



01-Jul-2019

Jake Janicek  
Caerus Oil and Gas LLC  
143 Diamond Ave.  
Parachute, CO 81635

Re: **P27 Flowline**

Work Order: **19061789**

Dear Jake,

ALS Environmental received 1 sample on 26-Jun-2019 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland 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:

ADDRESS: 3352 128th Avenue, Holland, MI, USA  
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager

## Report of Laboratory Analysis

Certificate No: MN 026-999-449

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Environmental 

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**Client:** Caerus Oil and Gas LLC  
**Project:** P27 Flowline  
**Work Order:** 19061789

**Work Order Sample Summary**

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<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>
19061789-01	20190625-P27-SKID@8'	Soil		6/25/2019 14:36	6/26/2019 10:00	<input type="checkbox"/>

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**Client:** Caerus Oil and Gas LLC**Project:** P27 Flowline**Work Order:** 19061789**Case Narrative**

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BTEX analysis performed by ALS Fort Collins laboratory.

Batch 138292, Method GRO\_8015\_S, Sample 19061789-01B: GRO surrogate recovery high due to matrix interference.

<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
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
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
°C	Degrees Celcius
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: 01-Jul-19

**Client:** Caerus Oil and Gas LLC  
**Project:** P27 Flowline  
**Sample ID:** 20190625-P27-SKID@8'  
**Collection Date:** 6/25/2019 02:36 PM

**Work Order:** 19061789  
**Lab ID:** 19061789-01  
**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 / 6/27/19	Analyst: <b>KB</b>
<b>DRO (C10-C28)</b>	<b>580</b>		<b>15</b>	<b>27</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/28/2019 11:51
Surr: 4-Terphenyl-d14	106			34-130	%REC	1	6/28/2019 11:51
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>			Prep: SW5035 / 6/26/19	Analyst: <b>KB</b>
<b>GRO (C6-C10)</b>	<b>310</b>		<b>2.5</b>	<b>6.1</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 01:09
Surr: Toluene-d8	130	S		71-123	%REC	1	6/27/2019 01:09
<b>MERCURY BY CVAA</b>							
			Method: <b>SW7471B</b>			Prep: SW7471 / 6/28/19	Analyst: <b>RSB</b>
<b>Mercury</b>	<b>0.019</b>	J	<b>0.0021</b>	<b>0.021</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/28/2019 15:15
<b>METALS BY ICP-MS</b>							
			Method: <b>SW6020A</b>			Prep: SW3050B / 6/26/19	Analyst: <b>STP</b>
<b>Arsenic</b>	<b>23</b>		<b>0.051</b>	<b>0.43</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Barium</b>	<b>470</b>		<b>3.9</b>	<b>4.3</b>	<b>mg/Kg-dry</b>	<b>10</b>	6/28/2019 13:51
<b>Boron</b>	<b>16</b>		<b>1.6</b>	<b>1.7</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Cadmium</b>	<b>0.31</b>		<b>0.026</b>	<b>0.17</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Chromium</b>	<b>19</b>		<b>0.19</b>	<b>0.43</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Copper</b>	<b>20</b>		<b>0.43</b>	<b>0.43</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Lead</b>	<b>18</b>		<b>0.21</b>	<b>0.43</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Nickel</b>	<b>14</b>		<b>0.22</b>	<b>0.43</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Selenium</b>	<b>0.46</b>		<b>0.39</b>	<b>0.43</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Silver</b>	<b>0.067</b>	J	<b>0.056</b>	<b>0.43</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>Zinc</b>	<b>51</b>		<b>0.84</b>	<b>0.85</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/27/2019 23:40
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>			Prep: USDA Method 20B / 6/28/19	Analyst: <b>STP</b>
<b>Calcium</b>	<b>9.3</b>		<b>0.86</b>	<b>5.0</b>	<b>mg/L</b>	<b>10</b>	6/28/2019 15:06
<b>Magnesium</b>	<b>2.4</b>		<b>0.068</b>	<b>2.0</b>	<b>mg/L</b>	<b>10</b>	6/28/2019 15:06
<b>Sodium</b>	<b>180</b>		<b>0.34</b>	<b>2.0</b>	<b>mg/L</b>	<b>10</b>	6/28/2019 15:06
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>			Prep: USDA Method 20B / 6/28/19	Analyst: <b>STP</b>
<b>Sodium Adsorption Ratio</b>	<b>14</b>		<b>0.010</b>	<b>0.010</b>	<b>none</b>	<b>1</b>	6/28/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: <b>SW846 8270D</b>			Prep: SW3546 / 6/27/19	Analyst: <b>EEW</b>
Acenaphthene	U		0.0043	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Anthracene	U		0.0075	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Benzo(a)anthracene	U		0.0092	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Benzo(a)pyrene	U		0.0061	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Benzo(b)fluoranthene	U		0.0053	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Benzo(k)fluoranthene	U		0.0065	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Chrysene	U		0.0046	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Dibenzo(a,h)anthracene	U		0.0052	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51

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

# ALS Group, USA

Date: 01-Jul-19

**Client:** Caerus Oil and Gas LLC  
**Project:** P27 Flowline  
**Sample ID:** 20190625-P27-SKID@8'  
**Collection Date:** 6/25/2019 02:36 PM

**Work Order:** 19061789  
**Lab ID:** 19061789-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		0.0041	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
<b>Fluorene</b>	<b>0.11</b>		<b>0.0073</b>	<b>0.022</b>	<b>mg/Kg-dry-dry</b>	1	6/28/2019 12:51
Indeno(1,2,3-cd)pyrene	U		0.0080	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
<b>Naphthalene</b>	<b>0.32</b>		<b>0.0097</b>	<b>0.022</b>	<b>mg/Kg-dry-dry</b>	1	6/28/2019 12:51
Pyrene	U		0.0037	0.022	mg/Kg-dry-dry	1	6/28/2019 12:51
Surr: 2-Fluorobiphenyl	89.6			20-140	%REC	1	6/28/2019 12:51
Surr: 4-Terphenyl-d14	109			22-172	%REC	1	6/28/2019 12:51
Surr: Nitrobenzene-d5	87.5			28-140	%REC	1	6/28/2019 12:51
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>				Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	<b>0.69</b>		<b>0.011</b>	<b>0.10</b>	mmhos/cm @25°	20	6/28/2019 15:15
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
Chromium, Trivalent	<b>19</b>		<b>0.36</b>	<b>1.2</b>	mg/Kg-dry	1	7/1/2019 09:19
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>				Analyst: <b>RZM</b>
Chromium, Hexavalent	U		0.98	1.2	mg/Kg-dry	1	6/27/2019 14:39
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
Moisture	<b>13</b>		<b>0.10</b>	<b>0.10</b>	% of sample	1	6/27/2019 13:53
<b>PH</b>			Method: <b>SW9045D</b>				Analyst: <b>DNW</b>
pH	<b>9.19</b>		<b>0.10</b>	<b>0.100</b>	s.u.	1	6/27/2019 12:30
Temperature	<b>21.1</b>		<b>0.10</b>	<b>0.100</b>	°C	1	6/27/2019 12:30
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260</b>				Analyst: <b>ALS</b>
Benzene	U		0.017	0.058	mg/Kg-dry-dry	1	6/27/2019
Ethylbenzene	U		0.017	0.058	mg/Kg-dry-dry	1	6/27/2019
<b>m,p-Xylene</b>	<b>0.78</b>		<b>0.017</b>	<b>0.058</b>	<b>mg/Kg-dry-dry</b>	1	6/27/2019
<b>o-Xylene</b>	<b>0.57</b>		<b>0.017</b>	<b>0.058</b>	<b>mg/Kg-dry-dry</b>	1	6/27/2019
<b>Toluene</b>	<b>0.031</b>	J	<b>0.017</b>	<b>0.058</b>	<b>mg/Kg-dry-dry</b>	1	6/27/2019
<b>Xylenes, Total</b>	<b>1.4</b>		<b>0.041</b>	<b>0.10</b>	<b>mg/Kg-dry-dry</b>	1	6/27/2019
Surr: 4-Bromofluorobenzene	85.6			52-151	%REC	1	6/27/2019
Surr: Dibromofluoromethane	82.4			61-134	%REC	1	6/27/2019
Surr: Toluene-d8	103			57-135	%REC	1	6/27/2019

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

**QC BATCH REPORT**

Batch ID: **138363** Instrument ID **GC8** Method: **SW8015C**

<b>MBLK</b>		Sample ID: <b>DBLKS1-138363-138363</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/28/2019 09:26 AM</b>		
Client ID:		Run ID: <b>GC8_190628A</b>				SeqNo: <b>5749750</b>		Prep Date: <b>6/27/2019</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* 3.567 0 3.33 0 107 34-130 0

<b>LCS</b>		Sample ID: <b>DLCSS1-138363-138363</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/28/2019 09:55 AM</b>		
Client ID:		Run ID: <b>GC8_190628A</b>				SeqNo: <b>5749751</b>		Prep Date: <b>6/27/2019</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) 375.5 5.0 333 0 113 65-122 0  
*Surr: 4-Terphenyl-d14* 3.317 0 3.33 0 99.6 34-130 0

<b>MS</b>		Sample ID: <b>19061786-01B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/28/2019 10:53 AM</b>		
Client ID:		Run ID: <b>GC8_190628A</b>				SeqNo: <b>5749754</b>		Prep Date: <b>6/27/2019</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) 415.3 4.8 321.2 45.39 115 65-122 0  
*Surr: 4-Terphenyl-d14* 3.054 0 3.212 0 95.1 34-130 0

<b>MSD</b>		Sample ID: <b>19061786-01B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/28/2019 11:22 AM</b>		
Client ID:		Run ID: <b>GC8_190628A</b>				SeqNo: <b>5749755</b>		Prep Date: <b>6/27/2019</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) 427.6 4.8 318 45.39 120 65-122 415.3 2.93 30  
*Surr: 4-Terphenyl-d14* 3.008 0 3.18 0 94.6 34-130 3.054 1.52 30

The following samples were analyzed in this batch:

19061789-01B

Client: Caerus Oil and Gas LLC  
 Work Order: 19061789  
 Project: P27 Flowline

# QC BATCH REPORT

Batch ID: **138292** Instrument ID **GC9** Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-138292-138292</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/26/2019 06:18 PM</b>		
Client ID:		Run ID: <b>GC9_190626A</b>				SeqNo: <b>5743948</b>		Prep Date: <b>6/26/2019</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	5210	0	5000	0	104	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-138292-138292</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/26/2019 05:48 PM</b>		
Client ID:		Run ID: <b>GC9_190626A</b>				SeqNo: <b>5743946</b>		Prep Date: <b>6/26/2019</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)	443300	5,000	500000	0	88.7	71-123	0			
Surr: Toluene-d8	5804	0	5000	0	116	71-123	0			

<b>MS</b>		Sample ID: <b>19061813-01A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/27/2019 04:05 AM</b>		
Client ID:		Run ID: <b>GC9_190626A</b>				SeqNo: <b>5743966</b>		Prep Date: <b>6/26/2019</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)	466300	4,600	459100	0	102	71-123	0			
Surr: Toluene-d8	5396	0	4591	0	118	71-123	0			

<b>MSD</b>		Sample ID: <b>19061813-01A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/27/2019 04:34 AM</b>		
Client ID:		Run ID: <b>GC9_190626A</b>				SeqNo: <b>5743967</b>		Prep Date: <b>6/26/2019</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)	497900	5,100	513900	0	96.9	71-123	466300	6.55	30	
Surr: Toluene-d8	5820	0	5139	0	113	71-123	5396	7.56	30	

The following samples were analyzed in this batch:

19061789-01B

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **138443** Instrument ID **HG4** Method: **SW7471B**

MBLK		Sample ID: MBLK-138443-138443				Units: mg/Kg		Analysis Date: 6/28/2019 02:27 PM		
Client ID:		Run ID: HG4_190628A				SeqNo: 5750059		Prep Date: 6/28/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-138443-138443				Units: mg/Kg		Analysis Date: 6/28/2019 02:30 PM		
Client ID:		Run ID: HG4_190628A			SeqNo: 5750060		Prep Date: 6/28/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1683 0.020 0.1665 0 101 80-120 0

MS		Sample ID: 19061106-20AMS				Units: mg/Kg		Analysis Date: 6/28/2019 02:49 PM		
Client ID:			Run ID: HG4_190628A			SeqNo: 5750068		Prep Date: 6/28/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.131 0.015 0.1279 0.002756 100 75-125 0

MSD		Sample ID: 19061106-20AMSD				Units: mg/Kg		Analysis Date: 6/28/2019 02:51 PM		
Client ID:		Run ID: HG4_190628A			SeqNo: 5750069		Prep Date: 6/28/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1309 0.015 0.1266 0.002756 101 75-125 0.131 0.0948 35

The following samples were analyzed in this batch:

19061789-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **138268** Instrument ID **ICPMS3** Method: **SW6020A**

<b>MBLK</b>		Sample ID: <b>MBLK-138268-138268</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 10:55 PM</b>		
Client ID:		Run ID: <b>ICPMS3_190627B</b>				SeqNo: <b>5748160</b>		Prep Date: <b>6/26/2019</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								
Boron	U	1.0								
Cadmium	U	0.10								
Chromium	U	0.25								
Copper	U	0.25								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.25								
Silver	U	0.25								
Zinc	U	0.50								

<b>LCS</b>		Sample ID: <b>LCS-138268-138268</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 10:57 PM</b>		
Client ID:		Run ID: <b>ICPMS3_190627B</b>				SeqNo: <b>5748161</b>		Prep Date: <b>6/26/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.014	0.25	5	0	100	80-120	0			
Barium	5.231	0.25	5	0	105	80-120	0			
Boron	26.25	1.0	25	0	105	80-120	0			
Cadmium	4.978	0.10	5	0	99.6	80-120	0			
Chromium	5.098	0.25	5	0	102	80-120	0			
Copper	5.158	0.25	5	0	103	80-120	0			
Lead	5.128	0.25	5	0	103	80-120	0			
Nickel	5.183	0.25	5	0	104	80-120	0			
Selenium	4.912	0.25	5	0	98.2	80-120	0			
Silver	5.151	0.25	5	0	103	80-120	0			
Zinc	5.076	0.50	5	0	102	80-120	0			

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

# QC BATCH REPORT

Batch ID: **138268** Instrument ID **ICPMS3** Method: **SW6020A**

MS				Sample ID: 19061813-08AMS			Units: mg/Kg		Analysis Date: 6/28/2019 12:11 AM		
Client ID:			Run ID: ICPMS3_190627B			SeqNo: 5748204		Prep Date: 6/26/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	7.133	0.33	6.631	2.018	77.1	75-125	0				
Boron	38.46	1.3	33.16	4.374	103	75-125	0				
Cadmium	5.307	0.13	6.631	0.1727	77.4	75-125	0				
Chromium	14.85	0.33	6.631	8.654	93.4	75-125	0				
Copper	14.11	0.33	6.631	9.392	71.2	75-125	0			S	
Lead	17.19	0.33	6.631	10.12	107	75-125	0				
Nickel	17.33	0.33	6.631	10.21	107	75-125	0				
Selenium	5.143	0.33	6.631	0.2571	73.7	75-125	0			S	
Silver	4.948	0.33	6.631	0.03975	74	75-125	0			S	
Zinc	35.82	0.66	6.631	28.69	107	75-125	0			O	

MS	Sample ID: 19061813-08AMS					Units: mg/Kg		Analysis Date: 6/28/2019 02:09 PM			
	Client ID:			Run ID: ICPMS3_190628B		SeqNo: 5749616		Prep Date: 6/26/2019		DF: 10	
	Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
	Barium	166.4	3.3	6.631	158.5	118	75-125	0			O

MSD				Sample ID: 19061813-08AMSD			Units: mg/Kg		Analysis Date: 6/28/2019 12:13 AM		
Client ID:			Run ID: ICPMS3_190627B			SeqNo: 5748205		Prep Date: 6/26/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	6.871	0.33	6.588	2.018	73.7	75-125	7.133	3.75	20	S	
Boron	39.19	1.3	32.94	4.374	106	75-125	38.46	1.88	20		
Cadmium	5.312	0.13	6.588	0.1727	78	75-125	5.307	0.0946	20		
Chromium	14.37	0.33	6.588	8.654	86.8	75-125	14.85	3.25	20		
Copper	13.66	0.33	6.588	9.392	64.7	75-125	14.11	3.27	20	S	
Lead	16.72	0.33	6.588	10.12	100	75-125	17.19	2.77	20		
Nickel	14.9	0.33	6.588	10.21	71.3	75-125	17.33	15.1	20	S	
Selenium	4.924	0.33	6.588	0.2571	70.8	75-125	5.143	4.35	20	S	
Silver	5.011	0.33	6.588	0.03975	75.5	75-125	4.948	1.28	20		
Zinc	35.17	0.66	6.588	28.69	98.4	75-125	35.82	1.83	20	O	

MSD				Sample ID: 19061813-08AMSD				Units: mg/Kg			Analysis Date: 6/28/2019 02:10 PM			
Client ID:				Run ID: ICPMS3_190628B				SeqNo: 5749618			Prep Date: 6/26/2019		DF: 10	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Barium		166.4	3.3	6.588	158.5	120	75-125	166.4	0.032	20	O			

The following samples were analyzed in this batch:

19061789-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **138438** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>19061813-02ADUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>6/28/2019 03:18 PM</b>		
Client ID:		Run ID: <b>ICPMS3_190628A</b>				SeqNo: <b>5749903</b>		Prep Date: <b>6/28/2019</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	30.55	5.0	0	0	0	0-0	33.47	9.12		
Magnesium	6.21	2.0	0	0	0	0-0	6.54	5.18		
Sodium	24.79	2.0	0	0	0	0-0	19.27	25		

The following samples were analyzed in this batch:

19061789-01B

Batch ID: **138438** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>19061813-02ADUP</b>				Units: <b>none</b>		Analysis Date: <b>6/28/2019</b>		
Client ID:		Run ID: <b>SAR_190628A</b>				SeqNo: <b>5748703</b>		Prep Date: <b>6/28/2019</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	1.069	0.010	0	0	0		0.7978	29	50	

The following samples were analyzed in this batch:

19061789-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **138362**      Instrument ID **SVMS6**      Method: **SW846 8270D**

MBLK		Sample ID: <b>PBLKS1-138362-138362</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>6/28/2019 11:13 AM</b>		
Client ID:		Run ID: <b>SVMS6_190628A</b>				SeqNo: <b>5749870</b>		Prep Date: <b>6/27/2019</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	4.2								
Anthracene	U	4.2								
Benzo(a)anthracene	U	4.2								
Benzo(a)pyrene	U	4.2								
Benzo(b)fluoranthene	U	4.2								
Benzo(k)fluoranthene	U	4.2								
Chrysene	U	4.2								
Dibenzo(a,h)anthracene	U	4.2								
Fluoranthene	U	4.2								
Fluorene	U	4.2								
Indeno(1,2,3-cd)pyrene	U	4.2								
Naphthalene	U	4.2								
Pyrene	U	4.2								
<i>Surr: 2-Fluorobiphenyl</i>	3172	0	3333	0	95.2	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	4237	0	3333	0	127	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	3024	0	3333	0	90.7	28-140	0			

LCS		Sample ID: <b>PLCSS1-138362-138362</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>6/28/2019 11:28 AM</b>		
Client ID:		Run ID: <b>SVMS6_190628A</b>				SeqNo: <b>5749871</b>		Prep Date: <b>6/27/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1248	4.2	1333	0	93.6	40-140	0			
Anthracene	1769	4.2	1333	0	133	40-140	0			
Benzo(a)anthracene	1499	4.2	1333	0	112	40-140	0			
Benzo(a)pyrene	1498	4.2	1333	0	112	40-140	0			
Benzo(b)fluoranthene	1425	4.2	1333	0	107	40-140	0			
Benzo(k)fluoranthene	1369	4.2	1333	0	103	40-140	0			
Chrysene	1396	4.2	1333	0	105	40-140	0			
Dibenzo(a,h)anthracene	1382	4.2	1333	0	104	40-140	0			
Fluoranthene	1267	4.2	1333	0	95.1	40-140	0			
Fluorene	1213	4.2	1333	0	91	40-140	0			
Indeno(1,2,3-cd)pyrene	1429	4.2	1333	0	107	40-140	0			
Naphthalene	1339	4.2	1333	0	100	40-140	0			
Pyrene	1447	4.2	1333	0	109	40-140	0			
<i>Surr: 2-Fluorobiphenyl</i>	3233	0	3333	0	97	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	3967	0	3333	0	119	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	3298	0	3333	0	99	28-140	0			

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

Client: Caerus Oil and Gas LLC  
 Work Order: 19061789  
 Project: P27 Flowline

# QC BATCH REPORT

Batch ID: 138362 Instrument ID SVMS6 Method: SW846 8270D

MS				Sample ID: 19061710-02A MS			Units: µg/Kg		Analysis Date: 6/28/2019 11:49 AM		
Client ID:			Run ID: SVMS6_190628A			SeqNo: 5749872		Prep Date: 6/27/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1039	3.9	1260	20.24	80.8	40-140	0				
Anthracene	1488	3.9	1260	38.56	115	40-140	0				
Benzo(a)anthracene	1132	3.9	1260	9.283	89	40-140	0				
Benzo(a)pyrene	1043	3.9	1260	8.992	82.1	40-140	0				
Benzo(b)fluoranthene	1008	3.9	1260	17.66	78.5	40-140	0				
Benzo(k)fluoranthene	933.4	3.9	1260	3.807	73.7	40-140	0				
Chrysene	1054	3.9	1260	42.72	80.2	40-140	0				
Dibenzo(a,h)anthracene	1070	3.9	1260	10.55	84	40-140	0				
Fluoranthene	940	3.9	1260	15.23	73.4	40-140	0				
Fluorene	1057	3.9	1260	144.9	72.4	40-140	0				
Indeno(1,2,3-cd)pyrene	1141	3.9	1260	9.024	89.8	40-140	0				
Naphthalene	1570	3.9	1260	582.5	78.3	40-140	0				
Pyrene	987.3	3.9	1260	59.57	73.6	40-140	0				
Surr: 2-Fluorobiphenyl	3093	0	3152	0	98.2	20-140	0				
Surr: 4-Terphenyl-d14	2817	0	3152	0	89.4	22-172	0				
Surr: Nitrobenzene-d5	2949	0	3152	0	93.6	28-140	0				

MSD				Sample ID: 19061710-02A MSD			Units: µg/Kg		Analysis Date: 6/28/2019 12:04 PM		
Client ID:			Run ID: SVMS6_190628A			SeqNo: 5749873		Prep Date: 6/27/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1036	4.1	1324	20.24	76.7	40-140	1039	0.32	30		
Anthracene	1540	4.1	1324	38.56	113	40-140	1488	3.38	30		
Benzo(a)anthracene	1187	4.1	1324	9.283	88.9	40-140	1132	4.79	30		
Benzo(a)pyrene	1071	4.1	1324	8.992	80.2	40-140	1043	2.6	30		
Benzo(b)fluoranthene	1055	4.1	1324	17.66	78.3	40-140	1008	4.59	30		
Benzo(k)fluoranthene	943.6	4.1	1324	3.807	71	40-140	933.4	1.09	30		
Chrysene	1070	4.1	1324	42.72	77.6	40-140	1054	1.48	30		
Dibenzo(a,h)anthracene	1095	4.1	1324	10.55	81.9	40-140	1070	2.34	30		
Fluoranthene	1001	4.1	1324	15.23	74.4	40-140	940	6.28	30		
Fluorene	1079	4.1	1324	144.9	70.5	40-140	1057	2.01	30		
Indeno(1,2,3-cd)pyrene	1189	4.1	1324	9.024	89.1	40-140	1141	4.13	30		
Naphthalene	1530	4.1	1324	582.5	71.5	40-140	1570	2.55	30		
Pyrene	1001	4.1	1324	59.57	71.1	40-140	987.3	1.42	30		
Surr: 2-Fluorobiphenyl	2973	0	3312	0	89.8	20-140	3093	3.97	0		
Surr: 4-Terphenyl-d14	2812	0	3312	0	84.9	22-172	2817	0.194	0		
Surr: Nitrobenzene-d5	2769	0	3312	0	83.6	28-140	2949	6.3	0		

The following samples were analyzed in this batch:

19061789-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **138317** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-138317-138317				Units: s.u.		Analysis Date: 6/27/2019 12:30 PM		
Client ID:		Run ID: WETCHEM_190627F				SeqNo: 5745605		Prep Date: 6/27/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	3.99	0.10	4	0	99.8	90-110	0			
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DUP		Sample ID: 19061710-01A DUP				Units: s.u.		Analysis Date: 6/27/2019 12:30 PM		
Client ID:		Run ID: WETCHEM_190627F				SeqNo: 5745611		Prep Date: 6/27/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	9.1	0.10	0	0	0	0-0	9.11	0.11	20	
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Temperature	20.8	0.10	0	0	0		20.9	0.48		
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DUP		Sample ID: 19061813-01A DUP				Units: s.u.		Analysis Date: 6/27/2019 12:30 PM		
Client ID:		Run ID: WETCHEM_190627F			SeqNo: 5745620		Prep Date: 6/27/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	8.89	0.10	0	0	0	0-0	8.85	0.451	20	
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Temperature	20.7	0.10	0	0	0		20.6	0.484		
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The following samples were analyzed in this batch:

19061789-01B
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**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

# QC BATCH REPORT

Batch ID: **138342** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-138342-138342</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 02:39 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190627J</b>		SeqNo: <b>5746344</b>		Prep Date: <b>6/27/2019</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-138342-138342</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 02:39 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190627J</b>		SeqNo: <b>5746345</b>		Prep Date: <b>6/27/2019</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 4.28 1.0 5 0 85.6 80-120 0

<b>MS</b>		Sample ID: <b>19061792-01B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 02:39 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190627J</b>		SeqNo: <b>5746349</b>		Prep Date: <b>6/27/2019</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 1.069 0.98 4.902 0.42 13.2 75-125 0 S

<b>MS</b>		Sample ID: <b>19061792-01B MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 02:39 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190627J</b>		SeqNo: <b>5746351</b>		Prep Date: <b>6/27/2019</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 1535 100 1673 0.42 91.7 75-125 0

<b>MS</b>		Sample ID: <b>19061813-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 02:39 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190627J</b>		SeqNo: <b>5746358</b>		Prep Date: <b>6/27/2019</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 4.67 1.0 5 0.04 92.6 75-125 0

<b>MS</b>		Sample ID: <b>19061813-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 02:39 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190627J</b>		SeqNo: <b>5746360</b>		Prep Date: <b>6/27/2019</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 2088 100 2124 0.04 98.3 75-125 0

<b>MSD</b>		Sample ID: <b>19061792-01B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>6/27/2019 02:39 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190627J</b>		SeqNo: <b>5746350</b>		Prep Date: <b>6/27/2019</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 5 0.42 -8.4 75-125 1.069 0 20 S

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



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **138342** Instrument ID **WETCHEM** Method: **SW7196A**

MSD		Sample ID: 19061813-01A MSD				Units: mg/Kg		Analysis Date: 6/27/2019 02:39 PM		
Client ID:		Run ID: WETCHEM_190627J			SeqNo: 5746359		Prep Date: 6/27/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.8	1.0	5	0.04	95.2	75-125	4.67	2.75	20	

The following samples were analyzed in this batch:

19061789-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **138438** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>19061813-02A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>6/28/2019 03:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_190628M</b>				SeqNo: <b>5750121</b>		Prep Date: <b>6/28/2019</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	0.313	0.10	0	0	0		0.3122	0.256	50	

The following samples were analyzed in this batch:

19061789-01B

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

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 19061789  
**Project:** P27 Flowline

## QC BATCH REPORT

Batch ID: **R263741**      Instrument ID **MOIST**      Method: **SW3550C**

MBLK		Sample ID: WBLKS-R263741				Units: % of sample		Analysis Date: 6/27/2019 01:53 PM		
Client ID:		Run ID: MOIST_190627B				SeqNo: 5748582		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture      U      0.10

LCS		Sample ID: LCS-R263741				Units: % of sample		Analysis Date: 6/27/2019 01:53 PM		
Client ID:		Run ID: MOIST_190627B				SeqNo: 5748581		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture      100      0.10      100      0      100      98-102      0

DUP				Sample ID: 19061848-03A DUP				Units: % of sample			Analysis Date: 6/27/2019 01:53 PM												
Client ID:				Run ID: MOIST_190627B				SeqNo: 5748577			Prep Date:		DF: 1										
Analyte				Result		PQL		SPK Val		SPK Ref Value		%REC		Control Limit		RPD Ref Value		%RPD		RPD Limit		Qual	

Moisture      14.22      0.10      0      0      0      0-0      14.05      1.2      10

<b>DUP</b>				Sample ID: <b>19061848-04A DUP</b>				Units: % of sample		Analysis Date: <b>6/27/2019 01:53 PM</b>			
Client ID:				Run ID: <b>MOIST_190627B</b>				SeqNo: <b>5748579</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      16.27      0.10      0      0      0      0-0      16.18      0.555      10

The following samples were analyzed in this batch:

19061789-01B

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

Client: Caerus Oil and Gas LLC  
 Work Order: 19061789  
 Project: P27 Flowline

# QC BATCH REPORT

Batch ID: **R263948** Instrument ID **SUB** Method: **SW8260**

MBLK				Sample ID: Method Blank-R263948				Units: µg/Kg			Analysis Date: 6/27/2019		
Client ID:			Run ID: SUB_190701D				SeqNo: 5754586		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Benzene	U	5.0											
Ethylbenzene	U	5.0											
m,p-Xylene	U	5.0											
o-Xylene	U	5.0											
Toluene	U	5.0											
Xylenes, Total	U	90											
Surr: 4-Bromofluorobenzene	45.9	0	50	0	91.8	52-151	0						
Surr: Dibromofluoromethane	43.3	0	50	0	86.6	61-134	0						
Surr: Toluene-d8	52.2	0	50	0	104	57-135	0						

LCS				Sample ID: Lab Control Sample-R263948				Units: µg/Kg		Analysis Date: 6/27/2019	
Client ID:			Run ID: SUB_190701D			SeqNo: 5754585		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	44.5	5.0	40	0	111	73-126	0				
Ethylbenzene	40.8	5.0	40	0	102	74-127	0				
m,p-Xylene	79	5.0	80	0	98.8	79-126	0				
o-Xylene	38.4	5.0	40	0	96	77-125	0				
Toluene	42.7	5.0	40	0	107	71-127	0				
Xylenes, Total	117.4	90	120	0	97.8	75-125	0				
Surr: 4-Bromofluorobenzene	46.4	0	50	0	92.8	52-151	0				
Surr: Dibromofluoromethane	44	0	50	0	88	61-134	0				
Surr: Toluene-d8	52.5	0	50	0	105	57-135	0				

LCSD				Sample ID: Duplicate Lab Control Sample-R2639				Units: µg/Kg		Analysis Date: 6/27/2019	
Client ID:			Run ID: SUB_190701D			SeqNo: 5754584		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	46.6	5.0	40	0	116	73-126	44.5	4.61	30		
Ethylbenzene	43.7	5.0	40	0	109	74-127	40.8	6.86	30		
m,p-Xylene	83.4	5.0	80	0	104	79-126	79	5.42	30		
o-Xylene	41.5	5.0	40	0	104	77-125	38.4	7.76	30		
Toluene	46.5	5.0	40	0	116	71-127	42.7	8.52	30		
Xylenes, Total	124.9	90	120	0	104		117.4	6.19			
Surr: 4-Bromofluorobenzene	46.3	0	50	0	92.6	52-151	46.4	0.216			
Surr: Dibromofluoromethane	43.6	0	50	0	87.2	61-134	44	0.913			
Surr: Toluene-d8	53.4	0	50	0	107	57-135	52.5	1.7			

The following samples were analyzed in this batch:

19061789-01A

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



Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **26-Jun-19 10:00**

Work Order: **19061789**

Received by: **DS**

Checklist completed by Diane Shaw 26-Jun-19  
eSignature Date

Reviewed by: Chad Whelton 26-Jun-19  
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>4.4/4.4 c</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/26/2019 12:30:36 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:

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Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: