ANALYTICAL REPORT

December 09, 2022

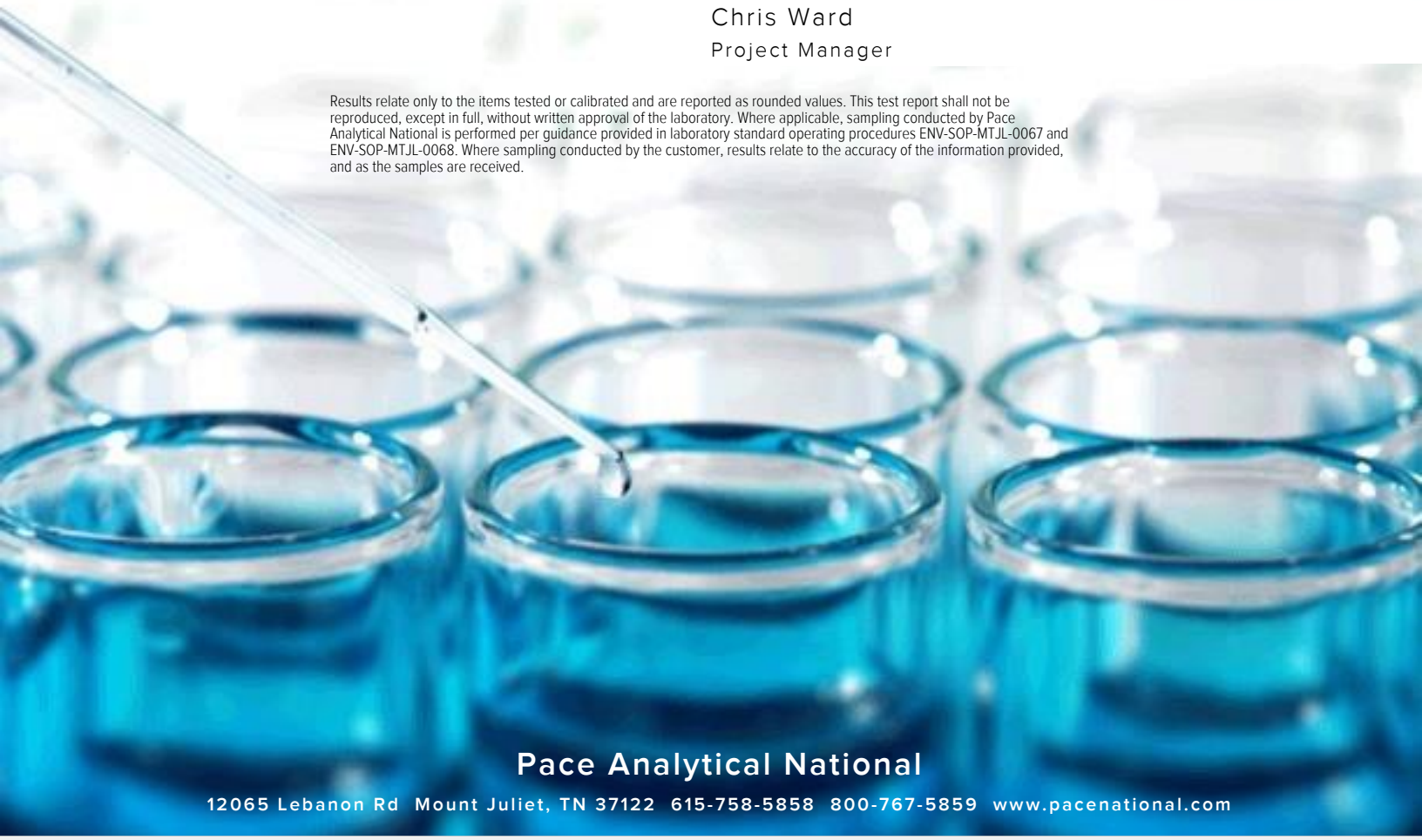
Revised Report

Caerus Oil and Gas

Sample Delivery Group:	L1527191
Samples Received:	08/19/2022
Project Number:	
Description:	Mesa E1 Sampling
Site:	754273
Report To:	Blair Rollins 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward
Project Manager



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SAMPLE SUMMARY

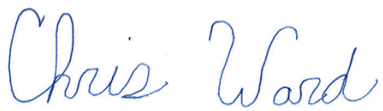
20220818-SWNET7SR9700SEC1 L1527191-01 GW

Collected by: RJ
Collected date/time: 08/18/22 09:45
Received date/time: 08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method BART	WG1917929	1	08/29/22 08:40	08/29/22 08:40	TMP	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1916344	1	08/25/22 14:25	08/25/22 17:11	SLP	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1917626	1	08/28/22 14:21	08/28/22 14:21	ARD	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1917345	1	08/26/22 09:00	08/26/22 21:07	LDT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1916257	1	08/25/22 16:00	08/25/22 16:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1921260	1	09/10/22 10:00	09/10/22 10:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1913633	1	08/19/22 23:29	08/19/22 23:29	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1914319	1	08/23/22 01:38	08/23/22 17:28	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1916192	1	08/26/22 03:52	08/26/22 03:52	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1914428	1	08/22/22 15:51	08/22/22 15:51	JAP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1913929	1	08/20/22 20:40	08/20/22 20:40	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1914188	1	08/22/22 11:48	08/25/22 07:01	MWS	Mt. Juliet, TN

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

Report Revision History

Level II Report - Version 1: 09/12/22 12:20

Project Narrative

The following reactions were observed on one or more samples within this SDG.

BR Brown Ring
CL Cloudy Growth
FO Foam
RC Red Cloudy
BB Blackened Base
BT Blackening around Ball
SR Slime Ring around Ball
PB Pale Blue Glow in UV Light

Report regenerated to include COGCC EDD

Microbiology by Method BART

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Iron Related Bacteria	Present		1	08/29/2022 08:40	WG1917929
Slime Forming Bacteria	Present		1	08/29/2022 08:40	WG1917929
Sulfate Reducing Bacteria	Present		1	08/29/2022 08:40	WG1917929

Sample Narrative:

L1527191-01 WG1917929: IRB Approximate Population=35,000 CFU/mL. Reactions=FO/BR/RC.
L1527191-01 WG1917929: SLYM Approximate Population=500 CFU/mL. Reactions=PB/SR/CL.
L1527191-01 WG1917929: SRB Approximate Population=325 CFU/mL. Reactions=BB/BT.

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	454		10.0	1	08/25/2022 17:11	WG1916344

Wet Chemistry by Method 2320 B-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Alkalinity	336		20.0	1	08/28/2022 14:21	WG1917626
Alkalinity,Bicarbonate	336		20.0	1	08/28/2022 14:21	WG1917626
Alkalinity,Carbonate	ND		20.0	1	08/28/2022 14:21	WG1917626

Sample Narrative:

L1527191-01 WG1917626: Endpoint pH 4.5 headspace

Wet Chemistry by Method 365.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Phosphorus,Total	ND		0.100	1	08/26/2022 21:07	WG1917345

Wet Chemistry by Method 9040C

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.68	T8	1	08/25/2022 16:00	WG1916257

Sample Narrative:

L1527191-01 WG1916257: 7.68 at 22.2C

Wet Chemistry by Method 9050A

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	774		10.0	1	09/10/2022 10:00	WG1921260

Sample Narrative:

L1527191-01 WG1921260: at 25C

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	ND		1.00	1	08/19/2022 23:29	WG1913633
Chloride	16.2		1.00	1	08/19/2022 23:29	WG1913633
Fluoride	ND		0.150	1	08/19/2022 23:29	WG1913633
Nitrate as (N)	1.49		0.100	1	08/19/2022 23:29	WG1913633
Nitrite as (N)	ND		0.100	1	08/19/2022 23:29	WG1913633

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Sulfate	90.5		5.00	1	08/19/2022 23:29	WG1913633

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.0970		0.00500	1	08/23/2022 17:28	WG1914319
Boron	ND		0.200	1	08/23/2022 17:28	WG1914319
Calcium	72.4		1.00	1	08/23/2022 17:28	WG1914319
Iron	ND		0.100	1	08/23/2022 17:28	WG1914319
Magnesium	26.2		1.00	1	08/23/2022 17:28	WG1914319
Manganese	ND		0.0100	1	08/23/2022 17:28	WG1914319
Potassium	ND		2.00	1	08/23/2022 17:28	WG1914319
Selenium	ND		0.0100	1	08/23/2022 17:28	WG1914319
Sodium	55.8		3.00	1	08/23/2022 17:28	WG1914319
Strontium	0.710		0.0100	1	08/23/2022 17:28	WG1914319

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	08/26/2022 03:52	WG1916192
(S) a,a,a-Trifluorotoluene(FID)	*107*		*78.0-120*		*08/26/2022 03:52*	WG1916192

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Methane	ND		0.0100	1	08/22/2022 15:51	WG1914428
Ethane	ND		0.0130	1	08/22/2022 15:51	WG1914428
Ethene	ND		0.0130	1	08/22/2022 15:51	WG1914428
Propane	ND		0.0190	1	08/22/2022 15:51	WG1914428

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	08/20/2022 20:40	WG1913929
Toluene	ND		0.00100	1	08/20/2022 20:40	WG1913929
Ethylbenzene	ND		0.00100	1	08/20/2022 20:40	WG1913929
Total Xylenes	ND		0.00300	1	08/20/2022 20:40	WG1913929
(S) Toluene-d8	*98.8*		*80.0-120*		*08/20/2022 20:40*	WG1913929
(S) 4-Bromofluorobenzene	*93.3*		*77.0-126*		*08/20/2022 20:40*	WG1913929
(S) 1,2-Dichloroethane-d4	*119*		*70.0-130*		*08/20/2022 20:40*	WG1913929

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		0.100	1	08/25/2022 07:01	WG1914188
C28-C36 Motor Oil Range	ND		0.100	1	08/25/2022 07:01	WG1914188
(S) o-Terphenyl	*100*		*52.0-156*		*08/25/2022 07:01*	WG1914188

Method Blank (MB)

(MB) R3833580-1 08/25/22 17:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1527741-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527741-02 08/25/22 17:11 • (DUP) R3833580-3 08/25/22 17:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	595	639	1	7.14	J3	5

L1527741-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1527741-04 08/25/22 17:11 • (DUP) R3833580-4 08/25/22 17:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	604	711	1	16.2	J3	5

Laboratory Control Sample (LCS)

(LCS) R3833580-2 08/25/22 17:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8180	93.0	77.3-123	

Method Blank (MB)

(MB) R3831265-2 08/28/22 14:14

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
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

L1527645-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1527645-11 08/28/22 14:26 • (DUP) R3831265-3 08/28/22 14:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	168	169	1	0.465		20
Alkalinity,Bicarbonate	168	169	1	0.465		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

L1528304-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1528304-11 08/28/22 15:30 • (DUP) R3831265-4 08/28/22 15:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	569	580	1	1.84		20
Alkalinity,Bicarbonate	569	580	1	1.84		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R3831265-1 08/28/22 14:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	100	101	101	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

Method Blank (MB)

(MB) R3831051-1 08/26/22 20:43

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Phosphorus,Total	U		0.0350	0.100

L1527566-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527566-02 08/26/22 21:16 • (DUP) R3831051-7 08/26/22 21:17

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	0.829	0.949	1	13.5		20

L1527566-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1527566-01 08/26/22 22:04 • (DUP) R3831051-8 08/26/22 22:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	12.1	11.9	5	1.25		20

Laboratory Control Sample (LCS)

(LCS) R3831051-2 08/26/22 20:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phosphorus,Total	3.78	3.59	95.0	83.2-116	

L1527566-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527566-01 08/26/22 21:08 • (MS) R3831051-5 08/26/22 21:13 • (MSD) R3831051-6 08/26/22 21:15

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 %
Phosphorus,Total	2.50	11.7	13.9	14.0	88.0	92.0	1	90.0-110	E V	E	0.717	20

L1526526-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1526526-02 08/25/22 16:00 • (DUP) R3830550-2 08/25/22 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.93	7.88	1	0.633		1

Sample Narrative:

OS: 7.93 at 22.1C

DUP: 7.88 at 21.7C

L1527292-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1527292-08 08/25/22 16:00 • (DUP) R3830550-3 08/25/22 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.90	7.86	1	0.508		1

Sample Narrative:

OS: 7.9 at 22.4C

DUP: 7.86 at 22.3C

Laboratory Control Sample (LCS)

(LCS) R3830550-1 08/25/22 16:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 22.6C

Method Blank (MB)

(MB) R3835737-1 09/10/22 10:00

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

L1527571-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1527571-03 09/10/22 10:00 • (DUP) R3835737-3 09/10/22 10:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	345	345	1	0.000		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1527735-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1527735-08 09/10/22 10:00 • (DUP) R3835737-4 09/10/22 10:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1130	1140	1	0.353		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3835737-2 09/10/22 10:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1100	98.4	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3828497-1 08/19/22 10:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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

L1527191-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1527191-01 08/19/22 23:29 • (DUP) R3828497-3 08/19/22 23:46

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	ND	ND	1	0.000		15
Chloride	16.2	16.2	1	0.0210		15
Fluoride	ND	ND	1	2.56		15
Nitrate	1.49	1.50	1	0.301		15
Nitrite	ND	ND	1	0.000		15
Sulfate	90.5	90.4	1	0.0214		15

L1527344-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1527344-03 08/20/22 01:45 • (DUP) R3828497-6 08/20/22 02:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	ND	ND	1	0.000		15
Chloride	ND	ND	1	0.000		15
Fluoride	ND	ND	1	0.000		15
Nitrate	ND	ND	1	0.000		15
Nitrite	ND	ND	1	0.000		15
Sulfate	ND	ND	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3828497-2 08/19/22 10:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	40.4	101	80.0-120	
Chloride	40.0	40.5	101	80.0-120	
Fluoride	8.00	8.13	102	80.0-120	
Nitrate	8.00	8.06	101	80.0-120	
Nitrite	8.00	8.11	101	80.0-120	
Sulfate	40.0	41.1	103	80.0-120	

L1527191-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527191-01 08/19/22 23:29 • (MS) R3828497-4 08/20/22 00:03 • (MSD) R3828497-5 08/20/22 00:20

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 %
Bromide	50.0	ND	47.0	47.3	94.1	94.6	1	80.0-120			0.545	15
Chloride	50.0	16.2	64.7	64.7	97.0	97.0	1	80.0-120			0.00433	15
Fluoride	5.00	ND	4.98	4.97	97.8	97.7	1	80.0-120			0.105	15
Nitrate	5.00	1.49	6.31	6.33	96.3	96.8	1	80.0-120			0.345	15
Nitrite	5.00	ND	4.98	5.00	99.6	100	1	80.0-120			0.349	15
Sulfate	50.0	90.5	135	135	89.5	89.7	1	80.0-120	E	E	0.0850	15

L1527344-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1527344-03 08/20/22 01:45 • (MS) R3828497-7 08/20/22 02:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	ND	50.0	100	1	80.0-120	
Chloride	50.0	ND	50.7	101	1	80.0-120	
Fluoride	5.00	ND	5.08	102	1	80.0-120	
Nitrate	5.00	ND	5.03	101	1	80.0-120	
Nitrite	5.00	ND	5.15	103	1	80.0-120	
Sulfate	50.0	ND	51.5	103	1	80.0-120	

Method Blank (MB)

(MB) R3829618-1 08/23/22 16:26

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
Magnesium	U		0.0853	1.00
Manganese	U		0.000934	0.0100
Potassium	U		0.261	2.00
Selenium	U		0.00735	0.0100
Sodium	U		0.504	3.00
Strontium	U		0.000640	0.0100

Laboratory Control Sample (LCS)

(LCS) R3829618-2 08/23/22 16:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	1.00	0.977	97.7	80.0-120	
Boron	1.00	0.970	97.0	80.0-120	
Calcium	10.0	9.39	93.9	80.0-120	
Iron	10.0	9.37	93.7	80.0-120	
Magnesium	10.0	9.03	90.3	80.0-120	
Manganese	1.00	0.906	90.6	80.0-120	
Potassium	10.0	9.44	94.4	80.0-120	
Selenium	1.00	0.979	97.9	80.0-120	
Sodium	10.0	9.56	95.6	80.0-120	
Strontium	1.00	0.964	96.4	80.0-120	

L1526481-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526481-01 08/23/22 16:32 • (MS) R3829618-4 08/23/22 16:38 • (MSD) R3829618-5 08/23/22 16:41

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	0.0141	0.967	0.955	95.3	94.1	1	75.0-125			1.21	20
Boron	1.00	5.14	6.08	5.98	93.6	84.4	1	75.0-125			1.53	20
Calcium	10.0	456	458	451	21.0	0.000	1	75.0-125	V	V	1.45	20
Iron	10.0	0.139	9.29	9.13	91.5	89.9	1	75.0-125			1.79	20
Magnesium	10.0	111	120	119	88.1	74.4	1	75.0-125		V	1.15	20
Manganese	1.00	1.90	2.75	2.74	84.8	84.4	1	75.0-125	E	E	0.141	20
Potassium	10.0	3.19	13.6	13.4	104	102	1	75.0-125			1.29	20

L1526481-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526481-01 08/23/22 16:32 • (MS) R3829618-4 08/23/22 16:38 • (MSD) R3829618-5 08/23/22 16:41

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 %
Selenium	1.00	ND	1.08	1.08	107	107	1	75.0-125	E	E	0.524	20
Sodium	10.0	219	228	224	83.2	47.6	1	75.0-125		V	1.57	20
Strontium	1.00	1.58	2.55	2.51	96.6	93.1	1	75.0-125			1.39	20

Method Blank (MB)

(MB) R3831128-2 08/26/22 03:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH (GC/FID) Low Fraction	0.0410	J	0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	*107*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3831128-1 08/26/22 02:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.45	99.1	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*110*	*78.0-120*	

Method Blank (MB)

(MB) R3829029-2 08/22/22 13:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Methane	U		0.00291	0.0100
Ethane	U		0.00407	0.0130
Ethene	U		0.00426	0.0130
Propane	U		0.00548	0.0190

L1527134-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1527134-04 08/22/22 14:43 • (DUP) R3829029-3 08/22/22 14:45

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Propane	ND	ND	1	0.000		20

L1527191-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1527191-01 08/22/22 15:51 • (DUP) R3829029-4 08/22/22 16:07

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Propane	ND	ND	1	0.000		20

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

(LCS) R3829029-1 08/22/22 13:35 • (LCSD) R3829029-5 08/22/22 16:16

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 %
Methane	0.0678	0.0757	0.0699	112	103	85.0-115			7.97	20
Ethane	0.129	0.139	0.122	108	94.6	85.0-115			13.0	20
Ethene	0.127	0.140	0.123	110	96.9	85.0-115			12.9	20
Propane	0.186	0.209	0.181	112	97.3	85.0-115			14.4	20

Method Blank (MB)

(MB) R3829340-3 08/20/22 17:18

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
(S) Toluene-d8	*99.2*			*80.0-120*
(S) 4-Bromofluorobenzene	*91.1*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*116*			*70.0-130*

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

(LCS) R3829340-1 08/20/22 16:11 • (LCSD) R3829340-2 08/20/22 16:34

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	0.00573	0.00549	115	110	70.0-123			4.28	20
Toluene	0.00500	0.00485	0.00462	97.0	92.4	79.0-120			4.86	20
Ethylbenzene	0.00500	0.00424	0.00402	84.8	80.4	79.0-123			5.33	20
Xylenes, Total	0.0150	0.0124	0.0120	82.7	80.0	79.0-123			3.28	20
(S) Toluene-d8				*97.2*	*98.6*	*80.0-120*				
(S) 4-Bromofluorobenzene				*90.8*	*93.3*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*113*	*116*	*70.0-130*				

L1527320-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527320-05 08/20/22 22:32 • (MS) R3829340-4 08/21/22 01:09 • (MSD) R3829340-5 08/21/22 01:32

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 %
Benzene	0.00500	ND	0.00532	0.00658	106	132	1	17.0-158			21.2	27
Toluene	0.00500	ND	0.00439	0.00551	87.8	110	1	26.0-154			22.6	28
Ethylbenzene	0.00500	ND	0.00378	0.00485	75.6	97.0	1	30.0-155			24.8	27
Xylenes, Total	0.0150	ND	0.0117	0.0147	78.0	98.0	1	29.0-154			22.7	28
(S) Toluene-d8					*94.6*	*94.4*		*80.0-120*				
(S) 4-Bromofluorobenzene					*95.6*	*94.2*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*114*	*113*		*70.0-130*				

Method Blank (MB)

(MB) R3829334-1 08/23/22 02:19

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
C10-C28 Diesel Range	U		0.0222	0.100
C28-C36 Motor Oil Range	U		0.0118	0.100
(S) o-Terphenyl	*126*			*52.0-156*

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

(LCS) R3829334-2 08/23/22 02:45 • (LCSD) R3829334-3 08/23/22 03:12

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 %
C10-C28 Diesel Range	1.50	1.72	1.50	115	100	50.0-150			13.7	20
(S) o-Terphenyl				*108*	*93.0*	*52.0-156*				

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.
J3	The associated batch QC was outside the established quality control range for precision.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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	LAO000356
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.

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information: Same as left

Pres Chk

Report to: Blair K. Rollins

Email To: brollins@caerusoilandgas.com

Project Description: Mesa E1 Sampling

City/State Collected: Colorado

Phone: (970) 640-6919
Fax:

Client Project #

Lab Project #

Collected by (print): RS

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX	TVPH (C6 to C10)	TEPH (C10 to C36)	Alkalinity Series	Anions(Br,Cl, F,SO4, NO2 as N, NO3, P)	Cations (Ca, Fe, Mg, Mn, K, Na)	Barium, Boron, Selenium, Strontium	Iron Related, sulfate reducing bacteria	Slime forming bacteria	TDS/SPC/pH	Remarks	Sample # (lab only)
20220818-bWNBT75RG9W-SEC1	Grab	GW	NA	8/18/22	0945	15	X	X	X	X	X	X	X	X	X	X		-01

Chain of Custody Page ___ of ___

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # L1527191

D042

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

	Date:	Time:	
Relinquished by: (Signature)	8/18/22	1545	Received by: (Signature)
Relinquished by: (Signature)	8/18/22	1700	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) D. Ramsey

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp 4.3 °C Bottles Received: 15
4.3 + 0 = 4.3

Date: 08-19-22 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK