

September 28, 2018

## Entrada Consulting Group

Sample Delivery Group: L1027819  
Samples Received: 09/21/2018  
Project Number:  
Description:

Report To: Stuart Hall  
240 Mesa Avenue  
Grand Junction, CO 81501

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
HOU 9-41 SS1 L1027819-01	5
Qc: Quality Control Summary	7
Wet Chemistry by Method 3060A/7196A	7
Wet Chemistry by Method 9050AMod	9
Mercury by Method 7471A	10
Metals (ICP) by Method 6010B	11
Volatile Organic Compounds (GC) by Method 8015/8021	13
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.



HOU 9-41 SS1 L1027819-01 Solid

Collected by

Collected date/time

Received date/time

09/20/18 14:00

09/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1170434	1	09/25/18 09:12	09/26/18 23:59	TRB
Calculated Results	WG1170275	1	09/24/18 09:50	09/27/18 10:43	MLW
Wet Chemistry by Method 3060A/7196A	WG1170985	1	09/26/18 11:15	09/27/18 10:43	MLW
Wet Chemistry by Method 9050AMod	WG1172960	1	09/28/18 12:23	09/28/18 13:30	MJA
Mercury by Method 7471A	WG1170439	1	09/24/18 05:03	09/25/18 14:17	TCT
Metals (ICP) by Method 6010B	WG1170275	10	09/24/18 09:50	09/25/18 13:40	CCE
Metals (ICP) by Method 6010B	WG1170275	5	09/24/18 09:50	09/25/18 10:28	CCE
Volatile Organic Compounds (GC) by Method 8015/8021	WG1170590	1	09/22/18 11:07	09/24/18 17:29	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1171379	200	09/25/18 18:32	09/26/18 10:47	TJD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1171753	20	09/26/18 23:27	09/27/18 17:03	DMG

<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

ACCOUNT:

Entrada Consulting Group

PROJECT:

SDG:

L1027819

DATE/TIME:

09/28/18 17:03

PAGE:

3 of 20



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	35.2		1	09/26/2018 23:59	WG1170434

## Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	13.1		2.00	1	09/27/2018 10:43	<a href="#">WG1170275</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	09/27/2018 10:43	<a href="#">WG1170985</a>

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3820		10.0	1	09/28/2018 13:30	<a href="#">WG1172960</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0903		0.0200	1	09/25/2018 14:17	<a href="#">WG1170439</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		10.0	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Barium	26000		5.00	10	09/25/2018 13:40	<a href="#">WG1170275</a>
Cadmium	ND		2.50	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Chromium	13.1		5.00	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Copper	24.7		10.0	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Lead	12.2		2.50	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Nickel	15.5		10.0	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Selenium	ND		10.0	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Silver	ND		5.00	5	09/25/2018 10:28	<a href="#">WG1170275</a>
Zinc	51.4		25.0	5	09/25/2018 10:28	<a href="#">WG1170275</a>

## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00164		0.000500	1	09/24/2018 17:29	<a href="#">WG1170590</a>
Toluene	ND		0.00500	1	09/24/2018 17:29	<a href="#">WG1170590</a>
Ethylbenzene	0.000707		0.000500	1	09/24/2018 17:29	<a href="#">WG1170590</a>
Total Xylene	0.00525		0.00150	1	09/24/2018 17:29	<a href="#">WG1170590</a>
TPH (GC/FID) Low Fraction	0.238		0.100	1	09/24/2018 17:29	<a href="#">WG1170590</a>
(S) a,a,a-Trifluorotoluene(FID)	78.2		77.0-120		09/24/2018 17:29	<a href="#">WG1170590</a>
(S) a,a,a-Trifluorotoluene(PID)	73.2		72.0-128		09/24/2018 17:29	<a href="#">WG1170590</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	1690		800	200	09/26/2018 10:47	<a href="#">WG1171379</a>
(S) o-Terphenyl	0.000	<a href="#">J7</a>	18.0-148		09/26/2018 10:47	<a href="#">WG1171379</a>



Collected date/time: 09/20/18 14:00

L1027819

## 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		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Acenaphthene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Acenaphthylene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Benzo(a)anthracene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Benzo(a)pyrene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Benzo(b)fluoranthene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Benzo(g,h,i)perylene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Benzo(k)fluoranthene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Chrysene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Dibenz(a,h)anthracene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Fluoranthene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Fluorene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Indeno(1,2,3-cd)pyrene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Naphthalene	ND		0.400	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Phenanthrene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
Pyrene	ND		0.120	20	09/27/2018 17:03	<a href="#">WG1171753</a>
1-Methylnaphthalene	ND		0.400	20	09/27/2018 17:03	<a href="#">WG1171753</a>
2-Methylnaphthalene	0.457		0.400	20	09/27/2018 17:03	<a href="#">WG1171753</a>
2-Chloronaphthalene	ND		0.400	20	09/27/2018 17:03	<a href="#">WG1171753</a>
(S) p-Terphenyl-d14	87.5	<a href="#">J7</a>	23.0-120		09/27/2018 17:03	<a href="#">WG1171753</a>
(S) Nitrobenzene-d5	59.7	<a href="#">J7</a>	14.0-149		09/27/2018 17:03	<a href="#">WG1171753</a>
(S) 2-Fluorobiphenyl	72.7	<a href="#">J7</a>	34.0-125		09/27/2018 17:03	<a href="#">WG1171753</a>

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

## Sample Narrative:

L1027819-01 WG1171753: Cannot run at lower dilution due to viscosity of extract



Method Blank (MB)

(MB) R3345623-1 09/27/18 10:42

	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

L1027821-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1027821-07 09/27/18 10:44 • (DUP) R3345623-4 09/27/18 10:44

	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	U	0.000	1	0.000		20

L1027822-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1027822-01 09/27/18 11:07 • (DUP) R3345623-9 09/27/18 11:08

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

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

(LCS) R3345623-2 09/27/18 10:42 • (LCSD) R3345623-3 09/27/18 10:43

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Chromium,Hexavalent	24.0	23.0	23.2	96.0	96.7	80.0-120			0.692	20

L1027821-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027821-08 09/27/18 10:45 • (MS) R3345623-5 09/27/18 10:45 • (MSD) R3345623-6 09/27/18 10:51

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	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	21.7	2.43	13.4	13.1	50.4	49.2	1	75.0-125	J6	J6	1.97	20

Sample Narrative:

OS: Reducer



L1027821-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1027821-08 09/27/18 10:45 • (MS) R3345623-7 09/27/18 10:52

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	727	2.43	698	96.0	50	75.0-125	

Sample Narrative:

OS: Reducer

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3346064-1 09/28/18 13:30				
Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1027819-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1027819-01 09/28/18 13:30 • (DUP) R3346064-4 09/28/18 13:30						
Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	3820	3800	1	0.525		20

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

(LCS) R3346064-2 09/28/18 13:30 • (LCSD) R3346064-3 09/28/18 13:30										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
Analyte	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	1090	1100	1100	100	101	85.0-115			0.274	20



Method Blank (MB)

(MB) R3344909-1 09/25/18 13:28

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.00280	0.0200

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

(LCS) R3344909-2 09/25/18 13:30 • (LCSD) R3344909-3 09/25/18 13:33

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Mercury	0.300	0.293	0.289	97.8	96.3	80.0-120			1.52	20

L1028289-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1028289-04 09/25/18 13:36 • (MS) R3344909-4 09/25/18 13:38 • (MSD) R3344909-5 09/25/18 13:41

	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	0.300	0.00653	0.308	0.254	101	82.5	1	75.0-125			19.3	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3344668-1 09/25/18 01:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.170	0.500
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Copper	U		0.530	2.00
Lead	U		0.190	0.500
Nickel	U		0.490	2.00
Selenium	U		0.620	2.00
Silver	U		0.120	1.00
Zinc	0.667	J	0.590	5.00

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

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

(LCS) R3344668-2 09/25/18 01:05 • (LCSD) R3344668-3 09/25/18 01:07

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 %
Arsenic	100	95.9	95.5	95.9	95.5	80.0-120			0.402	20
Barium	100	100	100	100	100	80.0-120			0.151	20
Cadmium	100	98.0	97.9	98.0	97.9	80.0-120			0.120	20
Chromium	100	98.7	98.4	98.7	98.4	80.0-120			0.277	20
Copper	100	103	103	103	103	80.0-120			0.385	20
Lead	100	98.1	97.4	98.1	97.4	80.0-120			0.737	20
Nickel	100	97.4	97.7	97.4	97.7	80.0-120			0.281	20
Selenium	100	95.7	94.2	95.7	94.2	80.0-120			1.67	20
Silver	20.0	19.0	18.8	95.2	94.2	80.0-120			1.06	20
Zinc	100	96.8	96.8	96.8	96.8	80.0-120			0.00145	20

L1027423-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027423-01 09/25/18 01:09 • (MS) R3344668-6 09/25/18 01:17 • (MSD) R3344668-7 09/25/18 01:19

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	112	6.38	103	106	86.3	88.8	1	75.0-125			2.71	20
Barium	112	59.3	189	190	116	116	1	75.0-125			0.0951	20
Cadmium	112	ND	103	105	91.9	94.0	1	75.0-125			2.30	20
Chromium	112	89.2	198	184	97.2	84.6	1	75.0-125			7.38	20
Copper	112	42.7	141	142	88.1	88.6	1	75.0-125			0.404	20
Lead	112	11.1	117	121	94.4	98.0	1	75.0-125			3.43	20



L1027423-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027423-01 09/25/18 01:09 • (MS) R3344668-6 09/25/18 01:17 • (MSD) R3344668-7 09/25/18 01:19

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	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	%	%		%			%	%
Nickel	112	148	249	224	90.0	67.1	1	75.0-125		J6	10.9	20
Selenium	112	ND	97.0	99.2	86.5	88.5	1	75.0-125			2.30	20
Silver	22.4	ND	19.6	20.0	87.3	89.4	1	75.0-125			2.38	20
Zinc	112	70.3	149	154	70.4	75.0	1	75.0-125	J6		3.45	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3344852-5 09/24/18 11:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	106			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	96.8			72.0-128

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

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

(LCS) R3344852-1 09/24/18 09:24 • (LCSD) R3344852-2 09/24/18 09:46

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	5.79	6.08	105	111	72.0-127			4.89	20
(S) a,a,a-Trifluorotoluene(FID)				99.9	101	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				104	104	72.0-128				

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

(LCS) R3344852-3 09/24/18 10:40 • (LCSD) R3344852-4 09/24/18 11:01

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	0.0500	0.0461	0.0487	92.3	97.4	76.0-121			5.36	20
Toluene	0.0500	0.0470	0.0492	93.9	98.4	80.0-120			4.68	20
Ethylbenzene	0.0500	0.0470	0.0492	93.9	98.3	80.0-124			4.55	20
Total Xylene	0.150	0.146	0.152	97.3	102	37.0-160			4.22	20
(S) a,a,a-Trifluorotoluene(FID)				105	105	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				97.1	97.6	72.0-128				



L1028303-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1028303-05 09/24/18 21:02 • (MS) R3344852-6 09/24/18 21:23 • (MSD) R3344852-7 09/24/18 21:44												
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	%	%		%			%	%
Benzene	0.0500	ND	8.17	7.69	64.8	61.0	250	10.0-155			6.03	32
Toluene	0.0500	ND	9.56	9.00	74.3	69.8	250	10.0-160			6.03	34
Ethylbenzene	0.0500	13.8	23.2	22.3	74.7	67.6	250	10.0-160			3.92	32
Total Xylene	0.150	155	166	160	30.1	12.8	250	10.0-160	E J6 V	E J6 V	3.99	32
(S) a,a,a-Trifluorotoluene(FID)					108	107		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					97.7	96.8		72.0-128				

Sample Narrative:

OS: Target and Non-target compounds too high to run at a lower dilution.

L1028303-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1028303-05 09/24/18 21:02 • (MS) R3344852-8 09/24/18 22:06 • (MSD) R3344852-9 09/24/18 23:11												
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	%	%		%			%	%
TPH (GC/FID) Low Fraction	5.50	5920	6000	6400	5.69	35.2	250	10.0-151	E V	E	6.54	28
(S) a,a,a-Trifluorotoluene(FID)					108	107		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					98.9	96.7		72.0-128				

Sample Narrative:

OS: Target and Non-target compounds too high to run at a lower dilution.

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3345169-1 09/25/18 21:33

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	61.9			18.0-148

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

(LCS) R3345169-2 09/25/18 21:43 • (LCSD) R3345169-3 09/25/18 21:54

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) High Fraction	50.0	37.4	37.3	74.8	74.6	50.0-150			0.268	20
(S) o-Terphenyl				86.0	86.6	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

Method Blank (MB)

(MB) R3345551-3 09/27/18 07:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) Nitrobenzene-d5	80.8			14.0-149
(S) 2-Fluorobiphenyl	89.3			34.0-125
(S) p-Terphenyl-d14	91.5			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3345551-1 09/27/18 06:46 • (LCSD) R3345551-2 09/27/18 07:08

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 %
Anthracene	0.0800	0.0685	0.0711	85.6	88.9	50.0-126			3.72	20
Acenaphthene	0.0800	0.0677	0.0677	84.6	84.6	50.0-120			0.000	20
Acenaphthylene	0.0800	0.0674	0.0671	84.3	83.9	50.0-120			0.446	20
Benzo(a)anthracene	0.0800	0.0692	0.0707	86.5	88.4	45.0-120			2.14	20
Benzo(a)pyrene	0.0800	0.0593	0.0650	74.1	81.3	42.0-120			9.17	20
Benzo(b)fluoranthene	0.0800	0.0744	0.0761	93.0	95.1	42.0-121			2.26	20
Benzo(g,h,i)perylene	0.0800	0.0737	0.0752	92.1	94.0	45.0-125			2.01	20
Benzo(k)fluoranthene	0.0800	0.0733	0.0746	91.6	93.3	49.0-125			1.76	20
Chrysene	0.0800	0.0718	0.0732	89.8	91.5	49.0-122			1.93	20
Dibenz(a,h)anthracene	0.0800	0.0773	0.0785	96.6	98.1	47.0-125			1.54	20
Fluoranthene	0.0800	0.0730	0.0749	91.3	93.6	49.0-129			2.57	20



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

(LCS) R3345551-1 09/27/18 06:46 • (LCSD) R3345551-2 09/27/18 07:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Fluorene	0.0800	0.0688	0.0686	86.0	85.8	49.0-120			0.291	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0762	0.0775	95.3	96.9	46.0-125			1.69	20
Naphthalene	0.0800	0.0677	0.0667	84.6	83.4	50.0-120			1.49	20
Phenanthrene	0.0800	0.0703	0.0713	87.9	89.1	47.0-120			1.41	20
Pyrene	0.0800	0.0729	0.0748	91.1	93.5	43.0-123			2.57	20
1-Methylnaphthalene	0.0800	0.0754	0.0763	94.3	95.4	51.0-121			1.19	20
2-Methylnaphthalene	0.0800	0.0674	0.0669	84.3	83.6	50.0-120			0.745	20
2-Chloronaphthalene	0.0800	0.0680	0.0684	85.0	85.5	50.0-120			0.587	20
(S) Nitrobenzene-d5				92.0	92.3	14.0-149				
(S) 2-Fluorobiphenyl				93.5	93.6	34.0-125				
(S) p-Terphenyl-d14				92.7	93.0	23.0-120				

L1027807-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027807-01 09/27/18 15:59 • (MS) R3345895-1 09/27/18 16:20 • (MSD) R3345895-2 09/27/18 16:41

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0971	U	0.0768	0.0657	79.1	67.6	1	10.0-145			15.7	30
Acenaphthene	0.0971	U	0.0772	0.0625	79.5	64.4	1	14.0-127			21.0	27
Acenaphthylene	0.0971	U	0.0793	0.0647	81.6	66.6	1	21.0-124			20.2	25
Benzo(a)anthracene	0.0971	0.00874	0.0812	0.0675	74.6	60.5	1	10.0-139			18.4	30
Benzo(a)pyrene	0.0971	0.0134	0.0880	0.0730	76.9	61.4	1	10.0-141			18.7	31
Benzo(b)fluoranthene	0.0971	0.0240	0.0892	0.0759	67.1	53.4	1	10.0-140			16.2	36
Benzo(g,h,i)perylene	0.0971	0.0178	0.0645	0.0511	48.0	34.3	1	10.0-140			23.1	33
Benzo(k)fluoranthene	0.0971	0.00830	0.0921	0.0759	86.3	69.6	1	10.0-137			19.4	31
Chrysene	0.0971	0.0118	0.0908	0.0795	81.4	69.7	1	10.0-145			13.3	30
Dibenz(a,h)anthracene	0.0971	U	0.0734	0.0550	75.6	56.6	1	10.0-132			28.7	31
Fluoranthene	0.0971	0.0203	0.0926	0.0828	74.5	64.4	1	10.0-153			11.2	33
Fluorene	0.0971	U	0.0739	0.0603	76.1	62.1	1	11.0-130			20.3	29
Indeno(1,2,3-cd)pyrene	0.0971	0.00847	0.0697	0.0532	63.0	46.0	1	10.0-137			26.9	32
Naphthalene	0.0971	U	0.0753	0.0624	77.5	64.3	1	10.0-135			18.7	27
Phenanthrene	0.0971	0.00357	0.0755	0.0643	74.1	62.6	1	10.0-144			16.0	31
Pyrene	0.0971	0.0189	0.107	0.0887	90.5	71.9	1	10.0-148			18.5	35
1-Methylnaphthalene	0.0971	U	0.0784	0.0632	80.7	65.1	1	10.0-142			21.4	28
2-Methylnaphthalene	0.0971	U	0.0783	0.0621	80.6	64.0	1	10.0-137			23.0	28
2-Chloronaphthalene	0.0971	U	0.0739	0.0605	76.1	62.3	1	29.0-120			20.1	24
(S) Nitrobenzene-d5					95.9	88.8		14.0-149				
(S) 2-Fluorobiphenyl					93.3	77.8		34.0-125				
(S) p-Terphenyl-d14					98.0	92.8		23.0-120				

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.

### Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
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.
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).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
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	T 104704245-17-14
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.



Entrada

Billing Information:

ENTRADA

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



L# L1027819

F236

Report to:  
S. L. H.

Email To:

Project Description:

City/State  
Collected:

Phone:  
Fax:

Lab Project #

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

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

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

Quote #

Date Results Needed

Immediately  
Packed on Ice N \_\_\_\_ Y \_\_\_\_

No.  
of  
Cntrs

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

HOU 9-41 SS1 G-L SS 0.6" 7/20/18 14u 1 X

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks

Sample # (lab only)

-01

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

Remarks:

Samples returned via:

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

RAD SCREEN 0.5 mR/hr

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

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

Tracking # 4430 3423 8972

Relinquished by: (Signature)

Date:

Time:

9/20/18

1500

Received by: (Signature)

Trip Blank Received: Yes/No  
HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:

Time:

9/20/18

1750

Received by: (Signature)

Temp: 16.5 °C  
Bottles Received: 1

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 9/21/18  
Time: 845

Hold:

Condition:  
NCF / OK

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

If preservation required by Login: Date/Time