

## Caerus Oil and Gas

Sample Delivery Group: L1259151  
Samples Received: 09/05/2020  
Project Number:  
Description: Puckett 255-1 Dumpline

Report To: Jake Janicek  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

*Chris Ward*

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.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
20200904-255-1-POR@5' L1259151-01	5
20200904-255-1-TANKBOTTOM@7' L1259151-02	7
Qc: Quality Control Summary	9
Wet Chemistry by Method 3060A/7196A	9
Wet Chemistry by Method 9045D	10
Wet Chemistry by Method 9050AMod	11
Mercury by Method 7471A	12
Metals (ICP) by Method 6010B	13
Volatile Organic Compounds (GC) by Method 8015D/GRO	15
Volatile Organic Compounds (GC/MS) by Method 8260B	17
Semi-Volatile Organic Compounds (GC) by Method 8015	18
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	19
Gl: Glossary of Terms	21
Al: Accreditations & Locations	22
Sc: Sample Chain of Custody	23





20200904-255-1-POR@5' L1259151-01 Solid

Collected by

Collected date/time

Received date/time

09/04/20 08:00

09/05/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1539047	1	09/09/20 14:28	09/09/20 14:28	EL	Mt. Juliet, TN
Calculated Results	WG1539872	1	09/09/20 06:35	09/10/20 18:02	JIC	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1540592	1	09/10/20 12:00	09/10/20 18:02	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1540593	1	09/10/20 20:00	09/10/20 20:30	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1539229	1	09/09/20 15:31	09/09/20 17:25	MMF	Mt. Juliet, TN
Mercury by Method 7471A	WG1540033	1	09/09/20 12:01	09/09/20 18:56	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1539872	1	09/09/20 06:35	09/09/20 13:26	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1539071	200	09/04/20 08:00	09/07/20 03:01	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1539065	20	09/04/20 08:00	09/06/20 18:01	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1540113	1	09/10/20 00:14	09/10/20 08:33	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1540118	1	09/09/20 22:06	09/10/20 00:57	AAT	Mt. Juliet, TN

<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

20200904-255-1-TANKBOTTOM@7' L1259151-02 Solid

Collected by

Collected date/time

Received date/time

09/04/20 08:45

09/05/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1539047	1	09/09/20 14:31	09/09/20 14:31	EL	Mt. Juliet, TN
Calculated Results	WG1539872	1	09/09/20 06:35	09/10/20 18:02	JIC	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1540592	1	09/10/20 12:00	09/10/20 18:02	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1540593	1	09/10/20 20:00	09/10/20 20:30	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1539229	1	09/09/20 15:31	09/09/20 17:25	MMF	Mt. Juliet, TN
Mercury by Method 7471A	WG1540033	1	09/09/20 12:01	09/09/20 18:59	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1539872	1	09/09/20 06:35	09/09/20 14:07	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1539984	1000	09/04/20 08:45	09/09/20 19:46	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1539065	20	09/04/20 08:45	09/06/20 18:21	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1540113	5	09/10/20 00:14	09/10/20 11:02	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1540118	1	09/09/20 22:06	09/10/20 01:20	AAT	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1540118	10	09/09/20 22:06	09/10/20 09:28	AAT	Mt. Juliet, TN



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

<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	8.39		1	09/09/2020 14:28	WG1539047

## Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	10.2		1.00	1	09/10/2020 18:02	<a href="#">WG1539872</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/10/2020 18:02	<a href="#">WG1540592</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.15	<a href="#">T8</a>	1	09/10/2020 20:30	<a href="#">WG1540593</a>

## Sample Narrative:

L1259151-01 WG1540593: 8.15 at 24.1C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	838		10.0	1	09/09/2020 17:25	<a href="#">WG1539229</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	09/09/2020 18:56	<a href="#">WG1540033</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.92		2.00	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Barium	546	<a href="#">J3 O1 V</a>	0.500	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Cadmium	0.790		0.500	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Chromium	10.2		1.00	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Copper	8.29		2.00	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Lead	5.61		0.500	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Nickel	5.33		2.00	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Selenium	ND		2.00	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Silver	ND		1.00	1	09/09/2020 13:26	<a href="#">WG1539872</a>
Zinc	43.0		5.00	1	09/09/2020 13:26	<a href="#">WG1539872</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	227		20.0	200	09/07/2020 03:01	<a href="#">WG1539071</a>
(S) a,a,a-Trifluorotoluene(FID)	97.9		77.0-120		09/07/2020 03:01	<a href="#">WG1539071</a>

<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



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.478		0.0200	20	09/06/2020 18:01	<a href="#">WG1539065</a>
Toluene	7.84		0.100	20	09/06/2020 18:01	<a href="#">WG1539065</a>
Ethylbenzene	0.753		0.0500	20	09/06/2020 18:01	<a href="#">WG1539065</a>
Total Xylenes	23.5		0.130	20	09/06/2020 18:01	<a href="#">WG1539065</a>
(S) Toluene-d8	95.9		75.0-131		09/06/2020 18:01	<a href="#">WG1539065</a>
(S) 4-Bromofluorobenzene	108		67.0-138		09/06/2020 18:01	<a href="#">WG1539065</a>
(S) 1,2-Dichloroethane-d4	95.5		70.0-130		09/06/2020 18:01	<a href="#">WG1539065</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	128		4.00	1	09/10/2020 08:33	<a href="#">WG1540113</a>
(S) o-Terphenyl	54.6		18.0-148		09/10/2020 08:33	<a href="#">WG1540113</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0339		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Acenaphthene	0.00895		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Acenaphthylene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Benzo(a)anthracene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Benzo(a)pyrene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Chrysene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Fluoranthene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Fluorene	0.0232		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Naphthalene	0.467		0.0200	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Phenanthrene	0.0216		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
Pyrene	ND		0.00600	1	09/10/2020 00:57	<a href="#">WG1540118</a>
1-Methylnaphthalene	0.535		0.0200	1	09/10/2020 00:57	<a href="#">WG1540118</a>
2-Methylnaphthalene	1.32		0.0200	1	09/10/2020 00:57	<a href="#">WG1540118</a>
2-Chloronaphthalene	ND		0.0200	1	09/10/2020 00:57	<a href="#">WG1540118</a>
(S) p-Terphenyl-d14	90.2		23.0-120		09/10/2020 00:57	<a href="#">WG1540118</a>
(S) Nitrobenzene-d5	432	J1	14.0-149		09/10/2020 00:57	<a href="#">WG1540118</a>
(S) 2-Fluorobiphenyl	93.5		34.0-125		09/10/2020 00:57	<a href="#">WG1540118</a>

## Sample Narrative:

L1259151-01 WG1540118: Surrogate failure due to matrix interference



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.24		1	09/09/2020 14:31	WG1539047

## Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	27.1		1.00	1	09/10/2020 18:02	<a href="#">WG1539872</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/10/2020 18:02	<a href="#">WG1540592</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.35	<a href="#">T8</a>	1	09/10/2020 20:30	<a href="#">WG1540593</a>

## Sample Narrative:

L1259151-02 WG1540593: 8.35 at 23.9C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	611		10.0	1	09/09/2020 17:25	<a href="#">WG1539229</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	09/09/2020 18:59	<a href="#">WG1540033</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.29		2.00	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Barium	180		0.500	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Cadmium	ND		0.500	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Chromium	27.1		1.00	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Copper	17.5		2.00	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Lead	11.6		0.500	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Nickel	19.5		2.00	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Selenium	ND		2.00	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Silver	ND		1.00	1	09/09/2020 14:07	<a href="#">WG1539872</a>
Zinc	46.9		5.00	1	09/09/2020 14:07	<a href="#">WG1539872</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	3040		100	1000	09/09/2020 19:46	<a href="#">WG1539984</a>
(S) a,a,a-Trifluorotoluene(FID)	94.6		77.0-120		09/09/2020 19:46	<a href="#">WG1539984</a>

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



Collected date/time: 09/04/20 08:45

L1259151

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.300		0.0200	20	09/06/2020 18:21	<a href="#">WG1539065</a>
Toluene	5.07		0.100	20	09/06/2020 18:21	<a href="#">WG1539065</a>
Ethylbenzene	1.25		0.0500	20	09/06/2020 18:21	<a href="#">WG1539065</a>
Total Xylenes	142		0.130	20	09/06/2020 18:21	<a href="#">WG1539065</a>
(S) Toluene-d8	86.4		75.0-131		09/06/2020 18:21	<a href="#">WG1539065</a>
(S) 4-Bromofluorobenzene	122		67.0-138		09/06/2020 18:21	<a href="#">WG1539065</a>
(S) 1,2-Dichloroethane-d4	96.6		70.0-130		09/06/2020 18:21	<a href="#">WG1539065</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	562		20.0	5	09/10/2020 11:02	<a href="#">WG1540113</a>
(S) o-Terphenyl	66.8		18.0-148		09/10/2020 11:02	<a href="#">WG1540113</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0118		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Acenaphthene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Acenaphthylene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Benzo(a)anthracene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Benzo(a)pyrene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Chrysene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Fluoranthene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Fluorene	0.0614		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Naphthalene	0.884		0.200	10	09/10/2020 09:28	<a href="#">WG1540118</a>
Phenanthrene	0.0376		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
Pyrene	ND		0.00600	1	09/10/2020 01:20	<a href="#">WG1540118</a>
1-Methylnaphthalene	1.05		0.200	10	09/10/2020 09:28	<a href="#">WG1540118</a>
2-Methylnaphthalene	2.59		0.200	10	09/10/2020 09:28	<a href="#">WG1540118</a>
2-Chloronaphthalene	ND		0.0200	1	09/10/2020 01:20	<a href="#">WG1540118</a>
(S) p-Terphenyl-d14	78.2		23.0-120		09/10/2020 09:28	<a href="#">WG1540118</a>
(S) p-Terphenyl-d14	90.5		23.0-120		09/10/2020 01:20	<a href="#">WG1540118</a>
(S) Nitrobenzene-d5	0.000	J2	14.0-149		09/10/2020 01:20	<a href="#">WG1540118</a>
(S) Nitrobenzene-d5	0.000	J2	14.0-149		09/10/2020 09:28	<a href="#">WG1540118</a>
(S) 2-Fluorobiphenyl	93.1		34.0-125		09/10/2020 09:28	<a href="#">WG1540118</a>
(S) 2-Fluorobiphenyl	103		34.0-125		09/10/2020 01:20	<a href="#">WG1540118</a>

## Sample Narrative:

L1259151-02 WG1540118: Surrogate failure due to matrix interference

L1259151-02 WG1540118: IS/SURR failed on lower dilution.





Method Blank (MB)

(MB) R3569133-1 09/10/20 17:56

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1259316-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1259316-01 09/10/20 18:03 • (DUP) R3569133-7 09/10/20 18:03

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

Laboratory Control Sample (LCS)

(LCS) R3569133-2 09/10/20 17:57

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	23.0	95.8	80.0-120	

L1257383-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1257383-05 09/10/20 17:58 • (MS) R3569133-3 09/10/20 17:58 • (MSD) R3569133-4 09/10/20 17:58

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	18.5	18.9	92.6	94.5	1	75.0-125			1.99	20

L1257383-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1257383-05 09/10/20 17:58 • (MS) R3569133-5 09/10/20 17:59

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Chromium,Hexavalent	681	ND	645	94.8	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1259151-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1259151-01 09/10/20 20:30 • (DUP) R3569148-2 09/10/20 20:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.15	8.16	1	0.123		1

Sample Narrative:  
OS: 8.15 at 24.1C  
DUP: 8.16 at 23.6C

Laboratory Control Sample (LCS)

(LCS) R3569148-1 09/10/20 20:30

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

Sample Narrative:  
LCS: 10.03 at 22.3C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3568656-1 09/09/20 17:25

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

L1258974-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1258974-01 09/09/20 17:25 • (DUP) R3568656-3 09/09/20 17:25

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	109	115	1	5.17		20

<sup>7</sup>Gl

<sup>8</sup>Al

Laboratory Control Sample (LCS)

(LCS) R3568656-2 09/09/20 17:25

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	741	738	99.6	85.0-115	

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3568749-1 09/09/20 17:51

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R3568749-2 09/09/20 17:53

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.447	89.4	80.0-120	

L1258023-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1258023-06 09/09/20 17:56 • (MS) R3568749-3 09/09/20 17:58 • (MSD) R3568749-4 09/09/20 18:01

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	ND	0.474	0.395	94.7	79.0	1	75.0-125			18.0	20

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



L1259151-01,02

Method Blank (MB)

(MB) R3568712-1 09/09/20 13:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.240	0.500
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Nickel	U		0.490	2.00
Selenium	0.646		0.617	2.00
Silver	U		0.228	1.00
Zinc	U		0.939	5.00

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3568712-2 09/09/20 13:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	108	108	80.0-120	
Barium	100	111	111	80.0-120	
Cadmium	100	106	106	80.0-120	
Chromium	100	108	108	80.0-120	
Copper	100	115	115	80.0-120	
Lead	100	110	110	80.0-120	
Nickel	100	111	111	80.0-120	
Selenium	100	110	110	80.0-120	
Silver	20.0	19.6	98.2	80.0-120	
Zinc	100	105	105	80.0-120	

L1259151-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1259151-01 09/09/20 13:26 • (MS) R3568712-5 09/09/20 13:34 • (MSD) R3568712-6 09/09/20 13:37

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	5.92	102	108	96.3	102	1	75.0-125			5.38	20
Barium	100	546	288	361	0.000	0.000	1	75.0-125	V	J3 V	22.5	20
Cadmium	100	0.790	97.7	94.5	96.9	93.7	1	75.0-125			3.26	20
Chromium	100	10.2	106	105	95.8	95.3	1	75.0-125			0.421	20
Copper	100	8.29	115	113	106	105	1	75.0-125			0.951	20
Lead	100	5.61	107	105	102	99.4	1	75.0-125			2.31	20
Nickel	100	5.33	109	107	104	102	1	75.0-125			1.80	20



L1259151-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1259151-01 09/09/20 13:26 • (MS) R3568712-5 09/09/20 13:34 • (MSD) R3568712-6 09/09/20 13:37

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 %
Selenium	100	ND	101	97.3	100	96.4	1	75.0-125			3.59	20
Silver	20.0	ND	17.9	17.1	89.3	85.4	1	75.0-125			4.45	20
Zinc	100	43.0	120	121	76.6	78.3	1	75.0-125			1.47	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) R3568361-2 09/06/20 12:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	109			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3568361-1 09/06/20 11:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.87	88.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			90.8	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3568940-2 09/09/20 16:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	95.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3568940-1 09/09/20 14:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.83	106	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			105	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) R3568743-2 09/06/20 12:03

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
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	96.5			75.0-131
(S) 4-Bromofluorobenzene	108			67.0-138
(S) 1,2-Dichloroethane-d4	94.9			70.0-130

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3568743-1 09/06/20 11:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.135	108	70.0-123	
Ethylbenzene	0.125	0.120	96.0	74.0-126	
Toluene	0.125	0.120	96.0	75.0-121	
Xylenes, Total	0.375	0.361	96.3	72.0-127	
(S) Toluene-d8			96.2	75.0-131	
(S) 4-Bromofluorobenzene			106	67.0-138	
(S) 1,2-Dichloroethane-d4			99.7	70.0-130	

L1257976-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1257976-21 09/06/20 19:02 • (MS) R3568743-3 09/06/20 19:42 • (MSD) R3568743-4 09/06/20 20:03

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 %
Benzene	0.750	39.0	42.2	40.0	427	133	8	10.0-149	E V	E	5.35	37
Ethylbenzene	0.750	4.86	5.73	5.26	116	53.3	8	10.0-160			8.55	38
Toluene	0.750	0.0720	0.795	0.392	96.4	42.7	8	10.0-156		J3	67.9	38
Xylenes, Total	2.25	1.50	3.68	2.49	96.9	44.0	8	10.0-160		J3	38.6	38
(S) Toluene-d8					92.9	94.0		75.0-131				
(S) 4-Bromofluorobenzene					125	126		67.0-138				
(S) 1,2-Dichloroethane-d4					95.7	95.3		70.0-130				



Method Blank (MB)

(MB) R3568888-1 09/10/20 03:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	73.7			18.0-148

<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) R3568888-2 09/10/20 03:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	35.0	70.0	50.0-150	
(S) o-Terphenyl			70.6	18.0-148	

L1258322-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1258322-03 09/10/20 07:55 • (MS) R3568888-3 09/10/20 08:08 • (MSD) R3568888-4 09/10/20 08:20

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 %
TPH (GC/FID) High Fraction	49.7	ND	37.7	36.0	68.7	64.9	1	50.0-150			4.61	20
(S) o-Terphenyl					72.4	66.2		18.0-148				

Method Blank (MB)

(MB) R3568816-2 09/10/20 00:33

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	82.0			14.0-149
(S) 2-Fluorobiphenyl	96.0			34.0-125
(S) p-Terphenyl-d14	95.9			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3568816-1 09/10/20 00:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0733	91.6	50.0-126	
Acenaphthene	0.0800	0.0710	88.8	50.0-120	
Acenaphthylene	0.0800	0.0735	91.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0685	85.6	45.0-120	
Benzo(a)pyrene	0.0800	0.0731	91.4	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0655	81.9	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0724	90.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0790	98.8	49.0-125	
Chrysene	0.0800	0.0757	94.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0740	92.5	47.0-125	
Fluoranthene	0.0800	0.0743	92.9	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3568816-1 09/10/20 00:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0729	91.1	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0765	95.6	46.0-125	
Naphthalene	0.0800	0.0721	90.1	50.0-120	
Phenanthrene	0.0800	0.0680	85.0	47.0-120	
Pyrene	0.0800	0.0721	90.1	43.0-123	
1-Methylnaphthalene	0.0800	0.0835	104	51.0-121	
2-Methylnaphthalene	0.0800	0.0831	104	50.0-120	
2-Chloronaphthalene	0.0800	0.0702	87.8	50.0-120	
(S) Nitrobenzene-d5			77.5	14.0-149	
(S) 2-Fluorobiphenyl			95.8	34.0-125	
(S) p-Terphenyl-d14			94.1	23.0-120	

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

L1257452-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1257452-09 09/10/20 04:26 • (MS) R3568816-3 09/10/20 04:49 • (MSD) R3568816-4 09/10/20 05:13

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0760	ND	0.0497	0.0585	65.4	77.0	1	10.0-145			16.3	30
Acenaphthene	0.0760	ND	0.0495	0.0479	65.1	63.0	1	14.0-127			3.29	27
Acenaphthylene	0.0760	ND	0.0507	0.0461	66.7	60.7	1	21.0-124			9.50	25
Benzo(a)anthracene	0.0760	0.00891	0.0546	0.0872	60.1	103	1	10.0-139		J3	46.0	30
Benzo(a)pyrene	0.0760	0.00839	0.0543	0.0807	60.4	95.1	1	10.0-141		J3	39.1	31
Benzo(b)fluoranthene	0.0760	0.0114	0.0538	0.0982	55.8	114	1	10.0-140		J3	58.4	36
Benzo(g,h,i)perylene	0.0760	0.00703	0.0525	0.0687	59.8	81.1	1	10.0-140			26.7	33
Benzo(k)fluoranthene	0.0760	ND	0.0499	0.0623	61.1	77.4	1	10.0-137			22.1	31
Chrysene	0.0760	0.00965	0.0541	0.0908	58.5	107	1	10.0-145		J3	50.7	30
Dibenz(a,h)anthracene	0.0760	ND	0.0531	0.0523	67.3	66.3	1	10.0-132			1.52	31
Fluoranthene	0.0760	0.0168	0.0592	0.159	55.8	187	1	10.0-153		J3 J5	91.5	33
Fluorene	0.0760	ND	0.0505	0.0495	66.4	65.1	1	11.0-130			2.00	29
Indeno(1,2,3-cd)pyrene	0.0760	ND	0.0543	0.0695	64.2	84.2	1	10.0-137			24.6	32
Naphthalene	0.0760	ND	0.0539	0.0530	70.9	69.7	1	10.0-135			1.68	27
Phenanthrene	0.0760	0.00602	0.0517	0.103	60.1	128	1	10.0-144		J3	66.3	31
Pyrene	0.0760	0.0155	0.0571	0.131	54.7	152	1	10.0-148		J3 J5	78.6	35
1-Methylnaphthalene	0.0760	ND	0.0624	0.0616	82.1	81.1	1	10.0-142			1.29	28
2-Methylnaphthalene	0.0760	ND	0.0621	0.0620	81.7	81.6	1	10.0-137			0.161	28
2-Chloronaphthalene	0.0760	ND	0.0496	0.0458	65.3	60.3	1	29.0-120			7.97	24
(S) Nitrobenzene-d5					69.1	65.2		14.0-149				
(S) 2-Fluorobiphenyl					76.1	73.0		34.0-125				
(S) p-Terphenyl-d14					75.8	75.4		23.0-120				



## Guide to Reading and Understanding Your Laboratory Report

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

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

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* 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 National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
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>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

## Third Party Federal Accreditations

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

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.





# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

F157

Page: / of /


<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:	
Company: Caerus		Report To: Jake Janicek		Attention: Jake Janicek	
Address: 143 Diamond Ave		Copy To: Brett Middleton, Blair Rollins		Company Name:	
				Address:	
Email To: jjanicek@caerusoilandgas.com		Purchase Order No.:		Pace Quote Reference:	
Phone: 970-778-2314 Fax:		Project Name: Puckett 255-1 Dumpline		Pace Project Manager:	
Requested Due Date/TAT: 4/22/20 2-Day		Project Number:		Pace Profile #:	
				<b>REGULATORY AGENCY</b>	
				<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
				Site Location	
				STATE: CO	

ITEM #	Section D Required Client Information  <b>SAMPLE ID</b> (A-Z, 0-9 / . -) Sample IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P- SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Y/N	Analysis Test ↓	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	TPH - GRO/DRO	BTEX			Table 910-1 PAHs	Table 910-1 Metals	EC	SAR	pH	Benzene Only																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
					DATE	TIME	DATE	TIME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1	20200904-255-1-POR@5'		SL	G			9-4-20	0800		2	X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</

ADDITIONAL COMMENTS	RETIQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>[Signature]</i>	9-4-20	1050	<i>[Signature]</i>						
		9-4-20	1700							
				<i>[Signature]</i>	9-4-20	0915				

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Jake Janicek	DATE Signed (MM/DD/YY): 9/4/20				
SIGNATURE of SAMPLER: <i>[Signature]</i>		1676 2750 4288			

**Pace Analytical National Center for Testing & Innovation**  
**Cooler Receipt Form**

Client:	CAERUSPCO	L1259151	
Cooler Received/Opened On:	09 105 1 20	Temperature:	0.8
Received By:	Brandan Stockton		
Signature:			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			



September 30, 2020

<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

## Caerus Oil and Gas

Sample Delivery Group: L1266399  
Samples Received: 09/25/2020  
Project Number: PUCKETT 255-1  
Description: Puckett 255-1  
Site: PUCKETT 255-1  
Report To: Jake Janicek  
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.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
20200924-PUCKET255-1 (SSTOCK) L1266399-01	5
Qc: Quality Control Summary	7
Wet Chemistry by Method 3060A/7196A	7
Wet Chemistry by Method 9045D	8
Wet Chemistry by Method 9050AMod	9
Mercury by Method 7471A	10
Metals (ICP) by Method 6010B	11
Metals (ICPMS) by Method 6020	12
Volatile Organic Compounds (GC) by Method 8015D/GRO	13
Volatile Organic Compounds (GC/MS) by Method 8260B	14
Semi-Volatile Organic Compounds (GC) by Method 8015	15
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	16
Gl: Glossary of Terms	18
Al: Accreditations & Locations	19
Sc: Sample Chain of Custody	20



# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



20200924-PUCKET255-1 (SSTOCK) L1266399-01 Solid

Collected by  
Evan Mason

Collected date/time  
09/24/20 13:15

Received date/time  
09/25/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1549527	1	09/29/20 11:30	09/29/20 11:30	CCE	Mt. Juliet, TN
Calculated Results	WG1549051	1	09/28/20 06:11	09/30/20 00:29	BJD	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1550218	1	09/27/20 17:00	09/30/20 00:29	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1549690	1	09/28/20 10:00	09/28/20 12:30	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1550782	1	09/29/20 10:30	09/29/20 14:00	MMF	Mt. Juliet, TN
Mercury by Method 7471A	WG1550066	1	09/27/20 10:58	09/27/20 12:59	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1549051	1	09/28/20 06:11	09/28/20 23:22	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1549049	5	09/28/20 06:14	09/28/20 17:17	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1550269	25	09/26/20 18:43	09/28/20 02:08	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1550625	1	09/26/20 18:43	09/28/20 15:47	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1550294	1	09/29/20 17:11	09/30/20 03:12	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1550729	1	09/28/20 19:12	09/29/20 01:46	JNJ	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

<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



Collected date/time: 09/24/20 13:15

L1266399

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.55		1	09/29/2020 11:30	WG1549527

<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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	28.4		1.00	1	09/30/2020 00:29	<a href="#">WG1549051</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	2.16		2.00	1	09/30/2020 00:29	<a href="#">WG1550218</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.53	<a href="#">T8</a>	1	09/28/2020 12:30	<a href="#">WG1549690</a>

## Sample Narrative:

L1266399-01 WG1549690: 8.53 at 22.4C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	211		10.0	1	09/29/2020 14:00	<a href="#">WG1550782</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	09/27/2020 12:59	<a href="#">WG1550066</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	205		0.500	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Cadmium	0.636		0.500	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Chromium	30.6		1.00	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Copper	18.4		2.00	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Lead	14.9		0.500	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Nickel	26.6		2.00	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Selenium	ND		2.00	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Silver	ND		1.00	1	09/28/2020 23:22	<a href="#">WG1549051</a>
Zinc	57.3		5.00	1	09/28/2020 23:22	<a href="#">WG1549051</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.4		1.00	5	09/28/2020 17:17	<a href="#">WG1549049</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	16.5		2.50	25	09/28/2020 02:08	<a href="#">WG1550269</a>



Collected date/time: 09/24/20 13:15

L1266399

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	97.4		77.0-120		09/28/2020 02:08	<a href="#">WG1550269</a>

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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/28/2020 15:47	<a href="#">WG1550625</a>
Toluene	ND		0.00500	1	09/28/2020 15:47	<a href="#">WG1550625</a>
Ethylbenzene	ND		0.00250	1	09/28/2020 15:47	<a href="#">WG1550625</a>
Total Xylenes	0.0115		0.00650	1	09/28/2020 15:47	<a href="#">WG1550625</a>
(S) Toluene-d8	114		75.0-131		09/28/2020 15:47	<a href="#">WG1550625</a>
(S) 4-Bromofluorobenzene	88.1		67.0-138		09/28/2020 15:47	<a href="#">WG1550625</a>
(S) 1,2-Dichloroethane-d4	83.9		70.0-130		09/28/2020 15:47	<a href="#">WG1550625</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	64.2		4.00	1	09/30/2020 03:12	<a href="#">WG1550294</a>
(S) o-Terphenyl	73.0		18.0-148		09/30/2020 03:12	<a href="#">WG1550294</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Acenaphthene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Acenaphthylene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Benzo(a)anthracene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Benzo(a)pyrene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Chrysene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Fluoranthene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Fluorene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Naphthalene	ND		0.0200	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Phenanthrene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
Pyrene	ND		0.00600	1	09/29/2020 01:46	<a href="#">WG1550729</a>
1-Methylnaphthalene	ND		0.0200	1	09/29/2020 01:46	<a href="#">WG1550729</a>
2-Methylnaphthalene	0.0238		0.0200	1	09/29/2020 01:46	<a href="#">WG1550729</a>
2-Chloronaphthalene	ND		0.0200	1	09/29/2020 01:46	<a href="#">WG1550729</a>
(S) p-Terphenyl-d14	92.0		23.0-120		09/29/2020 01:46	<a href="#">WG1550729</a>
(S) Nitrobenzene-d5	113		14.0-149		09/29/2020 01:46	<a href="#">WG1550729</a>
(S) 2-Fluorobiphenyl	88.2		34.0-125		09/29/2020 01:46	<a href="#">WG1550729</a>

Method Blank (MB)

(MB) R3575924-1 09/30/20 00:02				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.640	2.00

<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

L1266397-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1266397-01 09/30/20 00:10 • (DUP) R3575924-3 09/30/20 00:11						
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	ND	ND	1	0.000		20

L1266404-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1266404-05 09/30/20 00:41 • (DUP) R3575924-4 09/30/20 00:42						
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3575924-2 09/30/20 00:04					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	23.3	97.1	80.0-120	

L1266655-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1266655-06 09/30/20 00:48 • (MS) R3575924-5 09/30/20 00:48 • (MSD) R3575924-6 09/30/20 00:49												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	21.4	21.7	107	109	1	75.0-125			1.61	20



Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3575160-2 09/28/20 12:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su			%		%
pH	8.66		1	0.000		1

Sample Narrative:

DUP: 8.66 at 23.1C

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3575160-3 09/28/20 12:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su			%		%
pH	8.57		1	0.585		1

Sample Narrative:

DUP: 8.57 at 21.6C

Laboratory Control Sample (LCS)

(LCS) R3575160-1 09/28/20 12:30

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

Sample Narrative:

LCS: 10.04 at 21.1C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc





Method Blank (MB)

(MB) R3575713-1 09/29/20 14:00

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

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3575713-3 09/29/20 14:00

Analyte	Original Result	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance		101	1	1.09		20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3575713-4 09/29/20 14:00

Analyte	Original Result	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance		118	1	0.0848		20

Laboratory Control Sample (LCS)

(LCS) R3575713-2 09/29/20 14:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	741	742	100	85.0-115	

<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) R3574901-1 09/27/20 12:05

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3574901-2 09/27/20 12:08

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.535	107	80.0-120	

L1266124-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1266124-03 09/27/20 12:15 • (MS) R3574901-3 09/27/20 12:18 • (MSD) R3574901-4 09/27/20 12:20

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	ND	0.533	0.496	107	99.2	1	75.0-125			7.28	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3575462-1 09/28/20 22:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.240	0.500
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Nickel	U		0.490	2.00
Selenium	U		0.617	2.00
Silver	U		0.228	1.00
Zinc	U		0.939	5.00

<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

Laboratory Control Sample (LCS)

(LCS) R3575462-2 09/28/20 22:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	101	101	80.0-120	
Cadmium	100	96.0	96.0	80.0-120	
Chromium	100	98.2	98.2	80.0-120	
Copper	100	95.9	95.9	80.0-120	
Lead	100	97.6	97.6	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	96.4	96.4	80.0-120	
Silver	20.0	18.1	90.4	80.0-120	
Zinc	100	97.6	97.6	80.0-120	

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3575462-5 09/28/20 23:10 • (MSD) R3575462-6 09/28/20 23:13

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100		524	728	0.000	190	1	75.0-125	V	J3 V	32.6	20
Cadmium	100		103	103	102	102	1	75.0-125			0.110	20
Chromium	100		117	118	100	101	1	75.0-125			0.778	20
Copper	100		116	117	101	102	1	75.0-125			1.31	20
Lead	100		115	115	103	104	1	75.0-125			0.0693	20
Nickel	100		128	128	109	109	1	75.0-125			0.0802	20
Selenium	100		101	102	99.8	101	1	75.0-125			0.990	20
Silver	20.0		19.5	19.7	97.7	98.5	1	75.0-125			0.828	20
Zinc	100		154	154	90.3	90.2	1	75.0-125			0.0480	20

Method Blank (MB)

(MB) R3575389-1 09/28/20 16:44

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

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3575389-2 09/28/20 16:48

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	102	102	80.0-120	

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3575389-5 09/28/20 17:02 • (MSD) R3575389-6 09/28/20 17:06

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg		mg/kg	mg/kg	%	%		%			%	%
Arsenic	20.0		106	112	98.0	104	5	75.0-125			5.55	20

Method Blank (MB)

(MB) R3575731-3 09/27/20 22:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	98.7			77.0-120

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3575731-2 09/27/20 21:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.29	96.2	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			102	77.0-120	

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3575731-6 09/28/20 08:09 • (MSD) R3575731-7 09/28/20 08:31

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.45		3.75	3.44	68.8	62.5	1	10.0-151			8.62	28
(S) a,a,a-Trifluorotoluene(FID)					97.3	97.8		77.0-120				



Method Blank (MB)

(MB) R3575640-3 09/28/20 12:22

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
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	112			75.0-131
(S) 4-Bromofluorobenzene	87.7			67.0-138
(S) 1,2-Dichloroethane-d4	86.4			70.0-130

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

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

(LCS) R3575640-1 09/28/20 11:06 • (LCSD) R3575640-2 09/28/20 11:25

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	0.111	0.113	88.8	90.4	70.0-123			1.79	20
Ethylbenzene	0.125	0.119	0.111	95.2	88.8	74.0-126			6.96	20
Toluene	0.125	0.131	0.124	105	99.2	75.0-121			5.49	20
Xylenes, Total	0.375	0.352	0.340	93.9	90.7	72.0-127			3.47	20
(S) Toluene-d8				113	112	75.0-131				
(S) 4-Bromofluorobenzene				83.7	86.1	67.0-138				
(S) 1,2-Dichloroethane-d4				92.4	106	70.0-130				

Method Blank (MB)

(MB) R3576048-1 09/30/20 01:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	91.6			18.0-148

<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) R3576048-2 09/30/20 01:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	47.9	95.8	50.0-150	
(S) o-Terphenyl			30.9	18.0-148	

Method Blank (MB)

(MB) R3575635-2 09/29/20 01:04

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	71.6			14.0-149
(S) 2-Fluorobiphenyl	89.0			34.0-125
(S) p-Terphenyl-d14	94.8			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3575635-1 09/29/20 00:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0639	79.9	50.0-126	
Acenaphthene	0.0800	0.0697	87.1	50.0-120	
Acenaphthylene	0.0800	0.0692	86.5	50.0-120	
Benzo(a)anthracene	0.0800	0.0641	80.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0643	80.4	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0640	80.0	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0692	86.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0731	91.4	49.0-125	
Chrysene	0.0800	0.0688	86.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0696	87.0	47.0-125	
Fluoranthene	0.0800	0.0706	88.3	49.0-129	



Laboratory Control Sample (LCS)

(LCS) R3575635-1 09/29/20 00:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0680	85.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0705	88.1	46.0-125	
Naphthalene	0.0800	0.0663	82.9	50.0-120	
Phenanthrene	0.0800	0.0661	82.6	47.0-120	
Pyrene	0.0800	0.0631	78.9	43.0-123	
1-Methylnaphthalene	0.0800	0.0725	90.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0614	76.8	50.0-120	
2-Chloronaphthalene	0.0800	0.0653	81.6	50.0-120	
(S) Nitrobenzene-d5			74.9	14.0-149	
(S) 2-Fluorobiphenyl			86.5	34.0-125	
(S) p-Terphenyl-d14			90.2	23.0-120	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3575635-3 09/29/20 05:14 • (MSD) R3575635-4 09/29/20 05:34

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0797		0.0538	0.0557	67.3	69.6	1	10.0-145			3.47	30
Acenaphthene	0.0797		0.0596	0.0597	71.8	71.9	1	14.0-127			0.168	27
Acenaphthylene	0.0797		0.0596	0.0618	74.5	77.3	1	21.0-124			3.62	25
Benzo(a)anthracene	0.0797		0.0578	0.0558	72.3	69.8	1	10.0-139			3.52	30
Benzo(a)pyrene	0.0797		0.0560	0.0578	70.0	72.3	1	10.0-141			3.16	31
Benzo(b)fluoranthene	0.0797		0.0597	0.0546	74.6	68.3	1	10.0-140			8.92	36
Benzo(g,h,i)perylene	0.0797		0.0593	0.0586	74.1	73.3	1	10.0-140			1.19	33
Benzo(k)fluoranthene	0.0797		0.0559	0.0605	69.9	75.6	1	10.0-137			7.90	31
Chrysene	0.0797		0.0568	0.0587	71.0	73.4	1	10.0-145			3.29	30
Dibenz(a,h)anthracene	0.0797		0.0568	0.0560	71.0	70.0	1	10.0-132			1.42	31
Fluoranthene	0.0797		0.0592	0.0568	71.0	68.0	1	10.0-153			4.14	33
Fluorene	0.0797		0.0587	0.0598	73.4	74.8	1	11.0-130			1.86	29
Indeno(1,2,3-cd)pyrene	0.0797		0.0591	0.0582	73.9	72.8	1	10.0-137			1.53	32
Naphthalene	0.0797		0.192	0.173	0.000	0.000	1	10.0-135	J6	J6	10.4	27
Phenanthrene	0.0797		0.0566	0.0568	70.8	71.0	1	10.0-144			0.353	31
Pyrene	0.0797		0.0587	0.0591	69.9	70.4	1	10.0-148			0.679	35
1-Methylnaphthalene	0.0797		0.342	0.251	88.8	0.000	1	10.0-142		J3 J6	30.7	28
2-Methylnaphthalene	0.0797		0.356	0.244	45.0	0.000	1	10.0-137		J3 J6	37.3	28
2-Chloronaphthalene	0.0797		0.0601	0.0605	75.1	75.6	1	29.0-120			0.663	24
(S) Nitrobenzene-d5					276	272		14.0-149	J1	J1		
(S) 2-Fluorobiphenyl					74.2	76.5		34.0-125				
(S) p-Terphenyl-d14					78.1	78.5		23.0-120				



## Guide to Reading and Understanding Your Laboratory Report

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

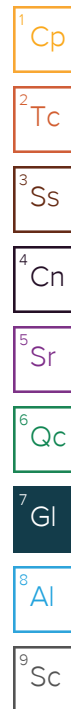
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.





Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* 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 National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
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>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

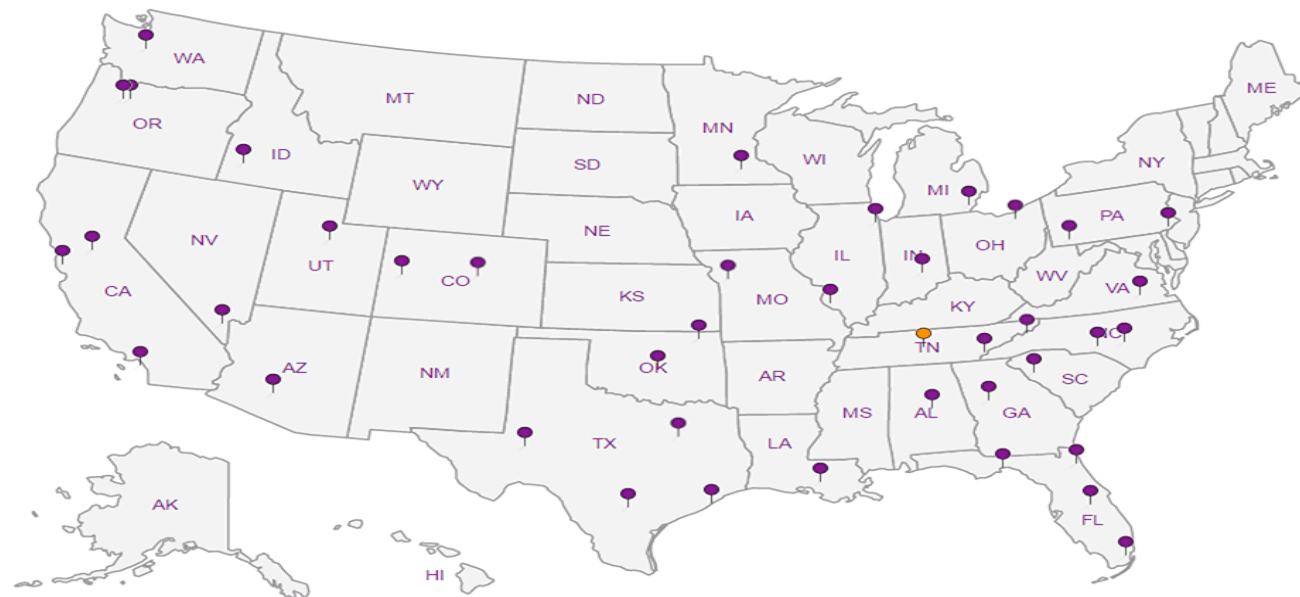
## Third Party Federal Accreditations

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

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.





## Caerus Oil and Gas

Sample Delivery Group: L1266404  
Samples Received: 09/25/2020  
Project Number: PUCKET 255-1  
Description: Pucket 255-1  
Site: PUCKET 255-1  
Report To: Jake Janicek  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

*Chris Ward*

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.





Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
20200924-PUCKET 255-1 (E BOTTOM)@21.5' L1266404-01	6
20200924-PUCKET 255-1 (E WALL)@15' L1266404-02	8
20200924-PUCKET 255-1 (POR BOTTOM)@21' L1266404-03	10
20200924-PUCKET 255-1 (W WALL)@17' L1266404-04	12
20200924-PUCKET 255-1 (N WALL)@16' L1266404-05	14
20200924-PUCKET 255-1 (S WALL)@17' L1266404-06	16
Qc: Quality Control Summary	18
Wet Chemistry by Method 3060A/7196A	18
Wet Chemistry by Method 9045D	19
Wet Chemistry by Method 9050AMod	20
Mercury by Method 7471A	21
Metals (ICP) by Method 6010B	23
Metals (ICPMS) by Method 6020	24
Volatile Organic Compounds (GC) by Method 8015D/GRO	25
Volatile Organic Compounds (GC/MS) by Method 8260B	27
Semi-Volatile Organic Compounds (GC) by Method 8015	31
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	33
Gl: Glossary of Terms	36
Al: Accreditations & Locations	37
Sc: Sample Chain of Custody	38



# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



20200924-PUCKET 255-1 (E BOTTOM)@21.5' L1266404-01 Solid				Collected by Evan Mason	Collected date/time 09/24/20 09:30	Received date/time 09/25/20 09:00	<div>1 Cp</div> <div>2 Tc</div> <div>3 Ss</div> <div>4 Cn</div> <div>5 Sr</div> <div>6 Qc</div> <div>7 Gl</div> <div>8 Al</div> <div>9 Sc</div>
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Calculated Results	WG1549527	1	09/29/20 11:38	09/29/20 11:38	CCE	Mt. Juliet, TN	
Calculated Results	WG1549717	1	09/26/20 07:45	09/30/20 00:35	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 3060A/7196A	WG1550218	1	09/27/20 17:00	09/30/20 00:35	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 9045D	WG1549690	1	09/28/20 10:00	09/28/20 12:30	SAC	Mt. Juliet, TN	
Wet Chemistry by Method 9050AMod	WG1550782	1	09/29/20 10:30	09/29/20 14:00	MMF	Mt. Juliet, TN	
Mercury by Method 7471A	WG1550066	1	09/27/20 10:58	09/27/20 13:07	TCT	Mt. Juliet, TN	
Metals (ICP) by Method 6010B	WG1549717	1	09/26/20 07:45	09/26/20 12:46	TRB	Mt. Juliet, TN	
Metals (ICPMS) by Method 6020	WG1550818	5	09/29/20 08:43	09/29/20 12:25	JPD	Mt. Juliet, TN	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1551236	50	09/26/20 17:54	09/29/20 21:17	DWR	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1550625	1	09/28/20 14:24	09/28/20 16:43	JHH	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1551112	1	09/26/20 17:54	09/29/20 15:36	BMB	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1550849	1	09/29/20 09:52	09/29/20 14:35	TJD	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1550729	1	09/28/20 19:12	09/29/20 02:48	JNJ	Mt. Juliet, TN	

20200924-PUCKET 255-1 (E WALL)@15' L1266404-02 Solid				Collected by Evan Mason	Collected date/time 09/24/20 10:00	Received date/time 09/25/20 09:00	<div>1 Cp</div> <div>2 Tc</div> <div>3 Ss</div> <div>4 Cn</div> <div>5 Sr</div> <div>6 Qc</div> <div>7 Gl</div> <div>8 Al</div> <div>9 Sc</div>
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Calculated Results	WG1549527	1	09/29/20 11:41	09/29/20 11:41	CCE	Mt. Juliet, TN	
Calculated Results	WG1549717	1	09/26/20 07:45	09/30/20 00:36	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 3060A/7196A	WG1550218	1	09/27/20 17:00	09/30/20 00:36	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 9045D	WG1549690	1	09/28/20 10:00	09/28/20 12:30	SAC	Mt. Juliet, TN	
Wet Chemistry by Method 9050AMod	WG1550782	1	09/29/20 10:30	09/29/20 14:00	MMF	Mt. Juliet, TN	
Mercury by Method 7471A	WG1550066	1	09/27/20 10:58	09/27/20 13:09	TCT	Mt. Juliet, TN	
Metals (ICP) by Method 6010B	WG1549717	1	09/26/20 07:45	09/26/20 12:50	TRB	Mt. Juliet, TN	
Metals (ICPMS) by Method 6020	WG1550818	5	09/29/20 08:43	09/29/20 12:42	JPD	Mt. Juliet, TN	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1551236	1	09/26/20 17:54	09/29/20 21:40	DWR	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1550625	1	09/28/20 14:24	09/28/20 17:02	JHH	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1551112	1	09/26/20 17:54	09/29/20 16:04	BMB	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1550849	1	09/29/20 09:52	09/29/20 14:22	TJD	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1550729	1	09/28/20 19:12	09/29/20 03:09	JNJ	Mt. Juliet, TN	

20200924-PUCKET 255-1 (POR BOTTOM)@21' L1266404-03 Solid				Collected by Evan Mason	Collected date/time 09/24/20 10:15	Received date/time 09/25/20 09:00	<div>1 Cp</div> <div>2 Tc</div> <div>3 Ss</div> <div>4 Cn</div> <div>5 Sr</div> <div>6 Qc</div> <div>7 Gl</div> <div>8 Al</div> <div>9 Sc</div>
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Calculated Results	WG1549527	1	09/29/20 11:44	09/29/20 11:44	CCE	Mt. Juliet, TN	
Calculated Results	WG1549717	1	09/26/20 07:45	09/30/20 00:37	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 3060A/7196A	WG1550218	1	09/27/20 17:00	09/30/20 00:37	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 9045D	WG1549690	1	09/28/20 10:00	09/28/20 12:30	SAC	Mt. Juliet, TN	
Wet Chemistry by Method 9050AMod	WG1550782	1	09/29/20 10:30	09/29/20 14:00	MMF	Mt. Juliet, TN	
Mercury by Method 7471A	WG1550066	1	09/27/20 10:58	09/27/20 13:17	TCT	Mt. Juliet, TN	
Metals (ICP) by Method 6010B	WG1549717	1	09/26/20 07:45	09/26/20 12:53	TRB	Mt. Juliet, TN	
Metals (ICPMS) by Method 6020	WG1550818	5	09/29/20 08:43	09/29/20 12:45	JPD	Mt. Juliet, TN	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1551236	1	09/26/20 17:54	09/29/20 22:02	DWR	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1550625	1	09/28/20 14:24	09/28/20 17:21	JHH	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1551112	1	09/26/20 17:54	09/29/20 16:24	BMB	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1550849	1	09/29/20 09:52	09/29/20 13:42	TJD	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1550729	1	09/28/20 19:12	09/29/20 03:30	JNJ	Mt. Juliet, TN	

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



20200924-PUCKET 255-1 (W WALL)@17' L1266404-04 Solid				Collected by Evan Mason	Collected date/time 09/24/20 10:45	Received date/time 09/25/20 09:00	1 Cp
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	2 Tc
Calculated Results	WG1549527	1	09/29/20 11:06	09/29/20 11:06	CCE	Mt. Juliet, TN	3 Ss
Calculated Results	WG1549717	1	09/26/20 07:45	09/30/20 00:38	BJD	Mt. Juliet, TN	4 Cn
Wet Chemistry by Method 3060A/7196A	WG1550218	1	09/27/20 17:00	09/30/20 00:38	BJD	Mt. Juliet, TN	5 Sr
Wet Chemistry by Method 9045D	WG1549690	1	09/28/20 10:00	09/28/20 12:30	SAC	Mt. Juliet, TN	6 Qc
Wet Chemistry by Method 9050AMod	WG1550782	1	09/29/20 10:30	09/29/20 14:00	MMF	Mt. Juliet, TN	7 Gl
Mercury by Method 7471A	WG1550066	1	09/27/20 10:58	09/27/20 13:19	TCT	Mt. Juliet, TN	8 Al
Metals (ICP) by Method 6010B	WG1549717	1	09/26/20 07:45	09/26/20 12:55	TRB	Mt. Juliet, TN	9 Sc
Metals (ICPMS) by Method 6020	WG1550818	5	09/29/20 08:43	09/29/20 12:49	JPD	Mt. Juliet, TN	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1550269	1	09/26/20 17:54	09/28/20 04:23	ACG	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1550625	1	09/26/20 17:54	09/28/20 17:40	JHH	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1550849	1	09/29/20 09:52	09/29/20 15:02	TJD	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1550729	1	09/28/20 19:12	09/29/20 03:50	JNJ	Mt. Juliet, TN	
20200924-PUCKET 255-1 (N WALL)@16' L1266404-05 Solid				Collected by Evan Mason	Collected date/time 09/24/20 12:00	Received date/time 09/25/20 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Calculated Results	WG1549527	1	09/29/20 11:09	09/29/20 11:09	CCE	Mt. Juliet, TN	
Calculated Results	WG1549717	1	09/26/20 07:45	09/30/20 00:41	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 3060A/7196A	WG1550218	1	09/27/20 17:00	09/30/20 00:41	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 9045D	WG1549690	1	09/28/20 10:00	09/28/20 12:30	SAC	Mt. Juliet, TN	
Wet Chemistry by Method 9050AMod	WG1550782	1	09/29/20 10:30	09/29/20 14:00	MMF	Mt. Juliet, TN	
Mercury by Method 7471A	WG1550147	1	09/27/20 14:30	09/28/20 10:12	ABL	Mt. Juliet, TN	
Metals (ICP) by Method 6010B	WG1549717	1	09/26/20 07:45	09/26/20 12:58	TRB	Mt. Juliet, TN	
Metals (ICPMS) by Method 6020	WG1550818	5	09/29/20 08:43	09/29/20 12:02	JPD	Mt. Juliet, TN	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1550269	1	09/26/20 17:54	09/28/20 04:46	ACG	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1550625	1	09/28/20 14:24	09/28/20 17:59	JHH	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1551112	1	09/26/20 17:54	09/29/20 16:45	BMB	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1550849	1	09/29/20 09:52	09/29/20 13:16	TJD	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1550729	1	09/28/20 19:12	09/29/20 04:11	JNJ	Mt. Juliet, TN	
20200924-PUCKET 255-1 (S WALL)@17' L1266404-06 Solid				Collected by Evan Mason	Collected date/time 09/24/20 12:30	Received date/time 09/25/20 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Calculated Results	WG1549527	1	09/29/20 11:11	09/29/20 11:11	CCE	Mt. Juliet, TN	
Calculated Results	WG1549717	1	09/26/20 07:45	09/30/20 00:43	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 3060A/7196A	WG1550218	1	09/27/20 17:00	09/30/20 00:43	BJD	Mt. Juliet, TN	
Wet Chemistry by Method 9045D	WG1549690	1	09/28/20 10:00	09/28/20 12:30	SAC	Mt. Juliet, TN	
Wet Chemistry by Method 9050AMod	WG1550782	1	09/29/20 10:30	09/29/20 14:00	MMF	Mt. Juliet, TN	
Mercury by Method 7471A	WG1550147	1	09/27/20 14:30	09/28/20 10:15	ABL	Mt. Juliet, TN	
Metals (ICP) by Method 6010B	WG1549717	1	09/26/20 07:45	09/26/20 13:01	TRB	Mt. Juliet, TN	
Metals (ICPMS) by Method 6020	WG1550818	5	09/29/20 08:43	09/29/20 12:06	JPD	Mt. Juliet, TN	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1550269	1	09/26/20 17:54	09/28/20 05:08	ACG	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1551455	1	09/28/20 15:05	09/29/20 23:55	JHH	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1551709	1	09/28/20 15:05	09/30/20 21:46	DWR	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1550765	1	09/29/20 10:24	09/29/20 23:24	TJD	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1550729	1	09/28/20 19:12	09/29/20 04:32	JNJ	Mt. Juliet, TN	





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

<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



Collected date/time: 09/24/20 09:30

L1266404

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.47		1	09/29/2020 11:38	WG1549527

<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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	18.4		1.00	1	09/30/2020 00:35	<a href="#">WG1549717</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/30/2020 00:35	<a href="#">WG1550218</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.96	<a href="#">T8</a>	1	09/28/2020 12:30	<a href="#">WG1549690</a>

## Sample Narrative:

L1266404-01 WG1549690: 8.96 at 21.8C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	334		10.0	1	09/29/2020 14:00	<a href="#">WG1550782</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0624		0.0400	1	09/27/2020 13:07	<a href="#">WG1550066</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	221		0.500	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Cadmium	1.10		0.500	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Chromium	19.2		1.00	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Copper	18.1		2.00	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Lead	18.5		0.500	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Nickel	22.3		2.00	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Selenium	ND		2.00	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Silver	ND		1.00	1	09/26/2020 12:46	<a href="#">WG1549717</a>
Zinc	50.2		5.00	1	09/26/2020 12:46	<a href="#">WG1549717</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.55		1.00	5	09/29/2020 12:25	<a href="#">WG1550818</a>



Collected date/time: 09/24/20 09:30

L1266404

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	5.12		5.00	50	09/29/2020 21:17	<a href="#">WG1551236</a>
(S) a,a,a-Trifluorotoluene(FID)	99.3		77.0-120		09/29/2020 21:17	<a href="#">WG1551236</a>

## Sample Narrative:

L1266404-01 WG1551236: Low I.S. due to matrix interference. Confirmed by this 2ND run.

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

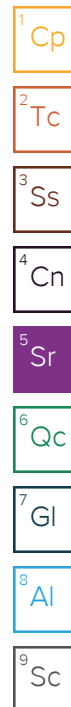
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/28/2020 16:43	<a href="#">WG1550625</a>
Toluene	0.0400		0.00500	1	09/29/2020 15:36	<a href="#">WG1551112</a>
Ethylbenzene	0.00970		0.00250	1	09/29/2020 15:36	<a href="#">WG1551112</a>
Total Xylenes	0.360		0.00650	1	09/29/2020 15:36	<a href="#">WG1551112</a>
(S) Toluene-d8	115		75.0-131		09/28/2020 16:43	<a href="#">WG1550625</a>
(S) Toluene-d8	102		75.0-131		09/29/2020 15:36	<a href="#">WG1551112</a>
(S) 4-Bromofluorobenzene	89.6		67.0-138		09/28/2020 16:43	<a href="#">WG1550625</a>
(S) 4-Bromofluorobenzene	102		67.0-138		09/29/2020 15:36	<a href="#">WG1551112</a>
(S) 1,2-Dichloroethane-d4	80.5		70.0-130		09/28/2020 16:43	<a href="#">WG1550625</a>
(S) 1,2-Dichloroethane-d4	91.7		70.0-130		09/29/2020 15:36	<a href="#">WG1551112</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	9.18	<b>B</b>	4.00	1	09/29/2020 14:35	<a href="#">WG1550849</a>
(S) o-Terphenyl	72.9		18.0-148		09/29/2020 14:35	<a href="#">WG1550849</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Acenaphthene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Acenaphthylene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Benzo(a)anthracene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Benzo(a)pyrene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Chrysene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Fluoranthene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Fluorene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Naphthalene	ND		0.0200	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Phenanthrene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
Pyrene	ND		0.00600	1	09/29/2020 02:48	<a href="#">WG1550729</a>
1-Methylnaphthalene	ND		0.0200	1	09/29/2020 02:48	<a href="#">WG1550729</a>
2-Methylnaphthalene	ND		0.0200	1	09/29/2020 02:48	<a href="#">WG1550729</a>
2-Chloronaphthalene	ND		0.0200	1	09/29/2020 02:48	<a href="#">WG1550729</a>
(S) p-Terphenyl-d14	88.0		23.0-120		09/29/2020 02:48	<a href="#">WG1550729</a>
(S) Nitrobenzene-d5	57.6		14.0-149		09/29/2020 02:48	<a href="#">WG1550729</a>
(S) 2-Fluorobiphenyl	78.3		34.0-125		09/29/2020 02:48	<a href="#">WG1550729</a>





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.81		1	09/29/2020 11:41	WG1549527

<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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	25.1		1.00	1	09/30/2020 00:36	<a href="#">WG1549717</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/30/2020 00:36	<a href="#">WG1550218</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.95	<a href="#">T8</a>	1	09/28/2020 12:30	<a href="#">WG1549690</a>

## Sample Narrative:

L1266404-02 WG1549690: 8.95 at 22C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	118		10.0	1	09/29/2020 14:00	<a href="#">WG1550782</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	09/27/2020 13:09	<a href="#">WG1550066</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	234		0.500	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Cadmium	0.701		0.500	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Chromium	25.1		1.00	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Copper	18.1		2.00	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Lead	12.6		0.500	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Nickel	24.3		2.00	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Selenium	ND		2.00	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Silver	ND		1.00	1	09/26/2020 12:50	<a href="#">WG1549717</a>
Zinc	53.5		5.00	1	09/26/2020 12:50	<a href="#">WG1549717</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.51		1.00	5	09/29/2020 12:42	<a href="#">WG1550818</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	09/29/2020 21:40	<a href="#">WG1551236</a>



Collected date/time: 09/24/20 10:00

L1266404

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	97.1		77.0-120		09/29/2020 21:40	<a href="#">WG1551236</a>

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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/28/2020 17:02	<a href="#">WG1550625</a>
Toluene	ND		0.00500	1	09/29/2020 16:04	<a href="#">WG1551112</a>
Ethylbenzene	ND		0.00250	1	09/28/2020 17:02	<a href="#">WG1550625</a>
Total Xylenes	ND		0.00650	1	09/29/2020 16:04	<a href="#">WG1551112</a>
(S) Toluene-d8	116		75.0-131		09/28/2020 17:02	<a href="#">WG1550625</a>
(S) Toluene-d8	104		75.0-131		09/29/2020 16:04	<a href="#">WG1551112</a>
(S) 4-Bromofluorobenzene	90.2		67.0-138		09/28/2020 17:02	<a href="#">WG1550625</a>
(S) 4-Bromofluorobenzene	101		67.0-138		09/29/2020 16:04	<a href="#">WG1551112</a>
(S) 1,2-Dichloroethane-d4	80.1		70.0-130		09/28/2020 17:02	<a href="#">WG1550625</a>
(S) 1,2-Dichloroethane-d4	92.2		70.0-130		09/29/2020 16:04	<a href="#">WG1551112</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	4.51	B	4.00	1	09/29/2020 14:22	<a href="#">WG1550849</a>
(S) o-Terphenyl	83.8		18.0-148		09/29/2020 14:22	<a href="#">WG1550849</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Acenaphthene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Acenaphthylene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Benzo(a)anthracene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Benzo(a)pyrene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Chrysene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Fluoranthene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Fluorene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Naphthalene	ND		0.0200	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Phenanthrene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
Pyrene	ND		0.00600	1	09/29/2020 03:09	<a href="#">WG1550729</a>
1-Methylnaphthalene	ND		0.0200	1	09/29/2020 03:09	<a href="#">WG1550729</a>
2-Methylnaphthalene	ND		0.0200	1	09/29/2020 03:09	<a href="#">WG1550729</a>
2-Chloronaphthalene	ND		0.0200	1	09/29/2020 03:09	<a href="#">WG1550729</a>
(S) p-Terphenyl-d14	86.5		23.0-120		09/29/2020 03:09	<a href="#">WG1550729</a>
(S) Nitrobenzene-d5	82.2		14.0-149		09/29/2020 03:09	<a href="#">WG1550729</a>
(S) 2-Fluorobiphenyl	79.0		34.0-125		09/29/2020 03:09	<a href="#">WG1550729</a>



Collected date/time: 09/24/20 10:15

L1266404

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.26		1	09/29/2020 11:44	WG1549527

<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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	18.9		1.00	1	09/30/2020 00:37	<a href="#">WG1549717</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/30/2020 00:37	<a href="#">WG1550218</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.65	<a href="#">T8</a>	1	09/28/2020 12:30	<a href="#">WG1549690</a>

## Sample Narrative:

L1266404-03 WG1549690: 8.65 at 22C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	195		10.0	1	09/29/2020 14:00	<a href="#">WG1550782</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0507		0.0400	1	09/27/2020 13:17	<a href="#">WG1550066</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	190		0.500	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Cadmium	ND		0.500	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Chromium	19.5		1.00	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Copper	16.4		2.00	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Lead	11.5		0.500	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Nickel	19.8		2.00	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Selenium	ND		2.00	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Silver	ND		1.00	1	09/26/2020 12:53	<a href="#">WG1549717</a>
Zinc	50.7		5.00	1	09/26/2020 12:53	<a href="#">WG1549717</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.82		1.00	5	09/29/2020 12:45	<a href="#">WG1550818</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.123		0.100	1	09/29/2020 22:02	<a href="#">WG1551236</a>



Collected date/time: 09/24/20 10:15

L1266404

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	96.6		77.0-120		09/29/2020 22:02	<a href="#">WG1551236</a>

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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/28/2020 17:21	<a href="#">WG1550625</a>
Toluene	0.0133		0.00500	1	09/29/2020 16:24	<a href="#">WG1551112</a>
Ethylbenzene	ND		0.00250	1	09/28/2020 17:21	<a href="#">WG1550625</a>
Total Xylenes	0.0929		0.00650	1	09/29/2020 16:24	<a href="#">WG1551112</a>
(S) Toluene-d8	114		75.0-131		09/28/2020 17:21	<a href="#">WG1550625</a>
(S) Toluene-d8	103		75.0-131		09/29/2020 16:24	<a href="#">WG1551112</a>
(S) 4-Bromofluorobenzene	89.1		67.0-138		09/28/2020 17:21	<a href="#">WG1550625</a>
(S) 4-Bromofluorobenzene	103		67.0-138		09/29/2020 16:24	<a href="#">WG1551112</a>
(S) 1,2-Dichloroethane-d4	76.6		70.0-130		09/28/2020 17:21	<a href="#">WG1550625</a>
(S) 1,2-Dichloroethane-d4	92.8		70.0-130		09/29/2020 16:24	<a href="#">WG1551112</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	09/29/2020 13:42	<a href="#">WG1550849</a>
(S) <i>o</i> -Terphenyl	80.8		18.0-148		09/29/2020 13:42	<a href="#">WG1550849</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Acenaphthene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Acenaphthylene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Benzo(a)anthracene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Benzo(a)pyrene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Chrysene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Fluoranthene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Fluorene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Naphthalene	ND		0.0200	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Phenanthrene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
Pyrene	ND		0.00600	1	09/29/2020 03:30	<a href="#">WG1550729</a>
1-Methylnaphthalene	ND		0.0200	1	09/29/2020 03:30	<a href="#">WG1550729</a>
2-Methylnaphthalene	ND		0.0200	1	09/29/2020 03:30	<a href="#">WG1550729</a>
2-Chloronaphthalene	ND		0.0200	1	09/29/2020 03:30	<a href="#">WG1550729</a>
(S) <i>p</i> -Terphenyl-d14	90.6		23.0-120		09/29/2020 03:30	<a href="#">WG1550729</a>
(S) Nitrobenzene-d5	60.2		14.0-149		09/29/2020 03:30	<a href="#">WG1550729</a>
(S) 2-Fluorobiphenyl	78.6		34.0-125		09/29/2020 03:30	<a href="#">WG1550729</a>



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.51		1	09/29/2020 11:06	WG1549527

<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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	16.9		1.00	1	09/30/2020 00:38	<a href="#">WG1549717</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/30/2020 00:38	<a href="#">WG1550218</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.52	<a href="#">T8</a>	1	09/28/2020 12:30	<a href="#">WG1549690</a>

## Sample Narrative:

L1266404-04 WG1549690: 8.52 at 21.8C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	624		10.0	1	09/29/2020 14:00	<a href="#">WG1550782</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	09/27/2020 13:19	<a href="#">WG1550066</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	171		0.500	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Cadmium	0.545		0.500	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Chromium	16.9		1.00	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Copper	16.7		2.00	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Lead	10.9		0.500	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Nickel	16.9		2.00	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Selenium	ND		2.00	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Silver	ND		1.00	1	09/26/2020 12:55	<a href="#">WG1549717</a>
Zinc	43.5		5.00	1	09/26/2020 12:55	<a href="#">WG1549717</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.65		1.00	5	09/29/2020 12:49	<a href="#">WG1550818</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	5.01		0.100	1	09/28/2020 04:23	<a href="#">WG1550269</a>





Collected date/time: 09/24/20 10:45

L1266404

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	94.5		77.0-120		09/28/2020 04:23	<a href="#">WG1550269</a>

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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/28/2020 17:40	<a href="#">WG1550625</a>
Toluene	ND		0.00500	1	09/28/2020 17:40	<a href="#">WG1550625</a>
Ethylbenzene	ND		0.00250	1	09/28/2020 17:40	<a href="#">WG1550625</a>
Total Xylenes	0.0428		0.00650	1	09/28/2020 17:40	<a href="#">WG1550625</a>
(S) Toluene-d8	118		75.0-131		09/28/2020 17:40	<a href="#">WG1550625</a>
(S) 4-Bromofluorobenzene	100		67.0-138		09/28/2020 17:40	<a href="#">WG1550625</a>
(S) 1,2-Dichloroethane-d4	78.3		70.0-130		09/28/2020 17:40	<a href="#">WG1550625</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	243		4.00	1	09/29/2020 15:02	<a href="#">WG1550849</a>
(S) <i>o</i> -Terphenyl	78.9		18.0-148		09/29/2020 15:02	<a href="#">WG1550849</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Acenaphthene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Acenaphthylene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Benzo(a)anthracene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Benzo(a)pyrene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Chrysene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Fluoranthene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Fluorene	0.0458		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Naphthalene	0.0549		0.0200	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Phenanthrene	0.0262		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
Pyrene	ND		0.00600	1	09/29/2020 03:50	<a href="#">WG1550729</a>
1-Methylnaphthalene	0.221		0.0200	1	09/29/2020 03:50	<a href="#">WG1550729</a>
2-Methylnaphthalene	0.188		0.0200	1	09/29/2020 03:50	<a href="#">WG1550729</a>
2-Chloronaphthalene	ND		0.0200	1	09/29/2020 03:50	<a href="#">WG1550729</a>
(S) <i>p</i> -Terphenyl-d14	88.6		23.0-120		09/29/2020 03:50	<a href="#">WG1550729</a>
(S) Nitrobenzene-d5	264	J1	14.0-149		09/29/2020 03:50	<a href="#">WG1550729</a>
(S) 2-Fluorobiphenyl	78.1		34.0-125		09/29/2020 03:50	<a href="#">WG1550729</a>

## Sample Narrative:

L1266404-04 WG1550729: Surrogate failure due to matrix interference



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.49		1	09/29/2020 11:09	WG1549527

## Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	20.0		1.00	1	09/30/2020 00:41	<a href="#">WG1549717</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/30/2020 00:41	<a href="#">WG1550218</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.83	<a href="#">T8</a>	1	09/28/2020 12:30	<a href="#">WG1549690</a>

## Sample Narrative:

L1266404-05 WG1549690: 8.83 at 21.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	111		10.0	1	09/29/2020 14:00	<a href="#">WG1550782</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	09/28/2020 10:12	<a href="#">WG1550147</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	195		0.500	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Cadmium	0.621		0.500	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Chromium	20.0		1.00	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Copper	14.2		2.00	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Lead	11.6		0.500	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Nickel	18.4		2.00	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Selenium	ND		2.00	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Silver	ND		1.00	1	09/26/2020 12:58	<a href="#">WG1549717</a>
Zinc	44.1		5.00	1	09/26/2020 12:58	<a href="#">WG1549717</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.08		1.00	5	09/29/2020 12:02	<a href="#">WG1550818</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	09/28/2020 04:46	<a href="#">WG1550269</a>

<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



Collected date/time: 09/24/20 12:00

L1266404

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	96.4		77.0-120		09/28/2020 04:46	<a href="#">WG1550269</a>

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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/28/2020 17:59	<a href="#">WG1550625</a>
Toluene	0.0143		0.00500	1	09/29/2020 16:45	<a href="#">WG1551112</a>
Ethylbenzene	ND		0.00250	1	09/28/2020 17:59	<a href="#">WG1550625</a>
Total Xylenes	0.0866		0.00650	1	09/29/2020 16:45	<a href="#">WG1551112</a>
(S) Toluene-d8	115		75.0-131		09/28/2020 17:59	<a href="#">WG1550625</a>
(S) Toluene-d8	101		75.0-131		09/29/2020 16:45	<a href="#">WG1551112</a>
(S) 4-Bromofluorobenzene	87.7		67.0-138		09/28/2020 17:59	<a href="#">WG1550625</a>
(S) 4-Bromofluorobenzene	101		67.0-138		09/29/2020 16:45	<a href="#">WG1551112</a>
(S) 1,2-Dichloroethane-d4	77.7		70.0-130		09/28/2020 17:59	<a href="#">WG1550625</a>
(S) 1,2-Dichloroethane-d4	94.6		70.0-130		09/29/2020 16:45	<a href="#">WG1551112</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	09/29/2020 13:16	<a href="#">WG1550849</a>
(S) o-Terphenyl	81.2		18.0-148		09/29/2020 13:16	<a href="#">WG1550849</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Acenaphthene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Acenaphthylene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Benzo(a)anthracene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Benzo(a)pyrene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Chrysene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Fluoranthene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Fluorene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Naphthalene	ND		0.0200	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Phenanthrene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
Pyrene	ND		0.00600	1	09/29/2020 04:11	<a href="#">WG1550729</a>
1-Methylnaphthalene	ND		0.0200	1	09/29/2020 04:11	<a href="#">WG1550729</a>
2-Methylnaphthalene	ND		0.0200	1	09/29/2020 04:11	<a href="#">WG1550729</a>
2-Chloronaphthalene	ND		0.0200	1	09/29/2020 04:11	<a href="#">WG1550729</a>
(S) p-Terphenyl-d14	92.9		23.0-120		09/29/2020 04:11	<a href="#">WG1550729</a>
(S) Nitrobenzene-d5	60.9		14.0-149		09/29/2020 04:11	<a href="#">WG1550729</a>
(S) 2-Fluorobiphenyl	84.1		34.0-125		09/29/2020 04:11	<a href="#">WG1550729</a>



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.60		1	09/29/2020 11:11	WG1549527

## Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	19.1		1.00	1	09/30/2020 00:43	<a href="#">WG1549717</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	09/30/2020 00:43	<a href="#">WG1550218</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.91	<a href="#">T8</a>	1	09/28/2020 12:30	<a href="#">WG1549690</a>

## Sample Narrative:

L1266404-06 WG1549690: 8.91 at 21.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	113		10.0	1	09/29/2020 14:00	<a href="#">WG1550782</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0441		0.0400	1	09/28/2020 10:15	<a href="#">WG1550147</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	182		0.500	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Cadmium	0.630		0.500	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Chromium	19.1		1.00	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Copper	15.3		2.00	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Lead	13.1		0.500	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Nickel	19.6		2.00	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Selenium	ND		2.00	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Silver	ND		1.00	1	09/26/2020 13:01	<a href="#">WG1549717</a>
Zinc	46.6		5.00	1	09/26/2020 13:01	<a href="#">WG1549717</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.72		1.00	5	09/29/2020 12:06	<a href="#">WG1550818</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	09/28/2020 05:08	<a href="#">WG1550269</a>

<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



Collected date/time: 09/24/20 12:30

L1266404

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	96.7		77.0-120		09/28/2020 05:08	<a href="#">WG1550269</a>

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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/30/2020 21:46	<a href="#">WG1551709</a>
Toluene	ND		0.00500	1	09/29/2020 23:55	<a href="#">WG1551455</a>
Ethylbenzene	ND		0.00250	1	09/29/2020 23:55	<a href="#">WG1551455</a>
Total Xylenes	ND		0.00650	1	09/29/2020 23:55	<a href="#">WG1551455</a>
(S) Toluene-d8	114		75.0-131		09/29/2020 23:55	<a href="#">WG1551455</a>
(S) Toluene-d8	98.4		75.0-131		09/30/2020 21:46	<a href="#">WG1551709</a>
(S) 4-Bromofluorobenzene	89.7		67.0-138		09/29/2020 23:55	<a href="#">WG1551455</a>
(S) 4-Bromofluorobenzene	105		67.0-138		09/30/2020 21:46	<a href="#">WG1551709</a>
(S) 1,2-Dichloroethane-d4	99.7		70.0-130		09/29/2020 23:55	<a href="#">WG1551455</a>
(S) 1,2-Dichloroethane-d4	96.1		70.0-130		09/30/2020 21:46	<a href="#">WG1551709</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	09/29/2020 23:24	<a href="#">WG1550765</a>
(S) o-Terphenyl	95.9		18.0-148		09/29/2020 23:24	<a href="#">WG1550765</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Acenaphthene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Acenaphthylene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Benzo(a)anthracene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Benzo(a)pyrene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Benzo(b)fluoranthene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Benzo(g,h,i)perylene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Benzo(k)fluoranthene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Chrysene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Fluoranthene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Fluorene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Naphthalene	ND		0.0200	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Phenanthrene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
Pyrene	ND		0.00600	1	09/29/2020 04:32	<a href="#">WG1550729</a>
1-Methylnaphthalene	ND		0.0200	1	09/29/2020 04:32	<a href="#">WG1550729</a>
2-Methylnaphthalene	ND		0.0200	1	09/29/2020 04:32	<a href="#">WG1550729</a>
2-Chloronaphthalene	ND		0.0200	1	09/29/2020 04:32	<a href="#">WG1550729</a>
(S) p-Terphenyl-d14	90.7		23.0-120		09/29/2020 04:32	<a href="#">WG1550729</a>
(S) Nitrobenzene-d5	57.3		14.0-149		09/29/2020 04:32	<a href="#">WG1550729</a>
(S) 2-Fluorobiphenyl	83.0		34.0-125		09/29/2020 04:32	<a href="#">WG1550729</a>



Method Blank (MB)

(MB) R3575924-1 09/30/20 00:02

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.640	2.00

<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

L1266397-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1266397-01 09/30/20 00:10 • (DUP) R3575924-3 09/30/20 00:11

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

L1266404-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1266404-05 09/30/20 00:41 • (DUP) R3575924-4 09/30/20 00:42

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

Laboratory Control Sample (LCS)

(LCS) R3575924-2 09/30/20 00:04

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	23.3	97.1	80.0-120	

L1266655-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1266655-06 09/30/20 00:48 • (MS) R3575924-5 09/30/20 00:48 • (MSD) R3575924-6 09/30/20 00:49

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	21.4	21.7	107	109	1	75.0-125			1.61	20

L1266331-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1266331-01 09/28/20 12:30 • (DUP) R3575160-2 09/28/20 12:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.66	8.66	1	0.000		1

Sample Narrative:  
OS: 8.66 at 23.2C  
DUP: 8.66 at 23.1C

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

L1266404-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1266404-04 09/28/20 12:30 • (DUP) R3575160-3 09/28/20 12:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.52	8.57	1	0.585		1

Sample Narrative:  
OS: 8.52 at 21.8C  
DUP: 8.57 at 21.6C

Laboratory Control Sample (LCS)

(LCS) R3575160-1 09/28/20 12:30

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

Sample Narrative:  
LCS: 10.04 at 21.1C

Method Blank (MB)

(MB) R3575713-1 09/29/20 14:00

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

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1265806-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1265806-01 09/29/20 14:00 • (DUP) R3575713-3 09/29/20 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	umhos/cm	umhos/cm		%		%
Specific Conductance	102	101	1	1.09		20

L1266404-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1266404-02 09/29/20 14:00 • (DUP) R3575713-4 09/29/20 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	umhos/cm	umhos/cm		%		%
Specific Conductance	118	118	1	0.0848		20

Laboratory Control Sample (LCS)

(LCS) R3575713-2 09/29/20 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	umhos/cm	umhos/cm	%	%	
Specific Conductance	741	742	100	85.0-115	





Method Blank (MB)

(MB) R3574901-1 09/27/20 12:05

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3574901-2 09/27/20 12:08

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.535	107	80.0-120	

L1266124-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1266124-03 09/27/20 12:15 • (MS) R3574901-3 09/27/20 12:18 • (MSD) R3574901-4 09/27/20 12:20

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	ND	0.533	0.496	107	99.2	1	75.0-125			7.28	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3575131-1 09/28/20 09:06				
	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3575131-2 09/28/20 09:09					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.527	105	80.0-120	

L1265409-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1265409-06 09/28/20 09:11 • (MS) R3575131-3 09/28/20 09:14 • (MSD) R3575131-4 09/28/20 09:16												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	ND	0.554	0.583	111	117	1	75.0-125			5.03	20

Method Blank (MB)

(MB) R3574751-6 09/26/20 12:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.240	0.500
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Nickel	U		0.490	2.00
Selenium	U		0.617	2.00
Silver	U		0.228	1.00
Zinc	U		0.939	5.00

<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

Laboratory Control Sample (LCS)

(LCS) R3574751-7 09/26/20 12:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	96.6	96.6	80.0-120	
Cadmium	100	92.7	92.7	80.0-120	
Chromium	100	93.5	93.5	80.0-120	
Copper	100	92.8	92.8	80.0-120	
Lead	100	94.0	94.0	80.0-120	
Nickel	100	96.1	96.1	80.0-120	
Selenium	100	93.3	93.3	80.0-120	
Silver	20.0	17.4	87.2	80.0-120	
Zinc	100	93.2	93.2	80.0-120	

L1266124-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1266124-03 09/26/20 12:09 • (MS) R3574751-10 09/26/20 12:18 • (MSD) R3574751-11 09/26/20 12:21

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	96.5	192	205	95.2	109	1	75.0-125			6.94	20
Cadmium	100	ND	99.5	99.1	99.4	98.9	1	75.0-125			0.465	20
Chromium	100	7.44	106	106	98.6	98.5	1	75.0-125			0.0480	20
Copper	100	8.20	108	108	99.7	99.9	1	75.0-125			0.136	20
Lead	100	7.69	110	110	103	102	1	75.0-125			0.371	20
Nickel	100	9.05	115	115	106	106	1	75.0-125			0.612	20
Selenium	100	ND	91.4	95.4	91.4	95.4	1	75.0-125			4.31	20
Silver	20.0	ND	19.0	18.9	94.8	94.6	1	75.0-125			0.208	20
Zinc	100	26.8	123	124	96.1	97.5	1	75.0-125			1.16	20



Method Blank (MB)

(MB) R3575690-1 09/29/20 12:19

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

Laboratory Control Sample (LCS)

(LCS) R3575690-2 09/29/20 12:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.1	97.1	80.0-120	

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1266404-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1266404-01 09/29/20 12:25 • (MS) R3575690-5 09/29/20 12:35 • (MSD) R3575690-6 09/29/20 12:39

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	20.0	3.55	86.9	103	83.4	99.2	5	75.0-125			16.7	20



Method Blank (MB)

(MB) R3575731-3 09/27/20 22:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	98.7			77.0-120

<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) R3575731-2 09/27/20 21:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.29	96.2	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			102	77.0-120	

L1265444-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1265444-01 09/28/20 05:31 • (MS) R3575731-6 09/28/20 08:09 • (MSD) R3575731-7 09/28/20 08:31

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 %
TPH (GC/FID) Low Fraction	5.45	ND	3.75	3.44	68.8	62.5	1	10.0-151			8.62	28
(S) a,a,a-Trifluorotoluene(FID)					97.3	97.8		77.0-120				



Method Blank (MB)

(MB) R3576076-3 09/29/20 12:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	99.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3576076-2 09/29/20 11:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.79	105	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			104	77.0-120	

<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) R3575640-3 09/28/20 12:22

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
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	112			75.0-131
(S) 4-Bromofluorobenzene	87.7			67.0-138
(S) 1,2-Dichloroethane-d4	86.4			70.0-130

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

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

(LCS) R3575640-1 09/28/20 11:06 • (LCSD) R3575640-2 09/28/20 11:25

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	0.111	0.113	88.8	90.4	70.0-123			1.79	20
Ethylbenzene	0.125	0.119	0.111	95.2	88.8	74.0-126			6.96	20
Toluene	0.125	0.131	0.124	105	99.2	75.0-121			5.49	20
Xylenes, Total	0.375	0.352	0.340	93.9	90.7	72.0-127			3.47	20
(S) Toluene-d8				113	112	75.0-131				
(S) 4-Bromofluorobenzene				83.7	86.1	67.0-138				
(S) 1,2-Dichloroethane-d4				92.4	106	70.0-130				

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3575913-2 09/29/20 12:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	103			75.0-131
(S) 4-Bromofluorobenzene	97.8			67.0-138
(S) 1,2-Dichloroethane-d4	89.8			70.0-130

1Cp

2Tc

3Ss

4Cn

5Sr

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

(LCS) R3575913-1 09/29/20 11:45 • (LCSD) R3575913-3 09/29/20 13:56

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 %
Ethylbenzene	0.125	0.127	0.128	102	102	74.0-126			0.784	20
Toluene	0.125	0.121	0.116	96.8	92.8	75.0-121			4.22	20
Xylenes, Total	0.375	0.394	0.379	105	101	72.0-127			3.88	20
(S) Toluene-d8				102	98.8	75.0-131				
(S) 4-Bromofluorobenzene				105	106	67.0-138				
(S) 1,2-Dichloroethane-d4				99.4	102	70.0-130				

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3575977-3 09/29/20 23:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	116			75.0-131
(S) 4-Bromofluorobenzene	88.7			67.0-138
(S) 1,2-Dichloroethane-d4	99.9			70.0-130

1Cp

2Tc

3Ss

4Cn

5Sr

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

(LCS) R3575977-1 09/29/20 22:20 • (LCSD) R3575977-2 09/29/20 22:39

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 %
Ethylbenzene	0.125	0.112	0.122	89.6	97.6	74.0-126			8.55	20
Toluene	0.125	0.127	0.136	102	109	75.0-121			6.84	20
Xylenes, Total	0.375	0.354	0.364	94.4	97.1	72.0-127			2.79	20
(S) Toluene-d8				112	115	75.0-131				
(S) 4-Bromofluorobenzene				89.8	88.6	67.0-138				
(S) 1,2-Dichloroethane-d4				108	107	70.0-130				

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3576493-3 09/30/20 19:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
(S) Toluene-d8	96.7			75.0-131
(S) 4-Bromofluorobenzene	108			67.0-138
(S) 1,2-Dichloroethane-d4	97.7			70.0-130

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

(LCS) R3576493-1 09/30/20 18:18 • (LCSD) R3576493-2 09/30/20 18:37

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	0.113	0.118	90.4	94.4	70.0-123			4.33	20
(S) Toluene-d8				97.2	96.8	75.0-131				
(S) 4-Bromofluorobenzene				105	106	67.0-138				
(S) 1,2-Dichloroethane-d4				103	97.9	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) R3575923-1 09/29/20 21:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	1.04	⬇	0.769	4.00
(S) o-Terphenyl	100			18.0-148

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3575923-2 09/29/20 21:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	48.6	97.2	50.0-150	
(S) o-Terphenyl			85.7	18.0-148	

L1264913-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1264913-07 09/30/20 01:45 • (MS) R3575923-3 09/30/20 01:57 • (MSD) R3575923-4 09/30/20 02:10

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 %
TPH (GC/FID) High Fraction	49.7	ND	58.5	56.3	118	114	10	50.0-150			3.83	20
(S) o-Terphenyl					81.7	85.8		18.0-148				

Sample Narrative:

OS: Dilution due to matrix impact during extraction procedure

Method Blank (MB)

(MB) R3575926-1 09/29/20 12:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	1.14	⬇	0.769	4.00
(S) o-Terphenyl	83.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3575926-2 09/29/20 13:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	44.3	88.6	50.0-150	
(S) o-Terphenyl			115	18.0-148	

L1266398-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1266398-03 09/29/20 16:09 • (MS) R3575926-3 09/29/20 16:22 • (MSD) R3575926-4 09/29/20 16:35

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 %
TPH (GC/FID) High Fraction	49.4	ND	496	449	1000	913	1	50.0-150	E J5	E J5	9.95	20
(S) o-Terphenyl					98.0	99.8		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3575635-2 09/29/20 01:04

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	71.6			14.0-149
(S) 2-Fluorobiphenyl	89.0			34.0-125
(S) p-Terphenyl-d14	94.8			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3575635-1 09/29/20 00:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0639	79.9	50.0-126	
Acenaphthene	0.0800	0.0697	87.1	50.0-120	
Acenaphthylene	0.0800	0.0692	86.5	50.0-120	
Benzo(a)anthracene	0.0800	0.0641	80.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0643	80.4	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0640	80.0	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0692	86.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0731	91.4	49.0-125	
Chrysene	0.0800	0.0688	86.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0696	87.0	47.0-125	
Fluoranthene	0.0800	0.0706	88.3	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3575635-1 09/29/20 00:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0680	85.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0705	88.1	46.0-125	
Naphthalene	0.0800	0.0663	82.9	50.0-120	
Phenanthrene	0.0800	0.0661	82.6	47.0-120	
Pyrene	0.0800	0.0631	78.9	43.0-123	
1-Methylnaphthalene	0.0800	0.0725	90.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0614	76.8	50.0-120	
2-Chloronaphthalene	0.0800	0.0653	81.6	50.0-120	
(S) Nitrobenzene-d5			74.9	14.0-149	
(S) 2-Fluorobiphenyl			86.5	34.0-125	
(S) p-Terphenyl-d14			90.2	23.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1264925-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1264925-07 09/29/20 04:53 • (MS) R3575635-3 09/29/20 05:14 • (MSD) R3575635-4 09/29/20 05:34

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	0.0797	ND	0.0538	0.0557	67.3	69.6	1	10.0-145			3.47	30
Acenaphthene	0.0797	ND	0.0596	0.0597	71.8	71.9	1	14.0-127			0.168	27
Acenaphthylene	0.0797	ND	0.0596	0.0618	74.5	77.3	1	21.0-124			3.62	25
Benzo(a)anthracene	0.0797	ND	0.0578	0.0558	72.3	69.8	1	10.0-139			3.52	30
Benzo(a)pyrene	0.0797	ND	0.0560	0.0578	70.0	72.3	1	10.0-141			3.16	31
Benzo(b)fluoranthene	0.0797	ND	0.0597	0.0546	74.6	68.3	1	10.0-140			8.92	36
Benzo(g,h,i)perylene	0.0797	ND	0.0593	0.0586	74.1	73.3	1	10.0-140			1.19	33
Benzo(k)fluoranthene	0.0797	ND	0.0559	0.0605	69.9	75.6	1	10.0-137			7.90	31
Chrysene	0.0797	ND	0.0568	0.0587	71.0	73.4	1	10.0-145			3.29	30
Dibenz(a,h)anthracene	0.0797	ND	0.0568	0.0560	71.0	70.0	1	10.0-132			1.42	31
Fluoranthene	0.0797	ND	0.0592	0.0568	71.0	68.0	1	10.0-153			4.14	33
Fluorene	0.0797	ND	0.0587	0.0598	73.4	74.8	1	11.0-130			1.86	29
Indeno(1,2,3-cd)pyrene	0.0797	ND	0.0591	0.0582	73.9	72.8	1	10.0-137			1.53	32
Naphthalene	0.0797	0.203	0.192	0.173	0.000	0.000	1	10.0-135	J6	J6	10.4	27
Phenanthrene	0.0797	ND	0.0566	0.0568	70.8	71.0	1	10.0-144			0.353	31
Pyrene	0.0797	ND	0.0587	0.0591	69.9	70.4	1	10.0-148			0.679	35
1-Methylnaphthalene	0.0797	0.271	0.342	0.251	88.8	0.000	1	10.0-142		J3 J6	30.7	28
2-Methylnaphthalene	0.0797	0.320	0.356	0.244	45.0	0.000	1	10.0-137		J3 J6	37.3	28
2-Chloronaphthalene	0.0797	ND	0.0601	0.0605	75.1	75.6	1	29.0-120			0.663	24
(S) Nitrobenzene-d5					276	272		14.0-149	J1	J1		
(S) 2-Fluorobiphenyl					74.2	76.5		34.0-125				
(S) p-Terphenyl-d14					78.1	78.5		23.0-120				

L1264925-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1264925-07 09/29/20 04:53 • (MS) R3575635-3 09/29/20 05:14 • (MSD) R3575635-4 09/29/20 05:34

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%

Sample Narrative:  
OS: Surrogate failure due to matrix interference

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



## Guide to Reading and Understanding Your Laboratory Report

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

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

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
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.
J1	Surrogate recovery limits have been exceeded; values are outside upper 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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* 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 National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
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>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

## Third Party Federal Accreditations

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

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Caerus Oil & Gas LLC  
143 Diamond Avenue  
Parachute, CO 81635  
970-285-9606

Billing Information:

Same as above

Pres  
Chk

Analysis / Container / Preservative

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



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



Report to:  
bmiddleton@caerusoilandgas.com

Email To:  
jjanicek@caerusoilandgas.com

Project  
Description: **Pucket 255-1**

City/State  
Collected: **Parachute, CO**

Phone:  
Fax:  
Client Project #  
**Pucket 255-1**

Lab Project #  
**Pucket 255-1**

Collected by (print):  
Evan Mason

Site/Facility ID #  
**Pucket 255-1**

P.O. #  
**Pucket 255-1**

Collected by (signature):

**Rush?** (Lab MUST Be Notified)

Quote #  
**NA**

Immediately  
Packed on Ice N ☐ Y ☒

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

Date Results Needed

**Two day TAT**

No.  
of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time		TPH- GRO/DRO	BTEX	TABLE 910- PAH's	SAR	EC	TABLE 910- Metals	pH					
20200924-Pucket 255-1(EBOTTOM) 21.5' Grab	SS	SS	21.5'	9/24/20	930	28	X	X	X	X	X	X	X					-91
20200924-Pucket 255-1(WALL) @15' Grab			15'		1000	28	X	X	X	X	X	X	X					-02
20200924-Pucket 255-1(EBOTTOM) 21' Grab			21'		1015	28	X	X	X	X	X	X	X					-03
20200924-Pucket 255-1(WALL) @17' Grab			17'		1045	28	X	X	X	X	X	X	X					-04
20200924-Pucket 255-1(WALL) @16' Grab			16'		1200	28	X	X	X	X	X	X	X					-05
20200924-Pucket 255-1(WALL) @17' Grab			17'		1230	28	X	X	X	X	X	X	X					-06
						28												
						28												
						28												

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

Remarks:

**Two DAY TAT**

Samples returned via:  
☐ UPS ☒ FedEx ☐ Courier

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

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

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N  
COC Signed/Accurate: ☒ Y ☐ N  
Bottles arrive intact: ☒ Y ☐ N  
Correct bottles used: ☒ Y ☐ N  
Sufficient volume sent: ☒ Y ☐ N  
If Applicable  
VOA Zero Headspace: ☐ Y ☐ N  
Preservation Correct/Checked: ☐ Y ☐ N

Relinquished by: (Signature)

Date:  
9/24/20

Time:  
1530

Received by: (Signature)

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

Relinquished by: (Signature)

Date:  
9/24/20

Time:  
1700

Received by: (Signature)

Temp: **17.3**  
**3±0.3** Bottles Received: **12**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: Time:

Hold:

Condition:  
NCF / ☒



22-Jul-2015

Casey Richardson  
HRL Compliance Solutions, Inc  
2385 F 1/2 Road  
Grand Junction, CO 81505

Re: **Caerus Mesa 23 PBV Removal**

Work Order: **1507789**

Dear Casey,

ALS Environmental received 3 samples on 15-Jul-2015 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

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

Sincerely,

A handwritten signature in black ink that reads "Les Arnold".

Electronically approved by: Les Arnold

Les Arnold  
Senior Project Manager



Certificate No: MN 532786

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

**Client:** HRL Compliance Solutions, Inc  
**Project:** Caerus Mesa 23 PBV Removal  
**Work Order:** 1507789

## Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1507789-01	BKGD 01	Soil		7/14/2015 09:02	7/15/2015 09:30	<input type="checkbox"/>
1507789-02	BKGD 02	Soil		7/14/2015 09:05	7/15/2015 09:30	<input type="checkbox"/>
1507789-03	BKGD 03	Soil		7/14/2015 09:09	7/15/2015 09:30	<input type="checkbox"/>

---

**Client:** HRL Compliance Solutions, Inc  
**Project:** Caerus Mesa 23 PBV Removal  
**WorkOrder:** 1507789

---

**QUALIFIERS,  
ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and PQL, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

---

**Client:** HRL Compliance Solutions, Inc  
**Project:** Caerus Mesa 23 PBV Removal  
**Work Order:** 1507789

---

**Case Narrative**

Samples for the above noted Work Order were received on 07/15/2015. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

**Sample Receiving:**

No deviations or anomalies were noted.

**Volatile Organics:**

No deviations or anomalies were noted.

**Extractable Organics:**

No deviations or anomalies were noted.

**Metals:**

No deviations or anomalies were noted.

**Wet Chemistry:**

No deviations or anomalies were noted.

# ALS Group USA, Corp

Date: 22-Jul-15

**Client:** HRL Compliance Solutions, Inc

**Project:** Caerus Mesa 23 PBV Removal

**Sample ID:** BKGD 01

**Collection Date:** 7/14/2015 09:02 AM

**Work Order:** 1507789

**Lab ID:** 1507789-01

**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	8.7		SW846 6010C 0.92	mg/Kg-dry	Prep: SW3050B / 7/16/15 2	Analyst: JEC 7/17/2015 12:55 PM
<b>MOISTURE</b>						
Moisture	20		E160.3M 0.050	% of sample	1	Analyst: PT 7/16/2015 03:25 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.



**ALS Group USA, Corp****Date:** 22-Jul-15**Client:** HRL Compliance Solutions, Inc**Project:** Caerus Mesa 23 PBV Removal**Sample ID:** BKGD 02**Collection Date:** 7/14/2015 09:05 AM**Work Order:** 1507789**Lab ID:** 1507789-02**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	8.4		<b>SW846 6010C</b> 0.93	mg/Kg-dry	Prep: SW3050B / 7/16/15 2	Analyst: <b>JEC</b> 7/17/2015 01:01 PM
<b>MOISTURE</b>						
Moisture	21		<b>E160.3M</b> 0.050	% of sample	1	Analyst: <b>PT</b> 7/16/2015 03:25 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 22-Jul-15

**Client:** HRL Compliance Solutions, Inc  
**Project:** Caerus Mesa 23 PBV Removal  
**Sample ID:** BKGD 03  
**Collection Date:** 7/14/2015 09:09 AM

**Work Order:** 1507789  
**Lab ID:** 1507789-03  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	7.1		SW846 6010C 0.96	mg/Kg-dry	Prep: SW3050B / 7/16/15 2	Analyst: JEC 7/17/2015 01:06 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	81		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 7/17/15 10	Analyst: JEC 7/17/2015 03:20 PM
Magnesium	17		2.0	mg/L	10	7/17/2015 03:20 PM
Sodium	6.9		2.0	mg/L	10	7/17/2015 03:20 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	0.18		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 7/17/15 1	Analyst: RH 7/17/2015
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	0.55		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/17/15 10	Analyst: JB 7/20/2015 10:45 AM
<b>MOISTURE</b>						
Moisture	18		E160.3M 0.050	% of sample	1	Analyst: PT 7/16/2015 03:25 PM
<b>PH</b>						
pH	6.6		SW9045D	s.u.	Prep: EXTRACT / 7/16/15 1	Analyst: STP 7/16/2015 01:00 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 1507789  
**Project:** Caerus Mesa 23 PBV Removal

**QC BATCH REPORT**

Batch ID: **73603**      Instrument ID **SAR**      Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1507789-03BDUP</b>				Units: <b>none</b>		Analysis Date: <b>7/17/2015</b>		
Client ID: <b>BKGD 03</b>		Run ID: <b>SAR_150717A</b>				SeqNo: <b>3379441</b>		Prep Date: <b>7/17/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.1449	0.010	0	0	0			0		

The following samples were analyzed in this batch:

1507789-03B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 1507789  
**Project:** Caerus Mesa 23 PBV Removal

## QC BATCH REPORT

Batch ID: **73613** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-73613-73613				Units: mg/Kg		Analysis Date: 7/17/2015 10:39 AM		
Client ID:		Run ID: ICP2_150717A				SeqNo: 3377041		Prep Date: 7/16/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic ND 0.25

LCS		Sample ID: LCS-73613-73613				Units: mg/Kg		Analysis Date: 7/17/2015 10:45 AM		
Client ID:		Run ID: ICP2_150717A			SeqNo: 3377042		Prep Date: 7/16/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 4.985 0.25 5 0 99.7 80-120 0

MS		Sample ID: 1507708-02AMS					Units: mg/Kg		Analysis Date: 7/20/2015 05:38 PM		
Client ID:			Run ID: ICP2_150720A			SeqNo: 3378056		Prep Date: 7/16/2015		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Arsenic 79.44 3.3 6.684 78.45 14.8 75-125 0 SO

MSD		Sample ID: 1507708-02AMSD				Units: mg/Kg		Analysis Date: 7/20/2015 05:44 PM		
Client ID:		Run ID: ICP2_150720A			SeqNo: 3378057		Prep Date: 7/16/2015		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 83.91 3.3 6.684 78.45 81.6 75-125 79.44 5.47 20 O

The following samples were analyzed in this batch:

1507789-01A 1507789-02A 1507789-03A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 1507789  
**Project:** Caerus Mesa 23 PBV Removal

## QC BATCH REPORT

Batch ID: **73603** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1507789-03B DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>7/20/2015 10:45 AM</b>		
Client ID: <b>BKGD 03</b>		Run ID: <b>WETCHEM_150720B</b>				SeqNo: <b>3376305</b>		Prep Date: <b>7/17/2015</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	0.473	0.050	0	0	0		0.553	15.6	50	

The following samples were analyzed in this batch:

1507789-03B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 1507789  
**Project:** Caerus Mesa 23 PBV Removal

## QC BATCH REPORT

Batch ID: **73614** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-73614-73614					Units: s.u.		Analysis Date: 7/16/2015 01:00 PM		
Client ID:		Run ID: WETCHEM_150716F			SeqNo: 3373262		Prep Date: 7/16/2015		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH	3.89	0	4	0	97.2	90-110	0			
----	------	---	---	---	------	--------	---	--	--	--

DUP		Sample ID: 1507786-05B DUP				Units: s.u.		Analysis Date: 7/16/2015 01:00 PM		
Client ID:		Run ID: WETCHEM_150716F				SeqNo: 3373272		Prep Date: 7/16/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	8.66	0	0	0	0	0-0	8.68	0.231	20	
----	------	---	---	---	---	-----	------	-------	----	--

DUP		Sample ID: 1507829-01B DUP					Units: s.u.		Analysis Date: 7/16/2015 01:00 PM		
Client ID:			Run ID: WETCHEM_150716F			SeqNo: 3373275		Prep Date: 7/16/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH	8.24	0	0	0	0	0-0	8.17	0.853	20	
----	------	---	---	---	---	-----	------	-------	----	--

The following samples were analyzed in this batch:

1507789-03A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 1507789  
**Project:** Caerus Mesa 23 PBV Removal

## QC BATCH REPORT

Batch ID: **R167810** Instrument ID **MOIST** Method: **E160.3M**

<b>MBLK</b>		Sample ID: <b>WBLKS-R167810</b>				Units: % of sample		Analysis Date: <b>7/16/2015 03:25 PM</b>		
Client ID:		Run ID: <b>MOIST_150716C</b>				SeqNo: <b>3374683</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R167810</b>				Units: % of sample		Analysis Date: <b>7/16/2015 03:25 PM</b>		
Client ID:		Run ID: <b>MOIST_150716C</b>				SeqNo: <b>3374682</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

<b>DUP</b>		Sample ID: <b>1507682-01B DUP</b>				Units: % of sample		Analysis Date: <b>7/16/2015 03:25 PM</b>		
Client ID:		Run ID: <b>MOIST_150716C</b>				SeqNo: <b>3374657</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 20.46 0.050 0 0 0 21.63 5.56 20

<b>DUP</b>		Sample ID: <b>1507869-01A DUP</b>				Units: % of sample		Analysis Date: <b>7/16/2015 03:25 PM</b>		
Client ID:		Run ID: <b>MOIST_150716C</b>				SeqNo: <b>3374680</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 7.57 0.050 0 0 0 7.82 3.25 20

The following samples were analyzed in this batch:

1507789-01A	1507789-02A	1507789-03A
-------------	-------------	-------------

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



# ALS Laboratory Group

3352 128th Ave. Holland, MI 49424  
TF: (800) 443-1511 PH: (616) 399-6070 FX: (616) 399-6185

## Chain-of-Custody

Form 202r8

WORKORDER #

1507789

PAGE

1 of 1

DISPOSAL ~~By Lab~~ or Return to Client

SAMPLER

Casey Richardson

DATE

7-14-15

TURNAROUND

STANDARD

SITE ID

BACKGROUND

PROJECT NAME Caerus Mesa 23 PBV Removal

PROJECT No.

EDD FORMAT

PURCHASE ORDER

COMPANY NAME HRL Compliance Solutions, Inc.

BILL TO COMPANY

Caerus Piceance LLC

END REPORT TO Casey Richardson

INVOICE ATTN TO

Jake Janicek

ADDRESS 2385 F 1/2 Road

ADDRESS

120 Railroad Ave. Suite D

CITY/STATE/ZIP Grand Junction, CO. 81505

CITY/STATE/ZIP

Parachute, CO 81635

PHONE 970-243-3271

PHONE

970-285-9606

FAX 970-243-3280

FAX

E-MAIL crichardson@hrlcomp.com

E-MAIL

jjanicek@caerusoilandgas.com

Lab ID

Field ID

Matrix

Sample Date

Sample Time

# Bottles

Pres.

QC

DRO

ARO

Total Metals (Table 810-4)

Semi-Volat - PAH

BIEX

SAR

EC

PH

ARSENIC

1

BKGD 01

SOIL

7-14-15

902

1

8

2

BKGD 02

1

1

905

1

1

3

BKGD 03

1

1

909

2

1

X

X

X

X

ne Zone (Circle): EST CST ~~MS~~ PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

r metals or anions, please detail analytes below.

Comments:

QC PACKAGE (check below)

X

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms + raw data)

IGCC Table 918-1 Analytical Suite

servative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

SIGNATURE

PRINTED NAME

DATE

TIME

RELINQUISHED BY

Casey Richardson

CASEY RICHARDSON

7-14-15

1410

RECEIVED BY

NA

NA

7-14-15

1440

RELINQUISHED BY

KEITH WIERENCA

KEITH WIERENCA

7-14-15

1520

RECEIVED BY

KEITH WIERENCA

KEITH WIERENCA

7-15-15

0930

RELINQUISHED BY

KEITH WIERENCA

KEITH WIERENCA

7-15-15

0930

RECEIVED BY

KEITH WIERENCA

KEITH WIERENCA

7-15-15

0930



ORIGIN ID: RLA (616) 298-1033  
 NICK MARTINEZ  
 ALS ENVIRONMENTAL PARACHUTE  
 PARACHUTE SERVICE CENTER  
 127 EAST 1ST ST  
 PARACHUTE, CO 81835  
 UNITED STATES US

SHIP DATE: 14 JUL 15  
 ACTWGT: 50.00 LB  
 CAD: 2264840/NET3870  
 DMS: 26x16x16 IN  
 BILL SENDER

TO **SAMPLE RECEIVING**  
**ALS ENVIRONMENTAL HOLLAND LAB**  
**3352 128TH AVE**

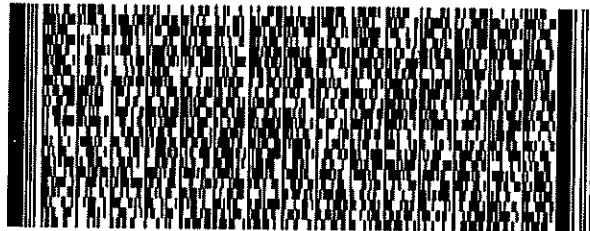
**HOLLAND MI 49424**

(616) 399-8070  
 INV:  
 PO: PARACHUTE

REF: 071415-1

DEPT:

539.3M/A1531D0



REL#  
3785346

2 of 4

MP6#  
0263

**7740 5310 0247**

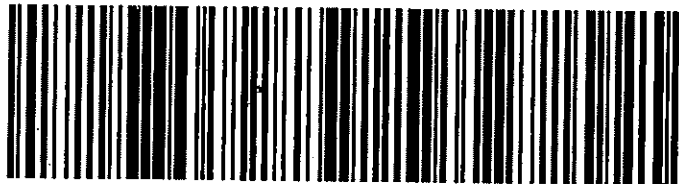
Mstr# 7740 5310 0453

0201

**WED - 15 JUL 10:30A**  
**PRIORITY OVERNIGHT**

**XX HLMA**

**49424**  
**MI-US GRR**



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, incidental, consequential, or special is limited to the documented loss. Maximum for items of extraordinary value is \$50,000. See the current FedEx Service Guide for more details.

Name

Time

*[Signature]*

*[Signature]*

ALS Parachute Custody Seal

Sample Receipt Checklist

Client Name: **HRL**

Date/Time Received: **15-Jul-15 09:30**

Work Order: **1507789**

Received by: **KRW**

Checklist completed by Keith Wurenga  
eSignature

15-Jul-15  
Date

Reviewed by: Chad Whelton  
eSignature

15-Jul-15  
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☒ No ☐ Not Present ☐

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Container/Temp Blank temperature in compliance? Yes ☒ No ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): 3.0 C SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 7/15/2015 11:03:58 AM

Water - VOA vials have zero headspace? Yes ☐ No ☐ No VOA vials submitted ☒

Water - pH acceptable upon receipt? Yes ☐ No ☐ N/A ☒

pH adjusted? Yes ☐ No ☐ N/A ☒

pH adjusted by:

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: