

Caerus Oil and Gas

Sample Delivery Group: L1606930

Samples Received: 04/19/2023

Project Number:

Description: 909J

Report To: Brett M. , Jake J. , Blair R.

143 Diamond Avenue

Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward

Project Manager

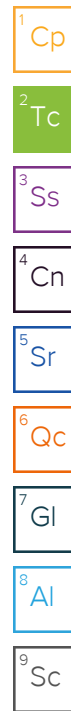
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Pace Analytical National

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SAMPLE SUMMARY

20230418-SOURCE-(36M-T) L1606930-01 GW

Collected by:
 Collected date/time: 04/16/23 10:26
 Received date/time: 04/19/23 09:05

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2046531	1	04/21/23 17:00	04/21/23 17:00	ARD	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2045198	1	04/24/23 17:10	04/24/23 17:10	CAT	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG2046753	1	04/21/23 08:26	04/21/23 21:51	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2045851	1	04/20/23 22:14	04/20/23 22:14	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG2045118	1	04/20/23 17:38	04/20/23 17:38	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2045958	10	04/21/23 03:48	04/21/23 03:48	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2045958	100	04/21/23 05:52	04/21/23 05:52	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2045345	10	04/24/23 13:28	04/26/23 14:18	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2046426	5	04/21/23 21:39	04/21/23 21:39	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2045190	50	04/23/23 04:30	04/23/23 04:30	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2045354	5	04/20/23 17:00	04/21/23 15:58	HLJ	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

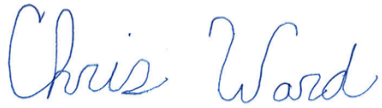
7 Gl

8 Al

9 Sc

CASE NARRATIVE

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 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.



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Alkalinity	842		8.45	20.0	1	04/21/2023 17:00	WG2046531
Alkalinity,Bicarbonate	842		8.45	20.0	1	04/21/2023 17:00	WG2046531
Alkalinity,Carbonate	U		8.45	20.0	1	04/21/2023 17:00	WG2046531

Sample Narrative:

L1606930-01 WG2046531: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Nitrate-Nitrite	U		0.0500	0.100	1	04/24/2023 17:10	WG2045198

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Phosphorus,Total	0.665		0.0350	0.100	1	04/21/2023 21:51	WG2046753

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	pH			date / time	
pH	6.87	T8	1	04/20/2023 22:14	WG2045851

Sample Narrative:

L1606930-01 WG2045851: 6.87 at 18.4C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	29100		10.0	1	04/20/2023 17:38	WG2045118

Sample Narrative:

L1606930-01 WG2045118: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Bromide	62.1		3.53	10.0	10	04/21/2023 03:48	WG2045958
Chloride	9620		37.9	100	100	04/21/2023 05:52	WG2045958
Fluoride	U		0.640	1.50	10	04/21/2023 03:48	WG2045958
Nitrate as (N)	U	Q	0.480	1.00	10	04/21/2023 03:48	WG2045958
Nitrite as (N)	U	Q	0.420	1.00	10	04/21/2023 03:48	WG2045958
Sulfate	U		5.94	50.0	10	04/21/2023 03:48	WG2045958

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Barium	69.9		0.00736	0.0500	10	04/26/2023 14:18	WG2045345
Boron	3.06		0.200	2.00	10	04/26/2023 14:18	WG2045345
Calcium	126		0.793	10.0	10	04/26/2023 14:18	WG2045345
Iron	23.7		0.180	1.00	10	04/26/2023 14:18	WG2045345
Magnesium	24.4		0.853	10.0	10	04/26/2023 14:18	WG2045345
Manganese	0.361		0.00934	0.100	10	04/26/2023 14:18	WG2045345
Potassium	74.0		2.61	20.0	10	04/26/2023 14:18	WG2045345

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Selenium	U		0.0735	0.100	10	04/26/2023 14:18	WG2045345
Sodium	6310		5.04	30.0	10	04/26/2023 14:18	WG2045345
Strontium	16.3		0.00640	0.100	10	04/26/2023 14:18	WG2045345

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPH (GC/FID) Low Fraction	53.9		0.157	0.500	5	04/21/2023 21:39	WG2046426
(S) a,a,a-Trifluorotoluene(FID)	98.3			78.0-120		04/21/2023 21:39	WG2046426

4 Cn

5 Sr

6 Qc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	1.77		0.00471	0.0500	50	04/23/2023 04:30	WG2045190
Toluene	3.47		0.0139	0.0500	50	04/23/2023 04:30	WG2045190
Ethylbenzene	0.246		0.00685	0.0500	50	04/23/2023 04:30	WG2045190
Xylenes, Total	7.29		0.00870	0.150	50	04/23/2023 04:30	WG2045190
Naphthalene	0.144	J	0.0500	0.250	50	04/23/2023 04:30	WG2045190
(S) Toluene-d8	108			80.0-120		04/23/2023 04:30	WG2045190
(S) 4-Bromofluorobenzene	100			77.0-126		04/23/2023 04:30	WG2045190
(S) 1,2-Dichloroethane-d4	102			70.0-130		04/23/2023 04:30	WG2045190

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
C10-C28 Diesel Range	12.4		0.111	0.500	5	04/21/2023 15:58	WG2045354
C28-C36 Motor Oil Range	0.962		0.0590	0.500	5	04/21/2023 15:58	WG2045354
(S) o-Terphenyl	65.0			52.0-156		04/21/2023 15:58	WG2045354

Method Blank (MB)

(MB) R3916540-2 04/21/23 15:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Alkalinity	U		8.45	20.0
Alkalinity,Bicarbonate	U		8.45	20.0
Alkalinity,Carbonate	U		8.45	20.0

Sample Narrative:

BLANK: Endpoint pH 4.5

L1606411-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1606411-01 04/21/23 15:46 • (DUP) R3916540-3 04/21/23 15:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Alkalinity	58.4	60.9	1	4.05		20
Alkalinity,Bicarbonate	58.4	60.9	1	4.05		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1606946-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1606946-01 04/21/23 17:08 • (DUP) R3916540-4 04/21/23 17:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Alkalinity	752	765	1	1.60		20
Alkalinity,Bicarbonate	752	765	1	1.60		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3916540-1 04/21/23 15:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Alkalinity	100	102	102	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3916748-1 04/24/23 17:08

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Nitrate-Nitrite	U		0.0500	0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1607074-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1607074-01 04/24/23 17:24 • (DUP) R3916748-3 04/24/23 17:26

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	2.04	2.04	1	0.000		20

L1607432-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1607432-01 04/24/23 17:45 • (DUP) R3916748-5 04/24/23 17:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	0.112	0.114	1	1.77		20

Laboratory Control Sample (LCS)

(LCS) R3916748-2 04/24/23 17:09

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Nitrate-Nitrite	2.50	2.62	105	90.0-110	

L1607074-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1607074-01 04/24/23 17:24 • (MS) R3916748-4 04/24/23 17:27

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Nitrate-Nitrite	2.50	2.04	4.48	97.6	1	90.0-110	

L1607432-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1607432-01 04/24/23 17:45 • (MS) R3916748-6 04/24/23 17:47 • (MSD) R3916748-7 04/24/23 17:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Nitrate-Nitrite	2.50	0.112	2.73	2.67	105	102	1	90.0-110			2.22	20

Method Blank (MB)

(MB) R3916112-1 04/21/23 21:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Phosphorus,Total	0.0384	↓	0.0350	0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1606467-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1606467-01 04/21/23 21:38 • (DUP) R3916112-8 04/21/23 21:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Phosphorus,Total	2.94	2.80	1	4.88		20

L1606165-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1606165-02 04/21/23 22:46 • (DUP) R3916112-10 04/21/23 22:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Phosphorus,Total	U	0.0444	1	200	J P1	20

Laboratory Control Sample (LCS)

(LCS) R3916112-2 04/21/23 21:31

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Phosphorus,Total	4.66	4.18	89.7	83.2-116	

L1606165-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1606165-04 04/21/23 21:35 • (MS) R3916112-5 04/21/23 21:36 • (MSD) R3916112-6 04/21/23 21:37

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Phosphorus,Total	2.50	U	2.31	2.26	92.4	90.4	1	90.0-110			2.19	20

L1606030-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1606030-01 04/20/23 22:14 • (DUP) R3915634-2 04/20/23 22:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.20	8.17	1	0.367		1

Sample Narrative:

OS: 8.2 at 18.7C
DUP: 8.17 at 18.4C

L1607383-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1607383-01 04/20/23 22:14 • (DUP) R3915634-3 04/20/23 22:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.12	8.18	1	0.736		1

Sample Narrative:

OS: 8.12 at 19.9C
DUP: 8.18 at 19.9C

Laboratory Control Sample (LCS)

(LCS) R3915634-1 04/20/23 22:14

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
su	su		%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 19.1C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3915590-1 04/20/23 17:38

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1605146-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1605146-01 04/20/23 17:38 • (DUP) R3915590-3 04/20/23 17:38

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	ND	ND	1	0.000		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3915590-2 04/20/23 17:38

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1110	99.5	85.0-115	

Sample Narrative:

LCS: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3916067-1 04/21/23 02:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Fluoride	U		0.0640	0.150
Nitrate	U		0.0480	0.100
Nitrite	U		0.0420	0.100
Sulfate	U		0.594	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1607325-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1607325-02 04/21/23 04:43 • (DUP) R3916067-3 04/21/23 06:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Bromide	U	U	1	0.000		15
Chloride	189	190	1	0.468		15
Fluoride	0.119	0.138	1	15.0	U	15
Nitrate	0.662	0.672	1	1.56		15
Nitrite	U	U	1	0.000		15
Sulfate	62.9	62.7	1	0.344		15

Laboratory Control Sample (LCS)

(LCS) R3916067-2 04/21/23 02:54

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Bromide	40.0	41.0	102	80.0-120	
Chloride	40.0	40.0	99.9	80.0-120	
Fluoride	8.00	8.11	101	80.0-120	
Nitrate	8.00	8.02	100	80.0-120	
Nitrite	8.00	8.13	102	80.0-120	
Sulfate	40.0	38.7	96.8	80.0-120	

L1607325-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1607325-02 04/21/23 04:43 • (MS) R3916067-4 04/21/23 06:47 • (MSD) R3916067-5 04/21/23 07:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Bromide	50.0	U	43.6	44.3	87.1	88.6	1	80.0-120			1.67	15
Chloride	50.0	189	226	225	73.0	72.3	1	80.0-120	E J6	E J6	0.147	15

L1607325-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1607325-02 04/21/23 04:43 • (MS) R3916067-4 04/21/23 06:47 • (MSD) R3916067-5 04/21/23 07:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Fluoride	5.00	0.119	5.44	5.02	106	98.0	1	80.0-120			7.95	15
Nitrate	5.00	0.662	5.51	5.58	97.0	98.3	1	80.0-120			1.20	15
Nitrite	5.00	U	4.49	4.54	89.9	90.9	1	80.0-120			1.12	15
Sulfate	50.0	62.9	107	107	88.3	88.4	1	80.0-120			0.0558	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3916848-1 04/24/23 23:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Barium	U		0.000736	0.00500
Boron	U		0.0200	0.200
Calcium	U		0.0793	1.00
Iron	U		0.0180	0.100
Manganese	U		0.000934	0.0100
Potassium	0.261	U	0.261	2.00
Selenium	U		0.00735	0.0100
Sodium	U		0.504	3.00
Strontium	U		0.000640	0.0100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Method Blank (MB)

(MB) R3917568-1 04/26/23 10:55

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Magnesium	U		0.0853	1.00

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3916848-2 04/24/23 23:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	1.00	1.01	101	80.0-120	
Boron	1.00	0.950	95.0	80.0-120	
Calcium	10.0	9.43	94.3	80.0-120	
Iron	10.0	9.74	97.4	80.0-120	
Manganese	1.00	0.884	88.4	80.0-120	
Potassium	10.0	10.2	102	80.0-120	
Selenium	1.00	1.06	106	80.0-120	
Sodium	10.0	10.3	103	80.0-120	
Strontium	1.00	1.06	106	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3917568-2 04/26/23 10:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Magnesium	10.0	9.42	94.2	80.0-120	

L1606700-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1606700-01 04/24/23 23:35 • (MS) R3916848-4 04/24/23 23:40 • (MSD) R3916848-5 04/24/23 23:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1.00	0.0271	1.02	1.01	99.3	98.0	1	75.0-125			1.26	20
Boron	1.00	0.135	1.07	1.07	93.7	93.7	1	75.0-125			0.00168	20
Calcium	10.0	34.6	42.1	42.3	74.7	76.9	1	75.0-125	J6		0.526	20
Iron	10.0	0.0312	9.16	9.22	91.3	91.9	1	75.0-125			0.647	20
Manganese	1.00	U	0.862	0.856	86.2	85.6	1	75.0-125			0.639	20
Potassium	10.0	2.22	11.7	11.6	94.4	93.9	1	75.0-125			0.450	20
Selenium	1.00	U	1.07	1.07	107	107	1	75.0-125			0.0974	20
Sodium	10.0	92.2	96.2	97.2	40.3	50.5	1	75.0-125	V	V	1.05	20
Strontium	1.00	0.298	1.28	1.31	97.8	101	1	75.0-125			2.44	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L1606700-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1606700-01 04/26/23 11:00 • (MS) R3917568-4 04/26/23 11:05 • (MSD) R3917568-5 04/26/23 11:08

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Magnesium	10.0	6.15	15.3	15.2	91.7	90.2	1	75.0-125			0.980	20

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3917119-3 04/21/23 12:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
TPH (GC/FID) Low Fraction	U		0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	119			78.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3917119-1 04/21/23 11:13 • (LCSD) R3917119-2 04/21/23 11:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
TPH (GC/FID) Low Fraction	5.50	5.80	5.89	105	107	72.0-127			1.54	20
(S) a,a,a-Trifluorotoluene(FID)				113	112	78.0-120				

L1607424-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1607424-08 04/21/23 16:06 • (MS) R3917119-4 04/21/23 22:45 • (MSD) R3917119-5 04/21/23 23:07

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
TPH (GC/FID) Low Fraction	5.50	U	5.24	5.15	95.3	93.6	1	10.0-160			1.73	22
(S) a,a,a-Trifluorotoluene(FID)					108	107		78.0-120				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3916939-3 04/22/23 21:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
(S) Toluene-d8	107			80.0-120
(S) 4-Bromofluorobenzene	99.1			77.0-126
(S) 1,2-Dichloroethane-d4	106			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3916939-1 04/22/23 17:45 • (LCSD) R3916939-2 04/22/23 18:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.00522	0.00494	104	98.8	70.0-123			5.51	20
Toluene	0.00500	0.00462	0.00449	92.4	89.8	79.0-120			2.85	20
Ethylbenzene	0.00500	0.00438	0.00422	87.6	84.4	79.0-123			3.72	20
Xylenes, Total	0.0150	0.0133	0.0128	88.7	85.3	79.0-123			3.83	20
Naphthalene	0.00500	0.00428	0.00485	85.6	97.0	54.0-135			12.5	20
(S) Toluene-d8				102	101	80.0-120				
(S) 4-Bromofluorobenzene				94.3	91.8	77.0-126				
(S) 1,2-Dichloroethane-d4				118	117	70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3915688-1 04/20/23 21:53

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
C10-C28 Diesel Range	U		0.0222	0.100
C28-C36 Motor Oil Range	U		0.0118	0.100
(S) o-Terphenyl	103			52.0-156

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3915688-2 04/20/23 22:15 • (LCSD) R3915688-3 04/20/23 22:38

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
C10-C28 Diesel Range	1.50	1.42	1.35	94.7	90.0	50.0-150			5.05	20
(S) o-Terphenyl				111	99.0	52.0-156				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
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.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
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
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

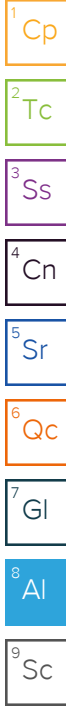
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

* 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 Pace Analytical.



Company Name/Address:
Caerus Oil and Gas
 143 Diamond Avenue
 Parachute, CO 81635

Billing Information:
 Accounts Payable
 1001 17th St., Ste. 1600
 Denver, CO 80202

Analysis / Container / Preservative
 Pres Chk

Chain of Custody Page ___ of ___

 PEOPLE ADVANCING SCIENCE
 MT JULIET, TN

Report to:
Brett Middleton

Email To:
 JJanicek@caerusoilandgas.com; brollins@caerus

Project Description:
 9095

City/State Collected:
 Parachute CO

Please Circle:
 PT MT CT ET

Phone: 970-285-2653

Client Project #

Lab Project #

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #

Immediately Packed on Ice N Y

Date Results Needed
 ASAP

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
		GW				17
20230418-SOURCE-(36M-T)	grab	GW	Surface	4/16/23	1026	17
		GW				17
		GW				17
		GW				17
		GW				17
		GW				17
		GW				17
		GW				17
		GW				17
		GW				17

V8260BTEXN 40ml/Amb-HCl

V8260BTEXN 40ml/Amb-HCl-Blk

pH 125ml/HDPE-NoPres

12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # L1606930

Table #

Acctnum: CAERUSPCO

Template: T215555

Prelogin: P963757

PM: 824 - Chris Ward

PB:

Shipped Via: FedEX Ground

Remarks Sample # (lab only)

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks: Metals - Ba,B,Ca,Fe,K,Mg,Mn,Na,Se,Sr

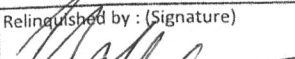
pH _____ Temp _____

Flow _____ Other _____

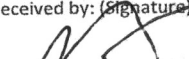
Sample Receipt Checklist		
COC Seal Present/Intact:	NP	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable		
VOA Zero Headspace:		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Samples returned via:
 UPS FedEx Courier

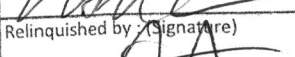
Tracking #

Relinquished by: (Signature)


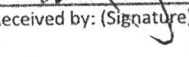
Date: 4/18/23
 Time: 1620

Received by: (Signature)


Trip Blank Received: Yes/No
 HCL / MeOH
 TBR

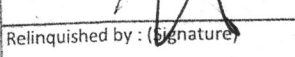
Relinquished by: (Signature)


Date: 4/18/23
 Time: 1700

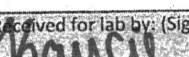
Received by: (Signature)


NSLVI °C Bottles Received:
 4.4+0=4.4 17

If preservation required by Login: Date/Time

Relinquished by: (Signature)


Date: 4/19/23
 Time: 905

Received for lab by: (Signature)


Date: 4/19/23
 Time: 905

Hold: Conditions NCF / OK