

**Caerus Oil and Gas**

Sample Delivery Group: L1775403  
Samples Received: 09/07/2024  
Project Number:  
Description: Corral Creek 4508 Facility Decommissioning  
Site: CORRAL CREEK 4508  
Report To: Jake J. / Brett M. / Blair R. / Andy V.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

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**Pace Analytical National**

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<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# SAMPLE SUMMARY

20240906-M29 199-(FC-T01)@1 L1775403-01 Solid

Collected by Trevor Lakin      Collected date/time 09/06/24 12:43      Received date/time 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2364175	1	09/18/24 08:50	09/18/24 08:50	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2358632	1	09/12/24 16:51	09/16/24 02:59	EKB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2364638	1	09/18/24 09:42	09/18/24 11:07	KA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2364647	1	09/18/24 09:41	09/18/24 17:30	KRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2364201	1	09/17/24 18:19	09/17/24 21:47	MAP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2360868	1	09/11/24 00:28	09/12/24 09:15	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2360412	1.01	09/11/24 00:28	09/11/24 18:27	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2361146	5	09/13/24 13:11	09/13/24 22:39	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2362670	1	09/15/24 13:15	09/16/24 15:12	JCH	Mt. Juliet, TN
Subcontracted Analyses	WG2358525	1	09/13/24 00:00	09/13/24 00:00	-	Minneapolis, MN 55414



20240906-M29 199-(FC-T02)@1 L1775403-02 Solid

Collected by Trevor Lakin      Collected date/time 09/06/24 12:48      Received date/time 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2364167	1	09/19/24 03:39	09/19/24 03:39	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2358632	1	09/12/24 16:51	09/16/24 03:18	EKB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2365508	1	09/19/24 07:52	09/19/24 12:12	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2365516	1	09/19/24 08:05	09/19/24 14:19	KA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2364190	1	09/18/24 14:15	09/18/24 17:04	MAP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2360868	1	09/11/24 00:28	09/12/24 09:34	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2360412	1	09/11/24 00:28	09/11/24 18:49	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2361146	1	09/13/24 13:11	09/13/24 21:08	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2362670	1	09/15/24 13:15	09/16/24 14:01	JCH	Mt. Juliet, TN
Subcontracted Analyses	WG2358525	1	09/13/24 00:00	09/13/24 00:00	-	Minneapolis, MN 55414



# 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

## Project Narrative

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L1775403 -01, -02 contains subout data that is included after the chain of custody.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.69		1	09/18/2024 08:50	WG2364175

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn

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	09/16/2024 02:59	<a href="#">WG2358632</a>

- 5 Sr
- 6 Qc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.32	T8	1	09/18/2024 11:07	<a href="#">WG2364638</a>

Sample Narrative:

L1775403-01 WG2364638: 9.32 at 21.2C

- 7 Gl
- 8 Al

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	513		10.0	1	09/18/2024 17:30	<a href="#">WG2364647</a>

Sample Narrative:

L1775403-01 WG2364647: at 25C

- 9 Sc

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	0.389		0.0167	0.200	1	09/17/2024 21:47	<a href="#">WG2364201</a>

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	0.0877	J	0.0217	0.100	1	09/12/2024 09:15	<a href="#">WG2360868</a>
(S) a,a,a-Trifluorotoluene(FID)	94.2			77.0-120		09/12/2024 09:15	<a href="#">WG2360868</a>

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		0.000472	0.00101	1.01	09/11/2024 18:27	<a href="#">WG2360412</a>
Toluene	U		0.00131	0.00505	1.01	09/11/2024 18:27	<a href="#">WG2360412</a>
Ethylbenzene	U		0.000744	0.00253	1.01	09/11/2024 18:27	<a href="#">WG2360412</a>
Xylenes, Total	0.00119	J	0.000889	0.00656	1.01	09/11/2024 18:27	<a href="#">WG2360412</a>
1,2,4-Trimethylbenzene	U		0.00160	0.00505	1.01	09/11/2024 18:27	<a href="#">WG2360412</a>
1,3,5-Trimethylbenzene	U		0.00202	0.00505	1.01	09/11/2024 18:27	<a href="#">WG2360412</a>
(S) Toluene-d8	95.4			75.0-131		09/11/2024 18:27	<a href="#">WG2360412</a>
(S) 4-Bromofluorobenzene	94.4			67.0-138		09/11/2024 18:27	<a href="#">WG2360412</a>
(S) 1,2-Dichloroethane-d4	68.2	J2		70.0-130		09/11/2024 18:27	<a href="#">WG2360412</a>

## 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	35.1		8.05	20.0	5	09/13/2024 22:39	<a href="#">WG2361146</a>
C28-C36 Motor Oil Range	41.2	<u>B</u>	1.37	20.0	5	09/13/2024 22:39	<a href="#">WG2361146</a>
(S) o-Terphenyl	67.0			18.0-148		09/13/2024 22:39	<a href="#">WG2361146</a>

## Sample Narrative:

L1775403-01 WG2361146: Dilution due to matrix.

## 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
Acenaphthene	0.0764	<u>J3 J5</u>	0.00209	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Anthracene	0.0740	<u>J3 J5</u>	0.00230	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Benzo(a)anthracene	0.239	<u>J3 J5</u>	0.00173	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Benzo(b)fluoranthene	0.397	<u>J3 V</u>	0.00153	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Benzo(k)fluoranthene	0.149	<u>J3 J5</u>	0.00215	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Benzo(a)pyrene	0.248	<u>J3 J5</u>	0.00179	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Chrysene	0.337	<u>J3 V</u>	0.00232	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Dibenz(a,h)anthracene	0.0485	<u>J3 J5</u>	0.00172	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Fluoranthene	0.774	<u>J3 V</u>	0.00227	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Fluorene	0.0919	<u>J3 J5</u>	0.00205	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Indeno(1,2,3-cd)pyrene	0.222	<u>J3 J5</u>	0.00181	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
1-Methylnaphthalene	0.0123	<u>J3 J5</u>	0.00449	0.0200	1	09/16/2024 15:12	<a href="#">WG2362670</a>
2-Methylnaphthalene	0.0176	<u>J3 J5</u>	0.00427	0.0200	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Naphthalene	0.0179	<u>J3 J5</u>	0.00408	0.0200	1	09/16/2024 15:12	<a href="#">WG2362670</a>
Pyrene	0.502	<u>J3 V</u>	0.00200	0.00600	1	09/16/2024 15:12	<a href="#">WG2362670</a>
(S) p-Terphenyl-d14	88.1			23.0-120		09/16/2024 15:12	<a href="#">WG2362670</a>
(S) Nitrobenzene-d5	66.0			14.0-149		09/16/2024 15:12	<a href="#">WG2362670</a>
(S) 2-Fluorobiphenyl	75.8			34.0-125		09/16/2024 15:12	<a href="#">WG2362670</a>

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	3.00		1	09/19/2024 03:39	WG2364167

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.308	J	0.255	1.00	1	09/16/2024 03:18	<a href="#">WG2358632</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.52	T8	1	09/19/2024 12:12	<a href="#">WG2365508</a>

## Sample Narrative:

L1775403-02 WG2365508: 8.52 at 21.4C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	338		10.0	1	09/19/2024 14:19	<a href="#">WG2365516</a>

## Sample Narrative:

L1775403-02 WG2365516: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.197	J	0.0167	0.200	1	09/18/2024 17:04	<a href="#">WG2364190</a>

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

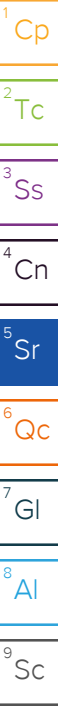
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0529	J	0.0217	0.100	1	09/12/2024 09:34	<a href="#">WG2360868</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	93.3			77.0-120		09/12/2024 09:34	<a href="#">WG2360868</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	09/11/2024 18:49	<a href="#">WG2360412</a>
Toluene	U		0.00130	0.00500	1	09/11/2024 18:49	<a href="#">WG2360412</a>
Ethylbenzene	U		0.000737	0.00250	1	09/11/2024 18:49	<a href="#">WG2360412</a>
Xylenes, Total	U		0.000880	0.00650	1	09/11/2024 18:49	<a href="#">WG2360412</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	09/11/2024 18:49	<a href="#">WG2360412</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	09/11/2024 18:49	<a href="#">WG2360412</a>
(S) Toluene-d8	93.7			75.0-131		09/11/2024 18:49	<a href="#">WG2360412</a>
(S) 4-Bromofluorobenzene	93.6			67.0-138		09/11/2024 18:49	<a href="#">WG2360412</a>
(S) 1,2-Dichloroethane-d4	69.3	J2		70.0-130		09/11/2024 18:49	<a href="#">WG2360412</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2.87	J	1.61	4.00	1	09/13/2024 21:08	<a href="#">WG2361146</a>
C28-C36 Motor Oil Range	5.17	B	0.274	4.00	1	09/13/2024 21:08	<a href="#">WG2361146</a>



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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) o-Terphenyl	70.6			18.0-148		09/13/2024 21:08	<a href="#">WG2361146</a>

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
Acenaphthene	U		0.00209	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Anthracene	U		0.00230	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Chrysene	U		0.00232	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Fluoranthene	0.00228	J	0.00227	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Fluorene	U		0.00205	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	09/16/2024 14:01	<a href="#">WG2362670</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Naphthalene	U		0.00408	0.0200	1	09/16/2024 14:01	<a href="#">WG2362670</a>
Pyrene	U		0.00200	0.00600	1	09/16/2024 14:01	<a href="#">WG2362670</a>
(S) p-Terphenyl-d14	90.6			23.0-120		09/16/2024 14:01	<a href="#">WG2362670</a>
(S) Nitrobenzene-d5	64.5			14.0-149		09/16/2024 14:01	<a href="#">WG2362670</a>
(S) 2-Fluorobiphenyl	77.5			34.0-125		09/16/2024 14:01	<a href="#">WG2362670</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4120091-1 09/16/24 00:47

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1775335-41 Original Sample (OS) • Duplicate (DUP)

(OS) L1775335-41 09/16/24 01:02 • (DUP) R4120091-3 09/16/24 01:08

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

L1775402-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1775402-02 09/16/24 02:47 • (DUP) R4120091-8 09/16/24 02:53

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

Laboratory Control Sample (LCS)

(LCS) R4120091-2 09/16/24 00:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.2	102	80.0-120	

L1775335-44 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775335-44 09/16/24 01:27 • (MS) R4120091-4 09/16/24 01:33 • (MSD) R4120091-5 09/16/24 01:39

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	18.5	18.5	92.3	92.5	1	75.0-125			0.249	20

L1775335-44 Original Sample (OS) • Matrix Spike (MS)

(OS) L1775335-44 09/16/24 01:27 • (MS) R4120091-6 09/16/24 01:45

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	636	U	487	76.6	50	75.0-125	

L1774431-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1774431-01 09/18/24 11:07 • (DUP) R4121324-2 09/18/24 11:07

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.59	7.57	1	0.264		1

Sample Narrative:

OS: 7.59 at 21.5C  
 DUP: 7.57 at 21.6C

L1775403-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1775403-01 09/18/24 11:07 • (DUP) R4121324-3 09/18/24 11:07

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	9.32	9.31	1	0.107		1

Sample Narrative:

OS: 9.32 at 21.2C  
 DUP: 9.31 at 21.2C

Laboratory Control Sample (LCS)

(LCS) R4121324-1 09/18/24 11:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 20.9C



L1775335-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1775335-23 09/19/24 12:12 • (DUP) R4121794-2 09/19/24 12:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.44	8.43	1	0.119		1

Sample Narrative:

OS: 8.44 at 21.8C  
DUP: 8.43 at 21.8C

L1776005-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1776005-05 09/19/24 12:12 • (DUP) R4121794-3 09/19/24 12:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.20	8.20	1	0.000		1

Sample Narrative:

OS: 8.2 at 21.3C  
DUP: 8.2 at 21.5C

Laboratory Control Sample (LCS)

(LCS) R4121794-1 09/19/24 12:12

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
su	su		%	%	
pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 21.4C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R4121408-1 09/18/24 17:30

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

Sample Narrative:

BLANK: at 25C

L1774431-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1774431-04 09/18/24 17:30 • (DUP) R4121408-3 09/18/24 17:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	387	386	1	0.259		20

Sample Narrative:

OS: at 25C  
DUP: at 25C

L1775441-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1775441-12 09/18/24 17:30 • (DUP) R4121408-4 09/18/24 17:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	153	154	1	0.523		20

Sample Narrative:

OS: at 25C  
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4121408-2 09/18/24 17:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	733	757	103	85.0-115	

Sample Narrative:

LCS: at 25C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R4121857-1 09/19/24 14:19

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

Sample Narrative:

BLANK: at 25C

L1775335-27 Original Sample (OS) • Duplicate (DUP)

(OS) L1775335-27 09/19/24 14:19 • (DUP) R4121857-3 09/19/24 14:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	290	297	1	2.59		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1775441-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1775441-08 09/19/24 14:19 • (DUP) R4121857-4 09/19/24 14:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	766	753	1	1.71		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4121857-2 09/19/24 14:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	733	669	91.3	85.0-115	

Sample Narrative:

LCS: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4121432-1 09/18/24 16:50

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) R4121432-2 09/18/24 16:52 • (LCSD) R4121432-3 09/18/24 16:54

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	1.04	1.03	104	103	80.0-120			0.723	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R4121004-1 09/17/24 21:42

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) R4121004-2 09/17/24 21:43 • (LCSD) R4121004-3 09/17/24 21:45

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	1.02	1.03	102	103	80.0-120			0.556	20

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

Method Blank (MB)

(MB) R4120097-2 09/12/24 07:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)	94.5			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4120097-1 09/12/24 06:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.10	102	72.0-127	
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)			101	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) R4119151-3 09/11/24 12:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	91.0			75.0-131
(S) 4-Bromofluorobenzene	94.7			67.0-138
(S) 1,2-Dichloroethane-d4	71.9			70.0-130

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

(LCS) R4119151-1 09/11/24 11:06 • (LCSD) R4119151-2 09/11/24 11:27

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.125	0.133	0.133	106	106	70.0-123			0.000	20
Toluene	0.125	0.108	0.107	86.4	85.6	75.0-121			0.930	20
Ethylbenzene	0.125	0.112	0.114	89.6	91.2	74.0-126			1.77	20
Xylenes, Total	0.375	0.324	0.318	86.4	84.8	72.0-127			1.87	20
1,2,4-Trimethylbenzene	0.125	0.105	0.104	84.0	83.2	70.0-126			0.957	20
1,3,5-Trimethylbenzene	0.125	0.103	0.100	82.4	80.0	73.0-127			2.96	20
(S) Toluene-d8				86.9	89.0	75.0-131				
(S) 4-Bromofluorobenzene				95.3	95.5	67.0-138				
(S) 1,2-Dichloroethane-d4				78.8	80.0	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) R4119812-2 09/14/24 07:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	3.51	J	0.274	4.00
(S) o-Terphenyl	79.4			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4119812-1 09/13/24 19:10

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
C10-C28 Diesel Range	50.0	29.7	59.4	50.0-150	
(S) o-Terphenyl			64.4	18.0-148	

L1775792-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775792-01 09/14/24 12:53 • (MS) R4119854-1 09/14/24 13:06 • (MSD) R4119854-2 09/14/24 13:19

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
C10-C28 Diesel Range	48.8	6.96	39.0	51.2	65.7	91.2	2	50.0-150		J3	27.1	20
(S) o-Terphenyl					59.4	61.9		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) R4120329-2 09/16/24 10:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	108			23.0-120
(S) Nitrobenzene-d5	76.4			14.0-149
(S) 2-Fluorobiphenyl	95.2			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R4120329-1 09/16/24 09:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0636	79.5	50.0-120	
Anthracene	0.0800	0.0635	79.4	50.0-126	
Benzo(a)anthracene	0.0800	0.0654	81.8	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0676	84.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0649	81.1	49.0-125	
Benzo(a)pyrene	0.0800	0.0600	75.0	42.0-120	
Chrysene	0.0800	0.0700	87.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0708	88.5	47.0-125	
Fluoranthene	0.0800	0.0725	90.6	49.0-129	
Fluorene	0.0800	0.0670	83.8	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0680	85.0	46.0-125	
1-Methylnaphthalene	0.0800	0.0675	84.4	51.0-121	
2-Methylnaphthalene	0.0800	0.0636	79.5	50.0-120	
Naphthalene	0.0800	0.0642	80.3	50.0-120	
Pyrene	0.0800	0.0628	78.5	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4120329-1 09/16/24 09:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			109	23.0-120	
(S) Nitrobenzene-d5			97.7	14.0-149	
(S) 2-Fluorobiphenyl			109	34.0-125	

L1775403-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775403-01 09/16/24 15:12 • (MS) R4120329-3 09/16/24 15:30 • (MSD) R4120329-4 09/16/24 15:48

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 %
Acenaphthene	0.0776	0.0764	1.02	0.459	1220	481	1	14.0-127	J5	J3 J5	75.9	27
Anthracene	0.0776	0.0740	1.01	0.458	1210	482	1	10.0-145	J5	J3 J5	75.2	30
Benzo(a)anthracene	0.0776	0.239	3.58	1.41	4310	1470	1	10.0-139	J5	J3 J5	87.0	30
Benzo(b)fluoranthene	0.0776	0.397	4.76	1.91	5620	1900	1	10.0-140	E V	J3 V	85.5	36
Benzo(k)fluoranthene	0.0776	0.149	1.65	0.750	1930	755	1	10.0-137	J5	J3 J5	75.0	31
Benzo(a)pyrene	0.0776	0.248	3.27	1.36	3890	1400	1	10.0-141	J5	J3 J5	82.5	31
Chrysene	0.0776	0.337	4.26	1.74	5060	1760	1	10.0-145	E V	J3 V	84.0	30
Dibenz(a,h)anthracene	0.0776	0.0485	0.630	0.284	749	296	1	10.0-132	J5	J3 J5	75.7	31
Fluoranthene	0.0776	0.774	9.60	3.92	11400	3950	1	10.0-153	E V	J3 V	84.0	33
Fluorene	0.0776	0.0919	1.19	0.540	1420	563	1	11.0-130	J5	J3 J5	75.1	29
Indeno(1,2,3-cd)pyrene	0.0776	0.222	2.66	1.08	3140	1080	1	10.0-137	J5	J3 J5	84.5	32
1-Methylnaphthalene	0.0776	0.0123	0.174	0.108	208	120	1	10.0-142	J5	J3	46.8	28
2-Methylnaphthalene	0.0776	0.0176	0.200	0.123	235	132	1	10.0-137	J5	J3	47.7	28
Naphthalene	0.0776	0.0179	0.275	0.150	331	166	1	10.0-135	J5	J3 J5	58.8	27
Pyrene	0.0776	0.502	6.24	2.48	7390	2480	1	10.0-148	E V	J3 V	86.2	35
(S) p-Terphenyl-d14					81.7	84.5		23.0-120				
(S) Nitrobenzene-d5					82.2	84.0		14.0-149				
(S) 2-Fluorobiphenyl					90.7	90.5		34.0-125				

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

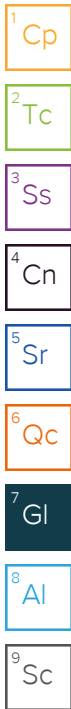
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
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.
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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc





September 16, 2024

Client Services  
Pace National  
12065 Lebanon Rd  
Mt. Juliet, TN 37122

RE: Project: L1775403 WG2358525  
Pace Project No.: 10707147

Dear Client Services:

Enclosed are the analytical results for sample(s) received by the laboratory on September 10, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Yeng Ozawa  
yeng.ozawa@pacelabs.com  
(612)607-1700  
Project Manager

Enclosures

cc: Jimmy Huckaba, Pace Analytical National Center for  
Testing & Innovation



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: L1775403 WG2358525

Pace Project No.: 10707147

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### **Pace Analytical Services, LLC - Minneapolis MN**

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW

Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: L1775403 WG2358525  
Pace Project No.: 10707147

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
10707147001	20240906-M29 199-(FC-T01)@1	Solid	09/06/24 12:43	09/10/24 08:50
10707147002	20240906-M29 199-(FC-T02)@1	Solid	09/06/24 12:48	09/10/24 08:50

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: L1775403 WG2358525  
Pace Project No.: 10707147

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Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10707147001	20240906-M29 199-(FC-T01)@1	EPA 6020B	NN2	9	PASI-M
10707147002	20240906-M29 199-(FC-T02)@1	EPA 6020B	NN2	9	PASI-M

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PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: L1775403 WG2358525

Pace Project No.: 10707147

Sample: 20240906-M29 199-(FC-T01)@1 Lab ID: 10707147001 Collected: 09/06/24 12:43 Received: 09/10/24 08:50 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	3.9	mg/kg	0.47	0.13	20	09/11/24 14:01	09/12/24 13:31	7440-38-2	
Barium	191	mg/kg	0.28	0.082	20	09/11/24 14:01	09/12/24 13:31	7440-39-3	
Cadmium	0.085	mg/kg	0.075	0.027	20	09/11/24 14:01	09/12/24 13:31	7440-43-9	
Copper	13.9	mg/kg	0.93	0.29	20	09/11/24 14:01	09/14/24 12:55	7440-50-8	
Lead	8.9	mg/kg	0.47	0.16	20	09/11/24 14:01	09/12/24 13:31	7439-92-1	
Nickel	28.6	mg/kg	0.47	0.22	20	09/11/24 14:01	09/12/24 13:31	7440-02-0	
Selenium	0.23J	mg/kg	0.47	0.098	20	09/11/24 14:01	09/12/24 13:31	7782-49-2	
Silver	<0.19	mg/kg	0.47	0.19	20	09/11/24 14:01	09/12/24 13:31	7440-22-4	
Zinc	42.9	mg/kg	4.7	1.3	20	09/11/24 14:01	09/12/24 13:31	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: L1775403 WG2358525

Pace Project No.: 10707147

Sample: 20240906-M29 199-(FC-T02)@1 Lab ID: 10707147002 Collected: 09/06/24 12:48 Received: 09/10/24 08:50 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	3.5	mg/kg	0.48	0.14	20	09/11/24 14:01	09/12/24 13:34	7440-38-2	
Barium	1930	mg/kg	2.9	0.84	200	09/11/24 14:01	09/12/24 14:04	7440-39-3	
Cadmium	0.10	mg/kg	0.077	0.028	20	09/11/24 14:01	09/12/24 13:34	7440-43-9	
Copper	12.7	mg/kg	0.96	0.29	20	09/11/24 14:01	09/14/24 12:59	7440-50-8	
Lead	9.1	mg/kg	0.48	0.17	20	09/11/24 14:01	09/12/24 13:34	7439-92-1	
Nickel	33.5	mg/kg	0.48	0.22	20	09/11/24 14:01	09/12/24 13:34	7440-02-0	
Selenium	0.26J	mg/kg	0.48	0.10	20	09/11/24 14:01	09/12/24 13:34	7782-49-2	
Silver	<0.20	mg/kg	0.48	0.20	20	09/11/24 14:01	09/12/24 13:34	7440-22-4	
Zinc	43.9	mg/kg	4.8	1.4	20	09/11/24 14:01	09/12/24 13:34	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: L1775403 WG2358525

Pace Project No.: 10707147

QC Batch:	967417	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3050B	Analysis Description:	6020B Solids UPD5
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10707147001, 10707147002

METHOD BLANK: 5055742 Matrix: Solid

Associated Lab Samples: 10707147001, 10707147002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	<0.13	0.46	0.13	09/12/24 12:03	
Barium	mg/kg	<0.080	0.27	0.080	09/12/24 12:03	
Cadmium	mg/kg	<0.027	0.073	0.027	09/12/24 12:03	
Copper	mg/kg	<0.28	0.91	0.28	09/14/24 11:13	
Lead	mg/kg	<0.16	0.46	0.16	09/12/24 12:03	
Nickel	mg/kg	<0.21	0.46	0.21	09/12/24 12:03	
Selenium	mg/kg	<0.096	0.46	0.096	09/12/24 12:03	
Silver	mg/kg	<0.19	0.46	0.19	09/12/24 12:03	
Zinc	mg/kg	<1.3	4.6	1.3	09/12/24 12:03	

LABORATORY CONTROL SAMPLE: 5055743

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	45.5	40.6	89	80-120	
Barium	mg/kg	45.5	42.0	92	80-120	
Cadmium	mg/kg	45.5	41.3	91	80-120	
Copper	mg/kg	45.5	44.4	98	80-120	
Lead	mg/kg	45.5	42.6	93	80-120	
Nickel	mg/kg	45.5	44.4	97	80-120	
Selenium	mg/kg	45.5	40.8	90	80-120	
Silver	mg/kg	22.8	22.3	98	80-120	
Zinc	mg/kg	45.5	43.0	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5055744 5055745

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		10706635001 Result	Spike Conc.	Spike Conc.	Result							Result
Arsenic	mg/kg	1.7	46.6	47.5	44.2	47.6	91	96	75-125	7	20	
Barium	mg/kg	28.4	46.6	47.5	73.9	82.1	98	113	75-125	10	20	
Cadmium	mg/kg	0.045J	46.6	47.5	42.7	46.0	92	97	75-125	7	20	
Copper	mg/kg	2.1	46.6	47.5	50.5	52.4	104	106	75-125	4	20	
Lead	mg/kg	2.8	46.6	47.5	46.7	52.0	94	104	75-125	11	20	
Nickel	mg/kg	2.1	46.6	47.5	48.8	52.7	100	106	75-125	8	20	
Selenium	mg/kg	0.18J	46.6	47.5	43.6	47.5	93	100	75-125	8	20	
Silver	mg/kg	<0.20	23.3	23.8	22.0	23.6	94	99	75-125	7	20	
Zinc	mg/kg	10.9	46.6	47.5	56.2	59.7	97	103	75-125	6	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: L1775403 WG2358525

Pace Project No.: 10707147

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: L1775403 WG2358525  
Pace Project No.: 10707147

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10707147001	20240906-M29 199-(FC-T01)@1	EPA 3050B	967417	EPA 6020B	967755
10707147002	20240906-M29 199-(FC-T02)@1	EPA 3050B	967417	EPA 6020B	967755

### REPORT OF LABORATORY ANALYSIS

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# Sub-Contract Chain of Custody

**Batch Date/Time:** 09/09/24 00:07  
**Sub-Contract Lab:** PACEMN  
**Address:** 1700 Elm Street Suite 200  
 SE  
**City/State:** Minneapolis, MN 55414  
**Contact:** tong.lee@pacelabs.com  
**Owner Lab:** PACEMTJL  
**Address:** 12065 Lebanon Rd.  
**City/State:** Mt. Juliet, TN 37122  
**Phone:** (615) 773-9756  
**Fax:** (615) 758-5859

**WO:** WG2358525  
**Email:** MTJLSuboutTeam@pacelabs.com  
**Results Due Date:** 09/19/24  
**ESC Purchase Order #:** L1775403  
**Send Reports to:** James C Huckaba



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 Phone: (615) 773-9756  
 Fax: (615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
20240906-M29 199-(FC-T01)@1	SS	CO	09/06/24 12:43	Metals	1. L1775403-01	6020 AS, BA, CD, CU, PB, NI, SE, AG, ZN, Report to the MDL/RDL 6020 AS, BA, CD, CU, PB, NI, SE, AG, ZN, Report to the MDL/RDL
20240906-M29 199-(FC-T02)@1	SS	CO	09/06/24 12:48	Metals	2. L1775403-02	6020 AS, BA, CD, CU, PB, NI, SE, AG, ZN, Report to the MDL/RDL

W1  
 W2

\*= Container used for multiple Samples and/or Analyses

Relinquished by: \_\_\_\_\_ Date: 9-9-24  
 Received by: Shane Pace Date: 9/10/24  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_

8:50  
 19.7°C **No Ice**

**WO# : 10707147**



# ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: Pace MTJL PROJECT #: WO#: 10707147

COURIER:  Client  Commercial  FedEx  Pace  
 Speedee  UPS  USPS

**WO#: 10707147**  
 PM: Y01 Due Date: 09/24/24  
 CLIENT: PASI-TN

TRACKING NUMBER: 4041 0481 0203  See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present:  YES  NO Seals Intact:  YES  NO Biological Tissue Frozen:  YES  NO  N/A  
 Packing Material:  Bubble Bags  Bubble Wrap  None  Other Temp Blank:  YES  NO Type of Ice:  Blue  Dry  Wet  
 Thermometer:  T1 (0461)  T2 (0436)  T3 (0459)  T4 (0402)  T5 (0178)  T6 (0235)  
 T7 (0042)  T8 (0775)  T9 (0727)  01339252 (1710)  Melted  None

Did Samples Originate in West Virginia:  YES  NO Were All Container Temps taken:  YES  NO  N/A  
 Correction Factor: -0.4 Cooler Temp Read w/Temp Blank: \_\_\_\_\_ °C Average Corrected Temp (no Temp Blank Only): 19.7 °C  
 Cooler Temp Corrected w/Temp Blank: \_\_\_\_\_ °C  
 NOTE: Temp should be above freezing to 6°C.  See Exceptions Form ENV-FRM-MIN4-0142  1 Container

USDA Regulated Soil:  N/A - Water Sample/Other (describe): Soil Initials & Date of Person Examining Contents: SJC 9/10/24  
 Did Samples originate from one of the following states (check maps) AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA:  YES  NO  
 Did samples originate from a foreign source (international, including Hawaii and Puerto Rico):  YES  NO  
 NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one):	<input type="checkbox"/> DULUTH	<input checked="" type="checkbox"/> MINNEAPOLIS	<input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)								
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.								
Chain of Custody Relinquished?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.								
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.								
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No								
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____								
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.								
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. <u>1 dBCU per sample</u>								
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.								
- Pace Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.								
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO								
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO								
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>pH Paper Lot #</b> <table border="1"> <tr> <th>Residual Chlorine</th> <th>0-6 Roll</th> <th>0-6 Strip</th> <th>0-14 Strip</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142	Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip				
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip												
NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.															
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.								
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.								
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140								
Trip Blanks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.								
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pace Trip Blank Lot # (if purchased): _____								

CLIENT NOTIFICATION / RESOLUTION FIELD DATA REQUIRED:  YES  NO  
 Person Contacted: \_\_\_\_\_ Date & Time: \_\_\_\_\_  
 Comments / Resolution: \_\_\_\_\_

Project Manager Review: Yeng Ozawa Date: 9/10/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).  
 Labeled By: SJC Line: 3

Workorder #: \_\_\_\_\_

No Temp Blank		
Read Temp	Corrected Temp	Average temp
20.0	19.6	19.7
20.2	19.8	
20.3	19.7	
20.1	19.7	

PM Notified of Out of Temp Cooler?  YES  NO

If yes, indicate who was contacted, date and time.  
If no, indicate reason why.  
Not on ice/ambient

Multiple Cooler Project?  YES  NO

If anything is OVER 6.0°C, you **MUST** document containers in this section **HERE**



Tracking Number	Temperature



Out of Temp Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples										
Sample ID	Type Of Preserve	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance After Addition?		Initials
								YES	NO	
								<input type="checkbox"/>	<input type="checkbox"/>	
								<input type="checkbox"/>	<input type="checkbox"/>	
								<input type="checkbox"/>	<input type="checkbox"/>	
								<input type="checkbox"/>	<input type="checkbox"/>	
								<input type="checkbox"/>	<input type="checkbox"/>	
								<input type="checkbox"/>	<input type="checkbox"/>	
								<input type="checkbox"/>	<input type="checkbox"/>	
								<input type="checkbox"/>	<input type="checkbox"/>	

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

