

Caerus Oil and Gas

Sample Delivery Group: L1691893
Samples Received: 12/28/2023
Project Number:
Description: O36 Pipeline Closure

Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

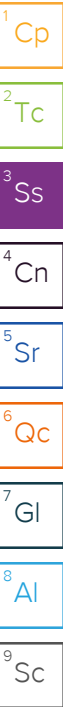
20231226-O36-(FC-PIPELINE07)@6 L1691893-01 Solid

Collected by
Nora Oviatt

Collected date/time
12/26/23 11:00

Received date/time
12/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2198853	1	01/04/24 17:14	01/04/24 17:14	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2196956	1	01/02/24 16:08	01/03/24 09:32	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2198715	1	12/30/23 14:56	12/31/23 15:00	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2198368	1	12/29/23 16:00	12/29/23 19:25	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2198856	1	01/02/24 12:49	01/03/24 15:45	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2198084	5	12/29/23 15:21	12/31/23 23:54	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2200697	1	12/31/23 09:17	01/04/24 17:34	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2199033	1	12/31/23 09:17	12/31/23 18:12	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2197823	1	12/29/23 15:30	12/30/23 02:38	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2198251	1	12/29/23 23:05	12/30/23 03:46	AMG	Mt. Juliet, TN



20231226-O36-(STOCK06) L1691893-02 Solid

Collected by
Nora Oviatt

Collected date/time
12/26/23 10:30

Received date/time
12/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2198853	1	01/04/24 17:17	01/04/24 17:17	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2196956	1	01/02/24 16:08	01/03/24 10:03	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2198715	1	12/30/23 14:56	12/31/23 15:00	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2198368	1	12/29/23 16:00	12/29/23 19:25	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2198856	1	01/02/24 12:49	01/03/24 15:48	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2198084	5	12/29/23 15:21	12/31/23 23:58	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2200697	1	12/31/23 09:17	01/04/24 17:58	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2199033	1	12/31/23 09:17	12/31/23 18:31	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2197823	1	12/29/23 15:30	12/30/23 03:52	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2198251	1	12/29/23 23:05	12/30/23 04:05	AMG	Mt. Juliet, TN

20231226-O36-(PIPELINE08)@10 L1691893-03 Solid

Collected by
Nora Oviatt

Collected date/time
12/26/23 11:45

Received date/time
12/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2198853	1	01/04/24 17:20	01/04/24 17:20	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2196956	1	01/02/24 16:08	01/03/24 10:09	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2198715	1	12/30/23 14:56	12/31/23 15:00	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2198913	1	12/31/23 10:25	01/02/24 10:45	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2198856	1	01/02/24 12:49	01/03/24 15:56	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2198084	5	12/29/23 15:21	01/01/24 00:01	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2200697	1	12/31/23 09:17	01/04/24 18:23	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2199033	1	12/31/23 09:17	12/31/23 18:51	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2197823	1	12/29/23 15:30	12/30/23 04:04	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2198251	1	12/29/23 23:05	12/30/23 04:24	AMG	Mt. Juliet, TN

20231226-O36-(STOCK07) L1691893-04 Solid

Collected by
Nora Oviatt

Collected date/time
12/26/23 12:05

Received date/time
12/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2198853	1	01/04/24 17:23	01/04/24 17:23	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2196956	1	01/02/24 16:08	01/03/24 10:15	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2198715	1	12/30/23 14:56	12/31/23 15:00	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2198913	1	12/31/23 10:25	01/02/24 10:45	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2198856	1	01/02/24 12:49	01/03/24 15:59	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2198084	5	12/29/23 15:21	01/01/24 00:04	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2200697	1	12/31/23 09:17	01/04/24 18:47	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2199033	1	12/31/23 09:17	12/31/23 19:10	JHH	Mt. Juliet, TN

SAMPLE SUMMARY

20231226-O36-(STOCK07) L1691893-04 Solid

Collected by
Nora Oviatt

Collected date/time
12/26/23 12:05

Received date/time
12/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2197823	10	12/29/23 15:30	12/30/23 04:28	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2198251	1	12/29/23 23:05	12/30/23 07:18	AMG	Mt. Juliet, TN

¹Cp ${}^2\text{Tc}$ 3S_1 ${}^4\text{Cn}$ ${}^5\text{Sr}$ ${}^6\text{Qc}$ ${}^7\text{Gf}$ ${}^8\text{Al}$ ${}^9\text{Sc}$

CASE NARRATIVE

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



Chris Ward
Project Manager

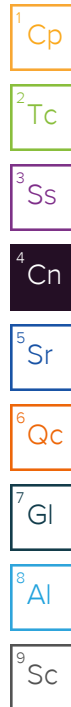
Report Revision History

Level II Report - Version 1: 01/08/24 12:06
Level II Report - Version 2: 01/08/24 16:01

Project Narrative

20231226-MPRBG-(O36-S)@0.5 unable to be run for Hot Water Boron due to sample matrix. Total Boron by 6020 reported instead

Reissued 1/8 for corrected sample IDs
Reissued 1/10 to split data - Version A



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.11		1	01/04/2024 17:14	WG2198853

1
Cp

2
Tc

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/03/2024 09:32	WG2196956

3
Ss

4
Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.94	T8	1	12/31/2023 15:00	WG2198715

5
Sr

6
Qc

Sample Narrative:

L1691893-01 WG2198715: 7.94 at 18.9C

7
Gl

8
Al

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1640		10.0	1	12/29/2023 19:25	WG2198368

9
Sc

Sample Narrative:

L1691893-01 WG2198368: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.945		0.200	1	01/03/2024 15:45	WG2198856

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	12.0		1.00	5	12/31/2023 23:54	WG2198084
Barium	251		2.50	5	12/31/2023 23:54	WG2198084
Cadmium	ND		1.00	5	12/31/2023 23:54	WG2198084
Copper	14.8		5.00	5	12/31/2023 23:54	WG2198084
Lead	12.8		2.00	5	12/31/2023 23:54	WG2198084
Nickel	16.3		2.50	5	12/31/2023 23:54	WG2198084
Selenium	ND		2.50	5	12/31/2023 23:54	WG2198084
Silver	ND		0.500	5	12/31/2023 23:54	WG2198084
Zinc	55.5		25.0	5	12/31/2023 23:54	WG2198084

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.392	B	0.100	1	01/04/2024 17:34	WG2200697
(S) a,a,a-Trifluorotoluene(FID)	89.7		77.0-120		01/04/2024 17:34	WG2200697

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	12/31/2023 18:12	WG2199033
Toluene	ND		0.00500	1	12/31/2023 18:12	WG2199033
Ethylbenzene	ND		0.00250	1	12/31/2023 18:12	WG2199033
Xylenes, Total	ND		0.00650	1	12/31/2023 18:12	WG2199033
1,2,4-Trimethylbenzene	ND		0.00500	1	12/31/2023 18:12	WG2199033
1,3,5-Trimethylbenzene	ND		0.00500	1	12/31/2023 18:12	WG2199033
(S) Toluene-d8	108		75.0-131		12/31/2023 18:12	WG2199033
(S) 4-Bromofluorobenzene	91.3		67.0-138		12/31/2023 18:12	WG2199033
(S) 1,2-Dichloroethane-d4	97.0		70.0-130		12/31/2023 18:12	WG2199033

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.27		4.00	1	12/30/2023 02:38	WG2197823
C28-C36 Motor Oil Range	12.2	B	4.00	1	12/30/2023 02:38	WG2197823
(S) o-Terphenyl	54.4		18.0-148		12/30/2023 02:38	WG2197823

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Anthracene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Benzo(a)anthracene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Benzo(b)fluoranthene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Benzo(k)fluoranthene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Benzo(a)pyrene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Chrysene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Dibenz(a,h)anthracene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Fluoranthene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Fluorene	ND		0.00600	1	12/30/2023 03:46	WG2198251
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/30/2023 03:46	WG2198251
1-Methylnaphthalene	ND		0.0200	1	12/30/2023 03:46	WG2198251
2-Methylnaphthalene	ND		0.0200	1	12/30/2023 03:46	WG2198251
Naphthalene	ND		0.0200	1	12/30/2023 03:46	WG2198251
Pyrene	ND		0.00600	1	12/30/2023 03:46	WG2198251
(S) p-Terphenyl-d14	69.0		23.0-120		12/30/2023 03:46	WG2198251
(S) Nitrobenzene-d5	64.9		14.0-149		12/30/2023 03:46	WG2198251
(S) 2-Fluorobiphenyl	63.8		34.0-125		12/30/2023 03:46	WG2198251

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.46		1	01/04/2024 17:17	WG2198853

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/03/2024 10:03	WG2196956

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.97	T8	1	12/31/2023 15:00	WG2198715

Sample Narrative:

L1691893-02 WG2198715: 7.97 at 18C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	856		10.0	1	12/29/2023 19:25	WG2198368

Sample Narrative:

L1691893-02 WG2198368: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.791		0.200	1	01/03/2024 15:48	WG2198856

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	13.6		1.00	5	12/31/2023 23:58	WG2198084
Barium	286		2.50	5	12/31/2023 23:58	WG2198084
Cadmium	ND		1.00	5	12/31/2023 23:58	WG2198084
Copper	17.6		5.00	5	12/31/2023 23:58	WG2198084
Lead	13.8		2.00	5	12/31/2023 23:58	WG2198084
Nickel	18.4		2.50	5	12/31/2023 23:58	WG2198084
Selenium	ND		2.50	5	12/31/2023 23:58	WG2198084
Silver	ND		0.500	5	12/31/2023 23:58	WG2198084
Zinc	60.9		25.0	5	12/31/2023 23:58	WG2198084

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.460		0.100	1	01/04/2024 17:58	WG2200697
(S) a,a,a-Trifluorotoluene(FID)	89.8		77.0-120		01/04/2024 17:58	WG2200697

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	12/31/2023 18:31	WG2199033
Toluene	ND		0.00500	1	12/31/2023 18:31	WG2199033
Ethylbenzene	ND		0.00250	1	12/31/2023 18:31	WG2199033
Xylenes, Total	ND		0.00650	1	12/31/2023 18:31	WG2199033
1,2,4-Trimethylbenzene	ND		0.00500	1	12/31/2023 18:31	WG2199033
1,3,5-Trimethylbenzene	ND		0.00500	1	12/31/2023 18:31	WG2199033
(S) Toluene-d8	109		75.0-131		12/31/2023 18:31	WG2199033
(S) 4-Bromofluorobenzene	90.8		67.0-138		12/31/2023 18:31	WG2199033
(S) 1,2-Dichloroethane-d4	98.6		70.0-130		12/31/2023 18:31	WG2199033

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	13.5		4.00	1	12/30/2023 03:52	WG2197823
C28-C36 Motor Oil Range	53.6		4.00	1	12/30/2023 03:52	WG2197823
(S) o-Terphenyl	44.7		18.0-148		12/30/2023 03:52	WG2197823

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Anthracene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Benzo(a)anthracene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Benzo(b)fluoranthene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Benzo(k)fluoranthene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Benzo(a)pyrene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Chrysene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Dibenz(a,h)anthracene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Fluoranthene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Fluorene	ND		0.00600	1	12/30/2023 04:05	WG2198251
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/30/2023 04:05	WG2198251
1-Methylnaphthalene	ND		0.0200	1	12/30/2023 04:05	WG2198251
2-Methylnaphthalene	ND		0.0200	1	12/30/2023 04:05	WG2198251
Naphthalene	ND		0.0200	1	12/30/2023 04:05	WG2198251
Pyrene	ND		0.00600	1	12/30/2023 04:05	WG2198251
(S) p-Terphenyl-d14	69.8		23.0-120		12/30/2023 04:05	WG2198251
(S) Nitrobenzene-d5	68.7		14.0-149		12/30/2023 04:05	WG2198251
(S) 2-Fluorobiphenyl	69.8		34.0-125		12/30/2023 04:05	WG2198251

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.15		1	01/04/2024 17:20	WG2198853

1
Cp

2
Tc

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/03/2024 10:09	WG2196956

3
Ss

4
Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.17	T8	1	12/31/2023 15:00	WG2198715

5
Sr

6
Qc

Sample Narrative:

L1691893-03 WG2198715: 8.17 at 18C

7
Gl

8
Al

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	302		10.0	1	01/02/2024 10:45	WG2198913

9
Sc

Sample Narrative:

L1691893-03 WG2198913: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.751		0.200	1	01/03/2024 15:56	WG2198856

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	18.8		1.00	5	01/01/2024 00:01	WG2198084
Barium	277		2.50	5	01/01/2024 00:01	WG2198084
Cadmium	ND		1.00	5	01/01/2024 00:01	WG2198084
Copper	21.4		5.00	5	01/01/2024 00:01	WG2198084
Lead	15.7		2.00	5	01/01/2024 00:01	WG2198084
Nickel	47.7		2.50	5	01/01/2024 00:01	WG2198084
Selenium	ND		2.50	5	01/01/2024 00:01	WG2198084
Silver	ND		0.500	5	01/01/2024 00:01	WG2198084
Zinc	56.3		25.0	5	01/01/2024 00:01	WG2198084

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.616		0.100	1	01/04/2024 18:23	WG2200697
(S) a,a,a-Trifluorotoluene(FID)	90.0		77.0-120		01/04/2024 18:23	WG2200697

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	12/31/2023 18:51	WG2199033
Toluene	0.144		0.00500	1	12/31/2023 18:51	WG2199033
Ethylbenzene	ND		0.00250	1	12/31/2023 18:51	WG2199033
Xylenes, Total	0.00894		0.00650	1	12/31/2023 18:51	WG2199033
1,2,4-Trimethylbenzene	ND		0.00500	1	12/31/2023 18:51	WG2199033
1,3,5-Trimethylbenzene	ND		0.00500	1	12/31/2023 18:51	WG2199033
(S) Toluene-d8	109		75.0-131		12/31/2023 18:51	WG2199033
(S) 4-Bromofluorobenzene	90.3		67.0-138		12/31/2023 18:51	WG2199033
(S) 1,2-Dichloroethane-d4	96.4		70.0-130		12/31/2023 18:51	WG2199033

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	34.9		4.00	1	12/30/2023 04:04	WG2197823
C28-C36 Motor Oil Range	96.9		4.00	1	12/30/2023 04:04	WG2197823
(S) o-Terphenyl	38.0		18.0-148		12/30/2023 04:04	WG2197823

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Anthracene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Benzo(a)anthracene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Benzo(b)fluoranthene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Benzo(k)fluoranthene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Benzo(a)pyrene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Chrysene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Dibenz(a,h)anthracene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Fluoranthene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Fluorene	ND		0.00600	1	12/30/2023 04:24	WG2198251
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/30/2023 04:24	WG2198251
1-Methylnaphthalene	ND		0.0200	1	12/30/2023 04:24	WG2198251
2-Methylnaphthalene	ND		0.0200	1	12/30/2023 04:24	WG2198251
Naphthalene	ND		0.0200	1	12/30/2023 04:24	WG2198251
Pyrene	ND		0.00600	1	12/30/2023 04:24	WG2198251
(S) p-Terphenyl-d14	75.0		23.0-120		12/30/2023 04:24	WG2198251
(S) Nitrobenzene-d5	83.4		14.0-149		12/30/2023 04:24	WG2198251
(S) 2-Fluorobiphenyl	81.7		34.0-125		12/30/2023 04:24	WG2198251

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.92		1	01/04/2024 17:23	WG2198853

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/03/2024 10:15	WG2196956

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.97	T8	1	12/31/2023 15:00	WG2198715

Sample Narrative:

L1691893-04 WG2198715: 7.97 at 18.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	692		10.0	1	01/02/2024 10:45	WG2198913

Sample Narrative:

L1691893-04 WG2198913: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.626		0.200	1	01/03/2024 15:59	WG2198856

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	13.0		1.00	5	01/01/2024 00:04	WG2198084
Barium	277		2.50	5	01/01/2024 00:04	WG2198084
Cadmium	ND		1.00	5	01/01/2024 00:04	WG2198084
Copper	12.9		5.00	5	01/01/2024 00:04	WG2198084
Lead	11.1		2.00	5	01/01/2024 00:04	WG2198084
Nickel	12.7		2.50	5	01/01/2024 00:04	WG2198084
Selenium	ND		2.50	5	01/01/2024 00:04	WG2198084
Silver	ND		0.500	5	01/01/2024 00:04	WG2198084
Zinc	51.1		25.0	5	01/01/2024 00:04	WG2198084

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.307	B	0.100	1	01/04/2024 18:47	WG2200697
(S) a,a,a-Trifluorotoluene(FID)	89.3		77.0-120		01/04/2024 18:47	WG2200697

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	12/31/2023 19:10	WG2199033
Toluene	ND		0.00500	1	12/31/2023 19:10	WG2199033
Ethylbenzene	ND		0.00250	1	12/31/2023 19:10	WG2199033
Xylenes, Total	ND		0.00650	1	12/31/2023 19:10	WG2199033
1,2,4-Trimethylbenzene	ND		0.00500	1	12/31/2023 19:10	WG2199033
1,3,5-Trimethylbenzene	ND		0.00500	1	12/31/2023 19:10	WG2199033
(S) Toluene-d8	110		75.0-131		12/31/2023 19:10	WG2199033
(S) 4-Bromofluorobenzene	94.0		67.0-138		12/31/2023 19:10	WG2199033
(S) 1,2-Dichloroethane-d4	100		70.0-130		12/31/2023 19:10	WG2199033

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		40.0	10	12/30/2023 04:28	WG2197823
C28-C36 Motor Oil Range	93.8	B	40.0	10	12/30/2023 04:28	WG2197823
(S) o-Terphenyl	60.4		18.0-148		12/30/2023 04:28	WG2197823

Sample Narrative:

L1691893-04 WG2197823: Dilution due to matrix.

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Anthracene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Benzo(a)anthracene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Benzo(b)fluoranthene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Benzo(k)fluoranthene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Benzo(a)pyrene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Chrysene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Dibenz(a,h)anthracene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Fluoranthene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Fluorene	ND		0.00600	1	12/30/2023 07:18	WG2198251
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/30/2023 07:18	WG2198251
1-Methylnaphthalene	ND		0.0200	1	12/30/2023 07:18	WG2198251
2-Methylnaphthalene	ND		0.0200	1	12/30/2023 07:18	WG2198251
Naphthalene	ND		0.0200	1	12/30/2023 07:18	WG2198251
Pyrene	ND		0.00600	1	12/30/2023 07:18	WG2198251
(S) p-Terphenyl-d14	72.2		23.0-120		12/30/2023 07:18	WG2198251
(S) Nitrobenzene-d5	84.4		14.0-149		12/30/2023 07:18	WG2198251
(S) 2-Fluorobiphenyl	79.2		34.0-125		12/30/2023 07:18	WG2198251

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4019159-1 01/03/24 07:01

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1691586-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1691586-05 01/03/24 07:46 • (DUP) R4019159-7 01/03/24 07:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	17.2		20

L1691892-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1691892-04 01/03/24 09:01 • (DUP) R4019159-8 01/03/24 09:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4019159-2 01/03/24 07:09

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.4	104	80.0-120	

L1691586-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1691586-04 01/03/24 07:15 • (MS) R4019159-4 01/03/24 07:28 • (MSD) R4019159-5 01/03/24 07:34

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	13.7	15.6	68.4	77.8	1	75.0-125	J6		12.8	20

L1691586-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1691586-04 01/03/24 07:15 • (MS) R4019159-6 01/03/24 07:40

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	646	ND	620	96.0	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1691840-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1691840-10 12/31/23 15:00 • (DUP) R4018561-2 12/31/23 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.94	7.94	1	0.000		1

Sample Narrative:

OS: 7.94 at 18.9C

DUP: 7.94 at 18.9C

L1691893-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1691893-01 12/31/23 15:00 • (DUP) R4018561-3 12/31/23 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.94	7.93	1	0.126		1

Sample Narrative:

OS: 7.94 at 18.9C

DUP: 7.93 at 19C

Laboratory Control Sample (LCS)

(LCS) R4018561-1 12/31/23 15:00

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

Sample Narrative:

LCS: 10.01 at 19C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4018345-1 12/29/23 19:25

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

L1691586-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1691586-04 12/29/23 19:25 • (DUP) R4018345-3 12/29/23 19:25

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1240	1250	1	0.963		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1691783-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1691783-09 12/29/23 19:25 • (DUP) R4018345-4 12/29/23 19:25

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	325	320	1	1.55		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4018345-2 12/29/23 19:25

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	327	300	91.7	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4018712-1 01/02/24 10:45

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

L1691892-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1691892-02 01/02/24 10:45 • (DUP) R4018712-3 01/02/24 10:45

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	11500	11500	1	0.0872		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1691893-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1691893-03 01/02/24 10:45 • (DUP) R4018712-4 01/02/24 10:45

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	302	306	1	1.32		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4018712-2 01/02/24 10:45

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	327	329	101	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4019509-1 01/03/24 15:22

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

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

(LCS) R4019509-2 01/03/24 15:24 • (LCSD) R4019509-3 01/03/24 15:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.04	1.03	104	103	80.0-120			0.308	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4018583-1 12/31/23 20:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R4018583-2 12/31/23 21:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.5	92.5	80.0-120	
Barium	100	87.7	87.7	80.0-120	
Cadmium	100	93.6	93.6	80.0-120	
Copper	100	93.3	93.3	80.0-120	
Lead	100	84.2	84.2	80.0-120	
Nickel	100	93.6	93.6	80.0-120	
Selenium	100	97.2	97.2	80.0-120	
Silver	20.0	19.8	98.8	80.0-120	
Zinc	100	88.2	88.2	80.0-120	

L1691893-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1691893-08 12/31/23 21:05 • (MS) R4018583-5 12/31/23 21:15 • (MSD) R4018583-7 12/31/23 21:40

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 %
Arsenic	100	6.01	109	109	103	102	5	75.0-125			0.0494	20
Barium	100	195	295	300	99.2	104	5	75.0-125			1.65	20
Cadmium	100	ND	104	104	103	104	5	75.0-125			0.635	20
Copper	100	14.4	118	119	104	105	5	75.0-125			1.00	20
Lead	100	9.00	104	105	94.8	95.6	5	75.0-125			0.769	20
Nickel	100	7.90	110	110	103	102	5	75.0-125			0.660	20
Selenium	100	ND	111	110	111	110	5	75.0-125			0.562	20
Silver	20.0	ND	21.4	22.1	107	110	5	75.0-125			3.09	20
Zinc	100	34.3	136	133	101	99.0	5	75.0-125			1.68	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4019876-2 01/04/24 10:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0456	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	95.1			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4019876-1 01/04/24 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.39	116	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			104	77.0-120	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4020196-3 12/31/23 14:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	101			75.0-131
(S) 4-Bromofluorobenzene	90.4			67.0-138
(S) 1,2-Dichloroethane-d4	115			70.0-130

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

(LCS) R4020196-1 12/31/23 13:40 • (LCSD) R4020196-2 12/31/23 14:00

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 %
Benzene	0.125	0.123	0.131	98.4	105	70.0-123			6.30	20
Toluene	0.125	0.128	0.138	102	110	75.0-121			7.52	20
Ethylbenzene	0.125	0.124	0.128	99.2	102	74.0-126			3.17	20
Xylenes, Total	0.375	0.369	0.392	98.4	105	72.0-127			6.04	20
1,2,4-Trimethylbenzene	0.125	0.100	0.112	80.0	89.6	70.0-126			11.3	20
1,3,5-Trimethylbenzene	0.125	0.0986	0.112	78.9	89.6	73.0-127			12.7	20
(S) Toluene-d8				101	99.9	75.0-131				
(S) 4-Bromofluorobenzene				97.4	93.3	67.0-138				
(S) 1,2-Dichloroethane-d4				109	107	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4018648-1 12/30/23 01:49

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	2.96	⬇	0.274	4.00
(S) o-Terphenyl	65.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4018648-2 12/30/23 02:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	41.7	83.4	50.0-150	
(S) o-Terphenyl			62.5	18.0-148	

L1691893-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1691893-05 12/30/23 05:05 • (MS) R4018648-3 12/30/23 05:18 • (MSD) R4018648-4 12/30/23 05:30

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	50.0	ND	64.9	57.9	86.4	72.4	10	50.0-150			11.4	20
(S) o-Terphenyl					52.0	48.9		18.0-148				

Sample Narrative:

OS: Dilution due to matrix.

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4019054-2 12/30/23 01:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	86.1			23.0-120
(S) Nitrobenzene-d5	86.2			14.0-149
(S) 2-Fluorobiphenyl	85.1			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4019054-1 12/30/23 01:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0542	67.8	50.0-120	
Anthracene	0.0800	0.0589	73.6	50.0-126	
Benzo(a)anthracene	0.0800	0.0565	70.6	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0579	72.4	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0554	69.3	49.0-125	
Benzo(a)pyrene	0.0800	0.0486	60.8	42.0-120	
Chrysene	0.0800	0.0597	74.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0585	73.1	47.0-125	
Fluoranthene	0.0800	0.0608	76.0	49.0-129	
Fluorene	0.0800	0.0631	78.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0530	66.3	46.0-125	
1-Methylnaphthalene	0.0800	0.0611	76.4	51.0-121	
2-Methylnaphthalene	0.0800	0.0604	75.5	50.0-120	
Naphthalene	0.0800	0.0579	72.4	50.0-120	
Pyrene	0.0800	0.0586	73.3	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4019054-1 12/30/23 01:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			78.8	23.0-120	
(S) Nitrobenzene-d5			85.1	14.0-149	
(S) 2-Fluorobiphenyl			81.3	34.0-125	

L1691892-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1691892-05 12/30/23 02:48 • (MS) R4019054-3 12/30/23 03:07 • (MSD) R4019054-4 12/30/23 03:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0527	0.0556	65.9	69.5	1	14.0-127			5.36	27
Anthracene	0.0800	ND	0.0561	0.0588	70.1	73.5	1	10.0-145			4.70	30
Benzo(a)anthracene	0.0800	ND	0.0557	0.0585	69.6	73.1	1	10.0-139			4.90	30
Benzo(b)fluoranthene	0.0800	ND	0.0540	0.0598	67.5	74.8	1	10.0-140			10.2	36
Benzo(k)fluoranthene	0.0800	ND	0.0544	0.0565	68.0	70.6	1	10.0-137			3.79	31
Benzo(a)pyrene	0.0800	ND	0.0533	0.0569	66.6	71.1	1	10.0-141			6.53	31
Chrysene	0.0800	ND	0.0572	0.0603	71.5	75.4	1	10.0-145			5.28	30
Dibenz(a,h)anthracene	0.0800	ND	0.0574	0.0616	71.8	77.0	1	10.0-132			7.06	31
Fluoranthene	0.0800	ND	0.0589	0.0618	73.6	77.3	1	10.0-153			4.81	33
Fluorene	0.0800	ND	0.0597	0.0639	74.6	79.9	1	11.0-130			6.80	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0543	0.0580	67.9	72.5	1	10.0-137			6.59	32
1-Methylnaphthalene	0.0800	ND	0.0612	0.0640	76.5	80.0	1	10.0-142			4.47	28
2-Methylnaphthalene	0.0800	ND	0.0591	0.0623	73.9	77.9	1	10.0-137			5.27	28
Naphthalene	0.0800	ND	0.0569	0.0603	71.1	75.4	1	10.0-135			5.80	27
Pyrene	0.0800	ND	0.0572	0.0599	71.5	74.9	1	10.0-148			4.61	35
(S) p-Terphenyl-d14					74.6	76.5		23.0-120				
(S) Nitrobenzene-d5					75.3	79.4		14.0-149				
(S) 2-Fluorobiphenyl					77.6	80.0		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: Caerus Oil and Gas LLC				Billing Information: Caerus Oil and Gas LLC				Pres Chk		Analysis / Container / Preservative										Chain of Custody Page ____ of ____	
Report to: Jake Janicek, Brett Middleton, Blair Rollins				Email To: Info on file						Table 915-1										PEOPLE ADVANCING SCIENCE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Alt: 800-767-5859 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf SDG # 1691893 A097 Acctnum: CAERUSPCO Template: Prelogin: PM: 824 - Chris Ward PB: Shipped Via:	
Project Description: 036 pipeline closure				City/State Collected: Parachute CO				Please Circle: PT <u>MT</u> CT ET													
Phone: 970-285-2720		Client Project #		Lab Project # CAERUSPCO-915																	
Collected by (print): Nora O Watt		Site/Facility ID #		P.O. #																	
Collected by (signature): <i>Nora O Watt</i>		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #				Date Results Needed		No. of Cntrs											
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>																					
Sample ID		Comp/Grab	Matrix*	Depth	Date	Time															
2023 1226-036-(036 pipeline closure) grab		SS	6ft	12/26/23	1100	4	X														
2023 1226-036-(stock 06) comp		SS	---	12/26/23	1030	4	X														
2023 1226-036-(036 pipeline closure) grab		SS	10ft	12/26/23	1145	4	X														
2023 1226-036-(stock 07) comp		SS	---	12/26/23	1205	4	X														
2023 1226-MPRBG-(036-N)EOS grab		SS	0.5ft	12/26/23	1315	4	X														
2023 1226-MPRBG-(036-W)EOS grab		SS	0.5ft	12/26/23	1300	4	X														
2023 1226-MPRBG-(036-E)EOS grab		SS	0.5ft	12/26/23	1320	4	X														
2023 1226-MPRBG-(036-S)EOS grab		SS	0.5ft	12/26/23	1415	4	X														

* Matrix:

SS - Soil AIR - Air F - Filter

GW - Groundwater B - Bioassay

WW - WasteWater

DW - Drinking Water

OT - Other

Remarks:

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

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature) *Nora O Watt*

Date: **12/27/23**

Received by: (Signature) _____

Date: _____

Trip Blank Received: Yes ☒ No ☐

HCL / MeOH TBR

Relinquished by: (Signature) _____

Date: _____

Received by: (Signature) _____

Date: _____

Temp: °C **17.8** Bottles Received: **5.2+0.2**

Relinquished by: (Signature) _____

Date: _____

Received for lab by: (Signature) *Lab rep*

Date: **12-28-23**

Hold: **9:00**

Condition: **NCF 10**

Sample Receipt Checklist

COC Seal Present/Intact: ☒ NP ☐ 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