

May 18, 2018

## Caerus Oil and Gas

Sample Delivery Group: L993074  
Samples Received: 05/11/2018  
Project Number:  
Description: KE Rd

Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Shane Gambill  
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	<sup>1</sup> Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	<sup>2</sup> Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	<sup>3</sup> Ss
20180510-KE RD-SW L993074-01	5	
20180510-KE RD-SE L993074-02	6	<sup>4</sup> Cn
20180510-KE RD-NE L993074-03	7	<sup>5</sup> Sr
20180510-KE RD-NW L993074-04	8	
20180510-KE RD-CENTER L993074-05	9	<sup>6</sup> Gl
Gl: Glossary of Terms	10	
Al: Accreditations & Locations	11	<sup>7</sup> Al
Sc: Sample Chain of Custody	12	<sup>8</sup> Sc



## 20180510-KE RD-SW L993074-01 Solid

			Collected by Blair Rollins	Collected date/time 05/10/18 10:00	Received date/time 05/11/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1111505	1	05/15/18 13:50	05/18/18 10:40	CCE

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Gl<sup>7</sup> Al<sup>8</sup> Sc

## 20180510-KE RD-SE L993074-02 Solid

			Collected by Blair Rollins	Collected date/time 05/10/18 10:15	Received date/time 05/11/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1111505	1	05/15/18 13:50	05/18/18 10:44	CCE

## 20180510-KE RD-NE L993074-03 Solid

			Collected by Blair Rollins	Collected date/time 05/10/18 10:30	Received date/time 05/11/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1111505	1	05/15/18 13:50	05/18/18 11:34	CCE

## 20180510-KE RD-NW L993074-04 Solid

			Collected by Blair Rollins	Collected date/time 05/10/18 10:45	Received date/time 05/11/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1111505	1	05/15/18 13:50	05/18/18 10:47	CCE

## 20180510-KE RD-CENTER L993074-05 Solid

			Collected by Blair Rollins	Collected date/time 05/10/18 11:00	Received date/time 05/11/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1111505	1	05/15/18 13:50	05/18/18 10:51	CCE



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Shane Gambill  
Technical Service Representative

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Gl

<sup>7</sup> Al

<sup>8</sup> Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.06		1	05/18/2018 10:40	WG1111505

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Gl

<sup>7</sup>Al

<sup>8</sup>Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.22		1	05/18/2018 10:44	WG1111505

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Gl

<sup>7</sup> Al

<sup>8</sup> Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.46		1	05/18/2018 11:34	WG1111505

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Gl

<sup>7</sup> Al

<sup>8</sup> Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	21.7		1	05/18/2018 10:47	WG1111505

- 1Cp
- 2Tc
- 3Ss
- 4Cn
- 5Sr
- 6Gl
- 7Al
- 8Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	22.3		1	05/18/2018 10:51	WG1111505

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Gl

<sup>7</sup>Al

<sup>8</sup>Sc



## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

### Abbreviations and Definitions

SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.





ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN2000002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Company Name/Address:

Caerus Oil & Gas  
Parachute, CO

Billing Information:

Report to:

Brett Middleton

Email To:

bmiddletow@caerusoilandgas.com

Project

Description: KE Road

City/State

Collected:

Phone:

Client Project #

Lab Project #

Fax:

Collected by (print):

Blair &amp; Rollins

Site/Facility ID #

P.O. #

Collected by (signature):

Blair &amp; Rollins

Rush? (Lab MUST Be Notified)

Same Day .....200%

Next Day .....100%

Two Day .....50%

Three Day .....25%

Date Results Needed

Email? ☐ No ☒ YesFAX? ☒ No ☐ Yes

No.

of

Cntrs

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

20180510-KE Rd-SW

Grab

soil

5/10/18

1000

1

X

20180510-KE Rd-SE

↓

↓

↓

1015

1

X

20180510-KE Rd-NE

↓

↓

↓

1030

1

X

20180510-KE Rd-NW

↓

↓

↓

1045

1

X

20180510-KE Rd-center

↓

↓

↓

1100

1

X

\* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks:

Relinquished by: (Signature)

Blair &amp; Rollins

Date:

5/10/18

Time:

1430

Received by: (Signature)

Blair &amp; Rollins

Relinquished by: (Signature)

Blair &amp; Rollins

Date:

5/10/18

Time:

1700

Received by: (Signature)

Blair &amp; Rollins

Relinquished by: (Signature)

Blair &amp; Rollins

Date:

5/10/18

Time:

1700

Received for lab by: (Signature)

Blair &amp; Rollins

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via: ☐ UPS☐ FedEx ☐ Courier ☐ \_\_\_\_\_

Temp: \_\_\_\_\_ °C Bottles Received:

0.745 5

Date: 5/10/18 Time: 8:45

Hold #

Condition: (lab use only)

COC Seal intact: ☐ Y ☐ N ☒ NA

pH Checked:

NCF:

Analysis / Container / Preservative

Chain of Custody Page \_\_\_\_ of \_\_\_\_



YOUR LAB OF CHOICE

 12065 Lebanon Rd  
 Mount Juliet, TN 37122  
 Phone: 615-758-5858  
 Phone: 800-767-5859  
 Fax: 615-758-5859


L# 993074

D146

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Rem./Contaminant

Sample # (lab only)

61


62

63

64

65

## ESC LAB SCIENCES Cooler Receipt Form

Client:	<i>CAeruslo</i>	SDG#	<i>993074</i>
Cooler Received/Opened On: <i>5/11</i> /18	Temperature:		<i>0.7</i>
Received By: Kevin Turner			
Signature: 			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	<i>/</i>		
COC Signed / Accurate?		<i>/</i>	
Bottles arrive intact?		<i>/</i>	
Correct bottles used?		<i>/</i>	
Sufficient volume sent?		<i>/</i>	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			