

Entrada Consulting Group

Sample Delivery Group: L1149400
Samples Received: 10/12/2019
Project Number:
Description: 604-41-32 Spill Response

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

Entire Report Reviewed By:

Chris Ward

Chris Ward
Project Manager

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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



20191011-604-41-32-SS1-O-6"-1115 L1149400-01 Solid

Collected by
Chance Holder

Collected date/time
10/11/19 11:15

Received date/time
10/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1362697	1	10/16/19 22:19	10/16/19 22:19	EL	Mt. Juliet, TN
Calculated Results	WG1362298	1	10/13/19 13:56	10/14/19 01:18	TRB	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1362268	1	10/13/19 17:05	10/14/19 01:18	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1362065	1	10/12/19 19:00	10/12/19 20:00	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1362887	1	10/15/19 18:43	10/15/19 21:11	AKA	Mt. Juliet, TN
Mercury by Method 7471A	WG1362424	1	10/14/19 13:13	10/14/19 21:25	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1362298	1	10/13/19 13:56	10/14/19 00:38	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1363416	1	10/12/19 15:50	10/16/19 00:37	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1362319	1	10/13/19 17:09	10/14/19 03:29	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1362334	1	10/13/19 17:11	10/14/19 08:38	DMG	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

20191011-604-41-32-SS2-O-6"-1120 L1149400-02 Solid

Collected by
Chance Holder

Collected date/time
10/11/19 11:20

Received date/time
10/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1362697	1	10/17/19 04:34	10/17/19 04:34	EL	Mt. Juliet, TN
Calculated Results	WG1362298	1	10/13/19 13:56	10/14/19 01:19	TRB	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1362268	1	10/13/19 17:05	10/14/19 01:19	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1362065	1	10/12/19 19:00	10/12/19 20:00	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1362887	1	10/15/19 18:43	10/15/19 21:11	AKA	Mt. Juliet, TN
Mercury by Method 7471A	WG1362424	1	10/14/19 13:13	10/14/19 21:47	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1362298	1	10/13/19 13:56	10/14/19 00:41	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1363416	1	10/12/19 15:50	10/16/19 01:05	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1362319	5	10/13/19 17:09	10/14/19 04:21	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1362334	1	10/13/19 17:11	10/14/19 13:23	DMG	Mt. Juliet, TN

⁷Gl

⁸Al

⁹Sc

20191011-604-41-32-BG1-O-6"-1310 L1149400-03 Solid

Collected by
Chance Holder

Collected date/time
10/11/19 11:30

Received date/time
10/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1362298	1	10/13/19 13:56	10/14/19 00:44	TRB	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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Collected date/time: 10/11/19 11:15

L1149400

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	57.4		1	10/16/2019 22:19	WG1362697

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	15.1		1.00	1	10/14/2019 01:18	WG1362298

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	10/14/2019 01:18	WG1362268

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.39	T8	1	10/12/2019 20:00	WG1362065

Sample Narrative:

L1149400-01 WG1362065: 8.39 at 17.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	7130		10.0	1	10/15/2019 21:11	WG1362887

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND	J6	0.0300	1	10/14/2019 21:25	WG1362424

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.08		2.00	1	10/14/2019 00:38	WG1362298
Barium	1210		0.500	1	10/14/2019 00:38	WG1362298
Cadmium	ND		0.500	1	10/14/2019 00:38	WG1362298
Chromium	15.1		1.00	1	10/14/2019 00:38	WG1362298
Copper	48.3		2.00	1	10/14/2019 00:38	WG1362298
Lead	6.30		0.500	1	10/14/2019 00:38	WG1362298
Nickel	11.4		2.00	1	10/14/2019 00:38	WG1362298
Selenium	ND		2.00	1	10/14/2019 00:38	WG1362298
Silver	ND		1.00	1	10/14/2019 00:38	WG1362298
Zinc	104		5.00	1	10/14/2019 00:38	WG1362298

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0371		0.000500	1	10/16/2019 00:37	WG1363416
Toluene	0.0577		0.00500	1	10/16/2019 00:37	WG1363416
Ethylbenzene	0.0101		0.000500	1	10/16/2019 00:37	WG1363416
Total Xylene	0.0889		0.00150	1	10/16/2019 00:37	WG1363416
TPH (GC/FID) Low Fraction	2.35		0.100	1	10/16/2019 00:37	WG1363416



Collected date/time: 10/11/19 11:15

L1149400

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	83.5		77.0-120		10/16/2019 00:37	WG1363416
(S) a,a,a-Trifluorotoluene(PID)	88.5		72.0-128		10/16/2019 00:37	WG1363416

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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	134		4.00	1	10/14/2019 03:29	WG1362319
(S) o-Terphenyl	45.8		18.0-148		10/14/2019 03:29	WG1362319

6 Qc

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	10/14/2019 08:38	WG1362334
Acenaphthene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Acenaphthylene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Benzo(a)anthracene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Benzo(a)pyrene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Benzo(g,h,i)perylene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Chrysene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Fluoranthene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Fluorene	0.0108		0.00600	1	10/14/2019 08:38	WG1362334
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2019 08:38	WG1362334
Naphthalene	0.0337		0.0200	1	10/14/2019 08:38	WG1362334
Phenanthrene	0.0401		0.00600	1	10/14/2019 08:38	WG1362334
Pyrene	0.0153		0.00600	1	10/14/2019 08:38	WG1362334
1-Methylnaphthalene	0.0358		0.0200	1	10/14/2019 08:38	WG1362334
2-Methylnaphthalene	0.0907	J6	0.0200	1	10/14/2019 08:38	WG1362334
2-Chloronaphthalene	ND		0.0200	1	10/14/2019 08:38	WG1362334
(S) p-Terphenyl-d14	61.9		23.0-120		10/14/2019 08:38	WG1362334
(S) Nitrobenzene-d5	75.8		14.0-149		10/14/2019 08:38	WG1362334
(S) 2-Fluorobiphenyl	59.8		34.0-125		10/14/2019 08:38	WG1362334



Collected date/time: 10/11/19 11:20

L1149400

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	59.4		1	10/17/2019 04:34	WG1362697

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	17.6		1.00	1	10/14/2019 01:19	WG1362298

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	10/14/2019 01:19	WG1362268

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.38	T8	1	10/12/2019 20:00	WG1362065

Sample Narrative:

L1149400-02 WG1362065: 8.38 at 17.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	8280		10.0	1	10/15/2019 21:11	WG1362887

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0300	1	10/14/2019 21:47	WG1362424

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.75		2.00	1	10/14/2019 00:41	WG1362298
Barium	1780		0.500	1	10/14/2019 00:41	WG1362298
Cadmium	ND		0.500	1	10/14/2019 00:41	WG1362298
Chromium	17.6		1.00	1	10/14/2019 00:41	WG1362298
Copper	67.8		2.00	1	10/14/2019 00:41	WG1362298
Lead	7.37		0.500	1	10/14/2019 00:41	WG1362298
Nickel	13.1		2.00	1	10/14/2019 00:41	WG1362298
Selenium	ND		2.00	1	10/14/2019 00:41	WG1362298
Silver	ND		1.00	1	10/14/2019 00:41	WG1362298
Zinc	72.5		5.00	1	10/14/2019 00:41	WG1362298

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0481		0.000500	1	10/16/2019 01:05	WG1363416
Toluene	0.0717		0.00500	1	10/16/2019 01:05	WG1363416
Ethylbenzene	0.00644		0.000500	1	10/16/2019 01:05	WG1363416
Total Xylene	0.0642		0.00150	1	10/16/2019 01:05	WG1363416
TPH (GC/FID) Low Fraction	1.33		0.100	1	10/16/2019 01:05	WG1363416



Collected date/time: 10/11/19 11:20

L1149400

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	82.9		77.0-120		10/16/2019 01:05	WG1363416
(S) a,a,a-Trifluorotoluene(PID)	87.4		72.0-128		10/16/2019 01:05	WG1363416

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	161		20.0	5	10/14/2019 04:21	WG1362319
(S) o-Terphenyl	66.6		18.0-148		10/14/2019 04:21	WG1362319

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0107		0.00600	1	10/14/2019 13:23	WG1362334
Acenaphthene	0.0100		0.00600	1	10/14/2019 13:23	WG1362334
Acenaphthylene	ND		0.00600	1	10/14/2019 13:23	WG1362334
Benzo(a)anthracene	0.00625		0.00600	1	10/14/2019 13:23	WG1362334
Benzo(a)pyrene	0.00647		0.00600	1	10/14/2019 13:23	WG1362334
Benzo(b)fluoranthene	0.00774		0.00600	1	10/14/2019 13:23	WG1362334
Benzo(g,h,i)perylene	ND		0.00600	1	10/14/2019 13:23	WG1362334
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2019 13:23	WG1362334
Chrysene	0.00708		0.00600	1	10/14/2019 13:23	WG1362334
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2019 13:23	WG1362334
Fluoranthene	0.0156		0.00600	1	10/14/2019 13:23	WG1362334
Fluorene	0.0256		0.00600	1	10/14/2019 13:23	WG1362334
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2019 13:23	WG1362334
Naphthalene	0.0802		0.0200	1	10/14/2019 13:23	WG1362334
Phenanthrene	0.0705		0.00600	1	10/14/2019 13:23	WG1362334
Pyrene	0.0310		0.00600	1	10/14/2019 13:23	WG1362334
1-Methylnaphthalene	0.0826		0.0200	1	10/14/2019 13:23	WG1362334
2-Methylnaphthalene	0.217		0.0200	1	10/14/2019 13:23	WG1362334
2-Chloronaphthalene	ND		0.0200	1	10/14/2019 13:23	WG1362334
(S) p-Terphenyl-d14	58.4		23.0-120		10/14/2019 13:23	WG1362334
(S) Nitrobenzene-d5	82.7		14.0-149		10/14/2019 13:23	WG1362334
(S) 2-Fluorobiphenyl	51.4		34.0-125		10/14/2019 13:23	WG1362334

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 10/11/19 11:30

L1149400

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.74		2.00	1	10/14/2019 00:44	WG1362298

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3460616-1 10/14/19 01:08

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1149400-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1149400-02 10/14/19 01:19 • (DUP) R3460616-7 10/14/19 01:20

	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)

(LCS) R3460616-2 10/14/19 01:09

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	23.2	96.5	80.0-120	

L1148616-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1148616-03 10/14/19 01:09 • (MS) R3460616-3 10/14/19 01:10 • (MSD) R3460616-4 10/14/19 01:10

	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	15.2	16.0	75.9	80.0	1	75.0-125			5.25	20

L1148616-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1148616-03 10/14/19 01:09 • (MS) R3460616-5 10/14/19 01:11

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Chromium,Hexavalent	726	ND	980	135	50	75.0-125	J5



L1149195-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1149195-01 10/12/19 20:00 • (DUP) R3460449-2 10/12/19 20:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.01	7.99	1	0.250		1

Sample Narrative:

OS: 8.01 at 19.1C

DUP: 7.99 at 19.1C

Laboratory Control Sample (LCS)

(LCS) R3460449-1 10/12/19 20:00

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

Sample Narrative:

LCS: 9.98 at 19.8C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3461371-1 10/15/19 21:11

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL 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

L1148798-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1148798-06 10/15/19 21:11 • (DUP) R3461371-3 10/15/19 21:11

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	888	885	1	0.338		20

L1149158-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1149158-02 10/15/19 21:11 • (DUP) R3461371-4 10/15/19 21:11

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	523	523	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3461371-2 10/15/19 21:11

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	393	394	100	85.0-115	



Method Blank (MB)

(MB) R3460958-1 10/14/19 21:19

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.00280	0.0300

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

(LCS) R3460958-2 10/14/19 21:21 • (LCSD) R3460958-3 10/14/19 21:23

	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	0.500	0.435	0.438	87.0	87.7	80.0-120			0.763	20

L1149400-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1149400-01 10/14/19 21:25 • (MS) R3460958-4 10/14/19 21:32 • (MSD) R3460958-5 10/14/19 21:34

	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	0.389	0.450	73.6	85.7	1	75.0-125	J6		14.4	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3460630-1 10/13/19 23:35

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	U		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) R3460630-2 10/13/19 23:37 • (LCSD) R3460630-3 10/13/19 23:40

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	96.1	95.2	96.1	95.2	80.0-120			1.02	20
Barium	100	103	102	103	102	80.0-120			0.733	20
Cadmium	100	95.9	95.4	95.9	95.4	80.0-120			0.575	20
Chromium	100	97.8	97.4	97.8	97.4	80.0-120			0.452	20
Copper	100	98.1	97.6	98.1	97.6	80.0-120			0.502	20
Lead	100	98.2	97.6	98.2	97.6	80.0-120			0.588	20
Nickel	100	97.5	96.9	97.5	96.9	80.0-120			0.552	20
Selenium	100	98.1	96.2	98.1	96.2	80.0-120			1.86	20
Silver	20.0	17.6	17.5	87.8	87.6	80.0-120			0.229	20
Zinc	100	95.2	94.7	95.2	94.7	80.0-120			0.507	20

L1147522-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1147522-02 10/13/19 23:42 • (MS) R3460630-6 10/13/19 23:50 • (MSD) R3460630-7 10/13/19 23:52

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	13.2	107	104	93.4	90.8	1	75.0-125			2.44	20
Barium	100	101	199	205	98.0	105	1	75.0-125			3.43	20
Cadmium	100	0.0981	95.9	91.9	95.8	91.8	1	75.0-125			4.21	20
Chromium	100	17.6	110	108	92.4	90.8	1	75.0-125			1.42	20
Copper	100	6.18	107	104	101	97.5	1	75.0-125			3.19	20
Lead	100	10.7	111	109	100	98.1	1	75.0-125			2.08	20
Nickel	100	7.64	108	106	100	98.7	1	75.0-125			1.35	20



L1149400-01,02,03

L1147522-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1147522-02 10/13/19 23:42 • (MS) R3460630-6 10/13/19 23:50 • (MSD) R3460630-7 10/13/19 23:52

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	0.876	96.9	92.5	96.1	91.7	1	75.0-125			4.64	20
Silver	20.0	U	17.2	16.3	86.1	81.7	1	75.0-125			5.29	20
Zinc	100	48.7	140	142	91.7	92.9	1	75.0-125			0.863	20

L1147522-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1147522-08 10/13/19 23:55 • (MS) R3460630-9 10/14/19 00:05 • (MSD) R3460630-10 10/14/19 00:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.45	98.6	95.0	96.1	92.6	1	75.0-125			3.69	20
Barium	100	71.9	165	169	93.6	97.4	1	75.0-125			2.30	20
Cadmium	100	1.27	97.8	93.9	96.5	92.6	1	75.0-125			4.08	20
Chromium	100	3.74	101	96.4	97.3	92.6	1	75.0-125			4.77	20
Copper	100	2.19	102	98.5	100	96.4	1	75.0-125			3.59	20
Lead	100	4.97	103	100	98.0	95.5	1	75.0-125			2.47	20
Nickel	100	3.96	102	98.9	98.4	94.9	1	75.0-125			3.47	20
Selenium	100	U	98.1	94.7	98.1	94.7	1	75.0-125			3.49	20
Silver	20.0	U	17.6	16.7	88.1	83.5	1	75.0-125			5.39	20
Zinc	100	111	182	196	71.0	84.2	1	75.0-125	J6		6.98	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3461451-3 10/15/19 23:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000136	U	0.000120	0.000500
Toluene	0.000233	U	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0264	U	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	94.0			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	96.9			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)

(LCS) R3461451-1 10/15/19 21:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0443	88.6	76.0-121	
Toluene	0.0500	0.0427	85.4	80.0-120	
Ethylbenzene	0.0500	0.0443	88.6	80.0-124	
Total Xylene	0.150	0.135	90.0	37.0-160	
(S) a,a,a-Trifluorotoluene(FID)			93.7	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			94.5	72.0-128	

Laboratory Control Sample (LCS)

(LCS) R3461451-2 10/15/19 22:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.35	97.3	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			102	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			103	72.0-128	

Method Blank (MB)

(MB) R3460641-1 10/14/19 00:52

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	73.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3460641-2 10/14/19 01:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	34.1	68.2	50.0-150	
(S) o-Terphenyl		71.6		18.0-148	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3460782-2 10/14/19 06:48

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	87.3			14.0-149
(S) 2-Fluorobiphenyl	85.4			34.0-125
(S) p-Terphenyl-d14	79.0			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3460782-1 10/14/19 06:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0671	83.9	50.0-126	
Acenaphthene	0.0800	0.0686	85.8	50.0-120	
Acenaphthylene	0.0800	0.0713	89.1	50.0-120	
Benzo(a)anthracene	0.0800	0.0670	83.8	45.0-120	
Benzo(a)pyrene	0.0800	0.0580	72.5	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0643	80.4	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0689	86.1	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0663	82.9	49.0-125	
Chrysene	0.0800	0.0661	82.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0706	88.3	47.0-125	
Fluoranthene	0.0800	0.0685	85.6	49.0-129	



Laboratory Control Sample (LCS)

(LCS) R3460782-1 10/14/19 06:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0695	86.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0706	88.3	46.0-125	
Naphthalene	0.0800	0.0671	83.9	50.0-120	
Phenanthrene	0.0800	0.0681	85.1	47.0-120	
Pyrene	0.0800	0.0624	78.0	43.0-123	
1-Methylnaphthalene	0.0800	0.0687	85.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0657	82.1	50.0-120	
2-Chloronaphthalene	0.0800	0.0684	85.5	50.0-120	
(S) Nitrobenzene-d5			87.1	14.0-149	
(S) 2-Fluorobiphenyl			83.8	34.0-125	
(S) p-Terphenyl-d14			76.5	23.0-120	

L1149400-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1149400-01 10/14/19 08:38 • (MS) R3460782-3 10/14/19 08:59 • (MSD) R3460782-4 10/14/19 09:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0800	ND	0.0569	0.0521	71.1	65.1	1	10.0-145			8.81	30
Acenaphthene	0.0800	ND	0.0492	0.0482	61.5	60.3	1	14.0-127			2.05	27
Acenaphthylene	0.0800	ND	0.0522	0.0510	65.3	63.8	1	21.0-124			2.33	25
Benzo(a)anthracene	0.0800	ND	0.0492	0.0484	61.5	60.5	1	10.0-139			1.64	30
Benzo(a)pyrene	0.0800	ND	0.0518	0.0499	64.8	62.4	1	10.0-141			3.74	31
Benzo(b)fluoranthene	0.0800	ND	0.0492	0.0466	61.5	58.3	1	10.0-140			5.43	36
Benzo(g,h,i)perylene	0.0800	ND	0.0532	0.0532	66.5	66.5	1	10.0-140			0.000	33
Benzo(k)fluoranthene	0.0800	ND	0.0496	0.0504	62.0	63.0	1	10.0-137			1.60	31
Chrysene	0.0800	ND	0.0506	0.0501	63.3	62.6	1	10.0-145			0.993	30
Dibenz(a,h)anthracene	0.0800	ND	0.0546	0.0559	68.3	69.9	1	10.0-132			2.35	31
Fluoranthene	0.0800	ND	0.0523	0.0463	65.4	57.9	1	10.0-153			12.2	33
Fluorene	0.0800	0.0108	0.0543	0.0530	54.4	52.8	1	11.0-130			2.42	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0523	0.0531	65.4	66.4	1	10.0-137			1.52	32
Naphthalene	0.0800	0.0337	0.0728	0.0671	48.9	41.8	1	10.0-135			8.15	27
Phenanthrene	0.0800	0.0401	0.0750	0.0652	43.6	31.4	1	10.0-144			14.0	31
Pyrene	0.0800	0.0153	0.0566	0.0505	51.6	44.0	1	10.0-148			11.4	35
1-Methylnaphthalene	0.0800	0.0358	0.0683	0.0639	40.6	35.1	1	10.0-142			6.66	28
2-Methylnaphthalene	0.0800	0.0907	0.102	0.0940	14.1	4.12	1	10.0-137		J6	8.16	28
2-Chloronaphthalene	0.0800	ND	0.0482	0.0469	60.3	58.6	1	29.0-120			2.73	24
(S) Nitrobenzene-d5					82.3	83.5		14.0-149				
(S) 2-Fluorobiphenyl					56.4	59.1		34.0-125				
(S) p-Terphenyl-d14					60.1	64.0		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.

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

J	The identification of the analyte is acceptable; the reported value is an estimate.
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 ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	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 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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.



[illegible]

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: <i>ENTCONGTCO</i>	<i>1149400</i>
Cooler Received/Opened On: <i>10/12/16</i> <i>8:45</i> Temperature: <i>0.8</i>	
Received By: <i>Willie Taylor</i>	
Signature: <i>Willie Taylor</i>	

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?			