

## Caerus Oil and Gas

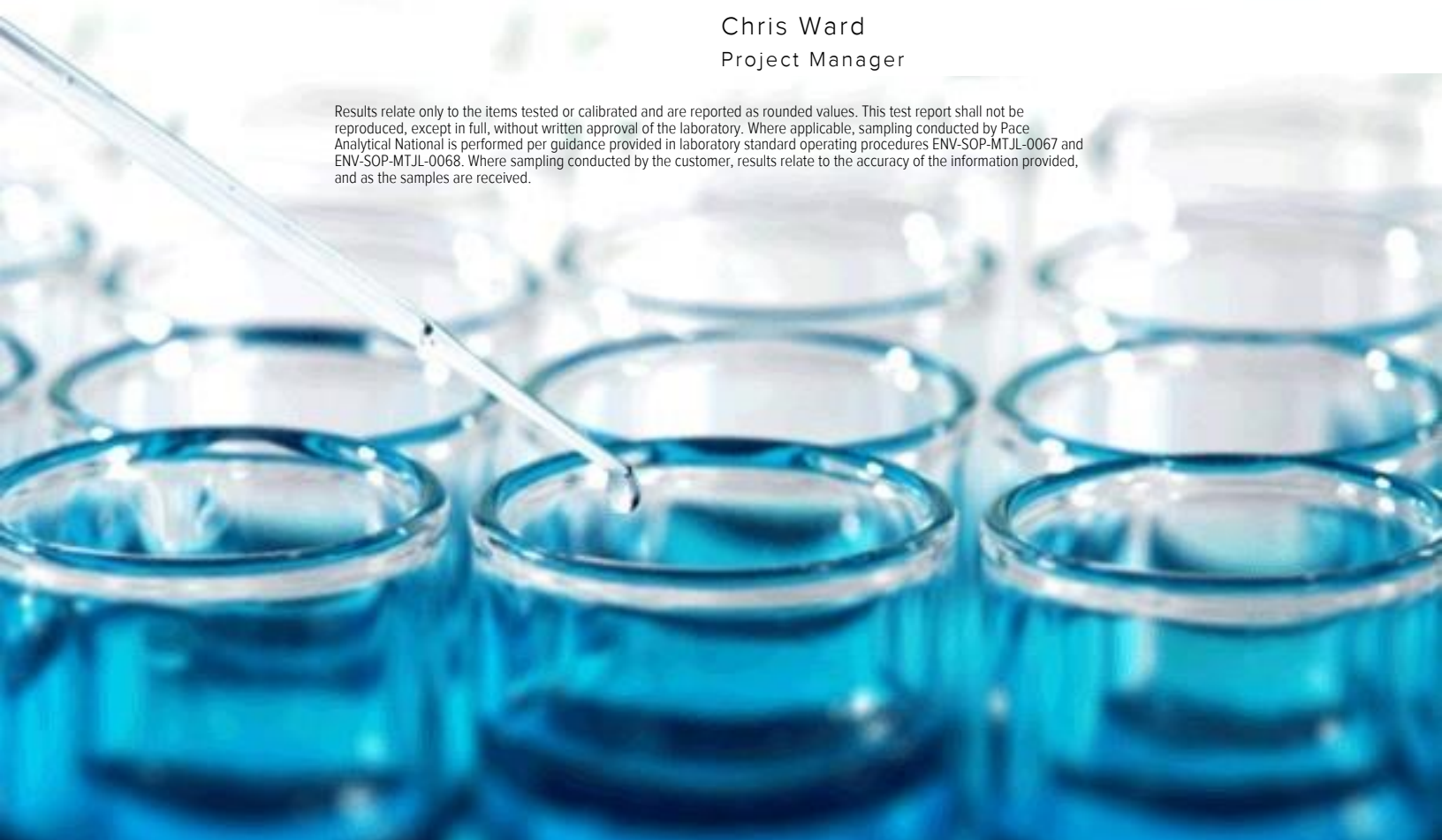
Sample Delivery Group: L1292259  
Samples Received: 12/03/2020  
Project Number:  
Description: C04-696(7A-4) FL Release

Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

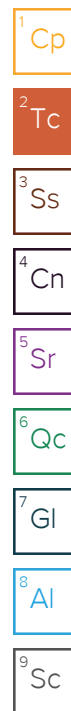
Chris Ward  
Project Manager

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





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# SAMPLE SUMMARY

20201202-C04-696-POR@7' L1292259-01 Solid

Collected by  
Collected date/time  
Received date/time

12/02/20 13:45  
12/03/20 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1586444	1	12/09/20 11:17	12/09/20 11:17	KMG	Mt. Juliet, TN
Calculated Results	WG1589209	1	12/09/20 17:06	12/12/20 17:20	BJD	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1587100	1	12/10/20 12:35	12/12/20 17:20	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1588262	1	12/10/20 15:00	12/10/20 21:19	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1587109	1	12/05/20 12:17	12/05/20 15:00	SRG	Mt. Juliet, TN
Mercury by Method 7471A	WG1589552	1	12/10/20 07:44	12/11/20 09:27	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1589209	1	12/09/20 17:06	12/09/20 22:14	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1589676	5	12/10/20 10:09	12/10/20 15:01	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1587952	1	12/04/20 16:48	12/08/20 10:32	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1587348	1	12/04/20 16:48	12/06/20 08:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1589166	1	12/09/20 22:48	12/10/20 13:38	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1589374	1	12/09/20 23:21	12/10/20 09:49	AAT	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



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.57		1	12/09/2020 11:17	WG1586444

## Calculated Results

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium, Trivalent	12.2		1.00	1	12/12/2020 17:20	<a href="#">WG1589209</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	12/12/2020 17:20	<a href="#">WG1587100</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.51	<u>T8</u>	1	12/10/2020 21:19	<a href="#">WG1588262</a>

## Sample Narrative:

L1292259-01 WG1588262: 9.51 at 22.3C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	4900		10.0	1	12/05/2020 15:00	<a href="#">WG1587109</a>

## Mercury by Method 7471A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	12/11/2020 09:27	<a href="#">WG1589552</a>

## Metals (ICP) by Method 6010B

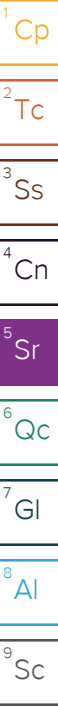
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	1220		0.500	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Cadmium	ND		0.500	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Chromium	12.2		1.00	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Copper	22.1		2.00	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Lead	12.8		0.500	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Nickel	17.2		2.00	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Selenium	ND		2.00	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Silver	ND		1.00	1	12/09/2020 22:14	<a href="#">WG1589209</a>
Zinc	59.8		5.00	1	12/09/2020 22:14	<a href="#">WG1589209</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	15.1		1.00	5	12/10/2020 15:01	<a href="#">WG1589676</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.200		0.100	1	12/08/2020 10:32	<a href="#">WG1587952</a>





Collected date/time: 12/02/20 13:45

L1292259

## 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)	99.9		77.0-120		12/08/2020 10:32	<a href="#">WG1587952</a>

1 Cp

2 Tc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	12/06/2020 08:02	<a href="#">WG1587348</a>
Toluene	ND		0.00500	1	12/06/2020 08:02	<a href="#">WG1587348</a>
Ethylbenzene	ND		0.00250	1	12/06/2020 08:02	<a href="#">WG1587348</a>
Total Xylenes	ND		0.00650	1	12/06/2020 08:02	<a href="#">WG1587348</a>
(S) Toluene-d8	109		75.0-131		12/06/2020 08:02	<a href="#">WG1587348</a>
(S) 4-Bromofluorobenzene	94.3		67.0-138		12/06/2020 08:02	<a href="#">WG1587348</a>
(S) 1,2-Dichloroethane-d4	112		70.0-130		12/06/2020 08:02	<a href="#">WG1587348</a>

3 Ss

4 Cn

5 Sr

6 Qc

## 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	113		4.00	1	12/10/2020 13:38	<a href="#">WG1589166</a>
(S) <i>o</i> -Terphenyl	82.3		18.0-148		12/10/2020 13:38	<a href="#">WG1589166</a>

7 Gl

8 Al

9 Sc

## 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	12/10/2020 09:49	<a href="#">WG1589374</a>
Acenaphthene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Acenaphthylene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Benzo(a)anthracene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Benzo(a)pyrene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Benzo(b)fluoranthene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Benzo(g,h,i)perylene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Benzo(k)fluoranthene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Chrysene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Dibenz(a,h)anthracene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Fluoranthene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Fluorene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Naphthalene	0.0314		0.0200	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Phenanthrene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
Pyrene	ND		0.00600	1	12/10/2020 09:49	<a href="#">WG1589374</a>
1-Methylnaphthalene	ND		0.0200	1	12/10/2020 09:49	<a href="#">WG1589374</a>
2-Methylnaphthalene	0.0325		0.0200	1	12/10/2020 09:49	<a href="#">WG1589374</a>
2-Chloronaphthalene	ND		0.0200	1	12/10/2020 09:49	<a href="#">WG1589374</a>
(S) <i>p</i> -Terphenyl-d14	80.3		23.0-120		12/10/2020 09:49	<a href="#">WG1589374</a>
(S) Nitrobenzene-d5	85.3		14.0-149		12/10/2020 09:49	<a href="#">WG1589374</a>
(S) 2-Fluorobiphenyl	71.4		34.0-125		12/10/2020 09:49	<a href="#">WG1589374</a>



Method Blank (MB)

(MB) R3602840-1 12/12/20 17:08

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
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

L1292253-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1292253-08 12/12/20 17:10 • (DUP) R3602840-3 12/12/20 17:11

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

L1292642-27 Original Sample (OS) • Duplicate (DUP)

(OS) L1292642-27 12/12/20 17:31 • (DUP) R3602840-8 12/12/20 17:32

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

Laboratory Control Sample (LCS)

(LCS) R3602840-2 12/12/20 17:09

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chromium,Hexavalent	24.0	23.4	97.7	80.0-120	

L1292253-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292253-09 12/12/20 17:12 • (MS) R3602840-4 12/12/20 17:13 • (MSD) R3602840-5 12/12/20 17:14

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chromium,Hexavalent	20.0	ND	14.4	14.7	71.9	73.5	1	75.0-125	<u>J6</u>	<u>J6</u>	2.20	20

Sample Narrative:

OS: sample is a reducer



L1292253-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1292253-09 12/12/20 17:12 • (MS) R3602840-6 12/12/20 17:15

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chromium,Hexavalent	631	ND	607	96.2	50	75.0-125	

Sample Narrative:

OS: sample is a reducer

<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



L1292259-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1292259-01 12/10/20 21:19 • (DUP) R3602377-2 12/10/20 21:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.51	9.48	1	0.316		1

Sample Narrative:

OS: 9.51 at 22.3C  
 DUP: 9.48 at 21.7C

L1292639-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1292639-02 12/10/20 21:19 • (DUP) R3602377-3 12/10/20 21:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	5.55	5.55	1	0.000		1

Sample Narrative:

OS: 5.55 at 21.4C  
 DUP: 5.55 at 21.2C

Laboratory Control Sample (LCS)

(LCS) R3602377-1 12/10/20 21:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.98	99.8	99.0-101	

Sample Narrative:

LCS: 9.98 at 19.9C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3600663-1 12/05/20 15:00

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

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1292236-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1292236-01 12/05/20 15:00 • (DUP) R3600663-3 12/05/20 15:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	1860	1860	1	0.162		20

L1292639-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1292639-01 12/05/20 15:00 • (DUP) R3600663-4 12/05/20 15:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	35.3	30.8	1	13.6		20

Laboratory Control Sample (LCS)

(LCS) R3600663-2 12/05/20 15:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	483	481	99.6	85.0-115	



Method Blank (MB)

(MB) R3602489-1 12/11/20 08:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.0180	0.0400

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3602489-2 12/11/20 08:34

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Mercury	0.500	0.488	97.7	80.0-120	

4 Cn

5 Sr

L1291878-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1291878-01 12/11/20 08:35 • (MS) R3602489-3 12/11/20 08:37 • (MSD) R3602489-4 12/11/20 08:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.500	0.0443	0.494	0.536	89.9	98.4	1	75.0-125			8.29	20

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3601974-1 12/09/20 21:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

<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) R3601974-2 12/09/20 21:43

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Barium	100	97.2	97.2	80.0-120	
Cadmium	100	92.8	92.8	80.0-120	
Chromium	100	96.0	96.0	80.0-120	
Copper	100	92.7	92.7	80.0-120	
Lead	100	94.0	94.0	80.0-120	
Nickel	100	97.3	97.3	80.0-120	
Selenium	100	98.1	98.1	80.0-120	
Silver	20.0	18.3	91.7	80.0-120	
Zinc	100	94.6	94.6	80.0-120	

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1292353-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292353-01 12/09/20 21:46 • (MS) R3601974-5 12/09/20 21:54 • (MSD) R3601974-6 12/09/20 21:56

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Barium	100	4330	1550	4220	0.000	0.000	1	75.0-125	V	E J3 V	92.4	20
Cadmium	100	ND	91.2	96.4	91.2	96.4	1	75.0-125			5.55	20
Chromium	100	6.63	97.6	105	91.0	97.9	1	75.0-125			6.85	20
Copper	100	17.0	104	114	87.1	97.2	1	75.0-125			9.23	20
Lead	100	519	760	776	242	257	1	75.0-125	V	V	2.03	20
Nickel	100	6.78	103	112	96.4	105	1	75.0-125			8.04	20
Selenium	100	ND	97.8	103	97.8	103	1	75.0-125			4.76	20
Silver	20.0	ND	18.3	19.3	91.4	96.7	1	75.0-125			5.60	20
Zinc	100	39.6	119	132	79.8	92.5	1	75.0-125			10.2	20



Method Blank (MB)

(MB) R3602268-1 12/10/20 14:54

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

Laboratory Control Sample (LCS)

(LCS) R3602268-2 12/10/20 14:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.0	94.0	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1292259-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292259-01 12/10/20 15:01 • (MS) R3602268-5 12/10/20 15:10 • (MSD) R3602268-6 12/10/20 15:13

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	20.0	15.1	112	114	96.8	98.8	5	75.0-125			1.79	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3601243-3 12/08/20 03:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)	111			77.0-120

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3601243-1 12/08/20 02:01 • (LCSD) R3601243-2 12/08/20 02:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.70	4.61	85.5	83.8	72.0-127			1.93	20
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)				102	105	77.0-120				

5 Sr

6 Qc

7 Gl

L1291492-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1291492-03 12/08/20 08:48 • (MS) R3601243-4 12/08/20 10:53 • (MSD) R3601243-5 12/08/20 11:14

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	173	ND	91.6	112	60.7	74.2	27.5	10.0-151			20.0	28
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)					104	102		77.0-120				

8 Al

9 Sc



Method Blank (MB)

(MB) R3601335-2 12/06/20 02:10

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	107			75.0-131
(S) 4-Bromofluorobenzene	94.6			67.0-138
(S) 1,2-Dichloroethane-d4	110			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3601335-1 12/06/20 01:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.128	102	70.0-123	
Ethylbenzene	0.125	0.116	92.8	74.0-126	
Toluene	0.125	0.117	93.6	75.0-121	
Xylenes, Total	0.375	0.351	93.6	72.0-127	
(S) Toluene-d8			99.7	75.0-131	
(S) 4-Bromofluorobenzene			98.3	67.0-138	
(S) 1,2-Dichloroethane-d4			117	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) R3602199-1 12/10/20 03:37

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
<i>(S) o-Terphenyl</i>	86.9			18.0-148

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3602199-2 12/10/20 03:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	47.2	94.4	50.0-150	
<i>(S) o-Terphenyl</i>			91.0	18.0-148	

4 Cn

5 Sr

6 Qc

L1292236-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292236-01 12/10/20 10:09 • (MS) R3602199-3 12/10/20 10:22 • (MSD) R3602199-4 12/10/20 10:35

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	48.2	ND	40.6	40.9	84.2	84.9	1	50.0-150			0.736	20
<i>(S) o-Terphenyl</i>					81.3	79.8		18.0-148				

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3602091-2 12/10/20 07:43

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	104			14.0-149
(S) 2-Fluorobiphenyl	91.8			34.0-125
(S) p-Terphenyl-d14	103			23.0-120

<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) R3602091-1 12/10/20 07:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0742	92.8	50.0-126	
Acenaphthene	0.0800	0.0657	82.1	50.0-120	
Acenaphthylene	0.0800	0.0731	91.4	50.0-120	
Benzo(a)anthracene	0.0800	0.0719	89.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0605	75.6	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0642	80.3	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0649	81.1	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0713	89.1	49.0-125	
Chrysene	0.0800	0.0689	86.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0691	86.4	47.0-125	
Fluoranthene	0.0800	0.0801	100	49.0-129	



Laboratory Control Sample (LCS)

(LCS) R3602091-1 12/10/20 07:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0719	89.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0689	86.1	46.0-125	
Naphthalene	0.0800	0.0661	82.6	50.0-120	
Phenanthrene	0.0800	0.0682	85.3	47.0-120	
Pyrene	0.0800	0.0572	71.5	43.0-123	
1-Methylnaphthalene	0.0800	0.0693	86.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0662	82.8	50.0-120	
2-Chloronaphthalene	0.0800	0.0695	86.9	50.0-120	
<i>(S) Nitrobenzene-d5</i>			101	14.0-149	
<i>(S) 2-Fluorobiphenyl</i>			89.2	34.0-125	
<i>(S) p-Terphenyl-d14</i>			98.3	23.0-120	

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

L1292236-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1292236-02 12/10/20 08:25 • (MS) R3602091-3 12/10/20 08:46 • (MSD) R3602091-4 12/10/20 09:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0800	ND	0.0642	0.0606	80.3	75.8	1	10.0-145			5.77	30
Acenaphthene	0.0800	ND	0.0565	0.0529	70.6	66.1	1	14.0-127			6.58	27
Acenaphthylene	0.0800	ND	0.0620	0.0584	77.5	73.0	1	21.0-124			5.98	25
Benzo(a)anthracene	0.0800	ND	0.0602	0.0566	75.3	70.8	1	10.0-139			6.16	30
Benzo(a)pyrene	0.0800	ND	0.0572	0.0546	71.5	68.3	1	10.0-141			4.65	31
Benzo(b)fluoranthene	0.0800	ND	0.0534	0.0544	66.8	68.0	1	10.0-140			1.86	36
Benzo(g,h,i)perylene	0.0800	ND	0.0550	0.0526	68.8	65.8	1	10.0-140			4.46	33
Benzo(k)fluoranthene	0.0800	ND	0.0607	0.0541	75.9	67.6	1	10.0-137			11.5	31
Chrysene	0.0800	ND	0.0583	0.0553	72.9	69.1	1	10.0-145			5.28	30
Dibenz(a,h)anthracene	0.0800	ND	0.0585	0.0560	73.1	70.0	1	10.0-132			4.37	31
Fluoranthene	0.0800	ND	0.0694	0.0653	86.8	81.6	1	10.0-153			6.09	33
Fluorene	0.0800	ND	0.0619	0.0576	77.4	72.0	1	11.0-130			7.20	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0577	0.0554	72.1	69.3	1	10.0-137			4.07	32
Naphthalene	0.0800	ND	0.0573	0.0534	71.6	66.8	1	10.0-135			7.05	27
Phenanthrene	0.0800	ND	0.0588	0.0546	73.5	68.3	1	10.0-144			7.41	31
Pyrene	0.0800	ND	0.0486	0.0454	60.8	56.8	1	10.0-148			6.81	35
1-Methylnaphthalene	0.0800	ND	0.0595	0.0558	74.4	69.8	1	10.0-142			6.42	28
2-Methylnaphthalene	0.0800	ND	0.0581	0.0539	72.6	67.4	1	10.0-137			7.50	28
2-Chloronaphthalene	0.0800	ND	0.0593	0.0556	74.1	69.5	1	29.0-120			6.44	24
<i>(S) Nitrobenzene-d5</i>					86.5	82.7		14.0-149				
<i>(S) 2-Fluorobiphenyl</i>					75.7	72.7		34.0-125				
<i>(S) p-Terphenyl-d14</i>					83.5	79.9		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).
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.

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

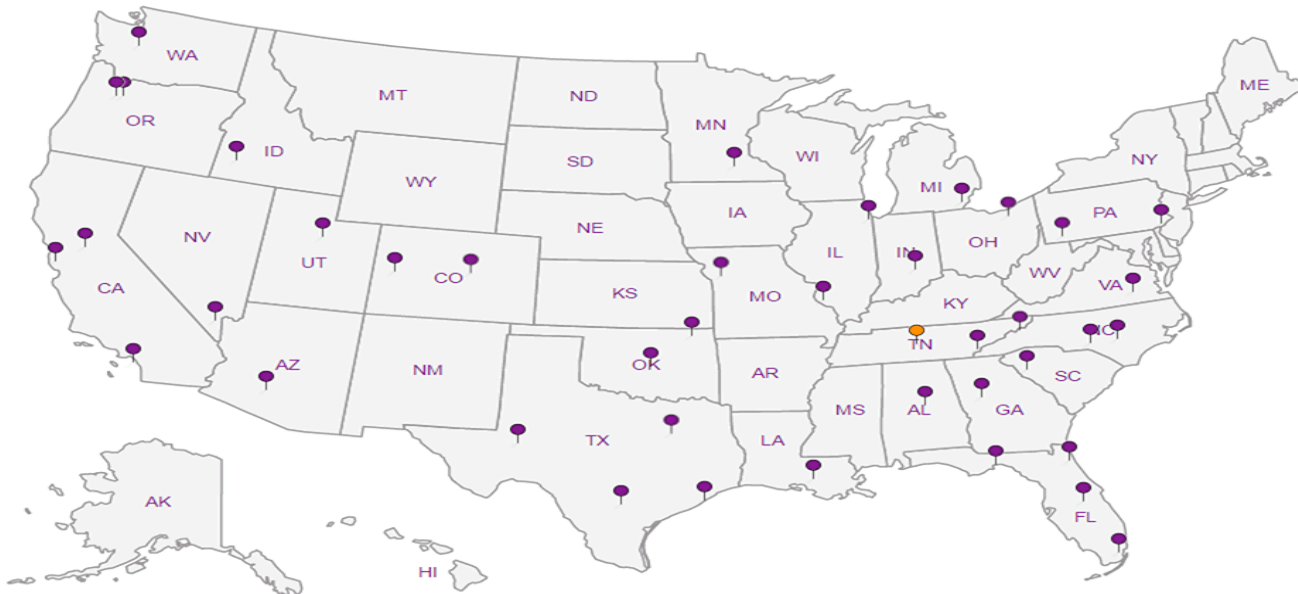
## Third Party Federal Accreditations

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
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Tax I.D. 62-0814289

Est. 1970

Chris Hines  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

## Report Summary

Tuesday April 19, 2011

Report Number: L511513


Samples Received: 04/15/11

Client Project: 900133.8887.030

Description: CO4

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487  
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140  
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233  
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,  
TX - T104704245, OK-9915

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Est. 1970

REPORT OF ANALYSIS

April 19, 2011

Chris Hines  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

Date Received : April 15, 2011  
Description : CO4  
Sample ID : CO4-CUT-041411  
Collected By : Bob Stockton  
Collection Date : 04/14/11 11:41

ESC Sample # : L511513-01

Site ID : NPR

Project # : 900133.8887.030

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.033	0.0025	mg/kg	8021B	04/16/11	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	04/16/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 04/19/11 14:37 Printed: 04/19/11 15:18



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1-800-767-5859  
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Est. 1970

REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

April 19, 2011

Date Received : April 15, 2011  
Description : CO4  
Sample ID : CO4-SW BACKGROUND-041411  
Collected By : Bob Stockton  
Collection Date : 04/14/11 11:52

ESC Sample # : L511513-02

Site ID : NPR

Project # : 900133.8887.030

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.2	5.0	mg/kg	6010B	04/19/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 04/19/11 14:37 Printed: 04/19/11 15:18



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Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

April 19, 2011

Date Received : April 15, 2011  
Description : CO4  
Sample ID : CO4-SE BACKGROUND-041411  
Collected By : Bob Stockton  
Collection Date : 04/14/11 12:02

ESC Sample # : L511513-03

Site ID : NPR

Project # : 900133.8887.030

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.1	5.0	mg/kg	6010B	04/19/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 04/19/11 14:37 Printed: 04/19/11 15:18



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Est. 1970

REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

April 19, 2011

Date Received : April 15, 2011  
Description : CO4  
Sample ID : CO4-N BACKGROUND-041411  
Collected By : Bob Stockton  
Collection Date : 04/14/11 12:14

ESC Sample # : L511513-04

Site ID : NPR

Project # : 900133.8887.030

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	25.	5.0	mg/kg	6010B	04/19/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

April 19, 2011

Date Received : April 15, 2011  
Description : CO4  
Sample ID : CO4-E BACKGROUND-041411  
Collected By : Bob Stockton  
Collection Date : 04/14/11 12:25

ESC Sample # : L511513-05

Site ID : NPR

Project # : 900133.8887.030

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	25.	2.0	mg/kg	6010B	04/19/11	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 04/19/11 14:37 Printed: 04/19/11 15:18

Summary of Remarks For Samples Printed  
04/19/11 at 15:18:44

TSR Signing Reports: 358  
R5 - Desired TAT

Log all samples beginning with different sample numbers to separate reports. Ex.- M34 N PIT and M34 S PIT go on one L#, but M34 S PIT and E34 S PIT go on separate L #s. TPH=GRO and DRO ALWAYS

Sample: L511513-01 Account: ENCANACO Received: 04/15/11 09:00 Due Date: 04/22/11 00:00 RPT Date: 04/19/11 14:37  
BTEX is for benzene only.  
Sample: L511513-02 Account: ENCANACO Received: 04/15/11 09:00 Due Date: 04/22/11 00:00 RPT Date: 04/19/11 14:37  
BTEX is for benzene only.  
Sample: L511513-03 Account: ENCANACO Received: 04/15/11 09:00 Due Date: 04/22/11 00:00 RPT Date: 04/19/11 14:37  
BTEX is for benzene only.  
Sample: L511513-04 Account: ENCANACO Received: 04/15/11 09:00 Due Date: 04/22/11 00:00 RPT Date: 04/19/11 14:37  
BTEX is for benzene only.  
Sample: L511513-05 Account: ENCANACO Received: 04/15/11 09:00 Due Date: 04/22/11 00:00 RPT Date: 04/19/11 14:37  
BTEX is for benzene only.



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EnCana Oil & Gas Inc. - CO  
 Chris Hines  
 2717 County Road 215, Suite 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L511513

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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG531330	04/15/11 22:15
a,a,a-Trifluorotoluene(PID)		% Rec.	103.5	54-144	WG531330	04/15/11 22:15
Arsenic	< 1	mg/kg			WG531463	04/19/11 08:25

Analyte	Units	Duplicate			Limit	Ref Samp	Batch
		Result	Duplicate	RPD			
Arsenic	mg/kg	3.90	5.10	26.4*	20	L511643-04	WG531463

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0486	97.3	76-113	WG531330
a,a,a-Trifluorotoluene(PID)				102.8	54-144	WG531330
Arsenic	mg/kg	192	180.	93.8	78.6-120.8	WG531463

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0489	0.0486	98.0	76-113	0.540	20	WG531330
a,a,a-Trifluorotoluene(PID)				103.5	54-144			WG531330

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.0404	0	.05	80.8	32-137	L511564-09	WG531330
a,a,a-Trifluorotoluene(PID)					102.6	54-144		WG531330
Arsenic	mg/kg	46.9	5.10	50	16.7*	75-125	L511643-04	WG531463

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/kg	0.0382	0.0404	76.3	32-137	5.76	39	L511564-09	WG531330
a,a,a-Trifluorotoluene(PID)				102.8	54-144				WG531330
Arsenic	mg/kg	49.7	46.9	17.8*	75-125	5.80	20	L511643-04	WG531463

Batch number /Run number / Sample number cross reference

WG531330: R1653310: L511513-01  
 WG531463: R1656110: L511513-02 03 04 05

\* \* Calculations are performed prior to rounding of reported values.  
 \* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.