

July 15, 2024

## Caerus Oil and Gas

Sample Delivery Group: L1754412  
Samples Received: 07/09/2024  
Project Number: J17E  
Description: J17E Dumpline  
Site: J17E  
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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**Pace Analytical National**

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

# SAMPLE SUMMARY

## 20240703-MCWP-(J17E-MW01) L1754412-01 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 11:35

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2320245	1	07/10/24 17:45	07/10/24 17:45	KSD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 19:12	DSH	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

## 20240703-MCWP-(J17E-MW04) L1754412-02 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 13:55

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2320245	1	07/10/24 18:06	07/10/24 18:06	KSD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 19:29	DSH	Mt. Juliet, TN

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

## 20240703-MCWP-(J17E-MW05) L1754412-03 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 13:35

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2320245	1	07/10/24 18:27	07/10/24 18:27	KSD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 19:46	DSH	Mt. Juliet, TN

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## 20240703-MCWP-(J17E-MW06) L1754412-04 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 11:00

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2321307	1	07/11/24 16:24	07/11/24 16:24	DYW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 20:04	DSH	Mt. Juliet, TN

## 20240703-MCWP-(J17E-MW08) L1754412-05 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 14:40

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2321307	1	07/11/24 16:43	07/11/24 16:43	DYW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 20:21	DSH	Mt. Juliet, TN

## 20240703-MCWP-(J17E-MW09) L1754412-06 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 15:20

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2321307	1	07/11/24 17:02	07/11/24 17:02	DYW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 20:38	DSH	Mt. Juliet, TN

## 20240703-MCWP-(J17E-MW10) L1754412-07 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 14:20

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2321307	1	07/11/24 17:21	07/11/24 17:21	DYW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 20:56	DSH	Mt. Juliet, TN

## SAMPLE SUMMARY

20240703-MCWP-(J17E-SB02 TB) L1754412-08 GW

Collected by  
Ben Hermann

Collected date/time  
07/03/24 15:00

Received date/time  
07/09/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2320245	1	07/10/24 09:52	07/10/24 09:52	JHH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2320121	1	07/10/24 08:07	07/10/24 21:13	DSH	Mt. Juliet, TN

<sup>1</sup>Cp ${}^2\text{Tc}$  ${}^3S_s$ 
$${}^4\text{Cn}$$
 ${}^5\text{Sr}$  ${}^6\text{Qc}$  ${}^7\text{Gf}$  ${}^8\text{Al}$  ${}^9\text{Sc}$

# 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

## Sample Delivery Group (SDG) Narrative

pH outside of method requirement.

Lab Sample ID	Project Sample ID	Method
<a href="#">L1754412-04</a>	<a href="#">20240703-MCWP-(J17E-MW06)</a>	8260B
<a href="#">L1754412-05</a>	<a href="#">20240703-MCWP-(J17E-MW08)</a>	8260B



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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000214	J	0.0000941	0.00100	1	07/10/2024 17:45	<a href="#">WG2320245</a>
Toluene	U		0.000278	0.00100	1	07/10/2024 17:45	<a href="#">WG2320245</a>
Ethylbenzene	U		0.000137	0.00100	1	07/10/2024 17:45	<a href="#">WG2320245</a>
Xylenes, Total	U		0.000174	0.00300	1	07/10/2024 17:45	<a href="#">WG2320245</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/10/2024 17:45	<a href="#">WG2320245</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/10/2024 17:45	<a href="#">WG2320245</a>
(S) Toluene-d8	114			80.0-120		07/10/2024 17:45	<a href="#">WG2320245</a>
(S) 4-Bromofluorobenzene	102			77.0-126		07/10/2024 17:45	<a href="#">WG2320245</a>
(S) 1,2-Dichloroethane-d4	102			70.0-130		07/10/2024 17:45	<a href="#">WG2320245</a>

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 19:12	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 19:12	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 19:12	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	107			31.0-160		07/10/2024 19:12	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	104			48.0-148		07/10/2024 19:12	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	103			37.0-146		07/10/2024 19:12	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	07/10/2024 18:06	<a href="#">WG2320245</a>
Toluene	U		0.000278	0.00100	1	07/10/2024 18:06	<a href="#">WG2320245</a>
Ethylbenzene	U		0.000137	0.00100	1	07/10/2024 18:06	<a href="#">WG2320245</a>
Xylenes, Total	U		0.000174	0.00300	1	07/10/2024 18:06	<a href="#">WG2320245</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/10/2024 18:06	<a href="#">WG2320245</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/10/2024 18:06	<a href="#">WG2320245</a>
(S) Toluene-d8	108			80.0-120		07/10/2024 18:06	<a href="#">WG2320245</a>
(S) 4-Bromofluorobenzene	103			77.0-126		07/10/2024 18:06	<a href="#">WG2320245</a>
(S) 1,2-Dichloroethane-d4	103			70.0-130		07/10/2024 18:06	<a href="#">WG2320245</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 19:29	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 19:29	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 19:29	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	103			31.0-160		07/10/2024 19:29	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	107			48.0-148		07/10/2024 19:29	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	97.9			37.0-146		07/10/2024 19:29	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	07/10/2024 18:27	<a href="#">WG2320245</a>
Toluene	U		0.000278	0.00100	1	07/10/2024 18:27	<a href="#">WG2320245</a>
Ethylbenzene	U		0.000137	0.00100	1	07/10/2024 18:27	<a href="#">WG2320245</a>
Xylenes, Total	U		0.000174	0.00300	1	07/10/2024 18:27	<a href="#">WG2320245</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/10/2024 18:27	<a href="#">WG2320245</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/10/2024 18:27	<a href="#">WG2320245</a>
(S) Toluene-d8	111			80.0-120		07/10/2024 18:27	<a href="#">WG2320245</a>
(S) 4-Bromofluorobenzene	100			77.0-126		07/10/2024 18:27	<a href="#">WG2320245</a>
(S) 1,2-Dichloroethane-d4	99.9			70.0-130		07/10/2024 18:27	<a href="#">WG2320245</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 19:46	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 19:46	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 19:46	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	104			31.0-160		07/10/2024 19:46	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	105			48.0-148		07/10/2024 19:46	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	103			37.0-146		07/10/2024 19:46	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	07/11/2024 16:24	<a href="#">WG2321307</a>
Toluene	U		0.000278	0.00100	1	07/11/2024 16:24	<a href="#">WG2321307</a>
Ethylbenzene	U		0.000137	0.00100	1	07/11/2024 16:24	<a href="#">WG2321307</a>
Xylenes, Total	U		0.000174	0.00300	1	07/11/2024 16:24	<a href="#">WG2321307</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/11/2024 16:24	<a href="#">WG2321307</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/11/2024 16:24	<a href="#">WG2321307</a>
(S) Toluene-d8	102			80.0-120		07/11/2024 16:24	<a href="#">WG2321307</a>
(S) 4-Bromofluorobenzene	102			77.0-126		07/11/2024 16:24	<a href="#">WG2321307</a>
(S) 1,2-Dichloroethane-d4	101			70.0-130		07/11/2024 16:24	<a href="#">WG2321307</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 20:04	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 20:04	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 20:04	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	106			31.0-160		07/10/2024 20:04	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	110			48.0-148		07/10/2024 20:04	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	114			37.0-146		07/10/2024 20:04	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	07/11/2024 16:43	<a href="#">WG2321307</a>
Toluene	U		0.000278	0.00100	1	07/11/2024 16:43	<a href="#">WG2321307</a>
Ethylbenzene	U		0.000137	0.00100	1	07/11/2024 16:43	<a href="#">WG2321307</a>
Xylenes, Total	U		0.000174	0.00300	1	07/11/2024 16:43	<a href="#">WG2321307</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/11/2024 16:43	<a href="#">WG2321307</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/11/2024 16:43	<a href="#">WG2321307</a>
(S) Toluene-d8	103			80.0-120		07/11/2024 16:43	<a href="#">WG2321307</a>
(S) 4-Bromofluorobenzene	105			77.0-126		07/11/2024 16:43	<a href="#">WG2321307</a>
(S) 1,2-Dichloroethane-d4	103			70.0-130		07/11/2024 16:43	<a href="#">WG2321307</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 20:21	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 20:21	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 20:21	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	107			31.0-160		07/10/2024 20:21	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	112			48.0-148		07/10/2024 20:21	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	116			37.0-146		07/10/2024 20:21	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	07/11/2024 17:02	<a href="#">WG2321307</a>
Toluene	U		0.000278	0.00100	1	07/11/2024 17:02	<a href="#">WG2321307</a>
Ethylbenzene	U		0.000137	0.00100	1	07/11/2024 17:02	<a href="#">WG2321307</a>
Xylenes, Total	U		0.000174	0.00300	1	07/11/2024 17:02	<a href="#">WG2321307</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/11/2024 17:02	<a href="#">WG2321307</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/11/2024 17:02	<a href="#">WG2321307</a>
(S) Toluene-d8	103			80.0-120		07/11/2024 17:02	<a href="#">WG2321307</a>
(S) 4-Bromofluorobenzene	107			77.0-126		07/11/2024 17:02	<a href="#">WG2321307</a>
(S) 1,2-Dichloroethane-d4	104			70.0-130		07/11/2024 17:02	<a href="#">WG2321307</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 20:38	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 20:38	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 20:38	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	107			31.0-160		07/10/2024 20:38	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	113			48.0-148		07/10/2024 20:38	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	113			37.0-146		07/10/2024 20:38	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0000941	0.00100	1	07/11/2024 17:21	<a href="#">WG2321307</a>
Toluene	U		0.000278	0.00100	1	07/11/2024 17:21	<a href="#">WG2321307</a>
Ethylbenzene	U		0.000137	0.00100	1	07/11/2024 17:21	<a href="#">WG2321307</a>
Xylenes, Total	U		0.000174	0.00300	1	07/11/2024 17:21	<a href="#">WG2321307</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/11/2024 17:21	<a href="#">WG2321307</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/11/2024 17:21	<a href="#">WG2321307</a>
(S) Toluene-d8	101			80.0-120		07/11/2024 17:21	<a href="#">WG2321307</a>
(S) 4-Bromofluorobenzene	107			77.0-126		07/11/2024 17:21	<a href="#">WG2321307</a>
(S) 1,2-Dichloroethane-d4	109			70.0-130		07/11/2024 17:21	<a href="#">WG2321307</a>

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 20:56	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 20:56	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 20:56	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	101			31.0-160		07/10/2024 20:56	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	107			48.0-148		07/10/2024 20:56	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	105			37.0-146		07/10/2024 20:56	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0000941	0.00100	1	07/10/2024 09:52	<a href="#">WG2320245</a>
Toluene	U		0.000278	0.00100	1	07/10/2024 09:52	<a href="#">WG2320245</a>
Ethylbenzene	U		0.000137	0.00100	1	07/10/2024 09:52	<a href="#">WG2320245</a>
Xylenes, Total	U		0.000174	0.00300	1	07/10/2024 09:52	<a href="#">WG2320245</a>
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	07/10/2024 09:52	<a href="#">WG2320245</a>
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	07/10/2024 09:52	<a href="#">WG2320245</a>
(S) Toluene-d8	123	<a href="#">J1</a>		80.0-120		07/10/2024 09:52	<a href="#">WG2320245</a>
(S) 4-Bromofluorobenzene	112			77.0-126		07/10/2024 09:52	<a href="#">WG2320245</a>
(S) 1,2-Dichloroethane-d4	98.1			70.0-130		07/10/2024 09:52	<a href="#">WG2320245</a>

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Naphthalene	U		0.0000917	0.000250	1	07/10/2024 21:13	<a href="#">WG2320121</a>
1-Methylnaphthalene	U		0.0000687	0.000250	1	07/10/2024 21:13	<a href="#">WG2320121</a>
2-Methylnaphthalene	U		0.0000674	0.000250	1	07/10/2024 21:13	<a href="#">WG2320121</a>
(S) Nitrobenzene-d5	107			31.0-160		07/10/2024 21:13	<a href="#">WG2320121</a>
(S) 2-Fluorobiphenyl	110			48.0-148		07/10/2024 21:13	<a href="#">WG2320121</a>
(S) p-Terphenyl-d14	107			37.0-146		07/10/2024 21:13	<a href="#">WG2320121</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4092188-4 07/10/24 08:41

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
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	111			80.0-120
(S) 4-Bromofluorobenzene	100			77.0-126
(S) 1,2-Dichloroethane-d4	91.8			70.0-130

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

(LCS) R4092188-1 07/10/24 06:54 • (LCSD) R4092188-2 07/10/24 07:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.00460	0.00427	92.0	85.4	70.0-123			7.44	20
Toluene	0.00500	0.00525	0.00480	105	96.0	79.0-120			8.96	20
Ethylbenzene	0.00500	0.00519	0.00485	104	97.0	79.0-123			6.77	20
Xylenes, Total	0.0150	0.0155	0.0144	103	96.0	79.0-123			7.36	20
1,2,4-Trimethylbenzene	0.00500	0.00415	0.00405	83.0	81.0	76.0-121			2.44	20
1,3,5-Trimethylbenzene	0.00500	0.00421	0.00410	84.2	82.0	76.0-122			2.65	20
(S) Toluene-d8				109	108	80.0-120				
(S) 4-Bromofluorobenzene				101	99.4	77.0-126				
(S) 1,2-Dichloroethane-d4				105	106	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) R4093647-2 07/11/24 11:56

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
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	105			80.0-120
(S) 4-Bromofluorobenzene	110			77.0-126
(S) 1,2-Dichloroethane-d4	101			70.0-130

Laboratory Control Sample (LCS)

(LCS) R4093647-1 07/11/24 11:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00536	107	70.0-123	
Toluene	0.00500	0.00513	103	79.0-120	
Ethylbenzene	0.00500	0.00592	118	79.0-123	
Xylenes, Total	0.0150	0.0175	117	79.0-123	
1,2,4-Trimethylbenzene	0.00500	0.00564	113	76.0-121	
1,3,5-Trimethylbenzene	0.00500	0.00582	116	76.0-122	
(S) Toluene-d8			105	80.0-120	
(S) 4-Bromofluorobenzene			113	77.0-126	
(S) 1,2-Dichloroethane-d4			103	70.0-130	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R4092398-3 07/10/24 14:17

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Naphthalene	U		0.0000917	0.000250
1-Methylnaphthalene	U		0.0000687	0.000250
2-Methylnaphthalene	U		0.0000674	0.000250
(S) Nitrobenzene-d5	105			31.0-160
(S) 2-Fluorobiphenyl	111			48.0-148
(S) p-Terphenyl-d14	115			37.0-146

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

(LCS) R4092398-1 07/10/24 13:43 • (LCSD) R4092398-2 07/10/24 14:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.00200	0.00234	0.00234	117	117	61.0-137			0.000	20
1-Methylnaphthalene	0.00200	0.00267	0.00265	133	133	66.0-142			0.752	20
2-Methylnaphthalene	0.00200	0.00255	0.00256	128	128	62.0-136			0.391	20
(S) Nitrobenzene-d5				113	107	31.0-160				
(S) 2-Fluorobiphenyl				117	114	48.0-148				
(S) p-Terphenyl-d14				112	115	37.0-146				

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.
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.
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

J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> 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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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 Piceance LLC  
143 Diamond Avenue  
Parachute, CO 81635  
970-285-9606

Billing Information:

Same as above

Report to:  
bmiddleton@caerusoilandgas.com

Email To:  
bmiddleton@caerusoilandgas.com

Project  
Description: J17E Dumpline

City/State  
Collected: Mamm Creek, CO

Phone:  
Fax:

Client Project #  
J17E

Lab Project #  
J17E

Collected by (print):

Site/Facility ID #  
J17E

P.O. #  
J17E

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Immediately  
Packed on Ice N ☐ Y ☒

Same Day ☐ Five Day ☐  
Next Day ☐ 5 Day (Rad Only) ☐  
Two Day ☐ 10 Day (Rad Only) ☐  
Three Day ☐

Date Results Needed

Standard TAT

No.  
of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	
20240703-MCWP-(J17E-MW01)	Grab	GW	NA	7/3/24	1135	5
20240703-MCWP-(J17E-MW04)					1355	1
20240703-MCWP-(J17E-MW05)					1335	
20240703-MCWP-(J17E-MW06)					1100	
20240703-MCWP-(J17E-MW08)					1440	
20240703-MCWP-(J17E-MW09)					1520	20
20240703-MCWP-(J17E-MW10)					1420	4
20240703-MCWP-(J17E-S802 TR)					1500	

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

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:

\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier \_\_\_\_\_

Tracking #

6426 8306 9498

Relinquished by: (Signature)

Date: 7/8/24

Time: 1230

Received by: (Signature)

Trip Blank Received: Yes ☒ No ☐  
HCL/ MeOH  
TBR

Relinquished by: (Signature)

Date: 7/8/24

Time: 1500

Received by: (Signature)

Temp: 60.7 °C  
2.7+0.3=3.0  
Bottles Received: 39

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 7/9/24  
Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition:  
NCF 1/OK  
7/9/24

Analysis / Container / Preservative

Pres  
Chk

BTEX

1,2,4-trimethylbenzene

1,3,5-trimethylbenzene

Naphthalene

1-methylnaphthalene

2-methylnaphthalene

Chain of Custody Page \_\_\_\_ of \_\_\_\_



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L# 175412  
H053

Table

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks

Sample # (lab only)

01

02

03

04

05

06

07

08

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

7/9/24 - NCF L1754412 CAERUSPCO

R5

Time estimate: oh

Time spent: oh

Members

**MS** Matthew Shacklock (responsible) **CW** Chris Ward

- ☐ 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
- ☒ Broken container
- ☒ 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

Matthew Shacklock	9 July 2024 1:22 PM
Received PAHSIMLVI vial broken for 20240703-CWP-(J176-MW10)	
Chris Ward	9 July 2024 1:40 PM
Please proceed	
Matthew Shacklock	9 July 2024 2:50 PM
Done	