ANALYTICAL REPORT

September 29, 2022

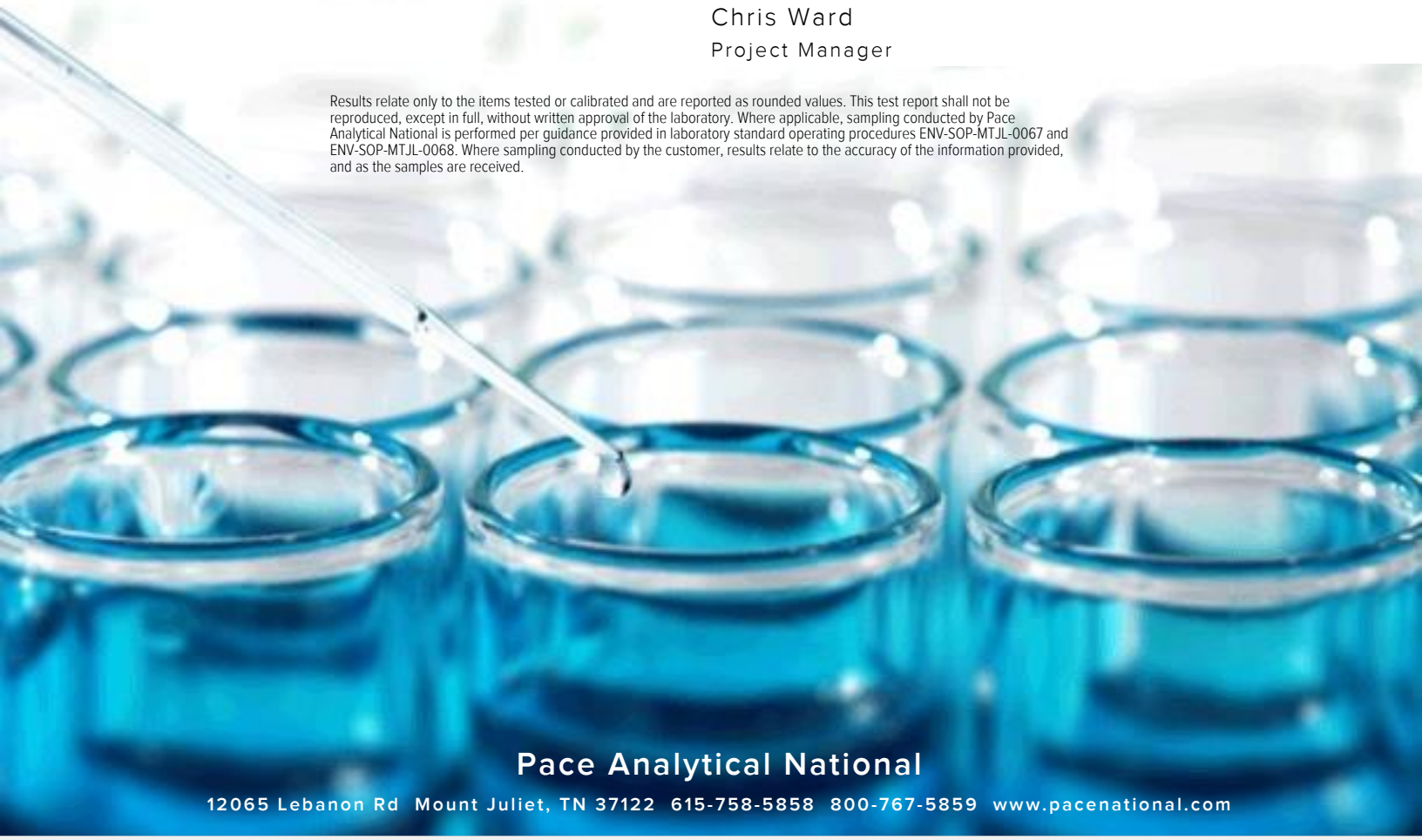
Caerus Oil and Gas

Sample Delivery Group:	L1535446
Samples Received:	09/14/2022
Project Number:	
Description:	Pacience Basin Production Water Quality Sampling

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

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

045-12851-WMFK L1535446-01 GW

Collected by: Will Harmon | Collected date/time: 09/13/22 13:03 | Received date/time: 09/14/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1928500	1	09/19/22 12:40	09/19/22 16:15	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2015	WG1929084	1	09/20/22 11:23	09/20/22 11:25	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1927803	1	09/18/22 09:12	09/18/22 09:12	ARD	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1928339	1	09/20/22 14:17	09/20/22 14:17	CAT	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1928029	2	09/16/22 17:32	09/17/22 18:32	LDT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1930155	1	09/22/22 15:00	09/22/22 15:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1926893	1	09/22/22 14:05	09/22/22 14:05	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	10	09/15/22 08:56	09/15/22 08:56	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	100	09/15/22 09:08	09/15/22 09:08	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	1	09/17/22 16:36	09/19/22 13:06	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	10	09/17/22 16:36	09/19/22 14:20	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1926252	1000	09/15/22 10:15	09/15/22 10:15	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1927186	500	09/15/22 23:20	09/15/22 23:20	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1926757	25	09/16/22 08:58	09/17/22 23:54	DMG	Mt. Juliet, TN

045-12852-WMFK L1535446-02 GW

Collected by: Will Harmon | Collected date/time: 09/13/22 13:30 | Received date/time: 09/14/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1928500	1	09/19/22 12:40	09/19/22 16:15	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2015	WG1929084	1	09/20/22 11:23	09/20/22 11:25	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1927803	1	09/18/22 09:26	09/18/22 09:26	ARD	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1928339	1	09/20/22 14:18	09/20/22 14:18	CAT	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1928029	2	09/16/22 17:32	09/17/22 18:34	LDT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1930155	1	09/22/22 15:00	09/22/22 15:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1926893	1	09/22/22 14:05	09/22/22 14:05	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	10	09/15/22 09:21	09/15/22 09:21	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	100	09/15/22 09:34	09/15/22 09:34	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	1	09/17/22 16:36	09/19/22 13:09	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	10	09/17/22 16:36	09/19/22 14:23	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1926252	1000	09/15/22 10:36	09/15/22 10:36	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1927186	500	09/15/22 23:39	09/15/22 23:39	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1926757	25	09/16/22 08:58	09/18/22 00:40	DMG	Mt. Juliet, TN

045-20304-WMFK L1535446-03 GW

Collected by: Will Harmon | Collected date/time: 09/13/22 14:05 | Received date/time: 09/14/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1928500	1	09/19/22 12:40	09/19/22 16:15	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2015	WG1929084	1	09/20/22 11:23	09/20/22 11:25	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1927803	1	09/18/22 09:30	09/18/22 09:30	ARD	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1928339	1	09/20/22 14:19	09/20/22 14:19	CAT	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1928029	1	09/16/22 17:32	09/17/22 18:27	LDT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1930155	1	09/22/22 15:00	09/22/22 15:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1926893	1	09/22/22 14:05	09/22/22 14:05	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	10	09/15/22 09:48	09/15/22 09:48	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	100	09/15/22 10:01	09/15/22 10:01	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	1	09/17/22 16:36	09/19/22 13:12	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	10	09/17/22 16:36	09/19/22 14:26	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1926252	2000	09/15/22 11:19	09/15/22 11:19	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1927186	1000	09/15/22 23:58	09/15/22 23:58	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1926757	25	09/16/22 08:58	09/18/22 01:26	DMG	Mt. Juliet, TN

SAMPLE SUMMARY

045-20306-WMFK L1535446-04 GW

Collected by: Will Harmon
Collected date/time: 09/13/22 14:40
Received date/time: 09/14/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1928500	1	09/19/22 12:40	09/19/22 16:15	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2015	WG1929084	1	09/20/22 11:23	09/20/22 11:25	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1927803	1	09/18/22 09:33	09/18/22 09:33	ARD	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1928339	1	09/20/22 14:21	09/20/22 14:21	CAT	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1928029	1	09/16/22 17:32	09/17/22 18:29	LDT	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1930155	1	09/22/22 15:00	09/22/22 15:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1926893	1	09/22/22 14:05	09/22/22 14:05	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	10	09/15/22 10:15	09/15/22 10:15	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1926529	100	09/15/22 10:53	09/15/22 10:53	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	1	09/17/22 16:36	09/19/22 13:15	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1926570	10	09/17/22 16:36	09/19/22 14:29	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1926252	1000	09/15/22 10:58	09/15/22 10:58	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1927186	250	09/16/22 00:17	09/16/22 00:17	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1926757	25	09/16/22 08:58	09/18/22 02:12	DMG	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

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	13800		400	1	09/19/2022 16:15	WG1928500

Gravimetric Analysis by Method 2540 D-2015

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	146		35.7	1	09/20/2022 11:25	WG1929084

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	539		20.0	1	09/18/2022 09:12	WG1927803
Alkalinity,Bicarbonate	539		20.0	1	09/18/2022 09:12	WG1927803
Alkalinity,Carbonate	ND		20.0	1	09/18/2022 09:12	WG1927803

Sample Narrative:

L1535446-01 WG1927803: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	ND		0.100	1	09/20/2022 14:17	WG1928339

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	7.10		0.200	2	09/17/2022 18:32	WG1928029

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	pH			date / time	
pH	6.31	T8	1	09/22/2022 15:00	WG1930155

Sample Narrative:

L1535446-01 WG1930155: 6.31 at 18.6C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	28200		10.0	1	09/22/2022 14:05	WG1926893

Sample Narrative:

L1535446-01 WG1926893: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	80.8		10.0	10	09/15/2022 08:56	WG1926529
Chloride	10700		100	100	09/15/2022 09:08	WG1926529
Fluoride	ND		1.50	10	09/15/2022 08:56	WG1926529
Sulfate	ND		50.0	10	09/15/2022 08:56	WG1926529

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	36.8		0.00500	1	09/19/2022 13:06	WG1926570
Boron	5.56		0.200	1	09/19/2022 13:06	WG1926570
Calcium	173		1.00	1	09/19/2022 13:06	WG1926570
Iron	37.1		0.100	1	09/19/2022 13:06	WG1926570
Magnesium	18.2		1.00	1	09/19/2022 13:06	WG1926570
Manganese	0.516		0.0100	1	09/19/2022 13:06	WG1926570
Potassium	63.9		2.00	1	09/19/2022 13:06	WG1926570
Selenium	ND		0.0100	1	09/19/2022 13:06	WG1926570
Sodium	5630		30.0	10	09/19/2022 14:20	WG1926570
Strontium	20.0		0.100	10	09/19/2022 14:20	WG1926570

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	329		100	1000	09/15/2022 10:15	WG1926252
(S) a,a,a-Trifluorotoluene(FID)	*89.1*		*78.0-120*		*09/15/2022 10:15*	WG1926252

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	7.38		0.500	500	09/15/2022 23:20	WG1927186
Toluene	21.5		0.500	500	09/15/2022 23:20	WG1927186
Ethylbenzene	1.51		0.500	500	09/15/2022 23:20	WG1927186
Xylenes, Total	19.6		1.50	500	09/15/2022 23:20	WG1927186
Naphthalene	ND		2.50	500	09/15/2022 23:20	WG1927186
(S) Toluene-d8	*115*		*80.0-120*		*09/15/2022 23:20*	WG1927186
(S) 4-Bromofluorobenzene	*97.2*		*77.0-126*		*09/15/2022 23:20*	WG1927186
(S) 1,2-Dichloroethane-d4	*89.4*		*70.0-130*		*09/15/2022 23:20*	WG1927186

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	142		2.50	25	09/17/2022 23:54	WG1926757
C28-C36 Motor Oil Range	6.68		2.50	25	09/17/2022 23:54	WG1926757
(S) o-Terphenyl	*0.000*	J7	*52.0-156*		*09/17/2022 23:54*	WG1926757

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	14800		400	1	09/19/2022 16:15	WG1928500

Gravimetric Analysis by Method 2540 D-2015

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	194		50.0	1	09/20/2022 11:25	WG1929084

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	569		20.0	1	09/18/2022 09:26	WG1927803
Alkalinity,Bicarbonate	569		20.0	1	09/18/2022 09:26	WG1927803
Alkalinity,Carbonate	ND		20.0	1	09/18/2022 09:26	WG1927803

Sample Narrative:

L1535446-02 WG1927803: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	ND		0.100	1	09/20/2022 14:18	WG1928339

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	6.22		0.200	2	09/17/2022 18:34	WG1928029

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	pH			date / time	
pH	6.41	T8	1	09/22/2022 15:00	WG1930155

Sample Narrative:

L1535446-02 WG1930155: 6.41 at 18.7C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	28000		10.0	1	09/22/2022 14:05	WG1926893

Sample Narrative:

L1535446-02 WG1926893: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	81.9		10.0	10	09/15/2022 09:21	WG1926529
Chloride	10600		100	100	09/15/2022 09:34	WG1926529
Fluoride	ND		1.50	10	09/15/2022 09:21	WG1926529
Sulfate	ND		50.0	10	09/15/2022 09:21	WG1926529

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	37.5		0.00500	1	09/19/2022 13:09	WG1926570
Boron	5.61		0.200	1	09/19/2022 13:09	WG1926570
Calcium	180		1.00	1	09/19/2022 13:09	WG1926570
Iron	285		0.100	1	09/19/2022 13:09	WG1926570
Magnesium	18.5		1.00	1	09/19/2022 13:09	WG1926570
Manganese	4.48		0.0100	1	09/19/2022 13:09	WG1926570
Potassium	65.8		2.00	1	09/19/2022 13:09	WG1926570
Selenium	ND		0.0100	1	09/19/2022 13:09	WG1926570
Sodium	5590		30.0	10	09/19/2022 14:23	WG1926570
Strontium	20.0		0.100	10	09/19/2022 14:23	WG1926570

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	452		100	1000	09/15/2022 10:36	WG1926252
(S) a,a,a-Trifluorotoluene(FID)	*90.0*		*78.0-120*		*09/15/2022 10:36*	WG1926252

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	4.51		0.500	500	09/15/2022 23:39	WG1927186
Toluene	13.5		0.500	500	09/15/2022 23:39	WG1927186
Ethylbenzene	1.47		0.500	500	09/15/2022 23:39	WG1927186
Xylenes, Total	17.3		1.50	500	09/15/2022 23:39	WG1927186
Naphthalene	ND		2.50	500	09/15/2022 23:39	WG1927186
(S) Toluene-d8	*111*		*80.0-120*		*09/15/2022 23:39*	WG1927186
(S) 4-Bromofluorobenzene	*99.6*		*77.0-126*		*09/15/2022 23:39*	WG1927186
(S) 1,2-Dichloroethane-d4	*94.5*		*70.0-130*		*09/15/2022 23:39*	WG1927186

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	148		2.50	25	09/18/2022 00:40	WG1926757
C28-C36 Motor Oil Range	4.72		2.50	25	09/18/2022 00:40	WG1926757
(S) o-Terphenyl	*0.000*	J7	*52.0-156*		*09/18/2022 00:40*	WG1926757

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	11300		400	1	09/19/2022 16:15	WG1928500

Gravimetric Analysis by Method 2540 D-2015

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	19.3		8.33	1	09/20/2022 11:25	WG1929084

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	566		20.0	1	09/18/2022 09:30	WG1927803
Alkalinity,Bicarbonate	566		20.0	1	09/18/2022 09:30	WG1927803
Alkalinity,Carbonate	ND		20.0	1	09/18/2022 09:30	WG1927803

Sample Narrative:

L1535446-03 WG1927803: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	ND		0.100	1	09/20/2022 14:19	WG1928339

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	ND		0.100	1	09/17/2022 18:27	WG1928029

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	pH			date / time	
pH	6.23	T8	1	09/22/2022 15:00	WG1930155

Sample Narrative:

L1535446-03 WG1930155: 6.23 at 18.8C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	23300		10.0	1	09/22/2022 14:05	WG1926893

Sample Narrative:

L1535446-03 WG1926893: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	62.1		10.0	10	09/15/2022 09:48	WG1926529
Chloride	8660		100	100	09/15/2022 10:01	WG1926529
Fluoride	ND		1.50	10	09/15/2022 09:48	WG1926529
Sulfate	ND		50.0	10	09/15/2022 09:48	WG1926529

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Barium	39.3		0.00500	1	09/19/2022 13:12	WG1926570
Boron	3.12		0.200	1	09/19/2022 13:12	WG1926570
Calcium	169		1.00	1	09/19/2022 13:12	WG1926570
Iron	15.5		0.100	1	09/19/2022 13:12	WG1926570
Magnesium	18.7		1.00	1	09/19/2022 13:12	WG1926570
Manganese	0.345		0.0100	1	09/19/2022 13:12	WG1926570
Potassium	54.1		2.00	1	09/19/2022 13:12	WG1926570
Selenium	ND		0.0100	1	09/19/2022 13:12	WG1926570
Sodium	4880		30.0	10	09/19/2022 14:26	WG1926570
Strontium	20.0		0.100	10	09/19/2022 14:26	WG1926570

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TPH (GC/FID) Low Fraction	203		200	2000	09/15/2022 11:19	WG1926252
(S) a,a,a-Trifluorotoluene(FID)	*90.1*		*78.0-120*		*09/15/2022 11:19*	WG1926252

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	4.09		1.00	1000	09/15/2022 23:58	WG1927186
Toluene	13.0		1.00	1000	09/15/2022 23:58	WG1927186
Ethylbenzene	1.03		1.00	1000	09/15/2022 23:58	WG1927186
Xylenes, Total	14.4		3.00	1000	09/15/2022 23:58	WG1927186
Naphthalene	ND		5.00	1000	09/15/2022 23:58	WG1927186
(S) Toluene-d8	*115*		*80.0-120*		*09/15/2022 23:58*	WG1927186
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*09/15/2022 23:58*	WG1927186
(S) 1,2-Dichloroethane-d4	*92.1*		*70.0-130*		*09/15/2022 23:58*	WG1927186

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
C10-C28 Diesel Range	126		2.50	25	09/18/2022 01:26	WG1926757
C28-C36 Motor Oil Range	ND		2.50	25	09/18/2022 01:26	WG1926757
(S) o-Terphenyl	*0.000*	J7	*52.0-156*		*09/18/2022 01:26*	WG1926757

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	11300		400	1	09/19/2022 16:15	WG1928500

Gravimetric Analysis by Method 2540 D-2015

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	20.3		4.18	1	09/20/2022 11:25	WG1929084

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	565		20.0	1	09/18/2022 09:33	WG1927803
Alkalinity,Bicarbonate	565		20.0	1	09/18/2022 09:33	WG1927803
Alkalinity,Carbonate	ND		20.0	1	09/18/2022 09:33	WG1927803

Sample Narrative:

L1535446-04 WG1927803: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	ND		0.100	1	09/20/2022 14:21	WG1928339

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	0.282		0.100	1	09/17/2022 18:29	WG1928029

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	pH			date / time	
pH	6.28	T8	1	09/22/2022 15:00	WG1930155

Sample Narrative:

L1535446-04 WG1930155: 6.28 at 18.9C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	21200		10.0	1	09/22/2022 14:05	WG1926893

Sample Narrative:

L1535446-04 WG1926893: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	60.0		10.0	10	09/15/2022 10:15	WG1926529
Chloride	7940		100	100	09/15/2022 10:53	WG1926529
Fluoride	ND		1.50	10	09/15/2022 10:15	WG1926529
Sulfate	ND		50.0	10	09/15/2022 10:15	WG1926529

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	34.4		0.00500	1	09/19/2022 13:15	WG1926570
Boron	2.62		0.200	1	09/19/2022 13:15	WG1926570
Calcium	134		1.00	1	09/19/2022 13:15	WG1926570
Iron	16.3		0.100	1	09/19/2022 13:15	WG1926570
Magnesium	16.8		1.00	1	09/19/2022 13:15	WG1926570
Manganese	0.334		0.0100	1	09/19/2022 13:15	WG1926570
Potassium	57.1		2.00	1	09/19/2022 13:15	WG1926570
Selenium	ND		0.0100	1	09/19/2022 13:15	WG1926570
Sodium	4540		30.0	10	09/19/2022 14:29	WG1926570
Strontium	17.8		0.0100	1	09/19/2022 13:15	WG1926570

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	391		100	1000	09/15/2022 10:58	WG1926252
(S) a,a,a-Trifluorotoluene(FID)	*90.1*		*78.0-120*		*09/15/2022 10:58*	WG1926252

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	4.46		0.250	250	09/16/2022 00:17	WG1927186
Toluene	18.3		0.250	250	09/16/2022 00:17	WG1927186
Ethylbenzene	1.58		0.250	250	09/16/2022 00:17	WG1927186
Xylenes, Total	23.1		0.750	250	09/16/2022 00:17	WG1927186
Naphthalene	ND		1.25	250	09/16/2022 00:17	WG1927186
(S) Toluene-d8	*113*		*80.0-120*		*09/16/2022 00:17*	WG1927186
(S) 4-Bromofluorobenzene	*98.5*		*77.0-126*		*09/16/2022 00:17*	WG1927186
(S) 1,2-Dichloroethane-d4	*92.8*		*70.0-130*		*09/16/2022 00:17*	WG1927186

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	170		2.50	25	09/18/2022 02:12	WG1926757
C28-C36 Motor Oil Range	4.10		2.50	25	09/18/2022 02:12	WG1926757
(S) o-Terphenyl	*0.000*	J7	*52.0-156*		*09/18/2022 02:12*	WG1926757

Method Blank (MB)

(MB) R3842845-1 09/19/22 16:15

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

L1534819-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1534819-01 09/19/22 16:15 • (DUP) R3842845-3 09/19/22 16:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1240	1310	1	5.18	J3	5

L1534830-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1534830-02 09/19/22 16:15 • (DUP) R3842845-4 09/19/22 16:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1940	2320	1	17.9	J3	5

Laboratory Control Sample (LCS)

(LCS) R3842845-2 09/19/22 16:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8390	95.3	77.3-123	

Method Blank (MB)

(MB) R3840434-1 09/20/22 11:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Suspended Solids	U		2.50	2.50

L1535401-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1535401-01 09/20/22 11:25 • (DUP) R3840434-3 09/20/22 11:25

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Suspended Solids	54.0	52.0	1	3.77		5

L1535420-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1535420-01 09/20/22 11:25 • (DUP) R3840434-4 09/20/22 11:25

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Suspended Solids	272	296	1	8.45	P1	5

Laboratory Control Sample (LCS)

(LCS) R3840434-2 09/20/22 11:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Suspended Solids	773	796	103	85.7-114	

Method Blank (MB)

(MB) R3838502-2 09/18/22 07:34

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

L1533920-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1533920-01 09/18/22 07:50 • (DUP) R3838502-4 09/18/22 07:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	348	348	1	0.121		20
Alkalinity,Bicarbonate	348	348	1	0.121		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

L1536425-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1536425-01 09/18/22 09:37 • (DUP) R3838502-6 09/18/22 09:43

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	262	264	1	0.741		20
Alkalinity,Bicarbonate	262	264	1	0.741		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) R3838502-1 09/18/22 07:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	100	105	105	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

Method Blank (MB)

(MB) R3839257-1 09/20/22 13:56

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

L1533362-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1533362-01 09/20/22 14:03 • (DUP) R3839257-3 09/20/22 14:04

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	ND	ND	1	0.000		20

L1536422-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1536422-01 09/20/22 14:30 • (DUP) R3839257-5 09/20/22 14:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	30.4	25.6	20	17.1		20

Laboratory Control Sample (LCS)

(LCS) R3839257-2 09/20/22 13:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate-Nitrite	2.50	2.47	98.8	90.0-110	

L1533362-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1533362-01 09/20/22 14:03 • (MS) R3839257-4 09/20/22 14:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate-Nitrite	2.50	ND	2.56	102	1	90.0-110	

L1536422-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1536422-01 09/20/22 14:30 • (MS) R3839257-6 09/20/22 14:32 • (MSD) R3839257-7 09/20/22 14:33

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 %
Nitrate-Nitrite	50.0	30.4	77.4	76.8	94.0	92.8	20	90.0-110			0.778	20

Method Blank (MB)

(MB) R3838374-1 09/17/22 17:53

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

L1533859-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1533859-01 09/17/22 17:57 • (DUP) R3838374-3 09/17/22 17:58

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	0.409	0.444	1	8.21		20

L1533860-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1533860-01 09/17/22 18:02 • (DUP) R3838374-6 09/17/22 18:03

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	3.25	3.18	1	2.18		20

Laboratory Control Sample (LCS)

(LCS) R3838374-2 09/17/22 17:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phosphorus,Total	3.78	3.79	100	83.2-116	

L1533859-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1533859-01 09/17/22 17:57 • (MS) R3838374-4 09/17/22 17:59 • (MSD) R3838374-5 09/17/22 18:01

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	0.409	3.08	2.97	107	102	1	90.0-110			3.64	20

L1534484-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1534484-01 09/22/22 15:00 • (DUP) R3840320-2 09/22/22 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.63	7.63	1	0.000		1

Sample Narrative:

OS: 7.63 at 18.8C

DUP: 7.63 at 18.9C

L1535446-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1535446-03 09/22/22 15:00 • (DUP) R3840320-3 09/22/22 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	6.23	6.17	1	0.968		1

Sample Narrative:

OS: 6.23 at 18.8C

DUP: 6.17 at 18.7C

Laboratory Control Sample (LCS)

(LCS) R3840320-1 09/22/22 15:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.91	99.1	99.0-101	

Sample Narrative:

LCS: 9.91 at 19.2C

Method Blank (MB)

(MB) R3840274-1 09/22/22 14:05

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

L1533843-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1533843-02 09/22/22 14:05 • (DUP) R3840274-3 09/22/22 14:05

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	512	512	1	0.000		20

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

L1534856-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1534856-01 09/22/22 14:05 • (DUP) R3840274-4 09/22/22 14:05

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3260	3220	1	1.23		20

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

Laboratory Control Sample (LCS)

(LCS) R3840274-2 09/22/22 14:05

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1090	97.0	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3837789-1 09/15/22 02:57

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
Sulfate	U		0.594	5.00

L1535374-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1535374-02 09/15/22 05:53 • (DUP) R3837789-3 09/15/22 06:06

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	3.55	3.58	1	0.802		15

L1535675-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1535675-04 09/15/22 08:18 • (DUP) R3837789-6 09/15/22 08:31

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	16.6	16.5	1	0.646		15
Sulfate	36.8	36.6	1	0.624		15

Laboratory Control Sample (LCS)

(LCS) R3837789-2 09/15/22 03:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	40.2	101	80.0-120	
Chloride	40.0	40.3	101	80.0-120	
Fluoride	8.00	8.45	106	80.0-120	
Sulfate	40.0	40.3	101	80.0-120	

L1535374-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1535374-02 09/15/22 05:53 • (MS) R3837789-4 09/15/22 06:20 • (MSD) R3837789-5 09/15/22 06:33

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 %
Chloride	50.0	3.55	55.6	56.6	104	106	1	80.0-120			1.81	15

L1535675-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1535675-04 09/15/22 08:18 • (MS) R3837789-7 09/15/22 08:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	ND	52.9	106	1	80.0-120	
Chloride	50.0	16.6	67.5	102	1	80.0-120	
Sulfate	50.0	36.8	85.9	98.2	1	80.0-120	

Method Blank (MB)

(MB) R3838718-1 09/19/22 12:18

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) R3838718-2 09/19/22 12:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	1.00	0.972	97.2	80.0-120	
Boron	1.00	0.949	94.9	80.0-120	
Calcium	10.0	9.61	96.1	80.0-120	
Iron	10.0	9.63	96.3	80.0-120	
Magnesium	10.0	9.56	95.6	80.0-120	
Manganese	1.00	0.892	89.2	80.0-120	
Potassium	10.0	9.40	94.0	80.0-120	
Selenium	1.00	0.990	99.0	80.0-120	
Sodium	10.0	9.62	96.2	80.0-120	
Strontium	1.00	0.951	95.1	80.0-120	

L1534466-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1534466-10 09/19/22 12:23 • (MS) R3838718-4 09/19/22 12:28 • (MSD) R3838718-5 09/19/22 12:31

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	0.0861	1.05	1.06	96.9	97.8	1	75.0-125			0.881	20
Boron	1.00	ND	1.04	1.08	95.1	98.6	1	75.0-125			3.30	20
Calcium	10.0	67.6	76.3	77.3	87.2	97.2	1	75.0-125			1.31	20
Iron	10.0	ND	9.65	9.90	96.5	99.0	1	75.0-125			2.58	20
Magnesium	10.0	24.5	33.3	33.8	88.0	93.0	1	75.0-125			1.50	20
Manganese	1.00	ND	0.876	0.885	87.6	88.5	1	75.0-125			0.986	20
Potassium	10.0	2.52	11.9	12.1	93.3	95.4	1	75.0-125			1.71	20

L1534466-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1534466-10 09/19/22 12:23 • (MS) R3838718-4 09/19/22 12:28 • (MSD) R3838718-5 09/19/22 12:31

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	1.03	1.06	103	105	1	75.0-125			2.04	20
Sodium	10.0	46.7	55.5	56.2	87.3	95.1	1	75.0-125			1.40	20
Strontium	1.00	0.181	1.12	1.15	93.7	96.5	1	75.0-125			2.45	20

Method Blank (MB)

(MB) R3838239-3 09/15/22 05:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH (GC/FID) Low Fraction	U		0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	*91.5*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3838239-2 09/15/22 04:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.05	91.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*97.5*	*78.0-120*	

Method Blank (MB)

(MB) R3837893-2 09/15/22 18:19

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	*113*			*80.0-120*
(S) 4-Bromofluorobenzene	*99.4*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*97.4*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3837893-1 09/15/22 14:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00449	89.8	70.0-123	
Toluene	0.00500	0.00498	99.6	79.0-120	
Ethylbenzene	0.00500	0.00567	113	79.0-123	
Xylenes, Total	0.0150	0.0161	107	79.0-123	
Naphthalene	0.00500	0.00420	84.0	54.0-135	
(S) Toluene-d8			*115*	*80.0-120*	
(S) 4-Bromofluorobenzene			*97.3*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*102*	*70.0-130*	

Method Blank (MB)

(MB) R3838346-1 09/16/22 21:00

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	*96.5*			*52.0-156*

Laboratory Control Sample (LCS)

(LCS) R3838346-2 09/16/22 21:23

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	1.50	1.39	92.7	50.0-150	
(S) o-Terphenyl			*111*	*52.0-156*	

L1534190-23 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1534190-23 09/19/22 09:35 • (MS) R3838735-1 09/19/22 10:01 • (MSD) R3838735-2 09/19/22 10:28

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 %
C10-C28 Diesel Range	1.43	1.04	2.31	2.49	88.8	101	1	50.0-150			7.50	20
(S) o-Terphenyl					*91.1*	*91.6*		*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
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.

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.

Caerus Oil and Gas

143 Diamond Avenue
Parachute, CO 81635

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

Report to: Brett Middleton

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

Project Description: Pacience Basin Production Water Quality Sampling

City/State Collected: Parachute, CO

Please Circle: PT (MT) CT ET

Phone: 970-285-2653

Client Project # None Assigned

Lab Project # None Assigned

Collected by (print): WILL HARMON

Site/Facility ID # Not Assigned

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 #

Date Results Needed: ASAP

Immediately Packed on Ice N___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	ALK,ALKBI,ALKCA 250mlHDPE-NoPres	Br,Cl,NO2,NO3,SO4 250mlHDPE-NoPres	DRONMLVI 40mlAmb-HCl-BT	DRONMLVI 40mlAmb-NoPres	Extra 250mlHDPE-NoPres	GRO 40mlAmb HCl	GRO 40mlAmb-NoPres	NO2NO3 250mlHDPE-H2SO4	PT 250mlHDPE-H2SO4	RA-226/228 1L-HDPE-Add-HNO3	Remarks	Sample # (lab only)
045-12851-WMFK	Grab	GW	Surface	9/13	1303	26		X	X	X	X	X	X	X	X	X	X		-01
045-12852-WMFK	Grab	GW	" "	9/13	1330	26		X	X	X	X	X	X	X	X	X	X		-02
045-20304-WMFK	Grab	GW	" "	9/13	1405	26		X	X	X	X	X	X	X	X	X	X		-03
045-20306-WMFK	Grab	GW	" "	9/13	1440	26		X	X	X	X	X	X	X	X	X	X		-04

* 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,Na,Se,Sr

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __UPS __FedEx __Courier _____

Tracking # 5755 8085 0433

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	9/13/22	17:50	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	9/13/22	1845	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 4.7 °C Bottles Received: 12

Date: 9/14/22 Time: 900

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
RAD Screen <0.5 mR/hr: __Y __N

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
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/hubfs/pas-standard-terms.pdf

SDG # L1535446

B001

Template: T215555
Prelogin: P948439
PM: 824 - Chris Ward
PB:

Shipped Via: FedEX Ground

Caerus Oil and Gas

143 Diamond Avenue
Parachute, CO 81635

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

Pres Chk: 12

Report to: Brett Middleton

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

Project Description: Pacience Basin Production Water Quality Sampling

City/State Collected: Parachute, Co

Please Circle: PT MT CT ET

Phone: 970-285-2653

Client Project #: None Assigned

Lab Project #: None Assigned

Collected by (print): Will Harmon

Site/Facility ID #: Not Assigned

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 #:

Date Results Needed: ASAP

Immediately Packed on Ice N___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	SPCON 250mlHDPE-NoPres	TDS 1L-HDPE NoPres	TSS 1L-HDPE NoPres	Total Metals 250mlHDPE-HNO3	V8260BTEXN 40mlAmb-HCl	V8260BTEXN 40mlAmb-NoPres	pH 125mlHDPE-NoPres			Remarks	Sample # (lab only)
045-12851-WMFK	Grab	GW	Surface	9/13	1303	26	X	X	X	X	X	X	X				-01
045-12852-WMFK	Grab	GW	" "	9/13	1330	26	X	X	X	X	X	X	X				-02
045-20304-WMFK	Grab	GW	" "	9/13	1405	26	X	X	X	X	X	X	X				-03
045-20306-WMFK	Grab	GW	" "	9/13	1440	26	X	X	X	X	X	X	X				-04

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

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/hubfs/pas-standard-terms.pdf

SDG # L535446

Table #

Acctnum: CAERUSPCO

Template: T215555

Prelogin: P948439

PM: 824 - Chris Ward

PB:

Shipped Via: FedEX Ground

* 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,Na,Se,Sr

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 5755 8085 0422

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
RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	9/13/22	17:50		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
	9/13/22	18:15		0.5 to 0.5 72
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				9/14/22 900

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK