ANALYTICAL REPORT

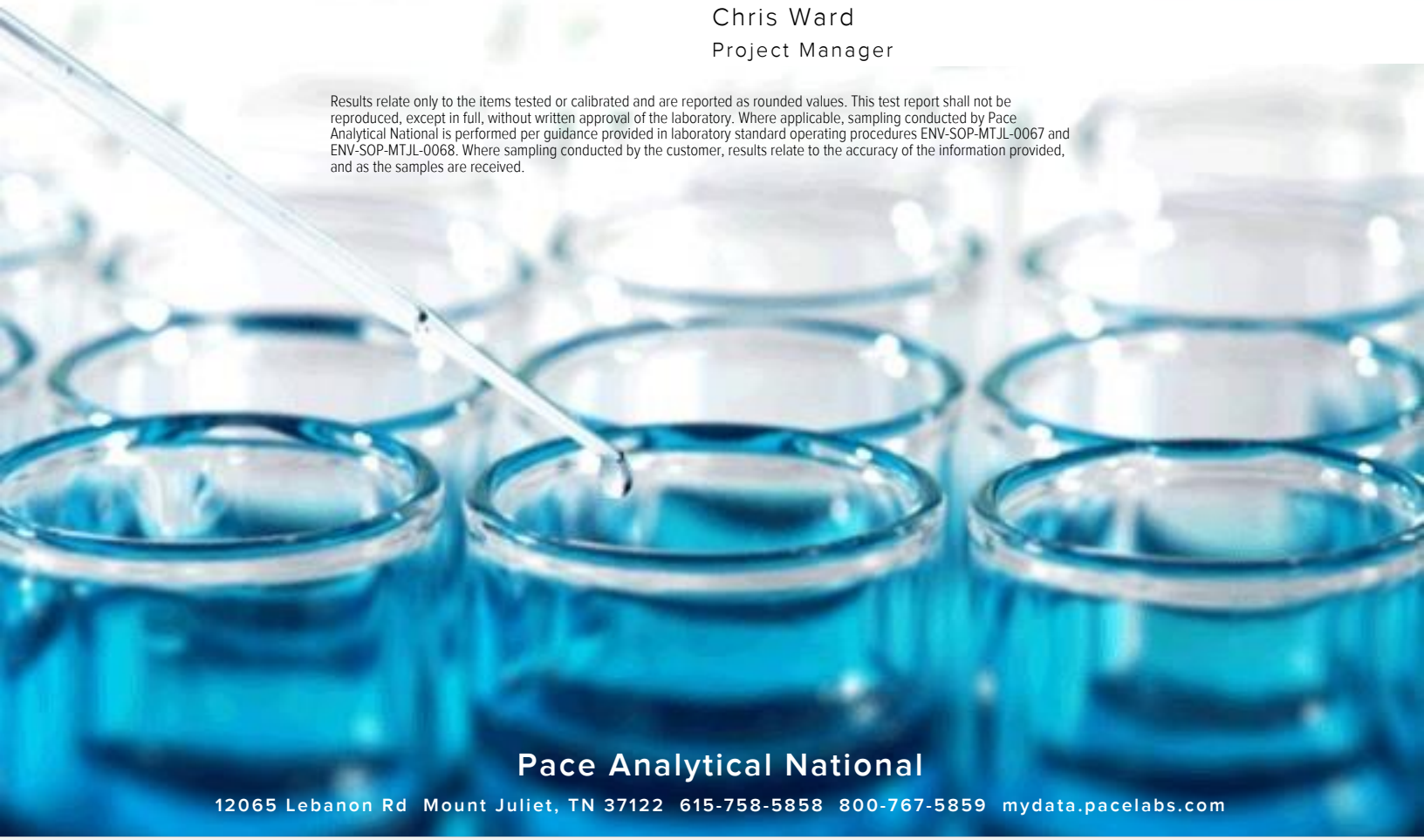
June 07, 2024

Caerus Oil and Gas

Sample Delivery Group:	L1740301
Samples Received:	05/24/2024
Project Number:	
Description:	Caerus 5L
Site:	RULLISON 5L
Report To:	Jake J. / Brett M. / Blair R. / Andy V. 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 mydata.pacelabs.com

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20240522-5L-SB05/OB-01@20' L1740301-01 Solid

Collected by: Kyle Ames | Collected date/time: 05/22/24 10:20 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 12:27	06/06/24 12:27	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 02:25	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:22	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1.01	05/28/24 19:52	05/29/24 18:32	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 07:43	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	10	06/01/24 09:28	06/01/24 22:10	JSS	Mt. Juliet, TN

20240522-5L-SB05/OB-01@30' L1740301-02 Solid

Collected by: Kyle Ames | Collected date/time: 05/22/24 11:25 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 12:30	06/06/24 12:30	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 02:29	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:25	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1	05/28/24 19:52	05/29/24 18:55	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 08:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	20	06/01/24 09:28	06/03/24 14:12	JSS	Mt. Juliet, TN

20240522-5L-SB05/OB-01@36' L1740301-03 Solid

Collected by: Kyle Ames | Collected date/time: 05/22/24 11:40 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 12:33	06/06/24 12:33	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 02:32	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:28	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1	05/28/24 19:52	05/29/24 19:18	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 08:21	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	1	06/01/24 09:28	06/01/24 18:35	JSS	Mt. Juliet, TN

20240522-5L-SB05/OB-01@40' L1740301-04 Solid

Collected by: Kyle Ames | Collected date/time: 05/22/24 12:10 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 12:37	06/06/24 12:37	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 02:35	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:32	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1.01	05/28/24 19:52	05/29/24 19:41	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 08:40	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	1	06/01/24 09:28	06/01/24 18:02	JSS	Mt. Juliet, TN

20240523-5L-SB-06@10' L1740301-05 Solid

Collected by: Kyle Ames | Collected date/time: 05/23/24 10:15 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 12:40	06/06/24 12:40	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 02:39	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:35	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1	05/28/24 19:52	05/29/24 20:04	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 09:23	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	1	06/01/24 09:28	06/01/24 19:41	JSS	Mt. Juliet, TN

20240523-5L-SB-06@20' L1740301-06 Solid

Collected by: Kyle Ames | Collected date/time: 05/23/24 10:35 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 12:44	06/06/24 12:44	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 03:11	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:38	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1	05/28/24 19:52	05/29/24 20:27	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 09:43	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	1	06/01/24 09:28	06/01/24 18:18	JSS	Mt. Juliet, TN

20240523-5L-SB-06@30' L1740301-07 Solid

Collected by: Kyle Ames | Collected date/time: 05/23/24 10:50 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 12:47	06/06/24 12:47	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 03:15	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:41	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1	05/28/24 19:52	05/29/24 20:50	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 10:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	1	06/01/24 09:28	06/01/24 19:25	JSS	Mt. Juliet, TN

20240523-5L-SB-06@40' L1740301-08 Solid

Collected by: Kyle Ames | Collected date/time: 05/23/24 11:20 | Received date/time: 05/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2294931	1	06/06/24 11:25	06/06/24 11:25	DJS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2298881	1	06/05/24 10:06	06/05/24 11:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2298883	1	06/05/24 10:04	06/05/24 11:54	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2294929	1	06/04/24 14:02	06/05/24 03:18	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2299075	5	06/06/24 08:46	06/07/24 02:45	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2294697	1	05/28/24 19:52	05/29/24 21:13	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2296927	1	05/28/24 19:52	06/02/24 10:21	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2296631	1	06/01/24 09:28	06/01/24 17:45	JSS	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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.451		1	06/06/2024 12:27	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.30	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:
L1740301-01 WG2298881: 8.3 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	160		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:
L1740301-01 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 02:25	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	2.69		1.00	5	06/07/2024 02:22	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.301		0.101	1.01	05/29/2024 18:32	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*97.1*		*77.0-120*		*05/29/2024 18:32*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	ND		0.00650	1	06/02/2024 07:43	WG2296927
(S) Toluene-d8	*104*		*75.0-131*		*06/02/2024 07:43*	WG2296927
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*06/02/2024 07:43*	WG2296927
(S) 1,2-Dichloroethane-d4	*85.2*		*70.0-130*		*06/02/2024 07:43*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	126		40.0	10	06/01/2024 22:10	WG2296631
C28-C36 Motor Oil Range	302		40.0	10	06/01/2024 22:10	WG2296631
(S) o-Terphenyl	*39.9*		*18.0-148*		*06/01/2024 22:10*	WG2296631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.986		1	06/06/2024 12:30	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.40	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:

L1740301-02 WG2298881: 8.4 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	178		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:

L1740301-02 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 02:29	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	2.60		1.00	5	06/07/2024 02:25	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	1.02		0.100	1	05/29/2024 18:55	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-120*		*05/29/2024 18:55*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	ND		0.00650	1	06/02/2024 08:02	WG2296927
(S) Toluene-d8	*105*		*75.0-131*		*06/02/2024 08:02*	WG2296927
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*06/02/2024 08:02*	WG2296927
(S) 1,2-Dichloroethane-d4	*81.7*		*70.0-130*		*06/02/2024 08:02*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	88.4		80.0	20	06/03/2024 14:12	WG2296631
C28-C36 Motor Oil Range	193		80.0	20	06/03/2024 14:12	WG2296631
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*06/03/2024 14:12*	WG2296631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	2.95		1	06/06/2024 12:33	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.52	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:

L1740301-03 WG2298881: 8.52 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	222		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:

L1740301-03 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 02:32	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.35		1.00	5	06/07/2024 02:28	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	05/29/2024 19:18	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*96.8*		*77.0-120*		*05/29/2024 19:18*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	0.0138		0.00650	1	06/02/2024 08:21	WG2296927
(S) Toluene-d8	*104*		*75.0-131*		*06/02/2024 08:21*	WG2296927
(S) 4-Bromofluorobenzene	*103*		*67.0-138*		*06/02/2024 08:21*	WG2296927
(S) 1,2-Dichloroethane-d4	*82.8*		*70.0-130*		*06/02/2024 08:21*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	28.3	J6	4.00	1	06/01/2024 18:35	WG2296631
C28-C36 Motor Oil Range	66.6		4.00	1	06/01/2024 18:35	WG2296631
(S) o-Terphenyl	*39.9*		*18.0-148*		*06/01/2024 18:35*	WG2296631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	2.92		1	06/06/2024 12:37	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.62	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:

L1740301-04 WG2298881: 8.62 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	207		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:

L1740301-04 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 02:35	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.08		1.00	5	06/07/2024 02:32	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.400		0.101	1.01	05/29/2024 19:41	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*96.5*		*77.0-120*		*05/29/2024 19:41*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	0.0479		0.00650	1	06/02/2024 08:40	WG2296927
(S) Toluene-d8	*106*		*75.0-131*		*06/02/2024 08:40*	WG2296927
(S) 4-Bromofluorobenzene	*103*		*67.0-138*		*06/02/2024 08:40*	WG2296927
(S) 1,2-Dichloroethane-d4	*84.7*		*70.0-130*		*06/02/2024 08:40*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	27.0		4.00	1	06/01/2024 18:02	WG2296631
C28-C36 Motor Oil Range	74.8		4.00	1	06/01/2024 18:02	WG2296631
(S) o-Terphenyl	*33.5*		*18.0-148*		*06/01/2024 18:02*	WG2296631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.901		1	06/06/2024 12:40	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.37	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:
L1740301-05 WG2298881: 8.37 at 21.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	189		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:
L1740301-05 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 02:39	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	1.88		1.00	5	06/07/2024 02:35	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.213		0.100	1	05/29/2024 20:04	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*95.3*		*77.0-120*		*05/29/2024 20:04*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	ND		0.00650	1	06/02/2024 09:23	WG2296927
(S) Toluene-d8	*105*		*75.0-131*		*06/02/2024 09:23*	WG2296927
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*06/02/2024 09:23*	WG2296927
(S) 1,2-Dichloroethane-d4	*88.9*		*70.0-130*		*06/02/2024 09:23*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	57.0		4.00	1	06/01/2024 19:41	WG2296631
C28-C36 Motor Oil Range	132		4.00	1	06/01/2024 19:41	WG2296631
(S) o-Terphenyl	*39.2*		*18.0-148*		*06/01/2024 19:41*	WG2296631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.525		1	06/06/2024 12:44	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:
L1740301-06 WG2298881: 8.42 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	140		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:
L1740301-06 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 03:11	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.17		1.00	5	06/07/2024 02:38	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	05/29/2024 20:27	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*96.6*		*77.0-120*		*05/29/2024 20:27*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	ND		0.00650	1	06/02/2024 09:43	WG2296927
(S) Toluene-d8	*106*		*75.0-131*		*06/02/2024 09:43*	WG2296927
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*06/02/2024 09:43*	WG2296927
(S) 1,2-Dichloroethane-d4	*82.7*		*70.0-130*		*06/02/2024 09:43*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	24.4		4.00	1	06/01/2024 18:18	WG2296631
C28-C36 Motor Oil Range	57.2		4.00	1	06/01/2024 18:18	WG2296631
(S) o-Terphenyl	*39.1*		*18.0-148*		*06/01/2024 18:18*	WG2296631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.493		1	06/06/2024 12:47	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.35	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:
L1740301-07 WG2298881: 8.35 at 21.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	130		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:
L1740301-07 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 03:15	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	2.64		1.00	5	06/07/2024 02:41	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	05/29/2024 20:50	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*96.7*		*77.0-120*		*05/29/2024 20:50*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	ND		0.00650	1	06/02/2024 10:02	WG2296927
(S) Toluene-d8	*107*		*75.0-131*		*06/02/2024 10:02*	WG2296927
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*06/02/2024 10:02*	WG2296927
(S) 1,2-Dichloroethane-d4	*86.0*		*70.0-130*		*06/02/2024 10:02*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	26.1		4.00	1	06/01/2024 19:25	WG2296631
C28-C36 Motor Oil Range	55.5		4.00	1	06/01/2024 19:25	WG2296631
(S) o-Terphenyl	*40.0*		*18.0-148*		*06/01/2024 19:25*	WG2296631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.950		1	06/06/2024 11:25	WG2294931

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.50	T8	1	06/05/2024 11:30	WG2298881

Sample Narrative:
L1740301-08 WG2298881: 8.5 at 21.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	133		10.0	1	06/05/2024 11:54	WG2298883

Sample Narrative:
L1740301-08 WG2298883: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/05/2024 03:18	WG2294929

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.40		1.00	5	06/07/2024 02:45	WG2299075

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	05/29/2024 21:13	WG2294697
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*77.0-120*		*05/29/2024 21:13*	WG2294697

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Total Xylenes	ND		0.00650	1	06/02/2024 10:21	WG2296927
(S) Toluene-d8	*104*		*75.0-131*		*06/02/2024 10:21*	WG2296927
(S) 4-Bromofluorobenzene	*99.2*		*67.0-138*		*06/02/2024 10:21*	WG2296927
(S) 1,2-Dichloroethane-d4	*81.8*		*70.0-130*		*06/02/2024 10:21*	WG2296927

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	21.5		4.00	1	06/01/2024 17:45	WG2296631
C28-C36 Motor Oil Range	49.4		4.00	1	06/01/2024 17:45	WG2296631
(S) o-Terphenyl	*41.7*		*18.0-148*		*06/01/2024 17:45*	WG2296631

L1739848-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1739848-04 06/05/24 11:30 • (DUP) R4077515-2 06/05/24 11:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.44	7.43	1	0.134		1

Sample Narrative:

OS: 7.44 at 22.5C

DUP: 7.43 at 22.4C

L1740301-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1740301-07 06/05/24 11:30 • (DUP) R4077515-3 06/05/24 11:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.35	8.40	1	0.597		1

Sample Narrative:

OS: 8.35 at 21.9C

DUP: 8.4 at 22.1C

Laboratory Control Sample (LCS)

(LCS) R4077515-1 06/05/24 11:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.04 at 21.5C

Method Blank (MB)

(MB) R4077531-1 06/05/24 11:54

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

L1739848-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1739848-03 06/05/24 11:54 • (DUP) R4077531-3 06/05/24 11:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	75.8	76.8	1	1.31		20

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

L1740301-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1740301-08 06/05/24 11:54 • (DUP) R4077531-4 06/05/24 11:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	133	133	1	0.452		20

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

Laboratory Control Sample (LCS)

(LCS) R4077531-2 06/05/24 11:54

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	733	750	102	85.0-115	

Sample Narrative:
LCS: at 25C

QUALITY CONTROL SUMMARY

L1740301-01,02,03,04,05,06,07,08

Method Blank (MB)

(MB) R4077416-1 06/05/24 01:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R4077416-2 06/05/24 01:31 • (LCSD) R4077416-3 06/05/24 01:34

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	%	%	%			%	%
Hot Water Sol. Boron	1.00	1.08	1.08	108	108	80.0-120			0.262	20

Method Blank (MB)

(MB) R4078434-1 06/07/24 01:42

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R4078434-2 06/07/24 01:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Arsenic	100	89.6	89.6	80.0-120	

L1741038-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1741038-02 06/07/24 01:48 • (MS) R4078434-5 06/07/24 01:58 • (MSD) R4078434-6 06/07/24 02:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	6.71	81.4	83.7	74.7	77.0	5	75.0-125	J6		2.70	20

Method Blank (MB)

(MB) R4075893-3 05/29/24 11:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*101*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R4075893-2 05/29/24 10:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.75	115	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*114*	*77.0-120*	

Method Blank (MB)

(MB) R4076867-3 06/02/24 05:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Total Xylenes	U		0.000880	0.00650
(S) Toluene-d8	*103*			*75.0-131*
(S) 4-Bromofluorobenzene	*101*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*89.8*			*70.0-130*

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

(LCS) R4076867-1 06/02/24 04:13 • (LCSD) R4076867-2 06/02/24 04:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Total Xylenes	0.375	0.358	0.372	95.5	99.2	72.0-127			3.84	20
(S) Toluene-d8				*102*	*101*	*75.0-131*				
(S) 4-Bromofluorobenzene				*97.0*	*98.7*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*98.4*	*98.1*	*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) R4076215-1 06/01/24 15:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*40.5*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R4076215-2 06/01/24 15:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	30.0	60.0	50.0-150	
(S) o-Terphenyl			*53.3*	*18.0-148*	

L1740301-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1740301-03 06/01/24 18:35 • (MS) R4076215-3 06/01/24 18:51 • (MSD) R4076215-4 06/01/24 19:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.2	28.3	51.7	48.5	47.6	41.1	1	50.0-150	J6	J6	6.39	20
(S) o-Terphenyl					*30.2*	*39.3*		*18.0-148*				

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
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	Sample(s) received past/too close to holding time expiration.

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.

Pace® Location Requested (City/State):

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions L1740301

Company Name: Caerus Oil and Gas LLC	Contact/Report To: Jake Janicek, Brett Middleton
Street Address: Info on file	Phone #:
	E-Mail:
	Cc E-Mail: amansfield@hrlcomp.com, kames@hrlcomp.com
Customer Project #:	Invoice to: Caerus-HRL
Project Name: Caerus 5L	Invoice E-mail:
Site Collection Info/Facility ID (as applicable): Rullison 5L	Purchase Order # (if applicable):
	Quote #:
Time Zone Collected: [ ] AK [ ] PT [X] MT [ ] CT [ ] ET	County / State origin of sample(s): Garfield County, CO
Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other_____	Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No
	Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day Other _____ Date Results Requested:
	DW PWSID # or WW Permit # as applicable: Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only: Proj. Mgr: / AcctNum / Client ID: / Table #: / Profile / Template: / Prelog / Bottle Ord. ID:

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Residual Chlorine Result	Residual Chlorine Units	TPH(GRO, DRO, ORO)	pH, EC, SAR	Boron (Hot Watewr)	Arsenic	Xylenes	Sample Comment	Preservation non-conformance identified for sample.
20240522-5L-SB05/OB-01@20'	SS	G			05/22/24	1020	4			X	X	X	X	X	-01	
20240522-5L-SB05/OB-01@30'	SS	G			05/22/24	1125	4			X	X	X	X	X	-02	
20240522-5L-SB05/OB-01@36'	SS	G			05/22/24	1140	4			X	X	X	X	X	-03	
20240522-5L-SB05/OB-01@40'	SS	G			05/22/24	1210	4			X	X	X	X	X	-04	
20240523-5L-SB-06@10'	SS	G			05/23/24	1015	4			X	X	X	X	X	-05	
20240523-5L-SB-06@20'	SS	G			05/23/24	1035	4			X	X	X	X	X	-06	
20240523-5L-SB-06@30'	SS	G			05/23/24	1050	4			X	X	X	X	X	-07	
20240523-5L-SB-06@40'	SS	G			05/23/24	1120	4			X	X	X	X	X	-08	

Additional Instructions from Pace® :

Collected By: Printed Name Kyle Ames Signature

Customer Remarks / Special Conditions / Possible Hazards:

Coolers: | Thermometer ID: | Correction Factor (°C): | Obs. Temp. (°C): | Corrected Temp. (°C): | [ ] On Ice

Relinquished by/Company: (Signature) HRL	Date/Time: 5/23/2024 1520	Received by/Company: (Signature)	Date/Time: 5/23 1600
Relinquished by/Company: (Signature)	Date/Time: 5 23 24 1706	Received by/Company: (Signature)	Date/Time: 5/24/24 0900
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

Tracking Number:

Delivered by: [ ] In- Person [ ] Courier [ ] FedEx [ ] UPS [ ] Other

Submi

found at https://info.pacelabs.com/hubfs/pas-standard-terms.pdf.

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres. Correct/Check:	Y N
Correct bottles used:	Y N	EDA 6.8.9 HCl = 4.0	
Sufficient volume sent:	Y N		
RA Screen <0.5 mR/hr:	Y N	6525 5572 0954	

5/24 - NCF-L1740301 CAERUSPCO

R2/R3/R4/RX/EX

Time estimate: oh **Time spent:** oh **Grouping date:** 24 May 2024

Members

Robert Rountree (responsible)

- [ ] Parameter(s) past holding time
- [ ] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [x] Broken container
- [x] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [ ] PM initials:_____
- [ ] Client Contact:_____

Comments

Robert Rountree *24 May 2024 7:58 PM*

Sample 20240523-5L-SB-06@30' was received with both 8oz jars broken. Contents transferred to new containers.