-Xylene	U	1.0	0	0	0		0	0	30		
Toluene	1.18	1.0	0	0	0		1.01	15.5	30		
Xylenes, Total	U	3.0	0	0	0		0	0	30		
Surr: 1,2-Dichloroethane-d4	20.29	0	20	0	101	75-120	19.86	2.14	30		
Surr: 4-Bromofluorobenzene	19.49	0	20	0	97.4	80-110	19.86	1.88	30		
Surr: Dibromofluoromethane	18.23	0	20	0	91.2	85-115	19.29	5.65	30		
Surr: Toluene-d8	19.2	0	20	0	96	85-110	19.2	0	30		

The following samples were analyzed in this batch:

1712139-01A	1712139-02A	1712139-03A
1712139-04A		

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712139  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **R225908**      Instrument ID **LACHAT2**      Method: **E353.2 R2.0**

<b>MBLK</b>		Sample ID: <b>MBLK-R225908</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205F</b>				SeqNo: <b>4795943</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate      U      0.020

<b>LCS</b>		Sample ID: <b>LCS-R225908</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205F</b>				SeqNo: <b>4795944</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate      5.324      0.020      5      0      106      90-110      0

<b>MS</b>		Sample ID: <b>17111638-04F MS</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205F</b>				SeqNo: <b>4795952</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate      5.491      0.020      5      0.4928      100      90-110      0

<b>MS</b>		Sample ID: <b>1712093-01B MS</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205F</b>				SeqNo: <b>4796021</b>		Prep Date:		DF: <b>2</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate      14.81      0.040      5      9.619      104      90-110      0

<b>MSD</b>		Sample ID: <b>17111638-04F MSD</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205F</b>				SeqNo: <b>4795953</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate      5.51      0.020      5      0.4928      100      90-110      5.491      0.345      20

<b>MSD</b>		Sample ID: <b>1712093-01B MSD</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205F</b>				SeqNo: <b>4796026</b>		Prep Date:		DF: <b>2</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate      14.77      0.040      5      9.619      103      90-110      14.81      0.243      20

The following samples were analyzed in this batch:

1712139-01D      1712139-02D

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712139  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225911A** Instrument ID **LACHAT2** Method: **E353.2 R2.0**

<b>MBLK</b>		Sample ID: <b>MBLK-R225911A</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205G</b>		SeqNo: <b>4796082</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate U 0.020

<b>LCS</b>		Sample ID: <b>LCS-R225911A</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID:		Run ID: <b>LACHAT2_171205G</b>		SeqNo: <b>4796083</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.332 0.020 5 0 107 90-110 0

<b>MS</b>		Sample ID: <b>1712139-04D MS</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID: <b>20171201-Divide Rd (MW09)</b>		Run ID: <b>LACHAT2_171205G</b>		SeqNo: <b>4796086</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.518 0.020 5 0.5412 99.5 90-110 0

<b>MSD</b>		Sample ID: <b>1712139-04D MSD</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 01:28 PM</b>		
Client ID: <b>20171201-Divide Rd (MW09)</b>		Run ID: <b>LACHAT2_171205G</b>		SeqNo: <b>4796087</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.529 0.020 5 0.5412 99.8 90-110 5.518 0.199 20

The following samples were analyzed in this batch:

1712139-03D 1712139-04D

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712139  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **R226262** Instrument ID **IC3** Method: **SW9056A**

<b>MBLK</b>		Sample ID: <b>CCB/MBLK-R226262</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/11/2017 10:26 A</b>		
Client ID:		Run ID: <b>IC3_171211A</b>				SeqNo: <b>4804886</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.20								
Chloride	U	1.0								
Fluoride	U	0.10								
Sulfate	U	1.0								

<b>LCS</b>		Sample ID: <b>LCS-R226262</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/11/2017 10:45 A</b>		
Client ID:		Run ID: <b>IC3_171211A</b>				SeqNo: <b>4804887</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.928	0.20	2	0	96.4	88-113	0			
Chloride	9.186	1.0	10	0	91.9	88-110	0			
Fluoride	1.815	0.10	2	0	90.8	86-111	0			
Sulfate	9.514	1.0	10	0	95.1	85-110	0			

<b>MS</b>		Sample ID: <b>17111803-04B MS</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/11/2017 12:41 PM</b>		
Client ID:		Run ID: <b>IC3_171211A</b>				SeqNo: <b>4804893</b>		Prep Date:		DF: <b>200</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	430.8	40	400	0	108	75-125	0			
Chloride	1960	200	2000	92.52	93.4	75-125	0			
Fluoride	371	20	400	0	92.8	75-125	0			
Sulfate	2591	200	2000	617.7	98.6	75-125	0			

<b>MSD</b>		Sample ID: <b>17111803-04B MSD</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/11/2017 01:00 PM</b>		
Client ID:		Run ID: <b>IC3_171211A</b>				SeqNo: <b>4804894</b>		Prep Date:		DF: <b>200</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	435	40	400	0	109	75-125	430.8	0.966	20	
Chloride	1957	200	2000	92.52	93.2	75-125	1960	0.116	20	
Fluoride	374.2	20	400	0	93.6	75-125	371	0.859	20	
Sulfate	2589	200	2000	617.7	98.6	75-125	2591	0.0587	20	

The following samples were analyzed in this batch:

1712139-01B	1712139-02B	1712139-03B
1712139-04B		

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



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

COC number (for client tracking)

Page 1 of 1

[illegible]

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

S 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: [info@technichem.com.hk](mailto:info@technichem.com.hk)

Sp 2 | 3.2

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **02-Dec-17 10:30**

Work Order: **1712139**

Received by: **NCF**

Checklist completed by Nicole Fredericks  
eSignature

04-Dec-17  
Date

Reviewed by: Chad Whelton  
eSignature

05-Dec-17  
Date

Matrices: **Groundwater**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>3.2/3.2</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>12/4/2017 11:29:22 AM</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



12-Dec-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **1712144**

Dear Brett,

ALS Environmental received 2 samples on 02-Dec-2017 10:30 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 25.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712144

---

**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>
1712144-01	20171130-Divide Rd (MW-09) @ 26'-27'	Soil		11/30/2017 12:15	12/2/2017 10:30	<input type="checkbox"/>
1712144-02	20171130-Divide Rd (MW-09) @ 31'-32'	Soil		11/30/2017 12:45	12/2/2017 10:30	<input type="checkbox"/>

---



---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712144

---

**Case Narrative**

Batch 111476, Method DRLVI\_8015\_S, Sample 1712144-01A: Low DRO surrogate recovery due to sample matrix effects confirmed by re-extraction.

---



---

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
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

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171130-Divide Rd (MW-09) @ 26'-27'  
**Collection Date:** 11/30/2017 12:15 PM

**Work Order:** 1712144  
**Lab ID:** 1712144-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/6/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		3.6	6.3	mg/Kg-dry	1	12/7/2017 04:05
Surr: 4-Terphenyl-d14	0.501	S		34-130	%REC	1	12/7/2017 04:05
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 12/4/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		3.3	7.8	mg/Kg	1	12/5/2017 20:22
Surr: Toluene-d8	88.8			71-123	%REC	1	12/5/2017 20:22
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/8/17		Analyst: <b>RSB</b>
Mercury	0.015	J	0.0021	0.021	mg/Kg-dry	1	12/8/2017 14:44
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/6/17		Analyst: <b>HBA</b>
Arsenic	9.4		0.11	0.43	mg/Kg-dry	1	12/7/2017 08:04
Barium	250		0.17	0.43	mg/Kg-dry	1	12/7/2017 08:04
Cadmium	0.54	J	0.041	0.85	mg/Kg-dry	1	12/7/2017 08:04
Chromium	32		0.024	0.43	mg/Kg-dry	1	12/7/2017 08:04
Copper	20		0.19	0.85	mg/Kg-dry	1	12/7/2017 08:04
Lead	14		0.090	0.43	mg/Kg-dry	1	12/7/2017 08:04
Nickel	28		0.17	0.43	mg/Kg-dry	1	12/7/2017 08:04
Selenium	2.3		0.24	0.85	mg/Kg-dry	1	12/7/2017 08:04
Silver	U		0.053	0.43	mg/Kg-dry	1	12/7/2017 08:04
Zinc	75		0.068	0.85	mg/Kg-dry	1	12/7/2017 08:04
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JF</b>
Calcium	38		0.86	5.0	mg/L	10	12/6/2017 18:20
Magnesium	13		0.068	2.0	mg/L	10	12/6/2017 18:20
Sodium	50		0.34	2.0	mg/L	10	12/6/2017 18:20
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	1.8		0.010	0.010	none	1	12/6/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/5/17		Analyst: <b>RM</b>
Acenaphthene	U		0.0037	0.052	mg/Kg-dry	1	12/6/2017 19:31
Anthracene	U		0.0019	0.052	mg/Kg-dry	1	12/6/2017 19:31
Benzo(a)anthracene	U		0.0032	0.052	mg/Kg-dry	1	12/6/2017 19:31
Benzo(a)pyrene	U		0.0013	0.052	mg/Kg-dry	1	12/6/2017 19:31
Benzo(b)fluoranthene	U		0.0020	0.052	mg/Kg-dry	1	12/6/2017 19:31
Benzo(k)fluoranthene	U		0.0027	0.052	mg/Kg-dry	1	12/6/2017 19:31
Chrysene	U		0.0020	0.052	mg/Kg-dry	1	12/6/2017 19:31
Dibenzo(a,h)anthracene	U		0.0017	0.052	mg/Kg-dry	1	12/6/2017 19:31
Fluoranthene	U		0.0015	0.052	mg/Kg-dry	1	12/6/2017 19:31

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

# ALS Group, USA

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171130-Divide Rd (MW-09) @ 26'-27'  
**Collection Date:** 11/30/2017 12:15 PM

**Work Order:** 1712144  
**Lab ID:** 1712144-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0017	0.052	mg/Kg-dry	1	12/6/2017 19:31
Indeno(1,2,3-cd)pyrene	U		0.0016	0.052	mg/Kg-dry	1	12/6/2017 19:31
Naphthalene	U		0.0098	0.052	mg/Kg-dry	1	12/6/2017 19:31
Pyrene	U		0.0019	0.052	mg/Kg-dry	1	12/6/2017 19:31
Surr: 2-Fluorobiphenyl	58.9			20-140	%REC	1	12/6/2017 19:31
Surr: 4-Terphenyl-d14	32.4			22-172	%REC	1	12/6/2017 19:31
Surr: Nitrobenzene-d5	75.0			28-140	%REC	1	12/6/2017 19:31
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 12/4/17		Analyst: <b>AK</b>
Benzene	U		0.0080	0.047	mg/Kg	1	12/6/2017 09:40
Ethylbenzene	U		0.0099	0.047	mg/Kg	1	12/6/2017 09:40
m,p-Xylene	U		0.022	0.094	mg/Kg	1	12/6/2017 09:40
o-Xylene	U		0.018	0.047	mg/Kg	1	12/6/2017 09:40
Toluene	U		0.013	0.047	mg/Kg	1	12/6/2017 09:40
Xylenes, Total	U		0.040	0.14	mg/Kg	1	12/6/2017 09:40
Surr: 1,2-Dichloroethane-d4	103			70-130	%REC	1	12/6/2017 09:40
Surr: 4-Bromofluorobenzene	93.4			70-130	%REC	1	12/6/2017 09:40
Surr: Dibromofluoromethane	96.4			70-130	%REC	1	12/6/2017 09:40
Surr: Toluene-d8	93.0			70-130	%REC	1	12/6/2017 09:40
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.64		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	32		0.40	1.3	mg/Kg-dry	1	12/7/2017 17:20
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 12/5/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.40	1.3	mg/Kg-dry	1	12/6/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>BTG</b>
Moisture	22		0.025	0.050	% of sample	1	12/7/2017 11:50
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/7/17		Analyst: <b>RZM</b>
pH	8.24		0.10	0.100	s.u.	1	12/7/2017 15:30

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

# ALS Group, USA

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171130-Divide Rd (MW-09) @ 31'-32'  
**Collection Date:** 11/30/2017 12:45 PM

**Work Order:** 1712144  
**Lab ID:** 1712144-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/5/17		Analyst: <b>KB</b>
<b>DRO (C10-C28)</b>	<b>14</b>		<b>3.7</b>	<b>6.4</b>	<b>mg/Kg-dry</b>	1	12/6/2017 07:58
Surr: 4-Terphenyl-d14	54.1			34-130	%REC	1	12/6/2017 07:58
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 12/4/17		Analyst: <b>KB</b>
<b>GRO (C6-C10)</b>	<b>U</b>		<b>3.4</b>	<b>8.2</b>	<b>mg/Kg</b>	1	12/5/2017 18:24
Surr: Toluene-d8	85.6			71-123	%REC	1	12/5/2017 18:24
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/8/17		Analyst: <b>RSB</b>
<b>Mercury</b>	<b>0.0074</b>	<b>J</b>	<b>0.0024</b>	<b>0.024</b>	<b>mg/Kg-dry</b>	1	12/8/2017 15:00
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/6/17		Analyst: <b>HBA</b>
<b>Arsenic</b>	<b>8.7</b>		<b>0.13</b>	<b>0.50</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Barium</b>	<b>260</b>		<b>0.20</b>	<b>0.50</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Cadmium</b>	<b>0.57</b>	<b>J</b>	<b>0.048</b>	<b>1.0</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Chromium</b>	<b>29</b>		<b>0.028</b>	<b>0.50</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Copper</b>	<b>22</b>		<b>0.22</b>	<b>1.0</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Lead</b>	<b>14</b>		<b>0.11</b>	<b>0.50</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Nickel</b>	<b>26</b>		<b>0.20</b>	<b>0.50</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Selenium</b>	<b>2.4</b>		<b>0.28</b>	<b>1.0</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Silver</b>	<b>U</b>		<b>0.062</b>	<b>0.50</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>Zinc</b>	<b>81</b>		<b>0.080</b>	<b>1.0</b>	<b>mg/Kg-dry</b>	1	12/7/2017 08:11
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JF</b>
<b>Calcium</b>	<b>120</b>		<b>0.86</b>	<b>5.0</b>	<b>mg/L</b>	10	12/6/2017 18:21
<b>Magnesium</b>	<b>32</b>		<b>0.068</b>	<b>2.0</b>	<b>mg/L</b>	10	12/6/2017 18:21
<b>Sodium</b>	<b>75</b>		<b>0.34</b>	<b>2.0</b>	<b>mg/L</b>	10	12/6/2017 18:21
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>RH</b>
<b>Sodium Adsorption Ratio</b>	<b>1.6</b>		<b>0.010</b>	<b>0.010</b>	<b>none</b>	1	12/6/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/5/17		Analyst: <b>RM</b>
<b>Acenaphthene</b>	<b>U</b>		<b>0.0038</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Anthracene</b>	<b>U</b>		<b>0.0019</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Benzo(a)anthracene</b>	<b>U</b>		<b>0.0033</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Benzo(a)pyrene</b>	<b>U</b>		<b>0.0013</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Benzo(b)fluoranthene</b>	<b>U</b>		<b>0.0020</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Benzo(k)fluoranthene</b>	<b>U</b>		<b>0.0027</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Chrysene</b>	<b>U</b>		<b>0.0020</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Dibenzo(a,h)anthracene</b>	<b>U</b>		<b>0.0017</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45
<b>Fluoranthene</b>	<b>U</b>		<b>0.0015</b>	<b>0.053</b>	<b>mg/Kg-dry</b>	1	12/6/2017 19:45

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

# ALS Group, USA

Date: 12-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171130-Divide Rd (MW-09) @ 31'-32'  
**Collection Date:** 11/30/2017 12:45 PM

**Work Order:** 1712144  
**Lab ID:** 1712144-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0017	0.053	mg/Kg-dry	1	12/6/2017 19:45
Indeno(1,2,3-cd)pyrene	U		0.0016	0.053	mg/Kg-dry	1	12/6/2017 19:45
Naphthalene	U		0.010	0.053	mg/Kg-dry	1	12/6/2017 19:45
Pyrene	U		0.0019	0.053	mg/Kg-dry	1	12/6/2017 19:45
Surr: 2-Fluorobiphenyl	76.7			20-140	%REC	1	12/6/2017 19:45
Surr: 4-Terphenyl-d14	75.3			22-172	%REC	1	12/6/2017 19:45
Surr: Nitrobenzene-d5	133			28-140	%REC	1	12/6/2017 19:45
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 12/4/17		Analyst: <b>AK</b>
Benzene	U		0.0084	0.049	mg/Kg	1	12/6/2017 10:04
Ethylbenzene	U		0.010	0.049	mg/Kg	1	12/6/2017 10:04
m,p-Xylene	U		0.023	0.098	mg/Kg	1	12/6/2017 10:04
o-Xylene	U		0.019	0.049	mg/Kg	1	12/6/2017 10:04
Toluene	U		0.013	0.049	mg/Kg	1	12/6/2017 10:04
Xylenes, Total	U		0.042	0.15	mg/Kg	1	12/6/2017 10:04
Surr: 1,2-Dichloroethane-d4	106			70-130	%REC	1	12/6/2017 10:04
Surr: 4-Bromofluorobenzene	92.0			70-130	%REC	1	12/6/2017 10:04
Surr: Dibromofluoromethane	97.2			70-130	%REC	1	12/6/2017 10:04
Surr: Toluene-d8	90.4			70-130	%REC	1	12/6/2017 10:04
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	1.4		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	29		0.41	1.3	mg/Kg-dry	1	12/7/2017 17:20
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 12/5/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.40	1.3	mg/Kg-dry	1	12/6/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>BTG</b>
Moisture	24		0.025	0.050	% of sample	1	12/7/2017 11:50
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/7/17		Analyst: <b>RZM</b>
pH	8.18		0.10	0.100	s.u.	1	12/7/2017 15:30

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **111404** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-111404-111404</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 03:07 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794516</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	U	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.85	0	3.33	0	85.6	34-130	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-111404-111404</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 03:36 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794517</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	320.7	5.0	333	0	96.3	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	2.833	0	3.33	0	85.1	34-130	0			

<b>MS</b>		Sample ID: <b>1712145-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 04:34 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794519</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	578.9	4.7	314.4	271.4	97.8	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	1.92	0	3.144	0	61.1	34-130	0			

<b>MSD</b>		Sample ID: <b>1712145-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 05:03 AM</b>		
Client ID:		Run ID: <b>GC8_171205C</b>				SeqNo: <b>4794520</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	587.4	4.9	327.2	271.4	96.6	65-122	578.9	1.46	30	
<i>Surr: 4-Terphenyl-d14</i>	3.226	0	3.272	0	98.6	34-130	1.92	50.8	30	R

The following samples were analyzed in this batch: 1712144-01A 1712144-02A

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111476** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>	Sample ID: <b>DBLKS1-111476-111476</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 11:15 PM</b>		
Client ID:	Run ID: <b>GC8_171206C</b>				SeqNo: <b>4797789</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	U	5.0								
Surr: 4-Terphenyl-d14	2.917	0	3.33	0	87.6	34-130	0			

<b>LCS</b>	Sample ID: <b>DLCSS1-111476-111476</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 11:44 PM</b>		
Client ID:	Run ID: <b>GC8_171206C</b>				SeqNo: <b>4797790</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	310.1	5.0	333	0	93.1	65-122	0			
Surr: 4-Terphenyl-d14	2.517	0	3.33	0	75.6	34-130	0			

<b>MS</b>	Sample ID: <b>1712328-06A MS</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>12/7/2017 01:11 AM</b>		
Client ID:	Run ID: <b>GC8_171206C</b>				SeqNo: <b>4797791</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	323.3	5.0	330.9	23.32	90.7	65-122	0			
Surr: 4-Terphenyl-d14	2.318	0	3.309	0	70.1	34-130	0			

<b>MSD</b>	Sample ID: <b>1712328-06A MSD</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>12/7/2017 01:40 AM</b>		
Client ID:	Run ID: <b>GC8_171206C</b>				SeqNo: <b>4797792</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	397.5	5.0	332.6	23.32	113	65-122	323.3	20.6	30	
Surr: 4-Terphenyl-d14	3.113	0	3.326	0	93.6	34-130	2.318	29.2	30	

The following samples were analyzed in this batch: 1712144-01A

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111343** Instrument ID **GC9** Method: **SW8015D**

<b>MBLK</b>	Sample ID: <b>MBLK-111343-111343</b>					Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 10:50 AM</b>		
Client ID:	Run ID: <b>GC9_171205A</b>				SeqNo: <b>4792900</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4244	0	5000	0	84.9	71-123	0			

<b>LCS</b>	Sample ID: <b>LCS-111343-111343</b>					Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/5/2017 09:51 AM</b>		
Client ID:	Run ID: <b>GC9_171205A</b>				SeqNo: <b>4792899</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	489300	5,000	500000	0	97.9	71-123	0			
Surr: Toluene-d8	5341	0	5000	0	107	71-123	0			

<b>MS</b>	Sample ID: <b>1712064-01A MS</b>					Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/6/2017 07:42 AM</b>		
Client ID:	Run ID: <b>GC9_171205A</b>				SeqNo: <b>4794852</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	940700	8,900	888900	0	106	71-123	0			
Surr: Toluene-d8	9666	0	8889	0	109	71-123	0			

<b>MSD</b>	Sample ID: <b>1712064-01A MSD</b>					Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/6/2017 08:11 AM</b>		
Client ID:	Run ID: <b>GC9_171205A</b>				SeqNo: <b>4794853</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	928100	8,900	888900	0	104	71-123	940700	1.35	30	
Surr: Toluene-d8	9626	0	8889	0	108	71-123	9666	0.415	30	

The following samples were analyzed in this batch:

1712144-01A	1712144-02A
-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111618** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-111618-111618</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/8/2017 02:34 PM</b>		
Client ID:		Run ID: <b>HG1_171208A</b>				SeqNo: <b>4801437</b>		Prep Date: <b>12/8/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>LCS-111618-111618</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/8/2017 02:37 PM</b>		
Client ID:		Run ID: <b>HG1_171208A</b>				SeqNo: <b>4801438</b>		Prep Date: <b>12/8/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.155 0.020 0.1665 0 93.1 80-120 0

<b>MS</b>		Sample ID: <b>1712144-01AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/8/2017 02:47 PM</b>		
Client ID: <b>20171130-Divide Rd (MW-09) @ 26'-27'</b>		Run ID: <b>HG1_171208A</b>				SeqNo: <b>4801442</b>		Prep Date: <b>12/8/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1497 0.016 0.1354 0.01198 102 75-125 0

<b>MSD</b>		Sample ID: <b>1712144-01AMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/8/2017 02:49 PM</b>		
Client ID: <b>20171130-Divide Rd (MW-09) @ 26'-27'</b>		Run ID: <b>HG1_171208A</b>				SeqNo: <b>4801443</b>		Prep Date: <b>12/8/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1353 0.016 0.1332 0.01198 92.6 75-125 0.1497 10.1 35

The following samples were analyzed in this batch: 1712144-01A 1712144-02A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111466** Instrument ID **ICP2** Method: **SW846 6010C**

<b>MBLK</b>		Sample ID: <b>MBLK-111466-111466</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/7/2017 05:00 AM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796685</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.085	0.50								J
Chromium	0.0465	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	0.068	0.50								J

<b>MBLK</b>		Sample ID: <b>MBLK-111466-111466</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/8/2017 08:42 AM</b>		
Client ID:		Run ID: <b>ICP2_171207A</b>				SeqNo: <b>4800278</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.0441	0.50								J
Chromium	0.04205	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	U	0.50								

<b>LCS</b>		Sample ID: <b>LCS-111466-111466</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/7/2017 05:06 AM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796686</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.89	0.25	5	0	97.8	80-120	0			
Barium	4.82	0.25	5	0	96.4	80-120	0			
Cadmium	5.348	0.50	5	0	107	80-120	0			
Chromium	5.177	0.25	5	0	104	80-120	0			
Copper	4.83	0.50	5	0	96.6	80-120	0			
Lead	5.248	0.25	5	0	105	80-120	0			
Nickel	5.313	0.25	5	0	106	80-120	0			
Selenium	4.405	0.50	5	0	88.1	80-120	0			
Silver	4.77	0.25	5	0	95.4	80-120	0			
Zinc	5.281	0.50	5	0	106	80-120	0			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111466** Instrument ID **ICP2** Method: **SW846 6010C**

MS				Sample ID: 1712072-28BMS				Units: mg/Kg			Analysis Date: 12/7/2017 05:19 AM		
Client ID:			Run ID: ICP2_171206A			SeqNo: 4796688			Prep Date: 12/6/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Barium	170.6	0.38	7.541	184	-178	75-125	0			SO			
Chromium	19.46	0.38	7.541	14.02	72.2	75-125	0			S			
Selenium	9.307	0.75	7.541	1.732	100	75-125	0						
Silver	8.592	0.38	7.541	-0.06009	115	75-125	0						

MS				Sample ID: 1712072-28BMS				Units: mg/Kg			Analysis Date: 12/7/2017 08:21 PM			
Client ID:				Run ID: ICP2_171207A				SeqNo: 4800123			Prep Date: 12/6/2017		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Arsenic	9.955	3.8	7.541	2.236	102	75-125	0							
Cadmium	10.18	7.5	7.541	2.123	107	75-125	0							
Copper	133.1	7.5	7.541	157.2	-320	75-125	0			SO				
Lead	63.2	3.8	7.541	70.18	-92.6	75-125	0			SO				
Nickel	17.27	3.8	7.541	8.926	111	75-125	0							
Zinc	183.1	7.5	7.541	201.6	-246	75-125	0			SO				

MSD				Sample ID: 1712072-28BMSD				Units: mg/Kg		Analysis Date: 12/7/2017 05:25 AM	
Client ID:			Run ID: ICP2_171206A			SeqNo: 4796689		Prep Date: 12/6/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Barium	180.6	0.38	7.541	184	-45.3	75-125	170.6	5.68	20	SO	
Chromium	22.25	0.38	7.541	14.02	109	75-125	19.46	13.4	20		
Selenium	9.556	0.75	7.541	1.732	104	75-125	9.307	2.64	20		
Silver	8.653	0.38	7.541	-0.06009	116	75-125	8.592	0.704	20		

MSD				Sample ID: 1712072-28BMSD			Units: mg/Kg		Analysis Date: 12/7/2017 08:27 PM		
Client ID:			Run ID: ICP2_171207A			SeqNo: 4800127		Prep Date: 12/6/2017		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	10.33	3.8	7.541	2.236	107	75-125	9.955	3.72	20		
Cadmium	10.26	7.5	7.541	2.123	108	75-125	10.18	0.738	20		
Copper	164.9	7.5	7.541	157.2	103	75-125	133.1	21.4	20	RO	
Lead	84.31	3.8	7.541	70.18	187	75-125	63.2	28.6	20	SRO	
Nickel	19.46	3.8	7.541	8.926	140	75-125	17.27	11.9	20	S	
Zinc	224.1	7.5	7.541	201.6	298	75-125	183.1	20.2	20	SRO	

The following samples were analyzed in this batch: 1712144-01A 1712144-02A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111452** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>1712107-01CDUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/6/2017 06:18 PM</b>		
Client ID:		Run ID: <b>ICPMS3_171206A</b>				SeqNo: <b>4797060</b>		Prep Date: <b>12/6/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	325.6	5.0	0	0	0	0-0	298.2	8.78		
Magnesium	41.13	2.0	0	0	0	0-0	38.6	6.35		
Sodium	14.69	2.0	0	0	0	0-0	13.96	5.09		

The following samples were analyzed in this batch:

1712144-01A 1712144-02A

Batch ID: **111452** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1712107-01CDUP</b>				Units: <b>none</b>		Analysis Date: <b>12/6/2017</b>		
Client ID:		Run ID: <b>SAR_171206A</b>				SeqNo: <b>4798474</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.2039	0.010	0	0	0		0.202	0.91	50	

The following samples were analyzed in this batch:

1712144-01A 1712144-02A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111403**      Instrument ID **SVMS6**      Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-111403-111403</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>12/5/2017 09:59 PM</b>		
Client ID:		Run ID: <b>SVMS6_171205A</b>				SeqNo: <b>4795451</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	42								
Anthracene	U	42								
Benzo(a)anthracene	U	42								
Benzo(a)pyrene	U	42								
Benzo(b)fluoranthene	U	42								
Benzo(k)fluoranthene	U	42								
Chrysene	U	42								
Dibenzo(a,h)anthracene	U	42								
Fluoranthene	U	42								
Fluorene	U	42								
Indeno(1,2,3-cd)pyrene	U	42								
Naphthalene	U	42								
Pyrene	U	42								
<i>Surr: 2-Fluorobiphenyl</i>	2881	0	3333	0	86.4	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	3723	0	3333	0	112	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	4638	0	3333	0	139	28-140	0			

LCS		Sample ID: <b>SLCSS1-111403-111403</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>12/5/2017 10:13 PM</b>		
Client ID:		Run ID: <b>SVMS6_171205A</b>				SeqNo: <b>4795452</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1225	42	1333	0	91.9	40-140	0			
Anthracene	1390	42	1333	0	104	40-140	0			
Benzo(a)anthracene	1512	42	1333	0	113	40-140	0			
Benzo(a)pyrene	1576	42	1333	0	118	40-140	0			
Benzo(b)fluoranthene	1301	42	1333	0	97.6	40-140	0			
Benzo(k)fluoranthene	1371	42	1333	0	103	40-140	0			
Chrysene	1239	42	1333	0	92.9	40-140	0			
Dibenzo(a,h)anthracene	1303	42	1333	0	97.8	40-140	0			
Fluoranthene	1251	42	1333	0	93.9	40-140	0			
Fluorene	1480	42	1333	0	111	40-140	0			
Indeno(1,2,3-cd)pyrene	1319	42	1333	0	99	40-140	0			
Naphthalene	1302	42	1333	0	97.7	40-140	0			
Pyrene	1297	42	1333	0	97.3	40-140	0			
<i>Surr: 2-Fluorobiphenyl</i>	3206	0	3333	0	96.2	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	3710	0	3333	0	111	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	4382	0	3333	0	131	28-140	0			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111403** Instrument ID **SVMS6** Method: **SW846 8270D**

MS				Sample ID: 1712177-04B MS			Units: µg/Kg		Analysis Date: 12/5/2017 10:26 PM		
Client ID:			Run ID: SVMS6_171205A			SeqNo: 4795453		Prep Date: 12/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1160	42	1333	0	87	40-140	0				
Anthracene	1332	42	1333	0	100	40-140	0				
Benzo(a)anthracene	1433	42	1333	0	107	40-140	0				
Benzo(a)pyrene	1599	42	1333	0	120	40-140	0				
Benzo(b)fluoranthene	1210	42	1333	0	90.8	40-140	0				
Benzo(k)fluoranthene	1330	42	1333	0	99.8	40-140	0				
Chrysene	1210	42	1333	0	90.8	40-140	0				
Dibenzo(a,h)anthracene	1236	42	1333	0	92.7	40-140	0				
Fluoranthene	1179	42	1333	0	88.4	40-140	0				
Fluorene	1358	42	1333	0	102	40-140	0				
Indeno(1,2,3-cd)pyrene	1339	42	1333	0	100	40-140	0				
Naphthalene	1208	42	1333	0	90.6	40-140	0				
Pyrene	1270	42	1333	0	95.2	40-140	0				
Surr: 2-Fluorobiphenyl	3081	0	3333	0	92.4	20-140	0				
Surr: 4-Terphenyl-d14	3600	0	3333	0	108	22-172	0				
Surr: Nitrobenzene-d5	4564	0	3333	0	137	28-140	0				

MSD				Sample ID: 1712177-04B MSD				Units: µg/Kg		Analysis Date: 12/5/2017 10:40 PM	
Client ID:			Run ID: SVMS6_171205A			SeqNo: 4795454		Prep Date: 12/5/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1057	42	1333	0	79.3	40-140	1160	9.28	30		
Anthracene	1213	42	1333	0	91	40-140	1332	9.36	30		
Benzo(a)anthracene	1289	42	1333	0	96.7	40-140	1433	10.5	30		
Benzo(a)pyrene	1505	42	1333	0	113	40-140	1599	6.07	30		
Benzo(b)fluoranthene	1176	42	1333	0	88.2	40-140	1210	2.85	30		
Benzo(k)fluoranthene	1210	42	1333	0	90.8	40-140	1330	9.43	30		
Chrysene	1094	42	1333	0	82.1	40-140	1210	10	30		
Dibenzo(a,h)anthracene	1192	42	1333	0	89.5	40-140	1236	3.57	30		
Fluoranthene	1113	42	1333	0	83.5	40-140	1179	5.68	30		
Fluorene	1287	42	1333	0	96.6	40-140	1358	5.4	30		
Indeno(1,2,3-cd)pyrene	1221	42	1333	0	91.6	40-140	1339	9.28	30		
Naphthalene	1068	42	1333	0	80.1	40-140	1208	12.3	30		
Pyrene	1101	42	1333	0	82.6	40-140	1270	14.2	30		
Surr: 2-Fluorobiphenyl	2912	0	3333	0	87.4	20-140	3081	5.63	0		
Surr: 4-Terphenyl-d14	3324	0	3333	0	99.7	22-172	3600	7.97	0		
Surr: Nitrobenzene-d5	4390	0	3333	0	132	28-140	4564	3.88	0		

The following samples were analyzed in this batch:

1712144-01A 1712144-02A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111347**      Instrument ID **VMS9**      Method: **SW8260B**

MBLK				Sample ID: <b>MBLK-111347-111347</b>			Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/6/2017 02:24 AM</b>	
Client ID:		Run ID: <b>VMS9_171205B</b>			SeqNo: <b>4794994</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	999.5	0	1000	0	100	70-130	0			
Surr: 4-Bromofluorobenzene	926	0	1000	0	92.6	70-130	0			
Surr: Dibromofluoromethane	995	0	1000	0	99.5	70-130	0			
Surr: Toluene-d8	972.5	0	1000	0	97.2	70-130	0			

LCS				Sample ID: <b>LCS-111347-111347</b>			Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/6/2017 01:11 AM</b>	
Client ID:		Run ID: <b>VMS9_171205B</b>			SeqNo: <b>4794992</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	886	30	1000	0	88.6	75-125	0			
Ethylbenzene	912.5	30	1000	0	91.2	75-125	0			
m,p-Xylene	1892	60	2000	0	94.6	80-125	0			
o-Xylene	925.5	30	1000	0	92.6	75-125	0			
Toluene	883.5	30	1000	0	88.4	70-125	0			
Xylenes, Total	2818	90	3000	0	93.9	75-125	0			
Surr: 1,2-Dichloroethane-d4	1005	0	1000	0	100	70-130	0			
Surr: 4-Bromofluorobenzene	1039	0	1000	0	104	70-130	0			
Surr: Dibromofluoromethane	996.5	0	1000	0	99.6	70-130	0			
Surr: Toluene-d8	987	0	1000	0	98.7	70-130	0			

MS				Sample ID: <b>1712141-02A MS</b>			Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/6/2017 10:53 AM</b>	
Client ID:		Run ID: <b>VMS9_171205B</b>			SeqNo: <b>4795008</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1588	41	1353	790.1	59	75-125	0			S
Ethylbenzene	1291	41	1353	71.71	90.2	75-125	0			
m,p-Xylene	3613	81	2706	1272	86.5	80-125	0			
o-Xylene	1354	41	1353	112.3	91.8	75-125	0			
Toluene	2299	41	1353	1971	24.3	70-125	0			S
Xylenes, Total	4967	120	4059	1384	88.3	75-125	0			
Surr: 1,2-Dichloroethane-d4	1416	0	1353	0	105	70-130	0			
Surr: 4-Bromofluorobenzene	1375	0	1353	0	102	70-130	0			
Surr: Dibromofluoromethane	1339	0	1353	0	99	70-130	0			
Surr: Toluene-d8	1249	0	1353	0	92.4	70-130	0			

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111347** Instrument ID **VMS9** Method: **SW8260B**

MSD				Sample ID: 1712141-02A MSD			Units: µg/Kg-dry		Analysis Date: 12/6/2017 11:17 AM		
Client ID:		Run ID: VMS9_171205B			SeqNo: 4795009		Prep Date: 12/4/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1531	41	1353	790.1	54.8	75-125	1588	3.69	30	S	
Ethylbenzene	1197	41	1353	71.71	83.2	75-125	1291	7.61	30		
m,p-Xylene	3561	81	2706	1272	84.6	80-125	3613	1.45	30		
o-Xylene	1310	41	1353	112.3	88.5	75-125	1354	3.35	30		
Toluene	2334	41	1353	1971	26.9	70-125	2299	1.52	30	S	
Xylenes, Total	4871	120	4059	1384	85.9	75-125	4967	1.97	30		
Surr: 1,2-Dichloroethane-d4	1394	0	1353	0	103	70-130	1416	1.54	30		
Surr: 4-Bromofluorobenzene	1389	0	1353	0	103	70-130	1375	1.08	30		
Surr: Dibromofluoromethane	1323	0	1353	0	97.8	70-130	1339	1.22	30		
Surr: Toluene-d8	1253	0	1353	0	92.6	70-130	1249	0.27	30		

The following samples were analyzed in this batch:

1712144-01A 1712144-02A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111401** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-111401-111401</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795293</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-111401-111401</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795294</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.2 1.0 5 0 84 80-120 0

<b>MS</b>		Sample ID: <b>17111791-01B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795296</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 5.05 1.0 5 0.16 97.8 75-125 0

<b>MS</b>		Sample ID: <b>17111791-01B MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795298</b>		Prep Date: <b>12/5/2017</b>		DF: <b>100</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1973 100 1818 0.16 109 75-125 0

<b>MSD</b>		Sample ID: <b>17111791-01B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795297</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 5.05 1.0 5 0.16 97.8 75-125 5.05 0 20

The following samples were analyzed in this batch:

1712144-01A 1712144-02A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111452** Instrument ID **Titration 1** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1712107-01C DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>12/7/2017 12:06 PM</b>		
Client ID:		Run ID: <b>TITRATOR 1_171207A</b>			SeqNo: <b>4798360</b>		Prep Date: <b>12/6/2017</b>		DF: <b>20</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	2.063	0.10	0	0	0		1.938	6.29	50	

The following samples were analyzed in this batch:

1712144-01A 1712144-02A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111525** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-111525-111525					Units: s.u.		Analysis Date: 12/7/2017 03:30 PM		
Client ID:		Run ID: WETCHEM_171207E					SeqNo: 4799222		Prep Date: 12/7/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH	3.9	0.10	4	0	97.5	90-110	0			
----	-----	------	---	---	------	--------	---	--	--	--

DUP		Sample ID: 1712145-01A DUP				Units: s.u.		Analysis Date: 12/7/2017 03:30 PM		
Client ID:		Run ID: WETCHEM_171207E				SeqNo: 4799230		Prep Date: 12/7/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	8.01	0.10	0	0	0	0-0	7.97	0.501	20	
----	------	------	---	---	---	-----	------	-------	----	--

DUP		Sample ID: 1712306-01A DUP					Units: s.u.		Analysis Date: 12/7/2017 03:30 PM	
Client ID:			Run ID: WETCHEM_171207E			SeqNo: 4799237		Prep Date: 12/7/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	8.76	0.10	0	0	0	0-0	8.69	0.802	20	
----	------	------	---	---	---	-----	------	-------	----	--

The following samples were analyzed in this batch:

1712144-01A	1712144-02A
-------------	-------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712144  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R226049** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R226049</b>				Units: % of sample		Analysis Date: <b>12/7/2017 11:50 AM</b>		
Client ID:		Run ID: <b>MOIST_171207A</b>				SeqNo: <b>4800748</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

<b>LCS</b>		Sample ID: <b>LCS-R226049</b>				Units: % of sample		Analysis Date: <b>12/7/2017 11:50 AM</b>		
Client ID:		Run ID: <b>MOIST_171207A</b>				SeqNo: <b>4800747</b>		Prep Date:		DF: <b>1</b>
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

<b>DUP</b>		Sample ID: <b>17111701-04A DUP</b>				Units: % of sample		Analysis Date: <b>12/7/2017 11:50 AM</b>		
Client ID:		Run ID: <b>MOIST_171207A</b>				SeqNo: <b>4800726</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 21.58 0.050 0 0 0 0-0 19.96 7.8 10

<b>DUP</b>		Sample ID: <b>1712142-01A DUP</b>				Units: % of sample		Analysis Date: <b>12/7/2017 11:50 AM</b>		
Client ID:		Run ID: <b>MOIST_171207A</b>				SeqNo: <b>4800728</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 19.74 0.050 0 0 0 0-0 18.1 8.67 10

The following samples were analyzed in this batch:

1712144-01A 1712144-02A

**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.

COC number (for client tracking)

1712142

Page 1 of 1

[illegible]

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

LS 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: [ls@lschem.com.hk](mailto:ls@lschem.com.hk)

\* Analyze for BTEX QIPH First \*

SR2/4.4

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **02-Dec-17 10:30**

Work Order: **1712144**

Received by: **NCF**

Checklist completed by Nicole Fredericks  
eSignature

04-Dec-17  
Date

Reviewed by: Chad Whelton  
eSignature

05-Dec-17  
Date

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.4/4.4</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>12/4/2017 11:53:32 AM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



13-Dec-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **1712305**

Dear Brett,

ALS Environmental received 3 samples on 06-Dec-2017 09:30 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 14.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712305

---

**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>
1712305-01	20171205-Divide RD (MW-05)	Groundwater		12/5/2017 14:05	12/6/2017 09:30	<input type="checkbox"/>
1712305-02	20171205-Divide RD (MW-02)	Groundwater		12/5/2017 14:40	12/6/2017 09:30	<input type="checkbox"/>
1712305-03	20171205-Divide RD (MW-10)	Groundwater		12/5/2017 13:40	12/6/2017 09:30	<input type="checkbox"/>

---

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 1712305

---

**Case Narrative**

Batch R226375, Method IC\_9056\_W, Sample 1712305-03C: The reporting limit for Bromide is elevated due to dilution for high concentrations of non-target analytes and an effervescent matrix.

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**WorkOrder:** 1712305

## **QUALIFIERS, ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

**ALS Group, USA****Date:** 13-Dec-17**Client:** Caerus Oil and Gas LLC**Project:** Divide Rd Pipeline Release**Work Order:** 1712305**Sample ID:** 20171205-Divide RD (MW-05)**Lab ID:** 1712305-01**Collection Date:** 12/5/2017 02:05 PM**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>			Analyst: <b>BG</b>
Benzene	U		1.0	µg/L	1	12/6/2017 02:57 PM
Ethylbenzene	U		1.0	µg/L	1	12/6/2017 02:57 PM
m,p-Xylene	U		2.0	µg/L	1	12/6/2017 02:57 PM
o-Xylene	U		1.0	µg/L	1	12/6/2017 02:57 PM
Toluene	U		1.0	µg/L	1	12/6/2017 02:57 PM
Xylenes, Total	U		3.0	µg/L	1	12/6/2017 02:57 PM
Surr: 1,2-Dichloroethane-d4	104		75-120	%REC	1	12/6/2017 02:57 PM
Surr: 4-Bromofluorobenzene	96.8		80-110	%REC	1	12/6/2017 02:57 PM
Surr: Dibromofluoromethane	98.4		85-115	%REC	1	12/6/2017 02:57 PM
Surr: Toluene-d8	107		85-110	%REC	1	12/6/2017 02:57 PM

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

**ALS Group, USA****Date:** 13-Dec-17**Client:** Caerus Oil and Gas LLC**Project:** Divide Rd Pipeline Release**Work Order:** 1712305**Sample ID:** 20171205-Divide RD (MW-02)**Lab ID:** 1712305-02**Collection Date:** 12/5/2017 02:40 PM**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>			Analyst: <b>BG</b>
Benzene	570		100	µg/L	100	12/6/2017 02:33 PM
Ethylbenzene	250		100	µg/L	100	12/6/2017 02:33 PM
m,p-Xylene	3,200		200	µg/L	100	12/6/2017 02:33 PM
o-Xylene	540		100	µg/L	100	12/6/2017 02:33 PM
Toluene	2,400		100	µg/L	100	12/6/2017 02:33 PM
Xylenes, Total	3,800		300	µg/L	100	12/6/2017 02:33 PM
Surr: 1,2-Dichloroethane-d4	103		75-120	%REC	100	12/6/2017 02:33 PM
Surr: 4-Bromofluorobenzene	94.4		80-110	%REC	100	12/6/2017 02:33 PM
Surr: Dibromofluoromethane	97.8		85-115	%REC	100	12/6/2017 02:33 PM
Surr: Toluene-d8	106		85-110	%REC	100	12/6/2017 02:33 PM

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

# ALS Group, USA

Date: 13-Dec-17

Client: Caerus Oil and Gas LLC

Project: Divide Rd Pipeline Release

Sample ID: 20171205-Divide RD (MW-10)

Collection Date: 12/5/2017 01:40 PM

Work Order: 1712305

Lab ID: 1712305-03

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>						
			<b>SW6020A</b>		Prep: SW3005A 12/7/17 12:52	Analyst: <b>JF</b>
Calcium	290		5.0	mg/L	10	12/8/2017 12:20 PM
Magnesium	73		0.20	mg/L	1	12/7/2017 03:36 PM
Potassium	9.9		0.20	mg/L	1	12/7/2017 03:36 PM
Sodium	140		0.20	mg/L	1	12/8/2017 10:49 AM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>			Analyst: <b>BG</b>
Benzene	8.8		1.0	µg/L	1	12/6/2017 03:20 PM
Ethylbenzene	0.75	J	1.0	µg/L	1	12/6/2017 03:20 PM
m,p-Xylene	3.8		2.0	µg/L	1	12/6/2017 03:20 PM
o-Xylene	1.2		1.0	µg/L	1	12/6/2017 03:20 PM
Toluene	13		1.0	µg/L	1	12/6/2017 03:20 PM
Xylenes, Total	5.0		3.0	µg/L	1	12/6/2017 03:20 PM
Surr: 1,2-Dichloroethane-d4	102		75-120	%REC	1	12/6/2017 03:20 PM
Surr: 4-Bromofluorobenzene	95.6		80-110	%REC	1	12/6/2017 03:20 PM
Surr: Dibromofluoromethane	97.8		85-115	%REC	1	12/6/2017 03:20 PM
Surr: Toluene-d8	107		85-110	%REC	1	12/6/2017 03:20 PM
<b>ANIONS BY ION CHROMATOGRAPHY</b>						
			<b>SW9056A</b>			Analyst: <b>EE</b>
Bromide	U		0.40	mg/L	2	12/12/2017 07:19 PM
Chloride	29		2.0	mg/L	2	12/12/2017 07:19 PM
Fluoride	0.45		0.20	mg/L	2	12/12/2017 07:19 PM
Sulfate	200		20	mg/L	20	12/12/2017 07:39 PM
<b>NITROGEN, NITRATE</b>						
			<b>E353.2 R2.0</b>			Analyst: <b>JB</b>
Nitrogen, Nitrate	0.84		0.020	mg/L	1	12/12/2017 02:11 PM

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712305  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **111501** Instrument ID **ICPMS3** Method: **SW6020A**

MBLK		Sample ID: MBLK-111501-111501				Units: mg/L		Analysis Date: 12/7/2017 01:01 PM		
Client ID:		Run ID: ICPMS3_171207A			SeqNo: 4798567		Prep Date: 12/7/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	U	0.50								
Magnesium	U	0.20								
Potassium	U	0.20								
Sodium	0.03693	0.20								J

LCS				Sample ID: LCS-111501-111501				Units: mg/L			Analysis Date: 12/7/2017 01:03 PM		
Client ID:			Run ID: ICPMS3_171207A			SeqNo: 4798568		Prep Date: 12/7/2017		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Calcium	9.819	0.50	10	0	98.2	80-120	0						
Magnesium	9.834	0.20	10	0	98.3	80-120	0						
Potassium	10.05	0.20	10	0	101	80-120	0						
Sodium	10.14	0.20	10	0	101	80-120	0						

MS				Sample ID: 1712028-01BMS				Units: mg/L			Analysis Date: 12/7/2017 01:10 PM		
Client ID:			Run ID: ICPMS3_171207A			SeqNo: 4798573		Prep Date: 12/7/2017		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Calcium	170.4	0.50	10	155.8	146	75-125		0		SO			
Magnesium	47.22	0.20	10	36.49	107	75-125		0					
Potassium	11.86	0.20	10	1.774	101	75-125		0					
Sodium	24.36	0.20	10	13.61	107	75-125		0					

MSD				Sample ID: 1712028-01BMSD			Units: mg/L		Analysis Date: 12/7/2017 01:12 PM		
Client ID:			Run ID: ICPMS3_171207A			SeqNo: 4798586		Prep Date: 12/7/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	167.9	0.50	10	155.8	122	75-125	170.4	1.45	20	O	
Magnesium	46.64	0.20	10	36.49	102	75-125	47.22	1.25	20		
Potassium	11.6	0.20	10	1.774	98.3	75-125	11.86	2.17	20		
Sodium	24.06	0.20	10	13.61	105	75-125	24.36	1.21	20		

The following samples were analyzed in this batch:

1712305-03B

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712305  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **R225889a**      Instrument ID **VMS5**      Method: **SW8260B**

<b>MBLK</b>		Sample ID: <b>VLKWK1-171206-R225889a</b>				Units: <b>µg/L</b>		Analysis Date: <b>12/6/2017 01:47 PM</b>		
Client ID:		Run ID: <b>VMS5_171206A</b>				SeqNo: <b>4796133</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	20.28	0	20	0	101	75-120	0			
Surr: 4-Bromofluorobenzene	18.75	0	20	0	93.8	80-110	0			
Surr: Dibromofluoromethane	19.8	0	20	0	99	85-115	0			
Surr: Toluene-d8	21.27	0	20	0	106	85-110	0			

<b>LCS</b>		Sample ID: <b>VLCSW1-171206-R225889a</b>				Units: <b>µg/L</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>VMS5_171206A</b>				SeqNo: <b>4796132</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	18.6	1.0	20	0	93	85-125	0			
Ethylbenzene	19.21	1.0	20	0	96	78-113	0			
m,p-Xylene	38.47	2.0	40	0	96.2	75-130	0			
o-Xylene	18.99	1.0	20	0	95	80-125	0			
Toluene	19.53	1.0	20	0	97.6	85-125	0			
Xylenes, Total	57.46	3.0	60	0	95.8	80-126	0			
Surr: 1,2-Dichloroethane-d4	20.52	0	20	0	103	75-120	0			
Surr: 4-Bromofluorobenzene	19.52	0	20	0	97.6	80-110	0			
Surr: Dibromofluoromethane	19.9	0	20	0	99.5	85-115	0			
Surr: Toluene-d8	21.39	0	20	0	107	85-110	0			

<b>MS</b>		Sample ID: <b>1712157-18A MS</b>				Units: <b>µg/L</b>		Analysis Date: <b>12/6/2017 09:58 PM</b>		
Client ID:		Run ID: <b>VMS5_171206A</b>				SeqNo: <b>4797567</b>		Prep Date:		DF: <b>5</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	100.4	5.0	100	0	100	85-125	0			
Ethylbenzene	103	5.0	100	0	103	78-113	0			
m,p-Xylene	206.8	10	200	0	103	75-130	0			
o-Xylene	101.8	5.0	100	0	102	80-125	0			
Toluene	102.5	5.0	100	0	102	85-125	0			
Xylenes, Total	308.5	15	300	0	103	80-126	0			
Surr: 1,2-Dichloroethane-d4	102.5	0	100	0	102	75-120	0			
Surr: 4-Bromofluorobenzene	95	0	100	0	95	80-110	0			
Surr: Dibromofluoromethane	100.2	0	100	0	100	85-115	0			
Surr: Toluene-d8	105.8	0	100	0	106	85-110	0			

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712305  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225889a** Instrument ID **VMS5** Method: **SW8260B**

MSD				Sample ID: 1712157-18A MSD				Units: µg/L		Analysis Date: 12/6/2017 10:21 PM	
Client ID:		Run ID: VMS5_171206A				SeqNo: 4797568		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	95.1	5.0	100	0	95.1	85-125	100.4	5.47	30		
Ethylbenzene	101.1	5.0	100	0	101	78-113	103	1.91	30		
m,p-Xylene	202.4	10	200	0	101	75-130	206.8	2.1	30		
o-Xylene	99.8	5.0	100	0	99.8	80-125	101.8	1.94	30		
Toluene	102	5.0	100	0	102	85-125	102.5	0.538	30		
Xylenes, Total	302.2	15	300	0	101	80-126	308.5	2.05	30		
Surr: 1,2-Dichloroethane-d4	101.4	0	100	0	101	75-120	102.5	1.13	30		
Surr: 4-Bromofluorobenzene	95.3	0	100	0	95.3	80-110	95	0.315	30		
Surr: Dibromofluoromethane	98.1	0	100	0	98.1	85-115	100.2	2.12	30		
Surr: Toluene-d8	105.8	0	100	0	106	85-110	105.8	0	30		

The following samples were analyzed in this batch:

1712305-01A 1712305-02A 1712305-03A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712305  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **R226352** Instrument ID **LACHAT** Method: **E353.2 R2.0**

<b>MBLK</b>		Sample ID: <b>WBLKW1-171212-R226352</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2017 02:11 PM</b>		
Client ID:		Run ID: <b>LACHAT_171212I</b>				SeqNo: <b>4807118</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate U 0.020

<b>LCS</b>		Sample ID: <b>WLCSW1-171212-R226352</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2017 02:11 PM</b>		
Client ID:		Run ID: <b>LACHAT_171212I</b>				SeqNo: <b>4807119</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.131 0.020 5 0 103 90-110 0

<b>MS</b>		Sample ID: <b>1712250-01B MS</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2017 02:11 PM</b>		
Client ID:		Run ID: <b>LACHAT_171212I</b>				SeqNo: <b>4807121</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 7.457 0.020 5 2.762 93.9 90-110 0

<b>MS</b>		Sample ID: <b>1712611-01D MS</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2017 02:11 PM</b>		
Client ID:		Run ID: <b>LACHAT_171212I</b>				SeqNo: <b>4807131</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 4.528 0.020 5 -0.1669 93.9 90-110 0

<b>MSD</b>		Sample ID: <b>1712250-01B MSD</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2017 02:11 PM</b>		
Client ID:		Run ID: <b>LACHAT_171212I</b>				SeqNo: <b>4807122</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 7.447 0.020 5 2.762 93.7 90-110 7.457 0.134 20

<b>MSD</b>		Sample ID: <b>1712611-01D MSD</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2017 02:11 PM</b>		
Client ID:		Run ID: <b>LACHAT_171212I</b>				SeqNo: <b>4807132</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 4.498 0.020 5 -0.1669 93.3 90-110 4.528 0.665 20

The following samples were analyzed in this batch:

1712305-03D

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1712305  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R226375** Instrument ID **IC3** Method: **SW9056A**

MBLK		Sample ID: CCB/MBLK-R226375				Units: mg/L		Analysis Date: 12/12/2017 04:48 PM		
Client ID:		Run ID: IC3_171212B			SeqNo: 4807764		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.20								
Chloride	U	1.0								
Fluoride	U	0.10								
Sulfate	U	1.0								

LCS				Sample ID: LCS-R226375				Units: mg/L		Analysis Date: 12/12/2017 05:08 PM	
Client ID:			Run ID: IC3_171212B			SeqNo: 4807765		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Bromide	1.946	0.20	2	0	97.3	88-113	0				
Chloride	9.262	1.0	10	0	92.6	88-110	0				
Fluoride	1.877	0.10	2	0	93.9	86-111	0				
Sulfate	9.594	1.0	10	0	95.9	85-110	0				

MS				Sample ID: 1712305-03C MS				Units: mg/L		Analysis Date: 12/12/2017 07:58 PM	
Client ID: 20171205-Divide RD (MW-10)			Run ID: IC3_171212B			SeqNo: 4807773		Prep Date:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Bromide	106	10	100	0	106	75-125	0				
Chloride	500.2	50	500	29.17	94.2	75-125	0				
Fluoride	98.07	5.0	100	0	98.1	75-125	0				
Sulfate	691.2	50	500	198.3	98.6	75-125	0				

MSD				Sample ID: 1712305-03C MSD			Units: mg/L		Analysis Date: 12/12/2017 08:17 PM		
Client ID: 20171205-Divide RD (MW-10)			Run ID: IC3_171212B			SeqNo: 4807774		Prep Date:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Bromide	106.1	10	100	0	106	75-125	106	0.137	20		
Chloride	498	50	500	29.17	93.8	75-125	500.2	0.435	20		
Fluoride	98.07	5.0	100	0	98.1	75-125	98.07	0	20		
Sulfate	690.6	50	500	198.3	98.5	75-125	691.2	0.0789	20		

The following samples were analyzed in this batch: 1712305-03C

**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.

COC number (for client tracking)

1712309

Page 1 of 1

[illegible]

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

LS 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: [ls@lschem.com.hk](mailto:ls@lschem.com.hk)

SRZ 2.4'c  
Pha

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **06-Dec-17 09:30**

Work Order: **1712305**

Received by: **DS**

Checklist completed by Diane Shaw  
eSignature

06-Dec-17  
Date

Reviewed by: Chad Whelton  
eSignature

06-Dec-17  
Date

Matrices: **Groundwater**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.4/2.4 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>12/6/2017 12:04:15 PM</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



20-Nov-2017

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

Re: **Divide Rd Pipeline Release**

Work Order: **17111292**

Dear Brett,

ALS Environmental received 1 sample on 18-Nov-2017 09:30 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 7.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111292

## 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>
17111292-01	20171117-Divide Rd. (MW-04)	Groundwater		11/17/2017 12:40	11/18/2017 09:30	<input type="checkbox"/>

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**WorkOrder:** 17111292

## **QUALIFIERS, ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
µg/L	Micrograms per Liter



**ALS Group, USA****Date:** 20-Nov-17**Client:** Caerus Oil and Gas LLC**Project:** Divide Rd Pipeline Release**Work Order:** 17111292**Sample ID:** 20171117-Divide Rd. (MW-04)**Lab ID:** 17111292-01**Collection Date:** 11/17/2017 12:40 PM**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>			Analyst: <b>WH</b>
Benzene	6.3		1.0	µg/L	1	11/20/2017 03:38 PM
Ethylbenzene	0.34	J	1.0	µg/L	1	11/20/2017 03:38 PM
m,p-Xylene	2.1		2.0	µg/L	1	11/20/2017 03:38 PM
o-Xylene	0.64	J	1.0	µg/L	1	11/20/2017 03:38 PM
Toluene	8.1		1.0	µg/L	1	11/20/2017 03:38 PM
Xylenes, Total	2.7	J	3.0	µg/L	1	11/20/2017 03:38 PM
Surr: 1,2-Dichloroethane-d4	102		75-120	%REC	1	11/20/2017 03:38 PM
Surr: 4-Bromofluorobenzene	98.8		80-110	%REC	1	11/20/2017 03:38 PM
Surr: Dibromofluoromethane	97.2		85-115	%REC	1	11/20/2017 03:38 PM
Surr: Toluene-d8	102		85-110	%REC	1	11/20/2017 03:38 PM

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111292  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **R224913** Instrument ID **VMS7** Method: **SW8260B**

MBLK		Sample ID: <b>VBKWK1-171120-R224913</b>				Units: <b>µg/L</b>		Analysis Date: <b>11/20/2017 12:30 PM</b>		
Client ID:		Run ID: <b>VMS7_171120A</b>				SeqNo: <b>4770234</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	20.09	0	20	0	100	75-120	0			
Surr: 4-Bromofluorobenzene	19.6	0	20	0	98	80-110	0			
Surr: Dibromofluoromethane	19.83	0	20	0	99.2	85-115	0			
Surr: Toluene-d8	19.62	0	20	0	98.1	85-110	0			

LCS		Sample ID: <b>VLCSW1-171120-R224913</b>				Units: <b>µg/L</b>		Analysis Date: <b>11/20/2017 11:27 A</b>		
Client ID:		Run ID: <b>VMS7_171120A</b>				SeqNo: <b>4770233</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.35	1.0	20	0	102	85-125	0			
Ethylbenzene	20.43	1.0	20	0	102	78-113	0			
m,p-Xylene	40.37	2.0	40	0	101	75-130	0			
o-Xylene	21.01	1.0	20	0	105	80-125	0			
Toluene	19.78	1.0	20	0	98.9	85-125	0			
Xylenes, Total	61.38	3.0	60	0	102	80-126	0			
Surr: 1,2-Dichloroethane-d4	19.76	0	20	0	98.8	75-120	0			
Surr: 4-Bromofluorobenzene	20.36	0	20	0	102	80-110	0			
Surr: Dibromofluoromethane	20.63	0	20	0	103	85-115	0			
Surr: Toluene-d8	20.38	0	20	0	102	85-110	0			

The following samples were analyzed in this batch:

17111292-01A



## CHAIN OF CUSTODY

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

COC number (for client tracking)

Page 1 of 1

[illegible]

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:** [als@als.com.hk](mailto:als@als.com.hk)

SR2 4.8°

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **18-Nov-17 09:30**

Work Order: **17111292**

Received by: **KRW**

Checklist completed by Keith Wurenga  
eSignature

18-Nov-17  
Date

Reviewed by: Chad Whelton  
eSignature

20-Nov-17  
Date

Matrices: **Water**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.8/4.8 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/18/2017 10:41:03 AM</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



29-Nov-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **17111314**

Dear Brett,

ALS Environmental received 1 sample on 18-Nov-2017 09:30 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 23.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111314

---

**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>
17111314-01	20171115-Divide Rd. (MW-04) @ 20'-22'	Soil		11/15/2017 09:40	11/18/2017 09:30	<input type="checkbox"/>

---

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111314

---

**Case Narrative**

Batch 110875, Method PNLVI\_8270\_S, Sample 17111314-01A: One or more PAH surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is required.

Batch 110875, Method PNLVI\_8270\_S, Sample 17111314-01A MSD: The RPDs between the MS and MSD were outside the control limits for Dibenzo(a,h)anthracene and Indeno(1,2,3-cd)pyrene. The corresponding results in the parent sample should be considered estimated.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
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

Date: 29-Nov-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171115-Divide Rd. (MW-04) @ 20'-22'  
**Collection Date:** 11/15/2017 09:40 AM

**Work Order:** 17111314  
**Lab ID:** 17111314-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 11/21/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		3.6	6.3	mg/Kg-dry	1	11/23/2017 07:09
Surr: 4-Terphenyl-d14	71.6			34-130	%REC	1	11/23/2017 07:09
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 11/21/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		3.2	7.7	mg/Kg	1	11/22/2017 08:22
Surr: Toluene-d8	103			71-123	%REC	1	11/22/2017 08:22
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 11/27/17		Analyst: <b>RSB</b>
Mercury	0.017	J	0.0022	0.022	mg/Kg-dry	1	11/27/2017 17:02
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 11/21/17		Analyst: <b>HBA</b>
Arsenic	11		0.11	0.42	mg/Kg-dry	1	11/22/2017 13:00
Barium	330		0.17	0.42	mg/Kg-dry	1	11/22/2017 13:00
Cadmium	0.25	J	0.040	0.83	mg/Kg-dry	1	11/22/2017 13:00
Chromium	33		0.023	0.42	mg/Kg-dry	1	11/22/2017 13:00
Copper	17		0.18	0.83	mg/Kg-dry	1	11/22/2017 13:00
Lead	13		0.088	0.42	mg/Kg-dry	1	11/22/2017 13:00
Nickel	24		0.17	0.42	mg/Kg-dry	1	11/22/2017 13:00
Selenium	1.6		0.23	0.83	mg/Kg-dry	1	11/22/2017 13:00
Silver	U		0.052	0.42	mg/Kg-dry	1	11/22/2017 13:00
Zinc	62		0.067	0.83	mg/Kg-dry	1	11/22/2017 13:00
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/28/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	1.7		0.010	0.010	none	1	11/28/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 11/28/17		Analyst: <b>JF</b>
Calcium	79		0.86	5.0	mg/L	10	11/28/2017 15:59
Magnesium	23		0.068	2.0	mg/L	10	11/28/2017 15:59
Sodium	68		0.34	2.0	mg/L	10	11/28/2017 15:59
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 11/21/17		Analyst: <b>RS</b>
Acenaphthene	U		0.0037	0.052	mg/Kg-dry	1	11/22/2017 12:56
Anthracene	U		0.0019	0.052	mg/Kg-dry	1	11/22/2017 12:56
Benzo(a)anthracene	U		0.0032	0.052	mg/Kg-dry	1	11/22/2017 12:56
Benzo(a)pyrene	U		0.0013	0.052	mg/Kg-dry	1	11/22/2017 12:56
Benzo(b)fluoranthene	U		0.0020	0.052	mg/Kg-dry	1	11/22/2017 12:56
Benzo(k)fluoranthene	U		0.0027	0.052	mg/Kg-dry	1	11/22/2017 12:56
Chrysene	U		0.0020	0.052	mg/Kg-dry	1	11/22/2017 12:56
Dibenzo(a,h)anthracene	U		0.0017	0.052	mg/Kg-dry	1	11/22/2017 12:56
Fluoranthene	U		0.0015	0.052	mg/Kg-dry	1	11/22/2017 12:56

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

# ALS Group, USA

Date: 29-Nov-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171115-Divide Rd. (MW-04) @ 20'-22'  
**Collection Date:** 11/15/2017 09:40 AM

**Work Order:** 17111314  
**Lab ID:** 17111314-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0017	0.052	mg/Kg-dry	1	11/22/2017 12:56
Indeno(1,2,3-cd)pyrene	U		0.0016	0.052	mg/Kg-dry	1	11/22/2017 12:56
Naphthalene	U		0.0098	0.052	mg/Kg-dry	1	11/22/2017 12:56
Pyrene	U		0.0019	0.052	mg/Kg-dry	1	11/22/2017 12:56
Surr: 2-Fluorobiphenyl	88.1			20-140	%REC	1	11/22/2017 12:56
Surr: 4-Terphenyl-d14	118			22-172	%REC	1	11/22/2017 12:56
Surr: Nitrobenzene-d5	142	S		28-140	%REC	1	11/22/2017 12:56
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 11/21/17		Analyst: <b>LSY</b>
Benzene	U		0.0079	0.046	mg/Kg	1	11/23/2017 02:10
Ethylbenzene	U		0.0097	0.046	mg/Kg	1	11/23/2017 02:10
m,p-Xylene	U		0.022	0.092	mg/Kg	1	11/23/2017 02:10
o-Xylene	U		0.018	0.046	mg/Kg	1	11/23/2017 02:10
Toluene	U		0.013	0.046	mg/Kg	1	11/23/2017 02:10
Xylenes, Total	U		0.040	0.14	mg/Kg	1	11/23/2017 02:10
Surr: 1,2-Dichloroethane-d4	100			70-130	%REC	1	11/23/2017 02:10
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	11/23/2017 02:10
Surr: Dibromofluoromethane	85.7			70-130	%REC	1	11/23/2017 02:10
Surr: Toluene-d8	100			70-130	%REC	1	11/23/2017 02:10
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/28/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.87		0.011	0.10	mmhos/cm @25°	20	11/28/2017 11:15
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	32		0.39	1.3	mg/Kg-dry	1	11/28/2017 18:10
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 11/27/17		Analyst: <b>RP</b>
Chromium, Hexavalent	0.95	J	0.38	1.2	mg/Kg-dry	1	11/28/2017 16:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>MT</b>
Moisture	21		0.025	0.050	% of sample	1	11/27/2017 09:52
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 11/21/17		Analyst: <b>RZM</b>
pH	8.28		0.10	0.100	s.u.	1	11/22/2017 13:00

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **110876** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-110876-110876</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/22/2017 09:24 A</b>		
Client ID:		Run ID: <b>GC8_171122A</b>				SeqNo: <b>4775130</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) U 5.0  
 Surr: 4-Terphenyl-d14 2.617 0 3.33 0 78.6 34-130 0

<b>LCS</b>		Sample ID: <b>DLCSS1-110876-110876</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/22/2017 09:53 A</b>		
Client ID:		Run ID: <b>GC8_171122A</b>				SeqNo: <b>4775131</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 348.4 5.0 333 0 105 65-122 0  
 Surr: 4-Terphenyl-d14 2.867 0 3.33 0 86.1 34-130 0

<b>MS</b>		Sample ID: <b>17111306-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/23/2017 02:47 A</b>		
Client ID:		Run ID: <b>GC8_171122A</b>				SeqNo: <b>4777072</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 321.8 5.0 331.4 279.7 12.7 65-122 0 S  
 Surr: 4-Terphenyl-d14 1.808 0 3.314 0 54.6 34-130 0

<b>MSD</b>		Sample ID: <b>17111306-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/23/2017 03:16 A</b>		
Client ID:		Run ID: <b>GC8_171122A</b>				SeqNo: <b>4777073</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 537.5 5.0 331.2 279.7 77.9 65-122 321.8 50.2 30 R  
 Surr: 4-Terphenyl-d14 2.105 0 3.312 0 63.6 34-130 1.808 15.2 30

The following samples were analyzed in this batch:

17111314-01A

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110882** Instrument ID **GC10** Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-110882-110882</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/21/2017 07:31 PM</b>		
Client ID:		Run ID: <b>GC10_171121A</b>				SeqNo: <b>4774667</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	5114	0	5000	0	102	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-110882-110882</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/21/2017 06:13 PM</b>		
Client ID:		Run ID: <b>GC10_171121A</b>				SeqNo: <b>4774665</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	560200	5,000	500000	0	112	71-123	0			
Surr: Toluene-d8	5218	0	5000	0	104	71-123	0			

<b>MS</b>		Sample ID: <b>17111266-01A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/22/2017 10:30 A</b>		
Client ID:		Run ID: <b>GC10_171121A</b>				SeqNo: <b>4774694</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	640100	5,600	565000	18720	110	71-123	0			
Surr: Toluene-d8	6465	0	5650	0	114	71-123	0			

<b>MSD</b>		Sample ID: <b>17111266-01A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/22/2017 10:56 A</b>		
Client ID:		Run ID: <b>GC10_171121A</b>				SeqNo: <b>4774695</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	593600	5,600	565000	18720	102	71-123	640100	7.54	30	
Surr: Toluene-d8	6153	0	5650	0	109	71-123	6465	4.94	30	

The following samples were analyzed in this batch:

17111314-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111049** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-111049-111049</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/27/2017 04:34 PM</b>		
Client ID:		Run ID: <b>HG1_171127A</b>				SeqNo: <b>4779438</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>LCS-111049-111049</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/27/2017 04:36 PM</b>		
Client ID:		Run ID: <b>HG1_171127A</b>				SeqNo: <b>4779439</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1758 0.020 0.1665 0 106 80-120 0

<b>MS</b>		Sample ID: <b>17111314-01AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/27/2017 05:05 PM</b>		
Client ID: <b>20171115-Divide Rd. (MW-04) @ 20'-22'</b>		Run ID: <b>HG1_171127A</b>				SeqNo: <b>4779450</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1537 0.018 0.1463 0.01317 96.1 75-125 0

<b>MSD</b>		Sample ID: <b>17111314-01AMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/27/2017 05:07 PM</b>		
Client ID: <b>20171115-Divide Rd. (MW-04) @ 20'-22'</b>		Run ID: <b>HG1_171127A</b>				SeqNo: <b>4779451</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1501 0.017 0.1442 0.01317 95 75-125 0.1537 2.41 35

The following samples were analyzed in this batch:

17111314-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **110873** Instrument ID **ICP2** Method: **SW846 6010C**

Sample ID: MBLK-110873-110873				Units: mg/Kg			Analysis Date: 11/22/2017 11:14 A			
Client ID:		Run ID: ICP2_171122A			SeqNo: 4775752		Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.03475	0.50								J
Chromium	0.0655	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	U	0.50								

LCS				Sample ID: LCS-110873-110873				Units: mg/Kg		Analysis Date: 11/22/2017 11:21 A	
Client ID:			Run ID: ICP2_171122A			SeqNo: 4775753		Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	4.905	0.25	5	0	98.1	80-120	0				
Barium	4.58	0.25	5	0	91.6	80-120	0				
Cadmium	4.83	0.50	5	0	96.6	80-120	0				
Chromium	5.093	0.25	5	0	102	80-120	0				
Copper	4.865	0.50	5	0	97.3	80-120	0				
Lead	4.865	0.25	5	0	97.3	80-120	0				
Nickel	4.985	0.25	5	0	99.7	80-120	0				
Selenium	4.57	0.50	5	0	91.4	80-120	0				
Silver	4.97	0.25	5	0	99.4	80-120	0				
Zinc	5.083	0.50	5	0	102	80-120	0				

MS				Sample ID: 17111165-01AMS			Units: mg/Kg		Analysis Date: 11/22/2017 11:34 A		
Client ID:			Run ID: ICP2_171122A			SeqNo: 4775755		Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	14.95	0.32	6.418	7.727	113	75-125	0				
Barium	374.2	0.32	6.418	296.5	1210	75-125	0			SO	
Cadmium	7.433	0.64	6.418	0.5851	107	75-125	0				
Chromium	23.96	0.32	6.418	13.69	160	75-125	0			S	
Copper	25.52	0.64	6.418	18.82	104	75-125	0				
Lead	53.48	0.32	6.418	44.73	136	75-125	0			SO	
Nickel	22.17	0.32	6.418	15.65	102	75-125	0				
Selenium	7.92	0.64	6.418	1.921	93.5	75-125	0				
Silver	6.666	0.32	6.418	-0.08387	105	75-125	0				
Zinc	185	0.64	6.418	185.4	-6.23	75-125	0			SO	

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110873** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 17111165-01AMSD				Units: mg/Kg		Analysis Date: 11/22/2017 11:41 A		
Client ID:		Run ID: ICP2_171122A				SeqNo: 4775756		Prep Date: 11/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.67	0.32	6.386	7.727	124	75-125	14.95	4.69	20	
Barium	312.5	0.32	6.386	296.5	251	75-125	374.2	18	20	SO
Cadmium	7.322	0.64	6.386	0.5851	106	75-125	7.433	1.5	20	
Chromium	23.49	0.32	6.386	13.69	154	75-125	23.96	1.98	20	S
Copper	23.48	0.64	6.386	18.82	72.9	75-125	25.52	8.34	20	S
Lead	44.63	0.32	6.386	44.73	-1.58	75-125	53.48	18	20	SO
Nickel	21.63	0.32	6.386	15.65	93.7	75-125	22.17	2.49	20	
Selenium	7.849	0.64	6.386	1.921	92.8	75-125	7.92	0.893	20	
Silver	6.707	0.32	6.386	-0.08387	106	75-125	6.666	0.612	20	
Zinc	188.8	0.64	6.386	185.4	52.8	75-125	185	2.02	20	SO

The following samples were analyzed in this batch:

17111314-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111070** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>17111314-01ADUP</b>				Units: <b>none</b>		Analysis Date: <b>11/28/2017</b>		
Client ID: <b>20171115-Divide Rd. (MW-04) @ 20'-22'</b>		Run ID: <b>SAR_171128A</b>				SeqNo: <b>4783530</b>		Prep Date: <b>11/28/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	1.739	0.010	0	0	0		1.721	1.05	50	

The following samples were analyzed in this batch:

17111314-01A

Batch ID: **111070** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>17111314-01ADUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>11/28/2017 04:01 PM</b>		
Client ID: <b>20171115-Divide Rd. (MW-04) @ 20'-22'</b>		Run ID: <b>ICPMS3_171128A</b>				SeqNo: <b>4782306</b>		Prep Date: <b>11/28/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	74.33	5.0	0	0	0	0-0	78.89	5.96		
Magnesium	21.98	2.0	0	0	0	0-0	23.02	4.63		
Sodium	66.4	2.0	0	0	0	0-0	67.55	1.71		

The following samples were analyzed in this batch:

17111314-01A

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110875** Instrument ID **SVMS6** Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-110875-110875</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>11/22/2017 10:17 A</b>		
Client ID:		Run ID: <b>SVMS6_171122A</b>				SeqNo: <b>4776219</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	42								
Anthracene	U	42								
Benzo(a)anthracene	U	42								
Benzo(a)pyrene	U	42								
Benzo(b)fluoranthene	U	42								
Benzo(k)fluoranthene	U	42								
Chrysene	U	42								
Dibenzo(a,h)anthracene	U	42								
Fluoranthene	U	42								
Fluorene	U	42								
Indeno(1,2,3-cd)pyrene	U	42								
Naphthalene	U	42								
Pyrene	U	42								
Surr: 2-Fluorobiphenyl	3240	0	3333	0	97.2	20-140	0			
Surr: 4-Terphenyl-d14	4093	0	3333	0	123	22-172	0			
Surr: Nitrobenzene-d5	4792	0	3333	0	144	28-140	0			S

LCS		Sample ID: <b>SLCSS1-110875-110875</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>11/22/2017 10:32 A</b>		
Client ID:		Run ID: <b>SVMS6_171122A</b>				SeqNo: <b>4776220</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1207	42	1333	0	90.5	40-140	0			
Anthracene	1658	42	1333	0	124	40-140	0			
Benzo(a)anthracene	1348	42	1333	0	101	40-140	0			
Benzo(a)pyrene	1488	42	1333	0	112	40-140	0			
Benzo(b)fluoranthene	1572	42	1333	0	118	40-140	0			
Benzo(k)fluoranthene	1452	42	1333	0	109	40-140	0			
Chrysene	1357	42	1333	0	102	40-140	0			
Dibenzo(a,h)anthracene	1455	42	1333	0	109	40-140	0			
Fluoranthene	1392	42	1333	0	104	40-140	0			
Fluorene	1494	42	1333	0	112	40-140	0			
Indeno(1,2,3-cd)pyrene	1394	42	1333	0	105	40-140	0			
Naphthalene	1273	42	1333	0	95.5	40-140	0			
Pyrene	1287	42	1333	0	96.5	40-140	0			
Surr: 2-Fluorobiphenyl	3120	0	3333	0	93.6	20-140	0			
Surr: 4-Terphenyl-d14	3493	0	3333	0	105	22-172	0			
Surr: Nitrobenzene-d5	4344	0	3333	0	130	28-140	0			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **110875** Instrument ID **SVMS6** Method: **SW846 8270D**

MS				Sample ID: 17111314-01A MS		Units: µg/Kg		Analysis Date: 11/22/2017 12:27 PM		
Client ID: 20171115-Divide Rd. (MW-04) @ 20'-22'				Run ID: SVMS6_171122A		SeqNo: 4776221		Prep Date: 11/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1202	41	1325	0	90.7	40-140	0			
Anthracene	1402	41	1325	0	106	40-140	0			
Benzo(a)anthracene	1375	41	1325	0	104	40-140	0			
Benzo(a)pyrene	1500	41	1325	0	113	40-140	0			
Benzo(b)fluoranthene	1366	41	1325	0	103	40-140	0			
Benzo(k)fluoranthene	1305	41	1325	0	98.5	40-140	0			
Chrysene	1253	41	1325	0	94.6	40-140	0			
Dibenzo(a,h)anthracene	1442	41	1325	0	109	40-140	0			
Fluoranthene	1193	41	1325	0	90.1	40-140	0			
Fluorene	1682	41	1325	0	127	40-140	0			
Indeno(1,2,3-cd)pyrene	1384	41	1325	0	104	40-140	0			
Naphthalene	1258	41	1325	0	94.9	40-140	0			
Pyrene	1405	41	1325	0	106	40-140	0			
Surr: 2-Fluorobiphenyl	3595	0	3313	0	108	20-140	0			
Surr: 4-Terphenyl-d14	3708	0	3313	0	112	22-172	0			
Surr: Nitrobenzene-d5	4456	0	3313	0	134	28-140	0			

MSD				Sample ID: 17111314-01A MSD		Units: µg/Kg		Analysis Date: 11/22/2017 12:42 PM		
Client ID: 20171115-Divide Rd. (MW-04) @ 20'-22'				Run ID: SVMS6_171122A		SeqNo: 4776222		Prep Date: 11/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1135	41	1326	0	85.6	40-140	1202	5.75	30	
Anthracene	1328	41	1326	0	100	40-140	1402	5.36	30	
Benzo(a)anthracene	1287	41	1326	0	97.1	40-140	1375	6.6	30	
Benzo(a)pyrene	1387	41	1326	0	105	40-140	1500	7.81	30	
Benzo(b)fluoranthene	1240	41	1326	0	93.5	40-140	1366	9.65	30	
Benzo(k)fluoranthene	1310	41	1326	0	98.8	40-140	1305	0.38	30	
Chrysene	1215	41	1326	0	91.6	40-140	1253	3.09	30	
Dibenzo(a,h)anthracene	1060	41	1326	0	79.9	40-140	1442	30.6	30	R
Fluoranthene	1170	41	1326	0	88.3	40-140	1193	1.96	30	
Fluorene	1322	41	1326	0	99.7	40-140	1682	24	30	
Indeno(1,2,3-cd)pyrene	1007	41	1326	0	75.9	40-140	1384	31.5	30	R
Naphthalene	1300	41	1326	0	98	40-140	1258	3.3	30	
Pyrene	1241	41	1326	0	93.6	40-140	1405	12.4	30	
Surr: 2-Fluorobiphenyl	2978	0	3316	0	89.8	20-140	3595	18.8	0	
Surr: 4-Terphenyl-d14	2988	0	3316	0	90.1	22-172	3708	21.5	0	
Surr: Nitrobenzene-d5	4365	0	3316	0	132	28-140	4456	2.05	0	

The following samples were analyzed in this batch:

17111314-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110880** Instrument ID **VMS10** Method: **SW8260B**

Sample ID: <b>MBLK-110880-110880</b>				Units: <b>µg/Kg-dry</b>			Analysis Date: <b>11/21/2017 12:03 PM</b>			
Client ID:		Run ID: <b>VMS10_171121A</b>			SeqNo: <b>4774596</b>		Prep Date: <b>11/21/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>1004</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>100</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>993</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>99.3</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Dibromofluoromethane</i>	<i>866.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>86.6</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Toluene-d8</i>	<i>1029</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>103</i>	<i>70-130</i>	<i>0</i>			

LCS			Sample ID: LCS-110880-110880			Units: µg/Kg-dry		Analysis Date: 11/21/2017 11:16 A			
Client ID:			Run ID: VMS10_171121A			SeqNo: 4774594		Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1014	30	1000	0	101	75-125	0				
Ethylbenzene	972	30	1000	0	97.2	75-125	0				
m,p-Xylene	1987	60	2000	0	99.4	80-125	0				
o-Xylene	981	30	1000	0	98.1	75-125	0				
Toluene	963.5	30	1000	0	96.4	70-125	0				
Xylenes, Total	2968	90	3000	0	98.9	75-125	0				
Surr: 1,2-Dichloroethane-d4	1020	0	1000	0	102	70-130	0				
Surr: 4-Bromofluorobenzene	994.5	0	1000	0	99.4	70-130	0				
Surr: Dibromofluoromethane	1030	0	1000	0	103	70-130	0				
Surr: Toluene-d8	1008	0	1000	0	101	70-130	0				

MS				Sample ID: 17111266-01A MS			Units: µg/Kg-dry		Analysis Date: 11/21/2017 06:11 PM		
Client ID:			Run ID: VMS10_171121A			SeqNo: 4774622		Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1060	34	1130	0	93.8	75-125	0				
Ethylbenzene	929.4	34	1130	5.65	81.8	75-125	0				
m,p-Xylene	1949	68	2260	62.71	83.4	80-125	0				
o-Xylene	941.8	34	1130	10.17	82.4	75-125	0				
Toluene	910.2	34	1130	0	80.6	70-125	0				
Xylenes, Total	2890	100	3390	63	83.4	75-125	0				
Surr: 1,2-Dichloroethane-d4	1019	0	1130	0	90.2	70-130	0				
Surr: 4-Bromofluorobenzene	935.6	0	1130	0	82.8	70-130	0				
Surr: Dibromofluoromethane	1026	0	1130	0	90.8	70-130	0				
Surr: Toluene-d8	1003	0	1130	0	88.8	70-130	0				

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110880**      Instrument ID **VMS10**      Method: **SW8260B**

MSD				Sample ID: 17111266-01A MSD			Units: µg/Kg-dry		Analysis Date: 11/21/2017 06:26 PM	
Client ID:			Run ID: VMS10_171121A			SeqNo: 4774623		Prep Date: 11/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1189	34	1130	0	105	75-125	1060	11.5	30	
Ethylbenzene	1068	34	1130	5.65	94	75-125	929.4	13.9	30	
m,p-Xylene	2237	68	2260	62.71	96.2	80-125	1949	13.8	30	
o-Xylene	1100	34	1130	10.17	96.4	75-125	941.8	15.5	30	
Toluene	1033	34	1130	0	91.4	70-125	910.2	12.7	30	
Xylenes, Total	3337	100	3390	63	96.6	75-125	2890	14.3	30	
Surr: 1,2-Dichloroethane-d4	1005	0	1130	0	89	70-130	1019	1.34	30	
Surr: 4-Bromofluorobenzene	957.6	0	1130	0	84.8	70-130	935.6	2.33	30	
Surr: Dibromofluoromethane	1042	0	1130	0	92.2	70-130	1026	1.53	30	
Surr: Toluene-d8	1017	0	1130	0	90	70-130	1003	1.4	30	

The following samples were analyzed in this batch:

17111314-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **110892** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-110892-110892				Units: s.u.			Analysis Date: 11/22/2017 01:00 PM			
Client ID:				Run ID: WETCHEM_171122I				SeqNo: 4775062			Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
pH	3.96	0.10	4	0	99	90-110	0							

DUP				Sample ID: 17111254-01B DUP				Units: s.u.			Analysis Date: 11/22/2017 01:00 PM			
Client ID:				Run ID: WETCHEM_171122I				SeqNo: 4775070			Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
pH	9.04	0.10	0	0	0	0-0	9.01	0.332	20					

DUP				Sample ID: 17111318-01A DUP				Units: s.u.			Analysis Date: 11/22/2017 01:00 PM			
Client ID:				Run ID: WETCHEM_171122I				SeqNo: 4775074			Prep Date: 11/21/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
pH	8.35	0.10	0	0	0	0-0	8.66	3.64	20					

The following samples were analyzed in this batch:

17111314-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111058** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-111058-111058</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>				SeqNo: <b>4781634</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-111058-111058</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>				SeqNo: <b>4781635</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.68 1.0 5 0 93.6 80-120 0

<b>MS</b>		Sample ID: <b>17111306-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>				SeqNo: <b>4781637</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.07 1.0 5 0.2692 76 75-125 0

<b>MS</b>		Sample ID: <b>17111306-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>				SeqNo: <b>4781639</b>		Prep Date: <b>11/27/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2590 95 2007 0.2692 129 75-125 0 S

<b>MS</b>		Sample ID: <b>17111318-04A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>				SeqNo: <b>4781651</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.93 1.0 5 0.6373 85.9 75-125 0

<b>MS</b>		Sample ID: <b>17111318-04A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>				SeqNo: <b>4781653</b>		Prep Date: <b>11/27/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2890 100 1753 0.6373 165 75-125 0 S

<b>MSD</b>		Sample ID: <b>17111306-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>				SeqNo: <b>4781638</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.32 1.0 5 0.2692 81 75-125 4.07 5.96 20

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111058** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MSD</b>		Sample ID: <b>17111318-04A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/28/2017 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171128P</b>			SeqNo: <b>4781652</b>		Prep Date: <b>11/27/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	5	0.99	4.95	0.6373	88.1	75-125	4.93	1.41	20	

The following samples were analyzed in this batch:

17111314-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111070** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>17111314-01A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>11/28/2017 11:15 A</b>		
Client ID: <b>20171115-Divide Rd. (MW-04) @ 20'-22'</b>		Run ID: <b>WETCHEM_171128A</b>		SeqNo: <b>4780237</b>		Prep Date: <b>11/28/2017</b>		DF: <b>20</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	0.968	0.10	0	0	0		0.872	10.4	50	

The following samples were analyzed in this batch:

17111314-01A

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111314  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225295** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R225295					Units: % of sample		Analysis Date: 11/27/2017 09:52 A	
Client ID:			Run ID: MOIST_171127B			SeqNo: 4780077		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R225295					Units: % of sample		Analysis Date: 11/27/2017 09:52 A		
Client ID:			Run ID: MOIST_171127B			SeqNo: 4780076		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: 17111245-07A DUP					Units: % of sample		Analysis Date: 11/27/2017 09:52 A		
Client ID:			Run ID: MOIST_171127B			SeqNo: 4780055		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 20.95 0.050 0 0 0 0-0 21.22 1.28 5

DUP		Sample ID: 17111313-01A DUP				Units: % of sample		Analysis Date: 11/27/2017 09:52 A		
Client ID:		Run ID: MOIST_171127B		SeqNo: 4780066		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 40.94 0.050 0 0 0 0-0 40.14 1.97 5

The following samples were analyzed in this batch:

17111314-01A

**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.

COC number (for client tracking)

Page 1 of

SR2 4.0°C

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **18-Nov-17 09:30**

Work Order: **17111314**

Received by: **DS**

Checklist completed by Diane Shaw 20-Nov-17  
eSignature Date

Reviewed by: Chad Whelton 21-Nov-17  
eSignature Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.0/4.0 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/20/2017 10:03:40 AM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



27-Nov-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **17111577**

Dear Brett,

ALS Environmental received 1 sample on 24-Nov-2017 09:30 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 8.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111577

## 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>
17111577-01	20171121-Divide Rd (MW-04)	Groundwater		11/21/2017 14:00	11/24/2017 09:30	<input type="checkbox"/>

## ALS Group, USA

*Date: 27-Nov-17*

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111577

---

### Case Narrative

Batch R225208, Volatile Organic Compounds, Sample 17111577-01A: The sample ran at dilution due to sediment in the vial.

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**WorkOrder:** 17111577

## **QUALIFIERS, ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	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.

<b>Acronym</b>	<b>Description</b>
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

<b>Units Reported</b>	<b>Description</b>
µg/L	Micrograms per Liter

**ALS Group, USA****Date:** 27-Nov-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171121-Divide Rd (MW-04)  
**Collection Date:** 11/21/2017 02:00 PM

**Work Order:** 17111577  
**Lab ID:** 17111577-01  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>			Analyst: <b>BG</b>
<b>Benzene</b>	<b>6.9</b>		<b>5.0</b>	<b>µg/L</b>	5	11/27/2017 01:59 PM
Ethylbenzene	U		5.0	µg/L	5	11/27/2017 01:59 PM
<b>m,p-Xylene</b>	<b>4.6</b>	J	<b>10</b>	<b>µg/L</b>	5	11/27/2017 01:59 PM
<b>o-Xylene</b>	<b>1.4</b>	J	<b>5.0</b>	<b>µg/L</b>	5	11/27/2017 01:59 PM
<b>Toluene</b>	<b>8.2</b>		<b>5.0</b>	<b>µg/L</b>	5	11/27/2017 01:59 PM
<b>Xylenes, Total</b>	<b>6.0</b>	J	<b>15</b>	<b>µg/L</b>	5	11/27/2017 01:59 PM
Surr: 1,2-Dichloroethane-d4	98.4		75-120	%REC	5	11/27/2017 01:59 PM
Surr: 4-Bromofluorobenzene	94.4		80-110	%REC	5	11/27/2017 01:59 PM
Surr: Dibromofluoromethane	101		85-115	%REC	5	11/27/2017 01:59 PM
Surr: Toluene-d8	93.8		85-110	%REC	5	11/27/2017 01:59 PM

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111577  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **R225208** Instrument ID **VMS5** Method: **SW8260B**

<b>MBLK</b>		Sample ID: <b>VBKWK1-171127-R225208</b>				Units: <b>µg/L</b>		Analysis Date: <b>11/27/2017 12:43 PM</b>		
Client ID:		Run ID: <b>VMS5_171127A</b>				SeqNo: <b>4778199</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	19.07	0	20	0	95.4	75-120	0			
Surr: 4-Bromofluorobenzene	18.62	0	20	0	93.1	80-110	0			
Surr: Dibromofluoromethane	19.89	0	20	0	99.4	85-115	0			
Surr: Toluene-d8	18.88	0	20	0	94.4	85-110	0			

<b>LCS</b>		Sample ID: <b>VLCSW1-171127-R225208</b>				Units: <b>µg/L</b>		Analysis Date: <b>11/27/2017 11:52 A</b>		
Client ID:		Run ID: <b>VMS5_171127A</b>				SeqNo: <b>4778198</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.6	1.0	20	0	108	85-125	0			
Ethylbenzene	20.34	1.0	20	0	102	78-113	0			
m,p-Xylene	40.86	2.0	40	0	102	75-130	0			
o-Xylene	20.56	1.0	20	0	103	80-125	0			
Toluene	20.07	1.0	20	0	100	85-125	0			
Xylenes, Total	61.42	3.0	60	0	102	80-126	0			
Surr: 1,2-Dichloroethane-d4	19.08	0	20	0	95.4	75-120	0			
Surr: 4-Bromofluorobenzene	19.93	0	20	0	99.6	80-110	0			
Surr: Dibromofluoromethane	20.62	0	20	0	103	85-115	0			
Surr: Toluene-d8	19.35	0	20	0	96.8	85-110	0			

The following samples were analyzed in this batch:

17111577-01A



## CHAIN OF CUSTODY




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

COC number (for client tracking)

Page 1 of 1

<b>CLIENT CONTACT AND REPORTING INFORMATION</b>		<b>INVOICE ADDRESS (if other than reporting address)</b>	<b>ANALYSIS REQUIRED (suite codes must be listed to attract suite prices)</b>							
Company Name:	Cserus Oil and Gas LLC	Company Name:	Same	TPH- GRO/DRO BTX TABLE 910- PAH's SAR EC  TABLE 910- Metals pH						
Project Manager:	Brett Middleton	Contact Name:	Same							
Address:	143 Diamond Avenue	Address:	Same							
Parachute, CO 81635										
Phone:	970-285-9606	<b>PROJECT INFORMATION</b>								
Email 1:	bmiddleton@caerusoilandgas.com	Project ID:	Divide Rd Pipeline Release							
Email 2:	jjanicek@caerusoilandgas.com	Site:								
		PO No:								
ALS Quote No:										
<input checked="" type="checkbox"/> Express      (Pis specify date required SAME DAY ) (express fee will apply)										

[illegible]

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 <input type="checkbox"/> ambient	No of Cooler Received carton / cooler box	Received by (lab) 	Date and Time 11/24/17 09
Client's Date and Time of Completion: 11-21-17			Courier Name	Committed by 	Date and Time

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

LS 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: [ls@lschem.com.hk](mailto:ls@lschem.com.hk)

SR2 4.0°.

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **24-Nov-17 09:30**

Work Order: **17111577**

Received by: **KRW**

Checklist completed by Keith Wurenga  
eSignature

24-Nov-17  
Date

Reviewed by: Chad Whelton  
eSignature

27-Nov-17  
Date

Matrices: **Water**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.0/4.0 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/24/2017 11:12:11 AM</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



08-Dec-2017

Jake Janicek  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **17111816**

Dear Jake,

ALS Environmental received 2 samples on 30-Nov-2017 09:30 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 25.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111816

---

**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>
17111816-01	20171127-Divide Rd. (MW-05) @ 44'-44.25'	Soil		11/27/2017 15:10	11/30/2017 09:30	<input type="checkbox"/>
17111816-02	20171127-Divide Rd. (MW-05) @ 50'-50.5'	Soil		11/27/2017 15:55	11/30/2017 09:30	<input type="checkbox"/>

---

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111816

---

**Case Narrative**

Batch 111215, Method CR6\_7196\_S, Sample 17111816-02A MS/MSD: The MS/MSD recovery was below the lower control limit for Hexavalent Chromium. The corresponding result in the parent sample may be biased low,

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
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

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171127-Divide Rd. (MW-05) @ 44'-44.25'  
**Collection Date:** 11/27/2017 03:10 PM

**Work Order:** 17111816  
**Lab ID:** 17111816-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/1/17		Analyst: <b>KB</b>
<b>DRO (C10-C28)</b>	<b>4.1</b>	<b>J</b>	<b>3.8</b>	<b>6.5</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/1/2017 17:36
Surr: 4-Terphenyl-d14	84.1			34-130	%REC	1	12/1/2017 17:36
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 11/30/17		Analyst: <b>KB</b>
<b>GRO (C6-C10)</b>	<b>U</b>		<b>3.0</b>	<b>7.2</b>	<b>mg/Kg</b>	<b>1</b>	12/2/2017 10:15
Surr: Toluene-d8	91.7			71-123	%REC	1	12/2/2017 10:15
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/5/17		Analyst: <b>RSB</b>
<b>Mercury</b>	<b>0.010</b>	<b>J</b>	<b>0.0020</b>	<b>0.020</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/5/2017 17:29
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/5/17		Analyst: <b>HBA</b>
<b>Arsenic</b>	<b>5.9</b>		<b>1.1</b>	<b>4.4</b>	<b>mg/Kg-dry</b>	<b>10</b>	12/6/2017 20:11
<b>Barium</b>	<b>630</b>		<b>0.18</b>	<b>0.44</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/6/2017 13:50
<b>Cadmium</b>	<b>2.1</b>	<b>J</b>	<b>0.42</b>	<b>8.8</b>	<b>mg/Kg-dry</b>	<b>10</b>	12/6/2017 20:11
<b>Chromium</b>	<b>50</b>		<b>0.025</b>	<b>0.44</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/6/2017 13:50
<b>Copper</b>	<b>14</b>		<b>0.19</b>	<b>0.88</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/6/2017 13:50
<b>Lead</b>	<b>6.5</b>		<b>0.94</b>	<b>4.4</b>	<b>mg/Kg-dry</b>	<b>10</b>	12/6/2017 20:11
<b>Nickel</b>	<b>35</b>		<b>1.8</b>	<b>4.4</b>	<b>mg/Kg-dry</b>	<b>10</b>	12/6/2017 20:11
<b>Selenium</b>	<b>2.1</b>		<b>0.25</b>	<b>0.88</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/6/2017 13:50
<b>Silver</b>	<b>U</b>		<b>0.055</b>	<b>0.44</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/6/2017 13:50
<b>Zinc</b>	<b>55</b>		<b>0.71</b>	<b>8.8</b>	<b>mg/Kg-dry</b>	<b>10</b>	12/6/2017 20:11
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/5/17		Analyst: <b>JF</b>
<b>Calcium</b>	<b>770</b>		<b>0.86</b>	<b>5.0</b>	<b>mg/L</b>	<b>10</b>	12/5/2017 18:12
<b>Magnesium</b>	<b>200</b>		<b>0.068</b>	<b>2.0</b>	<b>mg/L</b>	<b>10</b>	12/5/2017 18:12
<b>Sodium</b>	<b>310</b>		<b>0.34</b>	<b>2.0</b>	<b>mg/L</b>	<b>10</b>	12/5/2017 18:12
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/5/17		Analyst: <b>RH</b>
<b>Sodium Adsorption Ratio</b>	<b>2.5</b>		<b>0.010</b>	<b>0.010</b>	<b>none</b>	<b>1</b>	12/5/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/4/17		Analyst: <b>RM</b>
<b>Acenaphthene</b>	<b>U</b>		<b>0.0039</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Anthracene</b>	<b>U</b>		<b>0.0020</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Benzo(a)anthracene</b>	<b>U</b>		<b>0.0033</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Benzo(a)pyrene</b>	<b>U</b>		<b>0.0014</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Benzo(b)fluoranthene</b>	<b>U</b>		<b>0.0021</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Benzo(k)fluoranthene</b>	<b>U</b>		<b>0.0028</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Chrysene</b>	<b>U</b>		<b>0.0021</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Dibenzo(a,h)anthracene</b>	<b>U</b>		<b>0.0018</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39
<b>Fluoranthene</b>	<b>U</b>		<b>0.0016</b>	<b>0.054</b>	<b>mg/Kg-dry</b>	<b>1</b>	12/4/2017 17:39

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



# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171127-Divide Rd. (MW-05) @ 44'-44.25'  
**Collection Date:** 11/27/2017 03:10 PM

**Work Order:** 17111816  
**Lab ID:** 17111816-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0018	0.054	mg/Kg-dry	1	12/4/2017 17:39
Indeno(1,2,3-cd)pyrene	U		0.0017	0.054	mg/Kg-dry	1	12/4/2017 17:39
Naphthalene	U		0.010	0.054	mg/Kg-dry	1	12/4/2017 17:39
Pyrene	U		0.0020	0.054	mg/Kg-dry	1	12/4/2017 17:39
Surr: 2-Fluorobiphenyl	92.2			20-140	%REC	1	12/4/2017 17:39
Surr: 4-Terphenyl-d14	137			22-172	%REC	1	12/4/2017 17:39
Surr: Nitrobenzene-d5	128			28-140	%REC	1	12/4/2017 17:39
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 11/30/17		Analyst: <b>LSY</b>
Benzene	U		0.0074	0.043	mg/Kg	1	12/1/2017 13:34
Ethylbenzene	U		0.0091	0.043	mg/Kg	1	12/1/2017 13:34
m,p-Xylene	U		0.021	0.086	mg/Kg	1	12/1/2017 13:34
o-Xylene	U		0.017	0.043	mg/Kg	1	12/1/2017 13:34
Toluene	U		0.012	0.043	mg/Kg	1	12/1/2017 13:34
Xylenes, Total	U		0.037	0.13	mg/Kg	1	12/1/2017 13:34
Surr: 1,2-Dichloroethane-d4	100			70-130	%REC	1	12/1/2017 13:34
Surr: 4-Bromofluorobenzene	96.8			70-130	%REC	1	12/1/2017 13:34
Surr: Dibromofluoromethane	85.6			70-130	%REC	1	12/1/2017 13:34
Surr: Toluene-d8	96.8			70-130	%REC	1	12/1/2017 13:34
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/5/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	6.8		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	50		0.38	1.2	mg/Kg-dry	1	12/6/2017 18:40
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 11/30/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.37	1.2	mg/Kg-dry	1	12/1/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>RLM</b>
Moisture	18		0.025	0.050	% of sample	1	12/5/2017 21:00
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/1/17		Analyst: <b>JJG</b>
pH	9.15		0.10	0.100	s.u.	1	12/1/2017 16:30

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

# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171127-Divide Rd. (MW-05) @ 50'-50.5'  
**Collection Date:** 11/27/2017 03:55 PM

**Work Order:** 17111816  
**Lab ID:** 17111816-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/1/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		3.4	6.0	mg/Kg-dry	1	12/1/2017 18:05
Surr: 4-Terphenyl-d14	82.1			34-130	%REC	1	12/1/2017 18:05
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 11/30/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		2.9	7.0	mg/Kg	1	12/2/2017 10:39
Surr: Toluene-d8	91.1			71-123	%REC	1	12/2/2017 10:39
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/5/17		Analyst: <b>RSB</b>
Mercury	0.0080	J	0.0023	0.023	mg/Kg-dry	1	12/5/2017 17:31
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/5/17		Analyst: <b>HBA</b>
Arsenic	3.5	J	0.99	3.8	mg/Kg-dry	10	12/6/2017 20:18
Barium	370		0.15	0.38	mg/Kg-dry	1	12/6/2017 13:57
Cadmium	1.6	J	0.37	7.6	mg/Kg-dry	10	12/6/2017 20:18
Chromium	41		0.021	0.38	mg/Kg-dry	1	12/6/2017 13:57
Copper	20		0.17	0.76	mg/Kg-dry	1	12/6/2017 13:57
Lead	14		0.81	3.8	mg/Kg-dry	10	12/6/2017 20:18
Nickel	19		1.5	3.8	mg/Kg-dry	10	12/6/2017 20:18
Selenium	2.2		0.21	0.76	mg/Kg-dry	1	12/6/2017 13:57
Silver	U		0.047	0.38	mg/Kg-dry	1	12/6/2017 13:57
Zinc	36		0.61	7.6	mg/Kg-dry	10	12/6/2017 20:18
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/5/17		Analyst: <b>JF</b>
Calcium	570		0.86	5.0	mg/L	10	12/5/2017 18:14
Magnesium	190		0.068	2.0	mg/L	10	12/5/2017 18:14
Sodium	360		0.34	2.0	mg/L	10	12/5/2017 18:14
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/5/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	3.4		0.010	0.010	none	1	12/5/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/4/17		Analyst: <b>RM</b>
Acenaphthene	U		0.0035	0.050	mg/Kg-dry	1	12/4/2017 17:53
Anthracene	U		0.0018	0.050	mg/Kg-dry	1	12/4/2017 17:53
Benzo(a)anthracene	U		0.0030	0.050	mg/Kg-dry	1	12/4/2017 17:53
Benzo(a)pyrene	U		0.0012	0.050	mg/Kg-dry	1	12/4/2017 17:53
Benzo(b)fluoranthene	U		0.0019	0.050	mg/Kg-dry	1	12/4/2017 17:53
Benzo(k)fluoranthene	U		0.0026	0.050	mg/Kg-dry	1	12/4/2017 17:53
Chrysene	U		0.0019	0.050	mg/Kg-dry	1	12/4/2017 17:53
Dibenzo(a,h)anthracene	U		0.0016	0.050	mg/Kg-dry	1	12/4/2017 17:53
Fluoranthene	U		0.0014	0.050	mg/Kg-dry	1	12/4/2017 17:53

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

# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171127-Divide Rd. (MW-05) @ 50'-50.5'  
**Collection Date:** 11/27/2017 03:55 PM

**Work Order:** 17111816  
**Lab ID:** 17111816-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0016	0.050	mg/Kg-dry	1	12/4/2017 17:53
Indeno(1,2,3-cd)pyrene	U		0.0015	0.050	mg/Kg-dry	1	12/4/2017 17:53
Naphthalene	U		0.0093	0.050	mg/Kg-dry	1	12/4/2017 17:53
Pyrene	U		0.0018	0.050	mg/Kg-dry	1	12/4/2017 17:53
Surr: 2-Fluorobiphenyl	87.0			20-140	%REC	1	12/4/2017 17:53
Surr: 4-Terphenyl-d14	118			22-172	%REC	1	12/4/2017 17:53
Surr: Nitrobenzene-d5	122			28-140	%REC	1	12/4/2017 17:53
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 11/30/17		Analyst: <b>LSY</b>
Benzene	U		0.0072	0.042	mg/Kg	1	12/1/2017 13:49
Ethylbenzene	U		0.0089	0.042	mg/Kg	1	12/1/2017 13:49
m,p-Xylene	U		0.020	0.085	mg/Kg	1	12/1/2017 13:49
o-Xylene	U		0.016	0.042	mg/Kg	1	12/1/2017 13:49
Toluene	U		0.012	0.042	mg/Kg	1	12/1/2017 13:49
Xylenes, Total	U		0.036	0.13	mg/Kg	1	12/1/2017 13:49
Surr: 1,2-Dichloroethane-d4	99.5			70-130	%REC	1	12/1/2017 13:49
Surr: 4-Bromofluorobenzene	96.8			70-130	%REC	1	12/1/2017 13:49
Surr: Dibromofluoromethane	82.8			70-130	%REC	1	12/1/2017 13:49
Surr: Toluene-d8	96.5			70-130	%REC	1	12/1/2017 13:49
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/5/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	5.9		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	41		0.37	1.2	mg/Kg-dry	1	12/6/2017 18:40
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 11/30/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.36	1.2	mg/Kg-dry	1	12/1/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>RLM</b>
Moisture	17		0.025	0.050	% of sample	1	12/5/2017 21:00
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/1/17		Analyst: <b>JJG</b>
pH	8.94		0.10	0.100	s.u.	1	12/1/2017 16:30

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **111256** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-111256-111256</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 03:10 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4788480</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	U	5.0								
Surr: 4-Terphenyl-d14	2.8	0	3.33	0	84.1	34-130		0		

<b>LCS</b>		Sample ID: <b>DLCSS1-111256-111256</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 03:39 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4788481</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	310.5	5.0	333	0	93.2	65-122		0		
Surr: 4-Terphenyl-d14	2.733	0	3.33	0	82.1	34-130		0		

<b>MS</b>		Sample ID: <b>17111885-12A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 04:37 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4789925</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	317.3	4.9	325.6	0	97.5	65-122		0		
Surr: 4-Terphenyl-d14	2.754	0	3.256	0	84.6	34-130		0		

<b>MSD</b>		Sample ID: <b>17111885-12A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 05:07 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4789926</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	314.3	5.0	332	0	94.7	65-122	317.3	0.972	30	
Surr: 4-Terphenyl-d14	2.542	0	3.32	0	76.6	34-130	2.754	8.01	30	

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

Client: Caerus Oil and Gas LLC  
 Work Order: 17111816  
 Project: Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: 111203 Instrument ID GC10 Method: SW8015D

<b>MBLK</b>		Sample ID: <b>MBLK-111203-111203</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/30/2017 05:45 PM</b>		
Client ID:		Run ID: <b>GC10_171130B</b>				SeqNo: <b>4787555</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4326	0	5000	0	86.5	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-111203-111203</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>11/30/2017 04:52 PM</b>		
Client ID:		Run ID: <b>GC10_171130B</b>				SeqNo: <b>4787554</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	486400	5,000	500000	0	97.3	71-123	0			
Surr: Toluene-d8	4898	0	5000	0	98	71-123	0			

<b>MS</b>		Sample ID: <b>17111752-01A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/1/2017 03:19 AM</b>		
Client ID:		Run ID: <b>GC10_171130B</b>				SeqNo: <b>4787572</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	540800	5,900	594100	0	91	71-123	0			
Surr: Toluene-d8	5904	0	5941	0	99.4	71-123	0			

<b>MSD</b>		Sample ID: <b>17111752-01A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/1/2017 03:45 AM</b>		
Client ID:		Run ID: <b>GC10_171130B</b>				SeqNo: <b>4787573</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	565200	5,900	594100	0	95.1	71-123	540800	4.41	30	
Surr: Toluene-d8	5882	0	5941	0	99	71-123	5904	0.373	30	

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111409** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-111409-111409</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 04:57 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794423</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>LCS-111409-111409</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:00 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794424</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1625 0.020 0.1665 0 97.6 80-120 0

<b>MS</b>		Sample ID: <b>17111778-11BMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:05 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794426</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1346 0.016 0.1325 0.0195 86.9 75-125 0

<b>MSD</b>		Sample ID: <b>17111778-11BMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:16 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794430</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1516 0.016 0.1328 0.0195 99.4 75-125 0.1346 11.9 35

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111383** Instrument ID **ICP2** Method: **SW846 6010C**

<b>MBLK</b>		Sample ID: <b>MBLK-111383-111383</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:18 PM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796024</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.0142	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	0.0785	0.50								J

<b>LCS</b>		Sample ID: <b>LCS-111383-111383</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:44 PM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796029</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.905	0.25	5	0	98.1	80-120	0			
Barium	4.97	0.25	5	0	99.4	80-120	0			
Cadmium	5.095	0.50	5	0	102	80-120	0			
Chromium	5.471	0.25	5	0	109	80-120	0			
Copper	4.945	0.50	5	0	98.9	80-120	0			
Lead	5.369	0.25	5	0	107	80-120	0			
Nickel	5.266	0.25	5	0	105	80-120	0			
Selenium	4.515	0.50	5	0	90.3	80-120	0			
Silver	4.82	0.25	5	0	96.4	80-120	0			
Zinc	5.25	0.50	5	0	105	80-120	0			

<b>MS</b>		Sample ID: <b>17111856-01BMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 02:11 PM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796035</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.099	0.37	7.485	1.222	105	75-125	0			
Barium	22.12	0.37	7.485	12.33	131	75-125	0			S
Cadmium	7.932	0.75	7.485	0.0967	105	75-125	0			
Chromium	10.45	0.37	7.485	2.121	111	75-125	0			
Copper	9.765	0.75	7.485	2.166	102	75-125	0			
Lead	14.25	0.37	7.485	5.495	117	75-125	0			
Nickel	9.941	0.37	7.485	1.657	111	75-125	0			
Selenium	7.737	0.75	7.485	0.6132	95.2	75-125	0			
Silver	7.328	0.37	7.485	-0.06034	98.7	75-125	0			
Zinc	25.37	0.75	7.485	14.04	151	75-125	0			S

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111383** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 17111856-01BMSD				Units: mg/Kg		Analysis Date: 12/6/2017 02:17 PM		
Client ID:		Run ID: ICP2_171206A				SeqNo: 4796036		Prep Date: 12/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.104	0.37	7.463	1.222	106	75-125	9.099	0.0562	20	
Barium	19.37	0.37	7.463	12.33	94.4	75-125	22.12	13.3	20	
Cadmium	7.829	0.75	7.463	0.0967	104	75-125	7.932	1.31	20	
Chromium	10.76	0.37	7.463	2.121	116	75-125	10.45	2.93	20	
Copper	9.61	0.75	7.463	2.166	99.7	75-125	9.765	1.59	20	
Lead	14.22	0.37	7.463	5.495	117	75-125	14.25	0.217	20	
Nickel	9.842	0.37	7.463	1.657	110	75-125	9.941	1.01	20	
Selenium	7.69	0.75	7.463	0.6132	94.8	75-125	7.737	0.608	20	
Silver	7.224	0.37	7.463	-0.06034	97.6	75-125	7.328	1.43	20	
Zinc	25	0.75	7.463	14.04	147	75-125	25.37	1.46	20	S

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111380** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>17111701-02ADUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/5/2017 06:04 PM</b>		
Client ID:		Run ID: <b>ICPMS3_171205A</b>				SeqNo: <b>4794236</b>		Prep Date: <b>12/5/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	644.6	5.0	0	0	0	0-0	659	2.21		
Magnesium	456.2	2.0	0	0	0	0-0	454.5	0.369		
Sodium	87.23	2.0	0	0	0	0-0	88.83	1.82		

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

Batch ID: **111380** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>17111701-02ADUP</b>				Units: <b>none</b>		Analysis Date: <b>12/5/2017</b>		
Client ID:		Run ID: <b>SAR_171205A</b>				SeqNo: <b>4794883</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.6427	0.010	0	0	0		0.6518	1.4	50	

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111260** Instrument ID **SVMS6** Method: **SW846 8270D**

MBLK				Sample ID: SBLKS1-111260-111260				Units: µg/Kg			Analysis Date: 12/4/2017 04:31 PM			
Client ID:				Run ID: SVMS6_171204A				SeqNo: 4793596			Prep Date: 12/4/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Acenaphthene	U	42												
Anthracene	U	42												
Benzo(a)anthracene	U	42												
Benzo(a)pyrene	U	42												
Benzo(b)fluoranthene	U	42												
Benzo(k)fluoranthene	U	42												
Chrysene	U	42												
Dibenzo(a,h)anthracene	U	42												
Fluoranthene	U	42												
Fluorene	U	42												
Indeno(1,2,3-cd)pyrene	U	42												
Naphthalene	U	42												
Pyrene	U	42												
Surr: 2-Fluorobiphenyl	2753	0	3333	0	82.6	20-140		0						
Surr: 4-Terphenyl-d14	4398	0	3333	0	132	22-172		0						
Surr: Nitrobenzene-d5	4557	0	3333	0	137	28-140		0						

LCS				Sample ID: SLCSS1-111260-111260				Units: µg/Kg		Analysis Date: 12/4/2017 04:45 PM		
Client ID:			Run ID: SVMS6_171204A			SeqNo: 4793597		Prep Date: 12/4/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Acenaphthene	1068	42	1333	0	80.1	40-140	0					
Anthracene	1204	42	1333	0	90.3	40-140	0					
Benzo(a)anthracene	1387	42	1333	0	104	40-140	0					
Benzo(a)pyrene	1679	42	1333	0	126	40-140	0					
Benzo(b)fluoranthene	1125	42	1333	0	84.4	40-140	0					
Benzo(k)fluoranthene	1058	42	1333	0	79.3	40-140	0					
Chrysene	1122	42	1333	0	84.1	40-140	0					
Dibenzo(a,h)anthracene	1589	42	1333	0	119	40-140	0					
Fluoranthene	1039	42	1333	0	78	40-140	0					
Fluorene	1314	42	1333	0	98.6	40-140	0					
Indeno(1,2,3-cd)pyrene	1514	42	1333	0	114	40-140	0					
Naphthalene	1147	42	1333	0	86	40-140	0					
Pyrene	1152	42	1333	0	86.5	40-140	0					
Surr: 2-Fluorobiphenyl	2512	0	3333	0	75.4	20-140	0					
Surr: 4-Terphenyl-d14	3329	0	3333	0	99.9	22-172	0					
Surr: Nitrobenzene-d5	4492	0	3333	0	135	28-140	0					

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

# QC BATCH REPORT

Batch ID: **111260** Instrument ID **SVMS6** Method: **SW846 8270D**

MS				Sample ID: 17111856-02B MS			Units: µg/Kg		Analysis Date: 12/4/2017 04:59 PM	
Client ID:				Run ID: SVMS6_171204A			SeqNo: 4793598		Prep Date: 12/4/2017	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1252	42	1329	0	94.2	40-140	0			
Anthracene	1657	42	1329	0	125	40-140	0			
Benzo(a)anthracene	1885	42	1329	86.37	135	40-140	0			
Benzo(a)pyrene	1764	42	1329	53.61	129	40-140	0			
Benzo(b)fluoranthene	1719	42	1329	176.4	116	40-140	0			
Benzo(k)fluoranthene	1400	42	1329	0	105	40-140	0			
Chrysene	1547	42	1329	66.74	111	40-140	0			
Dibenzo(a,h)anthracene	1576	42	1329	0	119	40-140	0			
Fluoranthene	2095	42	1329	138.1	147	40-140	0			S
Fluorene	1581	42	1329	0	119	40-140	0			
Indeno(1,2,3-cd)pyrene	1550	42	1329	0	117	40-140	0			
Naphthalene	1296	42	1329	0	97.5	40-140	0			
Pyrene	2359	42	1329	115.7	169	40-140	0			S
Surr: 2-Fluorobiphenyl	2673	0	3323	0	80.4	20-140	0			
Surr: 4-Terphenyl-d14	3427	0	3323	0	103	22-172	0			
Surr: Nitrobenzene-d5	4564	0	3323	0	137	28-140	0			

MSD				Sample ID: 17111856-02B MSD			Units: µg/Kg		Analysis Date: 12/4/2017 05:12 PM	
Client ID:				Run ID: SVMS6_171204A			SeqNo: 4793599		Prep Date: 12/4/2017	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1069	41	1315	0	81.3	40-140	1252	15.8	30	
Anthracene	1208	41	1315	0	91.9	40-140	1657	31.3	30	R
Benzo(a)anthracene	1488	41	1315	86.37	107	40-140	1885	23.5	30	
Benzo(a)pyrene	1596	41	1315	53.61	117	40-140	1764	10	30	
Benzo(b)fluoranthene	1331	41	1315	176.4	87.9	40-140	1719	25.4	30	
Benzo(k)fluoranthene	1304	41	1315	0	99.2	40-140	1400	7.14	30	
Chrysene	1186	41	1315	66.74	85.1	40-140	1547	26.5	30	
Dibenzo(a,h)anthracene	1161	41	1315	0	88.3	40-140	1576	30.3	30	R
Fluoranthene	1211	41	1315	138.1	81.6	40-140	2095	53.5	30	R
Fluorene	1284	41	1315	0	97.7	40-140	1581	20.8	30	
Indeno(1,2,3-cd)pyrene	1453	41	1315	0	111	40-140	1550	6.48	30	
Naphthalene	1178	41	1315	0	89.6	40-140	1296	9.55	30	
Pyrene	1363	41	1315	115.7	94.9	40-140	2359	53.5	30	R
Surr: 2-Fluorobiphenyl	2822	0	3287	0	85.8	20-140	2673	5.43	0	
Surr: 4-Terphenyl-d14	3556	0	3287	0	108	22-172	3427	3.69	0	
Surr: Nitrobenzene-d5	4474	0	3287	0	136	28-140	4564	1.99	0	

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111204**      Instrument ID **VMS10**      Method: **SW8260B**

MBLK				Sample ID: MBLK-111204-111204				Units: µg/Kg-dry			Analysis Date: 11/30/2017 11:48 A			
Client ID:				Run ID: VMS10_171130A				SeqNo: 4786507			Prep Date: 11/30/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	U	30	0	0	0	0-0	0							
Ethylbenzene	U	30	0	0	0	0-0	0							
m,p-Xylene	U	60	0	0	0	0-0	0							
o-Xylene	U	30	0	0	0	0-0	0							
Toluene	U	30	0	0	0	0-0	0							
Xylenes, Total	U	90	0	0	0	0-0	0							
Surr: 1,2-Dichloroethane-d4	997.5	0	1000	0	99.8	70-130	0							
Surr: 4-Bromofluorobenzene	998.5	0	1000	0	99.8	70-130	0							
Surr: Dibromofluoromethane	892	0	1000	0	89.2	70-130	0							
Surr: Toluene-d8	968	0	1000	0	96.8	70-130	0							

LCS				Sample ID: LCS-111204-111204				Units: µg/Kg-dry		Analysis Date: 11/30/2017 11:00 A	
Client ID:			Run ID: VMS10_171130A			SeqNo: 4786506		Prep Date: 11/30/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1124	30	1000		0	112	75-125	0			
Ethylbenzene	922.5	30	1000		0	92.2	75-125	0			
m,p-Xylene	1854	60	2000		0	92.7	80-125	0			
o-Xylene	907.5	30	1000		0	90.8	75-125	0			
Toluene	1066	30	1000		0	107	70-125	0			
Xylenes, Total	2761	90	3000		0	92	75-125	0			
Surr: 1,2-Dichloroethane-d4	999.5	0	1000		0	100	70-130	0			
Surr: 4-Bromofluorobenzene	1023	0	1000		0	102	70-130	0			
Surr: Dibromofluoromethane	1031	0	1000		0	103	70-130	0			
Surr: Toluene-d8	977	0	1000		0	97.7	70-130	0			

MS				Sample ID: 17111752-01A MS			Units: µg/Kg-dry		Analysis Date: 11/30/2017 05:37 PM		
Client ID:			Run ID: VMS10_171130A			SeqNo: 4786514		Prep Date: 11/30/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1378	36	1188	0	116	75-125	0				
Ethylbenzene	1113	36	1188	0	93.7	75-125	0				
m,p-Xylene	2237	71	2376	0	94.2	80-125	0				
o-Xylene	1115	36	1188	0	93.8	75-125	0				
Toluene	1286	36	1188	0	108	70-125	0				
Xylenes, Total	3352	110	3565	0	94	75-125	0				
Surr: 1,2-Dichloroethane-d4	1195	0	1188	0	101	70-130	0				
Surr: 4-Bromofluorobenzene	1249	0	1188	0	105	70-130	0				
Surr: Dibromofluoromethane	1157	0	1188	0	97.4	70-130	0				
Surr: Toluene-d8	1166	0	1188	0	98.1	70-130	0				

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111204**      Instrument ID **VMS10**      Method: **SW8260B**

MSD				Sample ID: 17111752-01A MSD			Units: µg/Kg-dry		Analysis Date: 11/30/2017 05:53 PM	
Client ID:			Run ID: VMS10_171130A			SeqNo: 4786515		Prep Date: 11/30/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1454	36	1188	0	122	75-125	1378	5.37	30	
Ethylbenzene	1200	36	1188	0	101	75-125	1113	7.5	30	
m,p-Xylene	2399	71	2376	0	101	80-125	2237	6.97	30	
o-Xylene	1194	36	1188	0	100	75-125	1115	6.84	30	
Toluene	1397	36	1188	0	118	70-125	1286	8.24	30	
Xylenes, Total	3593	110	3565	0	101	75-125	3352	6.93	30	
Surr: 1,2-Dichloroethane-d4	1167	0	1188	0	98.2	70-130	1195	2.31	30	
Surr: 4-Bromofluorobenzene	1272	0	1188	0	107	70-130	1249	1.84	30	
Surr: Dibromofluoromethane	1161	0	1188	0	97.8	70-130	1157	0.41	30	
Surr: Toluene-d8	1191	0	1188	0	100	70-130	1166	2.17	30	

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111215** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-111215-111215</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171201C</b>				SeqNo: <b>4787736</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-111215-111215</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171201C</b>				SeqNo: <b>4787737</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.93 1.0 5 0 98.6 80-120 0

<b>MS</b>		Sample ID: <b>17111698-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171201C</b>				SeqNo: <b>4787739</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.385 0.96 4.808 0.2828 85.3 75-125 0

<b>MS</b>		Sample ID: <b>17111698-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171201C</b>				SeqNo: <b>4787741</b>		Prep Date: <b>11/30/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1435 100 1576 0.2828 91 75-125 0

<b>MS</b>		Sample ID: <b>17111816-02A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 01:00 PM</b>		
Client ID: <b>20171127-Divide Rd. (MW-05) @ 50'-50.5'</b>		Run ID: <b>WETCHEM_171201C</b>				SeqNo: <b>4787751</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 0.396 0.99 4.95 0.2692 2.56 75-125 0 JS

<b>MS</b>		Sample ID: <b>17111816-02A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 01:00 PM</b>		
Client ID: <b>20171127-Divide Rd. (MW-05) @ 50'-50.5'</b>		Run ID: <b>WETCHEM_171201C</b>				SeqNo: <b>4787753</b>		Prep Date: <b>11/30/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 979.8 96 1578 0.2692 62.1 75-125 0 S

<b>MSD</b>		Sample ID: <b>17111698-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171201C</b>				SeqNo: <b>4787740</b>		Prep Date: <b>11/30/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.471 0.98 4.902 0.2828 85.4 75-125 4.385 1.94 20

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: 111215 Instrument ID WETCHEM Method: SW7196A

<b>MSD</b>		Sample ID: 17111816-02A MSD				Units: mg/Kg		Analysis Date: 12/1/2017 01:00 PM		
Client ID: 20171127-Divide Rd. (MW-05) @ 50'-50.5'		Run ID: WETCHEM_171201C				SeqNo: 4787752		Prep Date: 11/30/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.5096	0.96	4.808	0.2692	5	75-125	0.396	0	20	JS

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111275** Instrument ID **WETCHEM** Method: **SW9045D**

LCS					Sample ID: LCS-111275-111275					Units: s.u.			Analysis Date: 12/1/2017 04:30 PM				
Client ID:					Run ID: WETCHEM_171201P					SeqNo: 4788724			Prep Date: 12/1/2017			DF: 1	
Analyte					Result	PQL	SPK Val	SPK Ref Value	%REC		Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
pH					3.94	0.10	4	0	98.5		90-110	0					

DUP					Sample ID: 17111777-02A DUP					Units: s.u.			Analysis Date: 12/1/2017 04:30 PM				
Client ID:					Run ID: WETCHEM_171201P					SeqNo: 4788728			Prep Date: 12/1/2017			DF: 1	
Analyte					Result	PQL	SPK Val	SPK Ref Value	%REC		Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
pH					10.47	0.10	0	0	0		0-0	10.45	0.191	20			

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111380** Instrument ID **Titration 1** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>17111701-02A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>12/7/2017 12:06 PM</b>		
Client ID:		Run ID: <b>TITRATOR 1_171207A</b>			SeqNo: <b>4798367</b>		Prep Date: <b>12/5/2017</b>		DF: <b>20</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	7.235	0.10	0	0	0		8.213	12.7	50	

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111816  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225762** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R225762</b>				Units: % of sample		Analysis Date: <b>12/5/2017 09:00 PM</b>		
Client ID:		Run ID: <b>MOIST_171204C</b>				SeqNo: <b>4792419</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

<b>LCS</b>		Sample ID: <b>LCS-R225762</b>				Units: % of sample		Analysis Date: <b>12/5/2017 09:00 PM</b>		
Client ID:		Run ID: <b>MOIST_171204C</b>				SeqNo: <b>4792418</b>		Prep Date:		DF: <b>1</b>
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

<b>DUP</b>		Sample ID: <b>1712111-01B DUP</b>				Units: % of sample		Analysis Date: <b>12/5/2017 09:00 PM</b>		
Client ID:		Run ID: <b>MOIST_171204C</b>				SeqNo: <b>4792417</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 32.45 0.050 0 0 0 0-0 31.37 3.38 5

The following samples were analyzed in this batch:

17111816-01A	17111816-02A
--------------	--------------

**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.

COC number (for client tracking)

Page 1 of 1

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: [als@als.com.hk](mailto:als@als.com.hk)

★ ANALYZE FOR BTEX O TPH FIRST w/ SAMPLE MATERIAL ★ (w) SIZ 2.0°C

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **30-Nov-17 09:30**

Work Order: **17111816**

Received by: **DS**

Checklist completed by Diane Shaw  
eSignature

30-Nov-17  
Date

Reviewed by: Chad Whelton  
eSignature

30-Nov-17  
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 ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): 2.6/2.6 c SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 11/30/2017 11:18:51 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:



08-Dec-2017

Brett Middleton  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **Divide Rd Pipeline Release**

Work Order: **17111880**

Dear Brett,

ALS Environmental received 1 sample on 30-Nov-2017 09:30 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 21.

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".

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 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Work Order:** 17111880

---

**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>
17111880-01	20171128-Divide Rd (MW-06) @42- 43.5'	Soil		11/28/2017 14:30	11/30/2017 09:30	<input type="checkbox"/>

---

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
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

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171128-Divide Rd (MW-06) @42-43.5'  
**Collection Date:** 11/28/2017 02:30 PM

**Work Order:** 17111880  
**Lab ID:** 17111880-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 12/1/17		Analyst: <b>KB</b>
DRO (C10-C28)	U		3.5	6.0	mg/Kg-dry	1	12/1/2017 18:34
Surr: 4-Terphenyl-d14	82.1			34-130	%REC	1	12/1/2017 18:34
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 12/1/17		Analyst: <b>KB</b>
GRO (C6-C10)	U		2.9	7.0	mg/Kg	1	12/1/2017 20:48
Surr: Toluene-d8	91.0			71-123	%REC	1	12/1/2017 20:48
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>		Prep: SW7471 / 12/5/17		Analyst: <b>RSB</b>
Mercury	0.0093	J	0.0020	0.020	mg/Kg-dry	1	12/5/2017 17:34
<b>METALS ANALYSIS BY ICP</b>							
			Method: <b>SW846 6010C</b>		Prep: SW3050B / 12/5/17		Analyst: <b>HBA</b>
Arsenic	8.2		0.12	0.48	mg/Kg-dry	1	12/6/2017 14:59
Barium	310		0.19	0.48	mg/Kg-dry	1	12/6/2017 14:59
Cadmium	0.44	J	0.046	0.95	mg/Kg-dry	1	12/6/2017 14:59
Chromium	52		0.027	0.48	mg/Kg-dry	1	12/6/2017 14:59
Copper	24		0.21	0.95	mg/Kg-dry	1	12/6/2017 14:59
Lead	8.6		0.10	0.48	mg/Kg-dry	1	12/6/2017 14:59
Nickel	38		0.19	0.48	mg/Kg-dry	1	12/6/2017 14:59
Selenium	2.3		0.27	0.95	mg/Kg-dry	1	12/6/2017 14:59
Silver	U		0.059	0.48	mg/Kg-dry	1	12/6/2017 14:59
Zinc	68		0.076	0.95	mg/Kg-dry	1	12/6/2017 14:59
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JF</b>
Calcium	42		0.86	5.0	mg/L	10	12/6/2017 18:11
Magnesium	12		0.068	2.0	mg/L	10	12/6/2017 18:11
Sodium	110		0.34	2.0	mg/L	10	12/6/2017 18:11
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	4.0		0.010	0.010	none	1	12/6/2017
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 12/4/17		Analyst: <b>RM</b>
Acenaphthene	U		0.0036	0.050	mg/Kg-dry	1	12/4/2017 18:20
Anthracene	U		0.0018	0.050	mg/Kg-dry	1	12/4/2017 18:20
Benzo(a)anthracene	U		0.0031	0.050	mg/Kg-dry	1	12/4/2017 18:20
Benzo(a)pyrene	U		0.0012	0.050	mg/Kg-dry	1	12/4/2017 18:20
Benzo(b)fluoranthene	U		0.0019	0.050	mg/Kg-dry	1	12/4/2017 18:20
Benzo(k)fluoranthene	U		0.0026	0.050	mg/Kg-dry	1	12/4/2017 18:20
Chrysene	U		0.0019	0.050	mg/Kg-dry	1	12/4/2017 18:20
Dibenzo(a,h)anthracene	U		0.0016	0.050	mg/Kg-dry	1	12/4/2017 18:20
Fluoranthene	U		0.0014	0.050	mg/Kg-dry	1	12/4/2017 18:20

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



# ALS Group, USA

Date: 08-Dec-17

**Client:** Caerus Oil and Gas LLC  
**Project:** Divide Rd Pipeline Release  
**Sample ID:** 20171128-Divide Rd (MW-06) @42-43.5'  
**Collection Date:** 11/28/2017 02:30 PM

**Work Order:** 17111880  
**Lab ID:** 17111880-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0016	0.050	mg/Kg-dry	1	12/4/2017 18:20
Indeno(1,2,3-cd)pyrene	U		0.0015	0.050	mg/Kg-dry	1	12/4/2017 18:20
Naphthalene	U		0.0094	0.050	mg/Kg-dry	1	12/4/2017 18:20
Pyrene	U		0.0018	0.050	mg/Kg-dry	1	12/4/2017 18:20
Surr: 2-Fluorobiphenyl	93.6			20-140	%REC	1	12/4/2017 18:20
Surr: 4-Terphenyl-d14	126			22-172	%REC	1	12/4/2017 18:20
Surr: Nitrobenzene-d5	129			28-140	%REC	1	12/4/2017 18:20
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260B</b>		Prep: SW5035 / 12/1/17		Analyst: <b>LSY</b>
Benzene	U		0.0072	0.042	mg/Kg	1	12/1/2017 13:18
Ethylbenzene	U		0.0089	0.042	mg/Kg	1	12/1/2017 13:18
m,p-Xylene	U		0.020	0.085	mg/Kg	1	12/1/2017 13:18
o-Xylene	U		0.016	0.042	mg/Kg	1	12/1/2017 13:18
Toluene	U		0.012	0.042	mg/Kg	1	12/1/2017 13:18
Xylenes, Total	U		0.036	0.13	mg/Kg	1	12/1/2017 13:18
Surr: 1,2-Dichloroethane-d4	96.8			70-130	%REC	1	12/1/2017 13:18
Surr: 4-Bromofluorobenzene	96.0			70-130	%REC	1	12/1/2017 13:18
Surr: Dibromofluoromethane	82.8			70-130	%REC	1	12/1/2017 13:18
Surr: Toluene-d8	97.8			70-130	%REC	1	12/1/2017 13:18
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 12/6/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	1.2		0.011	0.10	mmhos/cm @25°	20	12/7/2017 12:06
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>STP</b>
Chromium, Trivalent	52		0.37	1.2	mg/Kg-dry	1	12/7/2017 17:20
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 12/5/17		Analyst: <b>RP</b>
Chromium, Hexavalent	U		0.37	1.2	mg/Kg-dry	1	12/6/2017 13:00
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>BTG</b>
Moisture	17		0.025	0.050	% of sample	1	12/5/2017 12:35
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 12/1/17		Analyst: <b>JJG</b>
pH	8.81		0.10	0.100	s.u.	1	12/1/2017 16:30

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

**QC BATCH REPORT**

Batch ID: **111256** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-111256-111256</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 03:10 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4788480</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	U	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.8	0	3.33	0	84.1	34-130	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-111256-111256</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 03:39 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4788481</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	310.5	5.0	333	0	93.2	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	2.733	0	3.33	0	82.1	34-130	0			

<b>MS</b>		Sample ID: <b>17111885-12A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 04:37 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4789925</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	317.3	4.9	325.6	0	97.5	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	2.754	0	3.256	0	84.6	34-130	0			

<b>MSD</b>		Sample ID: <b>17111885-12A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/1/2017 05:07 PM</b>		
Client ID:		Run ID: <b>GC8_171201A</b>				SeqNo: <b>4789926</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	314.3	5.0	332	0	94.7	65-122	317.3	0.972	30	
<i>Surr: 4-Terphenyl-d14</i>	2.542	0	3.32	0	76.6	34-130	2.754	8.01	30	

The following samples were analyzed in this batch:

17111880-01B

Client: Caerus Oil and Gas LLC  
 Work Order: 17111880  
 Project: Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: 111246 Instrument ID GC10 Method: SW8015D

<b>MBLK</b>		Sample ID: <b>MBLK-111246-111246</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/1/2017 07:56 PM</b>		
Client ID:		Run ID: <b>GC10_171201A</b>				SeqNo: <b>4790125</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4344	0	5000	0	86.9	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-111246-111246</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/1/2017 06:38 PM</b>		
Client ID:		Run ID: <b>GC10_171201A</b>				SeqNo: <b>4790123</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	504000	5,000	500000	0	101	71-123	0			
Surr: Toluene-d8	5466	0	5000	0	109	71-123	0			

<b>MS</b>		Sample ID: <b>17111880-01B MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/2/2017 11:05 AM</b>		
Client ID: <b>20171128-Divide Rd (MW-06) @42-43.5'</b>		Run ID: <b>GC10_171201A</b>				SeqNo: <b>4790152</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	606200	7,000	704800	0	86	71-123	0			
Surr: Toluene-d8	7040	0	7048	0	99.9	71-123	0			

<b>MSD</b>		Sample ID: <b>17111880-01B MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>12/2/2017 11:31 AM</b>		
Client ID: <b>20171128-Divide Rd (MW-06) @42-43.5'</b>		Run ID: <b>GC10_171201A</b>				SeqNo: <b>4790153</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	608900	7,000	704800	0	86.4	71-123	606200	0.444	30	
Surr: Toluene-d8	6909	0	7048	0	98	71-123	7040	1.87	30	

The following samples were analyzed in this batch:

17111880-01B
--------------

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111409** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-111409-111409</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 04:57 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794423</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>LCS-111409-111409</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:00 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794424</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1625 0.020 0.1665 0 97.6 80-120 0

<b>MS</b>		Sample ID: <b>17111778-11BMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:05 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794426</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1346 0.016 0.1325 0.0195 86.9 75-125 0

<b>MSD</b>		Sample ID: <b>17111778-11BMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/5/2017 05:16 PM</b>		
Client ID:		Run ID: <b>HG1_171205A</b>				SeqNo: <b>4794430</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1516 0.016 0.1328 0.0195 99.4 75-125 0.1346 11.9 35

The following samples were analyzed in this batch:

17111880-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111383** Instrument ID **ICP2** Method: **SW846 6010C**

<b>MBLK</b>		Sample ID: <b>MBLK-111383-111383</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:18 PM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796024</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.0142	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	0.0785	0.50								J

<b>LCS</b>		Sample ID: <b>LCS-111383-111383</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:44 PM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796029</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.905	0.25	5	0	98.1	80-120	0			
Barium	4.97	0.25	5	0	99.4	80-120	0			
Cadmium	5.095	0.50	5	0	102	80-120	0			
Chromium	5.471	0.25	5	0	109	80-120	0			
Copper	4.945	0.50	5	0	98.9	80-120	0			
Lead	5.369	0.25	5	0	107	80-120	0			
Nickel	5.266	0.25	5	0	105	80-120	0			
Selenium	4.515	0.50	5	0	90.3	80-120	0			
Silver	4.82	0.25	5	0	96.4	80-120	0			
Zinc	5.25	0.50	5	0	105	80-120	0			

<b>MS</b>		Sample ID: <b>17111856-01BMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 02:11 PM</b>		
Client ID:		Run ID: <b>ICP2_171206A</b>				SeqNo: <b>4796035</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.099	0.37	7.485	1.222	105	75-125	0			
Barium	22.12	0.37	7.485	12.33	131	75-125	0			S
Cadmium	7.932	0.75	7.485	0.0967	105	75-125	0			
Chromium	10.45	0.37	7.485	2.121	111	75-125	0			
Copper	9.765	0.75	7.485	2.166	102	75-125	0			
Lead	14.25	0.37	7.485	5.495	117	75-125	0			
Nickel	9.941	0.37	7.485	1.657	111	75-125	0			
Selenium	7.737	0.75	7.485	0.6132	95.2	75-125	0			
Silver	7.328	0.37	7.485	-0.06034	98.7	75-125	0			
Zinc	25.37	0.75	7.485	14.04	151	75-125	0			S

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111383** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 17111856-01BMSD				Units: mg/Kg		Analysis Date: 12/6/2017 02:17 PM		
Client ID:		Run ID: ICP2_171206A				SeqNo: 4796036		Prep Date: 12/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.104	0.37	7.463	1.222	106	75-125	9.099	0.0562	20	
Barium	19.37	0.37	7.463	12.33	94.4	75-125	22.12	13.3	20	
Cadmium	7.829	0.75	7.463	0.0967	104	75-125	7.932	1.31	20	
Chromium	10.76	0.37	7.463	2.121	116	75-125	10.45	2.93	20	
Copper	9.61	0.75	7.463	2.166	99.7	75-125	9.765	1.59	20	
Lead	14.22	0.37	7.463	5.495	117	75-125	14.25	0.217	20	
Nickel	9.842	0.37	7.463	1.657	110	75-125	9.941	1.01	20	
Selenium	7.69	0.75	7.463	0.6132	94.8	75-125	7.737	0.608	20	
Silver	7.224	0.37	7.463	-0.06034	97.6	75-125	7.328	1.43	20	
Zinc	25	0.75	7.463	14.04	147	75-125	25.37	1.46	20	S

The following samples were analyzed in this batch:

17111880-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111452** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>1712107-01CDUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/6/2017 06:18 PM</b>		
Client ID:		Run ID: <b>ICPMS3_171206A</b>				SeqNo: <b>4797060</b>		Prep Date: <b>12/6/2017</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	325.6	5.0	0	0	0	0-0	298.2	8.78		
Magnesium	41.13	2.0	0	0	0	0-0	38.6	6.35		
Sodium	14.69	2.0	0	0	0	0-0	13.96	5.09		

The following samples were analyzed in this batch:

17111880-01A

Batch ID: **111452** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1712107-01CDUP</b>				Units: <b>none</b>		Analysis Date: <b>12/6/2017</b>		
Client ID:		Run ID: <b>SAR_171206A</b>				SeqNo: <b>4798474</b>		Prep Date: <b>12/6/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.2039	0.010	0	0	0		0.202	0.91	50	

The following samples were analyzed in this batch:

17111880-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111260**      Instrument ID: **SVMS6**      Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-111260-111260</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>12/4/2017 04:31 PM</b>		
Client ID:		Run ID: <b>SVMS6_171204A</b>				SeqNo: <b>4793596</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	42								
Anthracene	U	42								
Benzo(a)anthracene	U	42								
Benzo(a)pyrene	U	42								
Benzo(b)fluoranthene	U	42								
Benzo(k)fluoranthene	U	42								
Chrysene	U	42								
Dibenzo(a,h)anthracene	U	42								
Fluoranthene	U	42								
Fluorene	U	42								
Indeno(1,2,3-cd)pyrene	U	42								
Naphthalene	U	42								
Pyrene	U	42								
<i>Surr: 2-Fluorobiphenyl</i>	2753	0	3333	0	82.6	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	4398	0	3333	0	132	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	4557	0	3333	0	137	28-140	0			

LCS		Sample ID: <b>SLCSS1-111260-111260</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>12/4/2017 04:45 PM</b>		
Client ID:		Run ID: <b>SVMS6_171204A</b>				SeqNo: <b>4793597</b>		Prep Date: <b>12/4/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1068	42	1333	0	80.1	40-140	0			
Anthracene	1204	42	1333	0	90.3	40-140	0			
Benzo(a)anthracene	1387	42	1333	0	104	40-140	0			
Benzo(a)pyrene	1679	42	1333	0	126	40-140	0			
Benzo(b)fluoranthene	1125	42	1333	0	84.4	40-140	0			
Benzo(k)fluoranthene	1058	42	1333	0	79.3	40-140	0			
Chrysene	1122	42	1333	0	84.1	40-140	0			
Dibenzo(a,h)anthracene	1589	42	1333	0	119	40-140	0			
Fluoranthene	1039	42	1333	0	78	40-140	0			
Fluorene	1314	42	1333	0	98.6	40-140	0			
Indeno(1,2,3-cd)pyrene	1514	42	1333	0	114	40-140	0			
Naphthalene	1147	42	1333	0	86	40-140	0			
Pyrene	1152	42	1333	0	86.5	40-140	0			
<i>Surr: 2-Fluorobiphenyl</i>	2512	0	3333	0	75.4	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	3329	0	3333	0	99.9	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	4492	0	3333	0	135	28-140	0			

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111260**      Instrument ID: **SVMS6**      Method: **SW846 8270D**

MS				Sample ID: 17111856-02B MS			Units: µg/Kg		Analysis Date: 12/4/2017 04:59 PM		
Client ID:			Run ID: SVMS6_171204A			SeqNo: 4793598		Prep Date: 12/4/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1252	42	1329	0	94.2	40-140	0				
Anthracene	1657	42	1329	0	125	40-140	0				
Benzo(a)anthracene	1885	42	1329	86.37	135	40-140	0				
Benzo(a)pyrene	1764	42	1329	53.61	129	40-140	0				
Benzo(b)fluoranthene	1719	42	1329	176.4	116	40-140	0				
Benzo(k)fluoranthene	1400	42	1329	0	105	40-140	0				
Chrysene	1547	42	1329	66.74	111	40-140	0				
Dibenzo(a,h)anthracene	1576	42	1329	0	119	40-140	0				
Fluoranthene	2095	42	1329	138.1	147	40-140	0			S	
Fluorene	1581	42	1329	0	119	40-140	0				
Indeno(1,2,3-cd)pyrene	1550	42	1329	0	117	40-140	0				
Naphthalene	1296	42	1329	0	97.5	40-140	0				
Pyrene	2359	42	1329	115.7	169	40-140	0			S	
Surr: 2-Fluorobiphenyl	2673	0	3323	0	80.4	20-140	0				
Surr: 4-Terphenyl-d14	3427	0	3323	0	103	22-172	0				
Surr: Nitrobenzene-d5	4564	0	3323	0	137	28-140	0				

MSD				Sample ID: 17111856-02B MSD			Units: µg/Kg		Analysis Date: 12/4/2017 05:12 PM		
Client ID:			Run ID: SVMS6_171204A			SeqNo: 4793599		Prep Date: 12/4/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1069	41	1315	0	81.3	40-140	1252	15.8	30		
Anthracene	1208	41	1315	0	91.9	40-140	1657	31.3	30	R	
Benzo(a)anthracene	1488	41	1315	86.37	107	40-140	1885	23.5	30		
Benzo(a)pyrene	1596	41	1315	53.61	117	40-140	1764	10	30		
Benzo(b)fluoranthene	1331	41	1315	176.4	87.9	40-140	1719	25.4	30		
Benzo(k)fluoranthene	1304	41	1315	0	99.2	40-140	1400	7.14	30		
Chrysene	1186	41	1315	66.74	85.1	40-140	1547	26.5	30		
Dibenzo(a,h)anthracene	1161	41	1315	0	88.3	40-140	1576	30.3	30	R	
Fluoranthene	1211	41	1315	138.1	81.6	40-140	2095	53.5	30	R	
Fluorene	1284	41	1315	0	97.7	40-140	1581	20.8	30		
Indeno(1,2,3-cd)pyrene	1453	41	1315	0	111	40-140	1550	6.48	30		
Naphthalene	1178	41	1315	0	89.6	40-140	1296	9.55	30		
Pyrene	1363	41	1315	115.7	94.9	40-140	2359	53.5	30	R	
Surr: 2-Fluorobiphenyl	2822	0	3287	0	85.8	20-140	2673	5.43	0		
Surr: 4-Terphenyl-d14	3556	0	3287	0	108	22-172	3427	3.69	0		
Surr: Nitrobenzene-d5	4474	0	3287	0	136	28-140	4564	1.99	0		

The following samples were analyzed in this batch:

17111880-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111248** Instrument ID **VMS10** Method: **SW8260B**

Sample ID: <b>MBLK-111248-111248</b>				Units: <b>µg/Kg-dry</b>			Analysis Date: <b>12/1/2017 12:37 PM</b>			
Client ID:		Run ID: <b>VMS10_171201A</b>			SeqNo: <b>4790028</b>		Prep Date: <b>12/1/2017</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>986</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>98.6</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>943.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>94.4</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Dibromofluoromethane</i>	<i>964.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>96.4</i>	<i>70-130</i>	<i>0</i>			
<i>Surr: Toluene-d8</i>	<i>954.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>95.4</i>	<i>70-130</i>	<i>0</i>			

LCS				Sample ID: LCS-111248-111248			Units: µg/Kg-dry		Analysis Date: 12/1/2017 11:51 AM		
Client ID:			Run ID: VMS10_171201A			SeqNo: 4790027		Prep Date: 12/1/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1075	30	1000	0	108	75-125	0				
Ethylbenzene	932	30	1000	0	93.2	75-125	0				
m,p-Xylene	1853	60	2000	0	92.6	80-125	0				
o-Xylene	905	30	1000	0	90.5	75-125	0				
Toluene	1062	30	1000	0	106	70-125	0				
Xylenes, Total	2758	90	3000	0	91.9	75-125	0				
Surr: 1,2-Dichloroethane-d4	935.5	0	1000	0	93.6	70-130	0				
Surr: 4-Bromofluorobenzene	1002	0	1000	0	100	70-130	0				
Surr: Dibromofluoromethane	997	0	1000	0	99.7	70-130	0				
Surr: Toluene-d8	993	0	1000	0	99.3	70-130	0				

MS				Sample ID: 17111880-01B MS				Units: µg/Kg-dry		Analysis Date: 12/1/2017 07:41 PM	
Client ID: 20171128-Divide Rd (MW-06) @42-43.5'			Run ID: VMS10_171201A		SeqNo: 4789165		Prep Date: 12/1/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1605	42	1410	0	114	75-125	0				
Ethylbenzene	1402	42	1410	0	99.4	75-125	0				
m,p-Xylene	2754	85	2819	0	97.7	80-125	0				
o-Xylene	1393	42	1410	0	98.8	75-125	0				
Toluene	1586	42	1410	0	112	70-125	0				
Xylenes, Total	4147	130	4229	0	98.1	75-125	0				
Surr: 1,2-Dichloroethane-d4	1277	0	1410	0	90.6	70-130	0				
Surr: 4-Bromofluorobenzene	1508	0	1410	0	107	70-130	0				
Surr: Dibromofluoromethane	1295	0	1410	0	91.8	70-130	0				
Surr: Toluene-d8	1390	0	1410	0	98.6	70-130	0				

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111248** Instrument ID **VMS10** Method: **SW8260B**

MSD				Sample ID: 17111880-01B MSD			Units: µg/Kg-dry		Analysis Date: 12/1/2017 07:57 PM	
Client ID: 20171128-Divide Rd (MW-06) @42-43.5'				Run ID: VMS10_171201A			SeqNo: 4789166		Prep Date: 12/1/2017	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1615	42	1410	0	115	75-125	1605	0.613	30	
Ethylbenzene	1421	42	1410	0	101	75-125	1402	1.35	30	
m,p-Xylene	2788	85	2819	0	98.9	80-125	2754	1.22	30	
o-Xylene	1393	42	1410	0	98.8	75-125	1393	0	30	
Toluene	1603	42	1410	0	114	70-125	1586	1.06	30	
Xylenes, Total	4181	130	4229	0	98.9	75-125	4147	0.812	30	
Surr: 1,2-Dichloroethane-d4	1281	0	1410	0	90.9	70-130	1277	0.331	30	
Surr: 4-Bromofluorobenzene	1504	0	1410	0	107	70-130	1508	0.234	30	
Surr: Dibromofluoromethane	1280	0	1410	0	90.8	70-130	1295	1.15	30	
Surr: Toluene-d8	1398	0	1410	0	99.2	70-130	1390	0.556	30	

The following samples were analyzed in this batch:

17111880-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111275** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-111275-111275				Units: s.u.			Analysis Date: 12/1/2017 04:30 PM			
Client ID:				Run ID: WETCHEM_171201P				SeqNo: 4788724			Prep Date: 12/1/2017		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		3.94	0.10	4	0	98.5	90-110	0						

DUP					Sample ID: 17111777-02A DUP					Units: s.u.			Analysis Date: 12/1/2017 04:30 PM				
Client ID:					Run ID: WETCHEM_171201P					SeqNo: 4788728			Prep Date: 12/1/2017			DF: 1	
Analyte					Result	PQL	SPK Val	SPK Ref Value	%REC		Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
pH					10.47	0.10	0	0	0		0-0	10.45	0.191	20			

The following samples were analyzed in this batch:

17111880-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111401** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-111401-111401</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795293</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-111401-111401</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795294</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.2 1.0 5 0 84 80-120 0

<b>MS</b>		Sample ID: <b>17111791-01B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795296</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 5.05 1.0 5 0.16 97.8 75-125 0

<b>MS</b>		Sample ID: <b>17111791-01B MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795298</b>		Prep Date: <b>12/5/2017</b>		DF: <b>100</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1973 100 1818 0.16 109 75-125 0

<b>MSD</b>		Sample ID: <b>17111791-01B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/6/2017 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171206F</b>		SeqNo: <b>4795297</b>		Prep Date: <b>12/5/2017</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 5.05 1.0 5 0.16 97.8 75-125 5.05 0 20

The following samples were analyzed in this batch:

17111880-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **111452** Instrument ID **Titration 1** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1712107-01C DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>12/7/2017 12:06 PM</b>		
Client ID:		Run ID: <b>TITRATOR 1_171207A</b>			SeqNo: <b>4798360</b>		Prep Date: <b>12/6/2017</b>		DF: <b>20</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	2.063	0.10	0	0	0		1.938	6.29	50	

The following samples were analyzed in this batch:

17111880-01A

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 17111880  
**Project:** Divide Rd Pipeline Release

## QC BATCH REPORT

Batch ID: **R225854** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R225854					Units: % of sample		Analysis Date: 12/5/2017 12:35 PM	
Client ID:			Run ID: MOIST_171205A			SeqNo: 4794682		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R225854					Units: % of sample		Analysis Date: 12/5/2017 12:35 PM		
Client ID:			Run ID: MOIST_171205A			SeqNo: 4794681		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 99.99 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 17111885-09A DUP					Units: % of sample		Analysis Date: 12/5/2017 12:35 PM		
Client ID:			Run ID: MOIST_171205A			SeqNo: 4794669		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 18.03 0.050 0 0 0 0-0 17.45 3.27 5

DUP		Sample ID: 1712128-01A DUP				Units: % of sample		Analysis Date: 12/5/2017 12:35 PM		
Client ID:		Run ID: MOIST_171205A			SeqNo: 4794679		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 28.03 0.050 0 0 0 0-0 25.01 11.4 5 R

The following samples were analyzed in this batch:

17111880-01B

**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.

COC number (for client tracking)

17111880  
Page 1 of

[illegible]

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: [als@als.hk](mailto:als@als.hk)

✓ Analyze for BTEX & TPH first

SP-2/4.4



Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **30-Nov-17 09:30**

Work Order: **17111880**

Received by: **NCF**

Checklist completed by Nicole Fredericks  
eSignature

30-Nov-17  
Date

Reviewed by: Chad Whelton  
eSignature

30-Nov-17  
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.4/4.4</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/30/2017 3:30:35 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: