

Caerus Oil and Gas

Sample Delivery Group: L1428767
Samples Received: 11/09/2021
Project Number: FEDERAL 2S-95-16-22C
Description: Background
Site: FEDERAL 2S-95-16-22CP
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

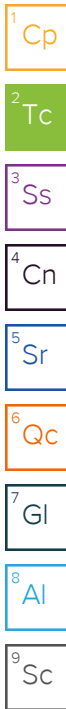
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Pace Analytical National

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SAMPLE SUMMARY

2021104-FED 2S-95-16-22C-BGN@3' L1428767-01 Solid

Collected by Andrew Smith Collected date/time 11/04/21 14:10 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:12	11/15/21 21:12	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 19:57	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 20:52	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGN2@1.5' L1428767-02 Solid

Collected by Andrew Smith Collected date/time 11/04/21 14:30 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:15	11/15/21 21:15	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:00	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 20:55	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGW@3' L1428767-03 Solid

Collected by Andrew Smith Collected date/time 11/04/21 15:00 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:18	11/15/21 21:18	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:02	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 20:58	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGW2@1.5' L1428767-04 Solid

Collected by Andrew Smith Collected date/time 11/04/21 15:10 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:21	11/15/21 21:21	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:05	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:08	LD	Mt. Juliet, TN

2021104-FED 2S-95-16-22C-BGN@3' L1428767-05 Solid

Collected by Andrew Smith Collected date/time 11/04/21 14:10 Received date/time 11/09/21 09:30

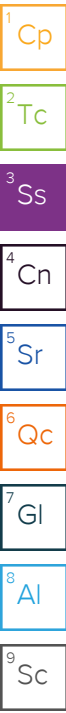
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:23	11/15/21 21:23	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:08	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:12	LD	Mt. Juliet, TN

SAMPLE SUMMARY

2021104-FED 2S-95-16-22C-BGN2@1.5' L1428767-06 Solid

Collected by: Andrew Smith
 Collected date/time: 11/04/21 14:30
 Received date/time: 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:26	11/15/21 21:26	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:11	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:15	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGW@3' L1428767-07 Solid

Collected by: Andrew Smith
 Collected date/time: 11/04/21 15:00
 Received date/time: 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:29	11/15/21 21:29	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:13	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:18	LD	Mt. Juliet, TN

2021104-FED 2S-95-16-22C-BGW2@1.5' L1428767-08 Solid

Collected by: Andrew Smith
 Collected date/time: 11/04/21 15:10
 Received date/time: 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:31	11/15/21 21:31	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:21	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 20:36	LD	Mt. Juliet, TN

2021104-FED 2S-95-16-22C-BGN@3' L1428767-09 Solid

Collected by: Andrew Smith
 Collected date/time: 11/04/21 14:10
 Received date/time: 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:34	11/15/21 21:34	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:24	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:21	LD	Mt. Juliet, TN

2021104-FED 2S-95-16-22C-BGN2@1.5' L1428767-10 Solid

Collected by: Andrew Smith
 Collected date/time: 11/04/21 14:30
 Received date/time: 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:42	11/15/21 21:42	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:27	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:25	LD	Mt. Juliet, TN

SAMPLE SUMMARY

2021104-FED 2S-95-16-22C-BGW@3' L1428767-11 Solid

Collected by Andrew Smith Collected date/time 11/04/21 15:00 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:45	11/15/21 21:45	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:29	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:28	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGW2@1.5' L1428767-12 Solid

Collected by Andrew Smith Collected date/time 11/04/21 15:10 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:48	11/15/21 21:48	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:32	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:31	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGN@3' L1428767-13 Solid

Collected by Andrew Smith Collected date/time 11/04/21 14:10 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:50	11/15/21 21:50	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:35	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:34	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGN2@1.5' L1428767-14 Solid

Collected by Andrew Smith Collected date/time 11/04/21 14:30 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:53	11/15/21 21:53	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:37	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:38	LD	Mt. Juliet, TN

2021104-FED 2S-95-16-22C-BGW@3' L1428767-15 Solid

Collected by Andrew Smith Collected date/time 11/04/21 15:00 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:56	11/15/21 21:56	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:40	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 21:54	LD	Mt. Juliet, TN

SAMPLE SUMMARY

2021104-FED 2S-95-16-22C-BGW2@1.5' L1428767-16 Solid

Collected by
Andrew Smith

Collected date/time
11/04/21 15:10

Received date/time
11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:58	11/15/21 21:58	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:43	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	4.385965	11/15/21 17:18	11/15/21 21:57	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGN@3' L1428767-17 Solid

Collected by
Andrew Smith

Collected date/time
11/04/21 14:10

Received date/time
11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 22:01	11/15/21 22:01	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:46	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 22:00	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGN2@1.5' L1428767-18 Solid

Collected by
Andrew Smith

Collected date/time
11/04/21 14:30

Received date/time
11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 22:04	11/15/21 22:04	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:53	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 22:04	LD	Mt. Juliet, TN



2021104-FED 2S-95-16-22C-BGW@3' L1428767-19 Solid

Collected by
Andrew Smith

Collected date/time
11/04/21 15:00

Received date/time
11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 22:07	11/15/21 22:07	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771799	1	11/10/21 09:00	11/10/21 09:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772029	1	11/10/21 12:48	11/11/21 08:05	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:56	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 22:07	LD	Mt. Juliet, TN

2021104-FED 2S-95-16-22C-BGW2@1.5' L1428767-20 Solid

Collected by
Andrew Smith

Collected date/time
11/04/21 15:10

Received date/time
11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1773226	1	11/15/21 21:02	11/15/21 21:02	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771817	1	11/10/21 08:00	11/10/21 10:00	KAB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772198	1	11/10/21 15:22	11/11/21 06:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773231	1	11/13/21 11:50	11/15/21 20:59	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774274	5	11/15/21 17:18	11/15/21 22:10	LD	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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.208		1	11/15/2021 21:12	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.06	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-01 WG1771799: 8.06 at 20.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	114		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-01 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.150	J	0.0167	0.200	1	11/15/2021 19:57	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	1.05		0.100	1.00	5	11/15/2021 20:52	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.19		1	11/15/2021 21:15	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.84	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-02 WG1771799: 8.84 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	152		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-02 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.133	J	0.0167	0.200	1	11/15/2021 20:00	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	13.0		0.100	1.00	5	11/15/2021 20:55	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.159		1	11/15/2021 21:18	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.45	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-03 WG1771799: 8.45 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	139		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

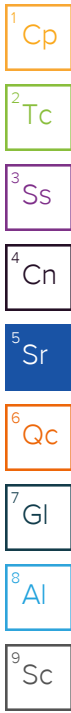
L1428767-03 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.188	J	0.0167	0.200	1	11/15/2021 20:02	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.844	J	0.100	1.00	5	11/15/2021 20:58	WG1774274



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.158		1	11/15/2021 21:21	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.34	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-04 WG1771799: 8.34 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	169		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-04 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.409		0.0167	0.200	1	11/15/2021 20:05	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	1.03		0.100	1.00	5	11/15/2021 21:08	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.190		1	11/15/2021 21:23	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.17	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-05 WG1771799: 8.17 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	108		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-05 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.145	<u>J</u>	0.0167	0.200	1	11/15/2021 20:08	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.887	<u>J</u>	0.100	1.00	5	11/15/2021 21:12	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.24		1	11/15/2021 21:26	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.83	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-06 WG1771799: 8.83 at 20.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	153		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-06 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.151	J	0.0167	0.200	1	11/15/2021 20:11	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	17.5		0.100	1.00	5	11/15/2021 21:15	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.164		1	11/15/2021 21:29	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.55	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-07 WG1771799: 8.55 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	144		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

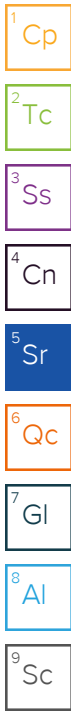
L1428767-07 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.193	<u>J</u>	0.0167	0.200	1	11/15/2021 20:13	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.558	<u>J</u>	0.100	1.00	5	11/15/2021 21:18	WG1774274



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.177		1	11/15/2021 21:31	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.38	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-08 WG1771799: 8.38 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	166		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-08 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.404		0.0167	0.200	1	11/15/2021 20:21	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	1.23		0.100	1.00	5	11/15/2021 20:36	WG1774274



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.191		1	11/15/2021 21:34	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.24	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-09 WG1771799: 8.24 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	106		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-09 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.171	<u>J</u>	0.0167	0.200	1	11/15/2021 20:24	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.966	<u>J</u>	0.100	1.00	5	11/15/2021 21:21	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.30		1	11/15/2021 21:42	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.81	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-10 WG1771799: 8.81 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	160		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-10 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.132	J	0.0167	0.200	1	11/15/2021 20:27	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	16.6		0.100	1.00	5	11/15/2021 21:25	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.166		1	11/15/2021 21:45	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.40	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-11 WG1771799: 8.4 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	152		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-11 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.179	<u>J</u>	0.0167	0.200	1	11/15/2021 20:29	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.712	<u>J</u>	0.100	1.00	5	11/15/2021 21:28	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.164		1	11/15/2021 21:48	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.33	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-12 WG1771799: 8.33 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	185		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-12 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.400		0.0167	0.200	1	11/15/2021 20:32	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	1.38		0.100	1.00	5	11/15/2021 21:31	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.192		1	11/15/2021 21:50	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.25	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-13 WG1771799: 8.25 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	121		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-13 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.148	<u>J</u>	0.0167	0.200	1	11/15/2021 20:35	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	1.04		0.100	1.00	5	11/15/2021 21:34	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.28		1	11/15/2021 21:53	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.83	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-14 WG1771799: 8.83 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	178		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-14 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.138	<u>J</u>	0.0167	0.200	1	11/15/2021 20:37	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	28.9		0.100	1.00	5	11/15/2021 21:38	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.169		1	11/15/2021 21:56	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.31	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-15 WG1771799: 8.31 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	188		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-15 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.170	<u>J</u>	0.0167	0.200	1	11/15/2021 20:40	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.844	<u>J</u>	0.100	1.00	5	11/15/2021 21:54	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.153		1	11/15/2021 21:58	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.31	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-16 WG1771799: 8.31 at 19.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	169		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-16 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.409		0.0167	0.200	1	11/15/2021 20:43	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	1.40		0.0877	0.877	4.385965	11/15/2021 21:57	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.191		1	11/15/2021 22:01	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.21	<u>T8</u>	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-17 WG1771799: 8.21 at 19.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	114		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-17 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.140	<u>J</u>	0.0167	0.200	1	11/15/2021 20:46	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.829	<u>J</u>	0.100	1.00	5	11/15/2021 22:00	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.18		1	11/15/2021 22:04	WG1773226

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.82	T8	1	11/10/2021 09:00	WG1771799

3 Ss

4 Cn

Sample Narrative:

L1428767-18 WG1771799: 8.82 at 19.3C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	163		10.0	1	11/11/2021 08:05	WG1772029

6 Qc

7 Gl

Sample Narrative:

L1428767-18 WG1772029: at 25C

8 Al

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.150	J	0.0167	0.200	1	11/15/2021 20:53	WG1773231

9 Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	25.3		0.100	1.00	5	11/15/2021 22:04	WG1774274

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.150		1	11/15/2021 22:07	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.38	T8	1	11/10/2021 09:00	WG1771799

Sample Narrative:

L1428767-19 WG1771799: 8.38 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	129		10.0	1	11/11/2021 08:05	WG1772029

Sample Narrative:

L1428767-19 WG1772029: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.176	J	0.0167	0.200	1	11/15/2021 20:56	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	0.749	J	0.100	1.00	5	11/15/2021 22:07	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.167		1	11/15/2021 21:02	WG1773226

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.43	<u>T8</u>	1	11/10/2021 10:00	WG1771817

Sample Narrative:

L1428767-20 WG1771817: 8.43 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	176		10.0	1	11/11/2021 06:50	WG1772198

Sample Narrative:

L1428767-20 WG1772198: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.434		0.0167	0.200	1	11/15/2021 20:59	WG1773231

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	1.72		0.100	1.00	5	11/15/2021 22:10	WG1774274

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1428767-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1428767-05 11/10/21 09:00 • (DUP) R3727757-2 11/10/21 09:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.17	8.16	1	0.122		1

Sample Narrative:

OS: 8.17 at 20.2C
 DUP: 8.16 at 19.8C

L1428767-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1428767-10 11/10/21 09:00 • (DUP) R3727757-3 11/10/21 09:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.81	8.82	1	0.113		1

Sample Narrative:

OS: 8.81 at 19.9C
 DUP: 8.82 at 20.3C

Laboratory Control Sample (LCS)

(LCS) R3727757-1 11/10/21 09:00

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: 10.01 at 19.9C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1428752-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1428752-02 11/10/21 10:00 • (DUP) R3727707-2 11/10/21 10:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.68	8.65	1	0.346		1

Sample Narrative:

OS: 8.68 at 20.2C
 DUP: 8.65 at 20.2C

L1428767-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1428767-20 11/10/21 10:00 • (DUP) R3727707-3 11/10/21 10:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.43	8.43	1	0.000		1

Sample Narrative:

OS: 8.43 at 20C
 DUP: 8.43 at 20.1C

Laboratory Control Sample (LCS)

(LCS) R3727707-1 11/10/21 10:00

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: 10.01 at 19.5C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3728107-1 11/11/21 08:05

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1428767-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1428767-15 11/11/21 08:05 • (DUP) R3728107-3 11/11/21 08:05

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	188	171	1	9.21		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1428770-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1428770-09 11/11/21 08:05 • (DUP) R3728107-4 11/11/21 08:05

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	198	205	1	3.33		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3728107-2 11/11/21 08:05

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	267	99.7	85.0-115	

Sample Narrative:

LCS: at 25C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3728101-1 11/11/21 06:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1428768-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1428768-05 11/11/21 06:50 • (DUP) R3728101-3 11/11/21 06:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	122	117	1	4.52		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1428774-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1428774-02 11/11/21 06:50 • (DUP) R3728101-4 11/11/21 06:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	122	128	1	4.98		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3728101-2 11/11/21 06:50

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	268	269	100	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3729816-1 11/15/21 19:49

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) R3729816-2 11/15/21 19:52 • (LCSD) R3729816-3 11/15/21 19:54

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	1.04	104	104	80.0-120			0.324	20

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

Method Blank (MB)

(MB) R3729763-1 11/15/21 20:29

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3729763-2 11/15/21 20:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	90.4	90.4	80.0-120	

4 Cn

5 Sr

L1428767-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1428767-08 11/15/21 20:36 • (MS) R3729763-5 11/15/21 20:45 • (MSD) R3729763-6 11/15/21 20:49

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	1.23	87.3	92.3	86.1	91.0	5	75.0-125			5.48	20

6 Qc

7 Gl

8 Al

9 Sc

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.

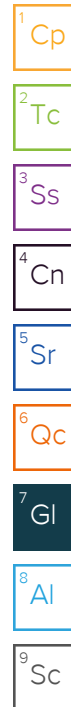
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. 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.
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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

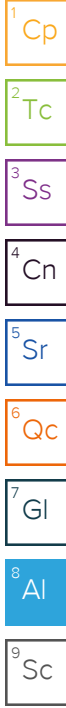
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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





CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or

MTJL Log-in Number Here

J188

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: Info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address:

Container Preservative Type **	Lab Project Manager:
** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other	

Customer Project Name/Number: Federal 2S-95-16-22CP Background	State: County/City: Time Zone Collected: CO / Rio Blanco []PT [X]MT []CT []ET
Phone: Site/Facility ID #: Federal 2S-95-16-22CP	Compliance Monitoring? [] Yes [X] No
Email: Purchase Order #: Quote #:	DW PWS ID #: DW Location Code:
Collected By (print): Andrew Smith	Turnaround Date Required: Standard 5-Day
Collected By (signature): <i>AS</i>	Immediately Packed on Ice: [X] Yes [] No
Sample Disposal: [] Dispose as appropriate [] Return [] Archive: [] Hold:	Rush: (Expedite Charges Apply) [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day
Field Filtered (if applicable): [] Yes [] No	
Analysis: _____	

Analyses										Lab Profile/Line:
										Lab Sample Receipt Checklist: Custody Seals Present/Intact Y N NA Custody Signatures Present Y N NA Collector Signature Present Y N NA Bottles Intact Y N NA Correct Bottles Y N NA Sufficient Volume Y N NA Samples Received on Ice Y N NA VOA - Headspace Acceptable Y N NA USDA Regulated Soils Y N NA Samples in Holding Time Y N NA Residual Chlorine Present Y N NA Cl Strips: _____ Sample pH Acceptable Y N NA pH Strips: _____ Sulfide Present Y N NA Lead Acetate Strips: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)	EC, SAR, pH (x5)	Arsenic (x5)	BORON (x5)
			Date	Time	Date	Time						
20211104-Fed 2S-95-16-22C-BGN@3	SL	G	11/4/2021	1410				1	P	X	X	X
20211104-Fed 2S-95-16-22C-BGN2@1.5'	SL	G	11/4/2021	1430				1	P	X	X	X
20211104-Fed 2S-95-16-22C-BGW@3'	SL	G	11/4/2021	1500				1	P	X	X	X
20211104-Fed 2S-95-16-22C-BGW2@1.5'	SL	G	11/4/2021	1510				1	P	X	X	X

LAB USE ONLY:
Lab Sample # / Comments:
L14-28767
-01
-02
-03
-04

Customer Remarks / Special Conditions / Possible Hazards: Please run requested analysis on all samples five (5) separate times.	Type of Ice Used: Wet Blue Dry None	SHORT HOLDS PRESENT (<72 hours): Y N N/A
	Packing Material Used:	Lab Tracking #: 5961232 2058
	Radchem sample(s) screened (<500 cpm): Y N NA	Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info: Temp Blank Received: Y N NA Therm ID#: _____ Cooler 1 Temp Upon Receipt: ___oC Cooler 1 Therm Corr. Factor: ___oC Cooler 1 Corrected Temp: ___oC Comments:


Relinquished by/Company: (Signature) <i>AS</i>	Date/Time: 11-8-21/1100	Received by/Company: (Signature) <i>AS</i>	Date/Time: 11/8 1200
Relinquished by/Company: (Signature) <i>AS</i>	Date/Time: 11/8/21 1500	Received by/Company: (Signature) <i>AS</i>	Date/Time: _____
Relinquished by/Company: (Signature) _____	Date/Time: _____	Received by/Company: (Signature) _____	Date/Time: 11/9/21 930

MTJL LAB USE ONLY	
Table #:	1.8 ± 0.1.6 ARBA
Acctnum:	Trip Blank Received: Y N NA
Template:	HCL MeOH TSP Other
Prelogin:	
PM:	Non Conformance(s):
PB:	YES / NO
	Page: _____ of: _____

Caerus Oil and Gas

Sample Delivery Group: L1428773
Samples Received: 11/09/2021
Project Number: FEDERAL 2S-95-16-22C
Description: Facility Decommissioning
Site: FEDERAL 2S-95-16-22CP
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

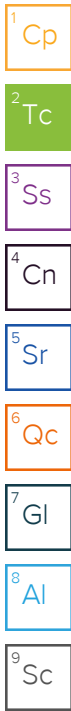
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

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

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SAMPLE SUMMARY

20211104-FED 2S-95-16-22CP-TANK_ESW@3' L1428773-01 Solid Collected by Andrew Smith Collected date/time 11/04/21 13:30 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1774639	1	11/16/21 13:10	11/16/21 13:10	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1772377	1	11/12/21 02:04	11/15/21 21:09	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771693	1	11/10/21 14:00	11/10/21 14:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772198	1	11/10/21 15:22	11/11/21 06:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1774287	1	11/15/21 08:05	11/16/21 10:15	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773235	1	11/16/21 14:28	11/17/21 13:18	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774284	5	11/15/21 08:03	11/16/21 10:27	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1775205	1	11/09/21 22:55	11/16/21 18:18	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1772127	1	11/09/21 22:55	11/10/21 22:29	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1774827	5	11/16/21 09:43	11/17/21 10:39	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1772876	1	11/15/21 09:18	11/15/21 19:37	ADF	Mt. Juliet, TN



20211104-FED 2S-95-16-22CP-DEHY@8" L1428773-02 Solid Collected by Andrew Smith Collected date/time 11/04/21 13:45 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1774639	1	11/16/21 13:13	11/16/21 13:13	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1772377	1	11/12/21 02:04	11/15/21 21:14	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771693	1	11/10/21 14:00	11/10/21 14:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772198	1	11/10/21 15:22	11/11/21 06:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1774287	1	11/15/21 08:05	11/16/21 09:58	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773235	1	11/16/21 14:28	11/17/21 13:26	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774284	5	11/15/21 08:03	11/16/21 09:54	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1775205	1	11/09/21 22:55	11/16/21 18:40	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1772127	1	11/09/21 22:55	11/10/21 22:48	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1774827	1	11/16/21 09:43	11/16/21 23:14	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1772876	1	11/15/21 09:18	11/15/21 20:37	LEA	Mt. Juliet, TN

20211104-FED 2S-95-16-22CP-TANK_BASE@7' L1428773-03 Solid Collected by Andrew Smith Collected date/time 11/04/21 13:35 Received date/time 11/09/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1774639	1	11/16/21 13:16	11/16/21 13:16	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1772377	1	11/12/21 02:04	11/15/21 21:19	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771881	1	11/10/21 11:00	11/10/21 11:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1772198	1	11/10/21 15:22	11/11/21 06:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1774287	1	11/15/21 08:05	11/16/21 10:18	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1773235	1	11/16/21 14:28	11/17/21 13:29	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1774284	5	11/15/21 08:03	11/16/21 10:30	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1775205	1	11/09/21 22:55	11/16/21 19:02	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1772127	1	11/09/21 22:55	11/10/21 23:08	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1774827	10	11/16/21 09:43	11/17/21 10:26	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1772876	1	11/15/21 09:18	11/15/21 20:57	ADF	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

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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.01		1	11/16/2021 13:10	WG1774639

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.422	J	0.255	1.00	1	11/15/2021 21:09	WG1772377

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.46	T8	1	11/10/2021 14:00	WG1771693

Sample Narrative:

L1428773-01 WG1771693: 7.46 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	929		10.0	1	11/11/2021 06:50	WG1772198

Sample Narrative:

L1428773-01 WG1772198: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	317		0.0852	0.500	1	11/16/2021 10:15	WG1774287
Cadmium	0.371	J	0.0471	0.500	1	11/16/2021 10:15	WG1774287
Copper	16.7		0.400	2.00	1	11/16/2021 10:15	WG1774287
Lead	13.8		0.208	0.500	1	11/16/2021 10:15	WG1774287
Nickel	22.2		0.132	2.00	1	11/16/2021 10:15	WG1774287
Selenium	0.890	J	0.764	2.00	1	11/16/2021 10:15	WG1774287
Silver	U		0.127	1.00	1	11/16/2021 10:15	WG1774287
Zinc	47.0		0.832	5.00	1	11/16/2021 10:15	WG1774287

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.429		0.0167	0.200	1	11/17/2021 13:18	WG1773235

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.47		0.100	1.00	5	11/16/2021 10:27	WG1774284

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.220	B	0.0217	0.100	1	11/16/2021 18:18	WG1775205
(S) a,a,a-Trifluorotoluene(FID)	98.9			77.0-120		11/16/2021 18:18	WG1775205

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/10/2021 22:29	WG1772127
Toluene	U		0.00130	0.00500	1	11/10/2021 22:29	WG1772127
Ethylbenzene	U		0.000737	0.00250	1	11/10/2021 22:29	WG1772127
Xylenes, Total	0.00308	<u>J</u>	0.000880	0.00650	1	11/10/2021 22:29	WG1772127
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	11/10/2021 22:29	WG1772127
1,3,5-Trimethylbenzene	0.0836		0.00200	0.00500	1	11/10/2021 22:29	WG1772127
(S) Toluene-d8	104			75.0-131		11/10/2021 22:29	WG1772127
(S) 4-Bromofluorobenzene	103			67.0-138		11/10/2021 22:29	WG1772127
(S) 1,2-Dichloroethane-d4	85.6			70.0-130		11/10/2021 22:29	WG1772127

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	962		8.05	20.0	5	11/17/2021 10:39	WG1774827
C28-C36 Motor Oil Range	114	<u>B</u>	1.37	20.0	5	11/17/2021 10:39	WG1774827
(S) o-Terphenyl	0.000	<u>J2</u>		18.0-148		11/17/2021 10:39	WG1774827

Sample Narrative:

L1428773-01 WG1774827: Surrogate failure due to matrix interference

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U	<u>J5</u>	0.00230	0.00600	1	11/15/2021 19:37	WG1772876
Acenaphthene	0.0269		0.00209	0.00600	1	11/15/2021 19:37	WG1772876
Acenaphthylene	U		0.00216	0.00600	1	11/15/2021 19:37	WG1772876
Benzo(a)anthracene	U		0.00173	0.00600	1	11/15/2021 19:37	WG1772876
Benzo(a)pyrene	U		0.00179	0.00600	1	11/15/2021 19:37	WG1772876
Benzo(b)fluoranthene	0.00316	<u>J</u>	0.00153	0.00600	1	11/15/2021 19:37	WG1772876
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/15/2021 19:37	WG1772876
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/15/2021 19:37	WG1772876
Chrysene	0.00803		0.00232	0.00600	1	11/15/2021 19:37	WG1772876
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/15/2021 19:37	WG1772876
Fluoranthene	0.0202		0.00227	0.00600	1	11/15/2021 19:37	WG1772876
Fluorene	0.228		0.00205	0.00600	1	11/15/2021 19:37	WG1772876
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/15/2021 19:37	WG1772876
Naphthalene	0.00821	<u>J</u>	0.00408	0.0200	1	11/15/2021 19:37	WG1772876
Phenanthrene	0.294		0.00231	0.00600	1	11/15/2021 19:37	WG1772876
Pyrene	0.0138		0.00200	0.00600	1	11/15/2021 19:37	WG1772876
1-Methylnaphthalene	0.118		0.00449	0.0200	1	11/15/2021 19:37	WG1772876
2-Methylnaphthalene	0.0106	<u>J</u>	0.00427	0.0200	1	11/15/2021 19:37	WG1772876
2-Chloronaphthalene	U		0.00466	0.0200	1	11/15/2021 19:37	WG1772876
(S) p-Terphenyl-d14	94.9			23.0-120		11/15/2021 19:37	WG1772876
(S) Nitrobenzene-d5	71.3			14.0-149		11/15/2021 19:37	WG1772876
(S) 2-Fluorobiphenyl	73.7			34.0-125		11/15/2021 19:37	WG1772876

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.879		1	11/16/2021 13:13	WG1774639

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	11/15/2021 21:14	WG1772377

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	<u>T8</u>	1	11/10/2021 14:00	WG1771693

Sample Narrative:

L1428773-02 WG1771693: 8.58 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	143		10.0	1	11/11/2021 06:50	WG1772198

Sample Narrative:

L1428773-02 WG1772198: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	1080	<u>J3 O1 V</u>	0.0852	0.500	1	11/16/2021 09:58	WG1774287
Cadmium	0.0475	<u>J</u>	0.0471	0.500	1	11/16/2021 09:58	WG1774287
Copper	11.2		0.400	2.00	1	11/16/2021 09:58	WG1774287
Lead	14.3		0.208	0.500	1	11/16/2021 09:58	WG1774287
Nickel	14.9		0.132	2.00	1	11/16/2021 09:58	WG1774287
Selenium	0.946	<u>J</u>	0.764	2.00	1	11/16/2021 09:58	WG1774287
Silver	U		0.127	1.00	1	11/16/2021 09:58	WG1774287
Zinc	34.8		0.832	5.00	1	11/16/2021 09:58	WG1774287

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.427		0.0167	0.200	1	11/17/2021 13:26	WG1773235

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.90		0.100	1.00	5	11/16/2021 09:54	WG1774284

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0362	<u>B J</u>	0.0217	0.100	1	11/16/2021 18:40	WG1775205
(S) a,a,a-Trifluorotoluene(FID)	89.9			77.0-120		11/16/2021 18:40	WG1775205

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/10/2021 22:48	WG1772127
Toluene	U		0.00130	0.00500	1	11/10/2021 22:48	WG1772127
Ethylbenzene	U		0.000737	0.00250	1	11/10/2021 22:48	WG1772127
Xylenes, Total	U		0.000880	0.00650	1	11/10/2021 22:48	WG1772127
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	11/10/2021 22:48	WG1772127
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	11/10/2021 22:48	WG1772127
(S) Toluene-d8	106			75.0-131		11/10/2021 22:48	WG1772127
(S) 4-Bromofluorobenzene	100			67.0-138		11/10/2021 22:48	WG1772127
(S) 1,2-Dichloroethane-d4	84.3			70.0-130		11/10/2021 22:48	WG1772127

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	3.00	B J	1.61	4.00	1	11/16/2021 23:14	WG1774827
C28-C36 Motor Oil Range	2.44	B J	0.274	4.00	1	11/16/2021 23:14	WG1774827
(S) o-Terphenyl	71.9			18.0-148		11/16/2021 23:14	WG1774827

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	11/15/2021 20:37	WG1772876
Acenaphthene	U		0.00209	0.00600	1	11/15/2021 20:37	WG1772876
Acenaphthylene	U		0.00216	0.00600	1	11/15/2021 20:37	WG1772876
Benzo(a)anthracene	U		0.00173	0.00600	1	11/15/2021 20:37	WG1772876
Benzo(a)pyrene	U		0.00179	0.00600	1	11/15/2021 20:37	WG1772876
Benzo(b)fluoranthene	U		0.00153	0.00600	1	11/15/2021 20:37	WG1772876
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/15/2021 20:37	WG1772876
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/15/2021 20:37	WG1772876
Chrysene	U		0.00232	0.00600	1	11/15/2021 20:37	WG1772876
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/15/2021 20:37	WG1772876
Fluoranthene	U		0.00227	0.00600	1	11/15/2021 20:37	WG1772876
Fluorene	U		0.00205	0.00600	1	11/15/2021 20:37	WG1772876
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/15/2021 20:37	WG1772876
Naphthalene	U		0.00408	0.0200	1	11/15/2021 20:37	WG1772876
Phenanthrene	U		0.00231	0.00600	1	11/15/2021 20:37	WG1772876
Pyrene	U		0.00200	0.00600	1	11/15/2021 20:37	WG1772876
1-Methylnaphthalene	U		0.00449	0.0200	1	11/15/2021 20:37	WG1772876
2-Methylnaphthalene	U		0.00427	0.0200	1	11/15/2021 20:37	WG1772876
2-Chloronaphthalene	U		0.00466	0.0200	1	11/15/2021 20:37	WG1772876
(S) p-Terphenyl-d14	94.0			23.0-120		11/15/2021 20:37	WG1772876
(S) Nitrobenzene-d5	51.4			14.0-149		11/15/2021 20:37	WG1772876
(S) 2-Fluorobiphenyl	70.5			34.0-125		11/15/2021 20:37	WG1772876

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.32		1	11/16/2021 13:16	WG1774639

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.471	J P1	0.255	1.00	1	11/15/2021 21:19	WG1772377

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.38	T8	1	11/10/2021 11:00	WG1771881

Sample Narrative:

L1428773-03 WG1771881: 8.38 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	555		10.0	1	11/11/2021 06:50	WG1772198

Sample Narrative:

L1428773-03 WG1772198: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	456		0.0852	0.500	1	11/16/2021 10:18	WG1774287
Cadmium	0.288	J	0.0471	0.500	1	11/16/2021 10:18	WG1774287
Copper	14.8		0.400	2.00	1	11/16/2021 10:18	WG1774287
Lead	13.6		0.208	0.500	1	11/16/2021 10:18	WG1774287
Nickel	21.1		0.132	2.00	1	11/16/2021 10:18	WG1774287
Selenium	1.22	J	0.764	2.00	1	11/16/2021 10:18	WG1774287
Silver	U		0.127	1.00	1	11/16/2021 10:18	WG1774287
Zinc	41.6		0.832	5.00	1	11/16/2021 10:18	WG1774287

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.661		0.0167	0.200	1	11/17/2021 13:29	WG1773235

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.14		0.100	1.00	5	11/16/2021 10:30	WG1774284

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0404	B J	0.0217	0.100	1	11/16/2021 19:02	WG1775205
(S) a,a,a-Trifluorotoluene(FID)	91.8			77.0-120		11/16/2021 19:02	WG1775205

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/10/2021 23:08	WG1772127
Toluene	U		0.00130	0.00500	1	11/10/2021 23:08	WG1772127
Ethylbenzene	U		0.000737	0.00250	1	11/10/2021 23:08	WG1772127
Xylenes, Total	0.00117	<u>J</u>	0.000880	0.00650	1	11/10/2021 23:08	WG1772127
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	11/10/2021 23:08	WG1772127
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	11/10/2021 23:08	WG1772127
(S) Toluene-d8	106			75.0-131		11/10/2021 23:08	WG1772127
(S) 4-Bromofluorobenzene	104			67.0-138		11/10/2021 23:08	WG1772127
(S) 1,2-Dichloroethane-d4	87.9			70.0-130		11/10/2021 23:08	WG1772127

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	71.6	<u>B</u>	16.1	40.0	10	11/17/2021 10:26	WG1774827
C28-C36 Motor Oil Range	75.0	<u>B</u>	2.74	40.0	10	11/17/2021 10:26	WG1774827
(S) o-Terphenyl	64.8			18.0-148		11/17/2021 10:26	WG1774827

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	11/15/2021 20:57	WG1772876
Acenaphthene	U		0.00209	0.00600	1	11/15/2021 20:57	WG1772876
Acenaphthylene	U		0.00216	0.00600	1	11/15/2021 20:57	WG1772876
Benzo(a)anthracene	U		0.00173	0.00600	1	11/15/2021 20:57	WG1772876
Benzo(a)pyrene	U		0.00179	0.00600	1	11/15/2021 20:57	WG1772876
Benzo(b)fluoranthene	U		0.00153	0.00600	1	11/15/2021 20:57	WG1772876
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/15/2021 20:57	WG1772876
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/15/2021 20:57	WG1772876
Chrysene	U		0.00232	0.00600	1	11/15/2021 20:57	WG1772876
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/15/2021 20:57	WG1772876
Fluoranthene	U		0.00227	0.00600	1	11/15/2021 20:57	WG1772876
Fluorene	U		0.00205	0.00600	1	11/15/2021 20:57	WG1772876
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/15/2021 20:57	WG1772876
Naphthalene	0.00998	<u>J</u>	0.00408	0.0200	1	11/15/2021 20:57	WG1772876
Phenanthrene	0.00306	<u>J</u>	0.00231	0.00600	1	11/15/2021 20:57	WG1772876
Pyrene	U		0.00200	0.00600	1	11/15/2021 20:57	WG1772876
1-Methylnaphthalene	U		0.00449	0.0200	1	11/15/2021 20:57	WG1772876
2-Methylnaphthalene	U		0.00427	0.0200	1	11/15/2021 20:57	WG1772876
2-Chloronaphthalene	U		0.00466	0.0200	1	11/15/2021 20:57	WG1772876
(S) p-Terphenyl-d14	84.8			23.0-120		11/15/2021 20:57	WG1772876
(S) Nitrobenzene-d5	46.5			14.0-149		11/15/2021 20:57	WG1772876
(S) 2-Fluorobiphenyl	61.4			34.0-125		11/15/2021 20:57	WG1772876

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3729918-1 11/15/21 18:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L1427667-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1427667-05 11/15/21 19:14 • (DUP) R3729918-3 11/15/21 19:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	U	U	1	0.000		20

⁷Gl

⁸Al

⁹Sc

L1428773-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1428773-03 11/15/21 21:19 • (DUP) R3729918-8 11/15/21 21:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	0.471	U	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3729918-2 11/15/21 18:59

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.7	107	80.0-120	

L1427912-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1427912-02 11/15/21 20:01 • (MS) R3729918-4 11/15/21 20:06 • (MSD) R3729918-5 11/15/21 20:12

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	U	18.7	20.6	93.7	103	1	75.0-125			9.26	20

L1427912-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1427912-02 11/15/21 20:01 • (MS) R3729918-6 11/15/21 20:17

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	659	U	672	102	50	75.0-125	

Laboratory Control Sample (LCS)

(LCS) R3727930-1 11/10/21 14:00

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

Sample Narrative:

LCS: 10.02 at 18.1C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1428768-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1428768-10 11/10/21 11:00 • (DUP) R3727793-2 11/10/21 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.42	8.40	1	0.238		1

Sample Narrative:

OS: 8.42 at 19.8C

DUP: 8.4 at 19.6C

L1428770-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1428770-18 11/10/21 11:00 • (DUP) R3727793-3 11/10/21 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.24	8.23	1	0.121		1

Sample Narrative:

OS: 8.24 at 19.1C

DUP: 8.23 at 19.1C

Laboratory Control Sample (LCS)

(LCS) R3727793-1 11/10/21 11:00

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

Sample Narrative:

LCS: 10.02 at 18.7C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3728101-1 11/11/21 06:50

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

L1428768-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1428768-05 11/11/21 06:50 • (DUP) R3728101-3 11/11/21 06:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	122	117	1	4.52		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1428774-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1428774-02 11/11/21 06:50 • (DUP) R3728101-4 11/11/21 06:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	122	128	1	4.98		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3728101-2 11/11/21 06:50

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	269	100	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3730107-1 11/16/21 09:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

Laboratory Control Sample (LCS)

(LCS) R3730107-2 11/16/21 09:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.8	97.8	80.0-120	
Cadmium	100	94.7	94.7	80.0-120	
Copper	100	95.6	95.6	80.0-120	
Lead	100	94.0	94.0	80.0-120	
Nickel	100	95.7	95.7	80.0-120	
Selenium	100	96.4	96.4	80.0-120	
Silver	20.0	17.9	89.3	80.0-120	
Zinc	100	93.6	93.6	80.0-120	

⁷ Gl

⁸ Al

⁹ Sc

L1428773-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1428773-02 11/16/21 09:58 • (MS) R3730107-4 11/16/21 10:07 • (MSD) R3730107-5 11/16/21 10:10

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 %
Barium	100	1080	439	641	0.000	0.000	1	75.0-125	V	J3 V	37.4	20
Cadmium	100	0.0475	90.2	93.5	90.1	93.5	1	75.0-125			3.62	20
Copper	100	11.2	108	115	96.9	104	1	75.0-125			6.63	20
Lead	100	14.3	105	111	91.0	96.8	1	75.0-125			5.37	20
Nickel	100	14.9	117	126	102	111	1	75.0-125			7.43	20
Selenium	100	0.946	90.7	94.9	89.8	93.9	1	75.0-125			4.46	20
Silver	20.0	U	16.9	17.7	84.4	88.3	1	75.0-125			4.57	20
Zinc	100	34.8	126	132	91.4	97.7	1	75.0-125			4.83	20

Method Blank (MB)

(MB) R3730720-1 11/17/21 12:54

Analyte	MB Result mg/l	MB Qualifier	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) R3730720-2 11/17/21 12:57 • (LCSD) R3730720-3 11/17/21 12:59

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 %
Hot Water Sol. Boron	1.00	1.07	1.05	107	105	80.0-120			1.86	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3729934-1 11/16/21 09:48

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3729934-2 11/16/21 09:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.2	92.2	80.0-120	

4 Cn

5 Sr

L1428773-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1428773-02 11/16/21 09:54 • (MS) R3729934-5 11/16/21 10:04 • (MSD) R3729934-6 11/16/21 10:07

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	1.90	83.9	88.3	82.0	86.4	5	75.0-125			5.09	20

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3730309-2 11/16/21 15:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0309	↓	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	90.1			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3730309-1 11/16/21 14:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.60	83.6	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			109	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) R3729535-3 11/10/21 14:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
<i>(S) Toluene-d8</i>	106			75.0-131
<i>(S) 4-Bromofluorobenzene</i>	99.0			67.0-138
<i>(S) 1,2-Dichloroethane-d4</i>	93.4			70.0-130

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

(LCS) R3729535-1 11/10/21 13:02 • (LCSD) R3729535-2 11/10/21 13:22

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	0.134	0.140	107	112	70.0-123			4.38	20
Ethylbenzene	0.125	0.126	0.136	101	109	74.0-126			7.63	20
Toluene	0.125	0.128	0.136	102	109	75.0-121			6.06	20
1,2,4-Trimethylbenzene	0.125	0.106	0.112	84.8	89.6	70.0-126			5.50	20
1,3,5-Trimethylbenzene	0.125	0.102	0.106	81.6	84.8	73.0-127			3.85	20
Xylenes, Total	0.375	0.385	0.410	103	109	72.0-127			6.29	20
<i>(S) Toluene-d8</i>				101	106	75.0-131				
<i>(S) 4-Bromofluorobenzene</i>				95.8	98.9	67.0-138				
<i>(S) 1,2-Dichloroethane-d4</i>				98.9	99.1	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) R3730410-1 11/16/21 22:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	2.86	J	1.61	4.00
C28-C36 Motor Oil Range	4.18		0.274	4.00
(S) o-Terphenyl	96.7			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3730410-2 11/16/21 22:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.6	67.2	50.0-150	
(S) o-Terphenyl			113	18.0-148	

L1427867-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1427867-06 11/17/21 01:10 • (MS) R3730410-3 11/17/21 01:23 • (MSD) R3730410-4 11/17/21 01:36

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	9.88	37.8	52.3	56.7	85.7	1	50.0-150		J3	32.2	20
(S) o-Terphenyl					98.8	117		18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3729712-2 11/15/21 14:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	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
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	57.6			14.0-149
(S) 2-Fluorobiphenyl	76.1			34.0-125
(S) p-Terphenyl-d14	102			23.0-120

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3729712-1 11/15/21 13:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0593	74.1	50.0-126	
Acenaphthene	0.0800	0.0595	74.4	50.0-120	
Acenaphthylene	0.0800	0.0629	78.6	50.0-120	
Benzo(a)anthracene	0.0800	0.0595	74.4	45.0-120	
Benzo(a)pyrene	0.0800	0.0485	60.6	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0559	69.9	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0576	72.0	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0570	71.3	49.0-125	
Chrysene	0.0800	0.0620	77.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0557	69.6	47.0-125	
Fluoranthene	0.0800	0.0636	79.5	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3729712-1 11/15/21 13:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0582	72.8	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0582	72.8	46.0-125	
Naphthalene	0.0800	0.0595	74.4	50.0-120	
Phenanthrene	0.0800	0.0593	74.1	47.0-120	
Pyrene	0.0800	0.0635	79.4	43.0-123	
1-Methylnaphthalene	0.0800	0.0640	80.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0570	71.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0562	70.3	50.0-120	
(S) Nitrobenzene-d5			62.9	14.0-149	
(S) 2-Fluorobiphenyl			82.7	34.0-125	
(S) p-Terphenyl-d14			104	23.0-120	

L1428773-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1428773-01 11/15/21 19:37 • (MS) R3729712-3 11/15/21 19:57 • (MSD) R3729712-4 11/15/21 20:17

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 %
Anthracene	0.0784	U	0.140	0.141	38.3	39.5	1	10.0-145			0.712	30
Acenaphthene	0.0784	0.0269	0.0944	0.0916	86.1	82.5	1	14.0-127			3.01	27
Acenaphthylene	0.0784	U	0.0695	0.0629	88.6	80.2	1	21.0-124			9.97	25
Benzo(a)anthracene	0.0784	U	0.0633	0.0598	80.7	76.3	1	10.0-139			5.69	30
Benzo(a)pyrene	0.0784	U	0.0538	0.0501	68.6	63.9	1	10.0-141			7.12	31
Benzo(b)fluoranthene	0.0784	0.00316	0.0518	0.0485	62.0	57.8	1	10.0-140			6.58	36
Benzo(g,h,i)perylene	0.0784	U	0.0469	0.0432	59.8	55.1	1	10.0-140			8.21	33
Benzo(k)fluoranthene	0.0784	U	0.0513	0.0485	65.4	61.9	1	10.0-137			5.61	31
Chrysene	0.0784	0.00803	0.0710	0.0694	80.3	78.3	1	10.0-145			2.28	30
Dibenz(a,h)anthracene	0.0784	U	0.0468	0.0435	59.7	55.5	1	10.0-132			7.31	31
Fluoranthene	0.0784	0.0202	0.0818	0.0804	78.6	76.8	1	10.0-153			1.73	33
Fluorene	0.0784	0.228	0.317	0.304	114	96.9	1	11.0-130			4.19	29
Indeno(1,2,3-cd)pyrene	0.0784	U	0.0497	0.0455	63.4	58.0	1	10.0-137			8.82	32
Naphthalene	0.0784	0.00821	0.0642	0.0624	71.4	69.1	1	10.0-135			2.84	27
Phenanthrene	0.0784	0.294	0.382	0.393	112	126	1	10.0-144			2.84	31
Pyrene	0.0784	0.0138	0.0840	0.0818	78.6	75.8	1	10.0-148			2.65	35
1-Methylnaphthalene	0.0784	0.118	0.200	0.191	105	93.1	1	10.0-142			4.60	28
2-Methylnaphthalene	0.0784	0.0106	0.0774	0.0690	85.2	74.5	1	10.0-137			11.5	28
2-Chloronaphthalene	0.0784	U	0.0461	0.0439	58.8	56.0	1	29.0-120			4.89	24
(S) Nitrobenzene-d5					76.5	81.2		14.0-149				
(S) 2-Fluorobiphenyl					80.7	75.3		34.0-125				
(S) p-Terphenyl-d14					101	94.4		23.0-120				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

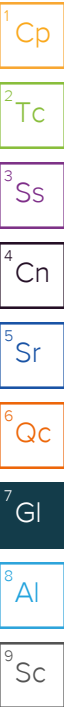
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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.
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.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

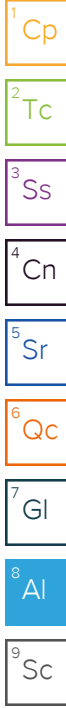
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

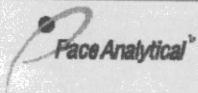
Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	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.





CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

J183

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address:

Container Preservative Type **	Lab Project Manager:
** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other	

Customer Project Name/Number: Federal 2S-95-16-22CP	State: CO / Rio Blanco	County/City:	Time Zone Collected: [] PT [X] MT [] CT [] ET
Facility Decommissioning	Site/Facility ID #: Federal 2S-95-16-22CP	Compliance Monitoring? [] Yes [X] No	Container Type: Plastic (P) or Glass (G)
Phone: Email:		DW PWS ID #: DW Location Code:	
Collected By (print): Andrew Smith	Purchase Order #: Quote #:	Immediately Packed on Ice: [X] Yes [] No	
Collected By (signature): <i>AS</i>	Turnaround Date Required: Standard 5-day	Field Filtered (if applicable): [] Yes [] No	
Sample Disposal: [] Dispose as appropriate [] Return [] Archive: [] Hold:	Rush: (Expedite Charges Apply) [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day	Analysis:	

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Table 915-1 VOCs	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	EC, SAR, Arsenic	Boron (Hot Water Soluble Soil)	
			Date	Time	Date	Time									
2021 1104-Fed 2S-95-16-22CP-TANK_ESW@3'	SL	G	11/4/2021	1330				2	G	X	X	X	X	X	X
2021 1104-Fed 2S-95-16-22CP-DEHY@8"	SL	G	11/4/2021	1345				2	G	X	X	X	X	X	X
2021 1104-Fed 2S-95-16-22CP-TANK_BASE@7'	SL	G	11/4/2021	1335				2	G	X	X	X	X	X	X

Lab Profile/Line:
Lab Sample Receipt Checklist:
Custody Seals Present/Intact Y N NA
Custody Signatures Present Y N NA
Collector Signature Present Y N NA
Bottles Intact Y N NA
Correct Bottles Y N NA
Sufficient Volume Y N NA
Samples Received on Ice Y N NA
VOA - Headspace Acceptable Y N NA
USDA Regulated Soils Y N NA
Samples in Holding Time Y N NA
Residual Chlorine Present Y N NA
Cl Strips: Y N NA
Sample pH Acceptable Y N NA
pH Strips: Y N NA
Sulfide Present Y N NA
Lead Acetate Strips: Y N NA
LAB USE ONLY: Lab Sample # / Comments:
<i>L1428773</i>
<i>-01</i>
<i>-02</i>
<i>-03</i>

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Remarks / Special Conditions / Possible Hazards:	Type of Ice Used: Wet Blue Dry None
	Packing Material Used:
	Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
Lab Tracking #: <i>501612322058</i>
Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: ___oC
Cooler 1 Therm Corr. Factor: ___oC
Cooler 1 Corrected Temp: ___oC
Comments:

Relinquished by/Company: (Signature) <i>AS</i>	Date/Time: <i>11-8-21/1100</i>	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: <i>11/8 1200</i>
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time: <i>11/8 21 1500</i>	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time:
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time:	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: <i>11/9/21 930</i>

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

<i>1. Beta = 1.8 ATDA</i>
Trip Blank Received: Y N NA
HCL MeOH TSP Other
Non Conformance(s): YES / NO
Page: ___ of: ___