

September 28, 2018

HRL Compliance Solutions- CO

Sample Delivery Group: L1028050
Samples Received: 09/21/2018
Project Number:
Description: R.L Bayless - Philadelphia Creek 32
Site: PC #32 PIT
Report To: Kris Rowe
2385 F ½ Road
Grand Junction, CO 81505

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.



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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



PIT - 092018 L1028050-01 Solid

Collected by

Casey Richardson

Collected date/time

09/20/18 11:12

Received date/time

09/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1170434	1	09/25/18 09:12	09/27/18 00:29	TRB
Calculated Results	WG1170285	1	09/24/18 06:35	09/26/18 11:52	EEM
Wet Chemistry by Method 3060A/7196A	WG1170986	10	09/25/18 14:47	09/26/18 11:52	EEM
Wet Chemistry by Method 9045D	WG1170971	1	09/26/18 08:37	09/26/18 10:06	AMB
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 14:27	TCT
Metals (ICP) by Method 6010B	WG1170285	1	09/24/18 06:35	09/25/18 20:45	ST
Volatile Organic Compounds (GC) by Method 8015/8021	WG1171536	1	09/25/18 09:22	09/26/18 18:04	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1170660	1	09/24/18 11:20	09/24/18 17:07	MTJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1171868	1	09/27/18 07:11	09/27/18 19:54	DMG

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

ACCOUNT:

HRL Compliance Solutions- CO

PROJECT:

SDG:

L1028050

DATE/TIME:

09/28/18 16:43

PAGE:

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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



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.41		1	09/27/2018 00:29	WG1170434

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium, Trivalent	10.0		1.00	1	09/26/2018 11:52	WG1170285

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		20.0	10	09/26/2018 11:52	WG1170986

Sample Narrative:

L1028050-01 WG1170986: Diluted due to matrix

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.68	T8	1	09/26/2018 10:06	WG1170971

Sample Narrative:

L1028050-01 WG1170971: 8.68 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	412		10.0	1	09/28/2018 13:30	WG1172960

Mercury by Method 7471A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	0.0543		0.0200	1	09/25/2018 14:27	WG1170439

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.74		2.00	1	09/25/2018 20:45	WG1170285
Barium	604		0.500	1	09/25/2018 20:45	WG1170285
Cadmium	0.516		0.500	1	09/25/2018 20:45	WG1170285
Chromium	10.0		1.00	1	09/25/2018 20:45	WG1170285
Copper	28.9		2.00	1	09/25/2018 20:45	WG1170285
Lead	13.5		0.500	1	09/25/2018 20:45	WG1170285
Nickel	18.5		2.00	1	09/25/2018 20:45	WG1170285
Selenium	ND		2.00	1	09/25/2018 20:45	WG1170285
Silver	ND		1.00	1	09/25/2018 20:45	WG1170285
Zinc	67.3		5.00	1	09/25/2018 20:45	WG1170285



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00203		0.000500	1	09/26/2018 18:04	WG1171536
Toluene	ND		0.00500	1	09/26/2018 18:04	WG1171536
Ethylbenzene	0.000672		0.000500	1	09/26/2018 18:04	WG1171536
Total Xylene	0.00464	<u>B</u>	0.00150	1	09/26/2018 18:04	WG1171536
TPH (GC/FID) Low Fraction	0.210		0.100	1	09/26/2018 18:04	WG1171536
(S) a,a,a-Trifluorotoluene(FID)	84.7		77.0-120		09/26/2018 18:04	WG1171536
(S) a,a,a-Trifluorotoluene(PID)	84.5		72.0-128		09/26/2018 18:04	WG1171536

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	09/24/2018 17:07	WG1170660
(S) o-Terphenyl	58.6		18.0-148		09/24/2018 17:07	WG1170660

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Acenaphthene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Acenaphthylene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Benzo(a)anthracene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Benzo(a)pyrene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Benzo(b)fluoranthene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Benzo(g,h,i)perylene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Benzo(k)fluoranthene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Chrysene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Dibenz(a,h)anthracene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Fluoranthene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Fluorene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Naphthalene	ND		0.0200	1	09/27/2018 19:54	WG1171868
Phenanthrene	ND		0.00600	1	09/27/2018 19:54	WG1171868
Pyrene	ND		0.00600	1	09/27/2018 19:54	WG1171868
1-Methylnaphthalene	ND		0.0200	1	09/27/2018 19:54	WG1171868
2-Methylnaphthalene	ND		0.0200	1	09/27/2018 19:54	WG1171868
2-Chloronaphthalene	ND		0.0200	1	09/27/2018 19:54	WG1171868
(S) p-Terphenyl-d14	75.6		23.0-120		09/27/2018 19:54	WG1171868
(S) Nitrobenzene-d5	77.8		14.0-149		09/27/2018 19:54	WG1171868
(S) 2-Fluorobiphenyl	82.2		34.0-125		09/27/2018 19:54	WG1171868



Method Blank (MB)

(MB) R3345242-1 09/26/18 11:42

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

L1028051-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1028051-01 09/26/18 11:53 • (DUP) R3345242-8 09/26/18 11:54

	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

L1028243-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1028243-05 09/26/18 12:07 • (DUP) R3345242-9 09/26/18 12:07

	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

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

(LCS) R3345242-2 09/26/18 11:42 • (LCSD) R3345242-3 09/26/18 11:42

	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	24.3	24.1	101	101	80.0-120			0.661	20

L1027992-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027992-01 09/26/18 11:48 • (MS) R3345242-4 09/26/18 11:49 • (MSD) R3345242-5 09/26/18 11:49

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	16.8	17.2	83.8	85.8	1	75.0-125			2.36	20

L1027992-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1027992-01 09/26/18 11:48 • (MS) R3345242-7 09/26/18 11:50

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Chromium,Hexavalent	688	ND	613	89.0	50	75.0-125	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1028079-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1028079-02 09/26/18 10:06 • (DUP) R3345302-3 09/26/18 10:06

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	5.80	5.77	1	0.519		1

Sample Narrative:
OS: 5.8 at 21.7C
DUP: 5.77 at 21.6C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1028434-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1028434-02 09/26/18 10:06 • (DUP) R3345302-4 09/26/18 10:06

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.31	8.27	1	0.483		1

Sample Narrative:
OS: 8.31 at 21.2C
DUP: 8.27 at 21C

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

(LCS) R3345302-1 09/26/18 10:06 • (LCSD) R3345302-2 09/26/18 10:06

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	su	su	su	%	%	%			%	%
pH	10.0	10.0	10.0	100	100	99.0-101			0.100	1

Sample Narrative:
LCS: 10 at 19.4C
LCSD: 10.01 at 19.4C

Method Blank (MB)

(MB) R3346064-1 09/28/18 13:30

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

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

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
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) R3345048-1 09/25/18 19:56

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	1.71	J	0.590	5.00

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3345048-2 09/25/18 19:58 • (LCSD) R3345048-3 09/25/18 20:01

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 %
Arsenic	100	93.5	83.9	93.5	83.9	80.0-120			10.8	20
Barium	100	100	88.8	100	88.8	80.0-120			11.9	20
Cadmium	100	98.7	89.2	98.7	89.2	80.0-120			10.1	20
Chromium	100	100	88.5	100	88.5	80.0-120			12.7	20
Copper	100	102	89.8	102	89.8	80.0-120			12.6	20
Lead	100	98.8	88.9	98.8	88.9	80.0-120			10.5	20
Nickel	100	98.8	87.1	98.8	87.1	80.0-120			12.6	20
Selenium	100	91.2	81.7	91.2	81.7	80.0-120			11.0	20
Silver	20.0	19.2	17.7	96.1	88.6	80.0-120			8.23	20
Zinc	100	97.8	88.5	97.8	88.5	80.0-120			10.0	20

L1028242-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1028242-04 09/25/18 20:03 • (MS) R3345048-6 09/25/18 20:12 • (MSD) R3345048-7 09/25/18 20:15

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	121	3.50	106	124	85.0	99.6	1	75.0-125			15.4	20
Barium	121	17.0	114	120	80.2	85.4	1	75.0-125			5.43	20
Cadmium	121	0.116	108	119	89.5	98.3	1	75.0-125			9.29	20
Chromium	121	10.9	104	115	77.2	86.2	1	75.0-125			9.97	20
Copper	121	2.90	114	122	91.5	98.4	1	75.0-125			7.09	20
Lead	121	2.86	108	121	86.7	97.7	1	75.0-125			11.6	20



L1028242-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1028242-04 09/25/18 20:03 • (MS) R3345048-6 09/25/18 20:12 • (MSD) R3345048-7 09/25/18 20:15

	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	%	%		%			%	%
Nickel	121	5.08	104	116	82.0	91.9	1	75.0-125			10.8	20
Selenium	121	U	99.6	107	82.3	88.3	1	75.0-125			7.02	20
Silver	24.2	U	22.4	24.0	92.6	99.1	1	75.0-125			6.71	20
Zinc	121	10.5	115	125	86.5	94.2	1	75.0-125			7.76	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3345649-5 09/26/18 14:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000491	J	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)	99.9			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	100			72.0-128

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3345649-1 09/26/18 12:25 • (LCSD) R3345649-2 09/26/18 12:49

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	0.0544	0.0542	109	108	76.0-121			0.413	20
Toluene	0.0500	0.0518	0.0517	104	103	80.0-120			0.116	20
Ethylbenzene	0.0500	0.0537	0.0535	107	107	80.0-124			0.323	20
Total Xylene	0.150	0.164	0.163	110	109	37.0-160			0.610	20
(S) a,a,a-Trifluorotoluene(FID)				99.6	99.6	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				99.0	99.3	72.0-128				

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

(LCS) R3345649-3 09/26/18 13:13 • (LCSD) R3345649-4 09/26/18 13:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.47	5.58	99.4	101	72.0-127			2.09	20
(S) a,a,a-Trifluorotoluene(FID)				104	104	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				104	105	72.0-128				



L1027953-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027953-01 09/26/18 16:28 • (MS) R3345649-6 09/26/18 23:52 • (MSD) R3345649-7 09/27/18 00:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	ND	1.13	1.20	89.5	95.6	25	10.0-155			6.63	32
Toluene	0.0500	ND	1.09	1.16	86.9	93.2	25	10.0-160			6.94	34
Ethylbenzene	0.0500	0.0455	1.22	1.32	94.3	102	25	10.0-160			7.24	32
Total Xylene	0.150	0.172	3.81	4.09	97.0	104	25	10.0-160			7.09	32
(S) a,a,a-Trifluorotoluene(FID)					97.6	99.3		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					99.2	99.2		72.0-128				

Sample Narrative:
OS: Non-target compounds too high to run at a lower dilution.

L1027953-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027953-01 09/26/18 16:28 • (MS) R3345649-8 09/27/18 00:42 • (MSD) R3345649-9 09/27/18 01:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	37.3	162	158	90.5	87.7	25	10.0-151			2.41	28
(S) a,a,a-Trifluorotoluene(FID)					105	105		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					107	108		72.0-128				

Sample Narrative:
OS: 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) R3344622-1 09/24/18 14:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	0.942	⬇	0.769	4.00
(S) o-Terphenyl	66.8			18.0-148

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R3344622-2 09/24/18 14:17 • (LCSD) R3344622-3 09/24/18 14:28

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	36.4	36.6	72.8	73.2	50.0-150			0.548	20
(S) o-Terphenyl				86.3	83.6	18.0-148				

L1027472-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1027472-01 09/24/18 14:39 • (MS) R3344622-4 09/24/18 14:50 • (MSD) R3344622-5 09/24/18 15:01

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	50.0	ND	25.1	30.2	50.2	60.4	1	50.0-150			18.4	20
(S) o-Terphenyl					59.2	64.4		18.0-148				



Method Blank (MB)

(MB) R3345930-3 09/27/18 19:32

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	88.1			14.0-149
(S) 2-Fluorobiphenyl	94.4			34.0-125
(S) p-Terphenyl-d14	92.9			23.0-120

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

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

(LCS) R3345930-1 09/27/18 18:48 • (LCSD) R3345930-2 09/27/18 19:10

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	0.0610	0.0610	76.3	76.3	50.0-126			0.000	20
Acenaphthene	0.0800	0.0617	0.0624	77.1	78.0	50.0-120			1.13	20
Acenaphthylene	0.0800	0.0597	0.0619	74.6	77.4	50.0-120			3.62	20
Benzo(a)anthracene	0.0800	0.0645	0.0634	80.6	79.3	45.0-120			1.72	20
Benzo(a)pyrene	0.0800	0.0568	0.0559	71.0	69.9	42.0-120			1.60	20
Benzo(b)fluoranthene	0.0800	0.0664	0.0651	83.0	81.4	42.0-121			1.98	20
Benzo(g,h,i)perylene	0.0800	0.0737	0.0733	92.1	91.6	45.0-125			0.544	20
Benzo(k)fluoranthene	0.0800	0.0722	0.0719	90.3	89.9	49.0-125			0.416	20
Chrysene	0.0800	0.0684	0.0676	85.5	84.5	49.0-122			1.18	20
Dibenz(a,h)anthracene	0.0800	0.0746	0.0735	93.3	91.9	47.0-125			1.49	20
Fluoranthene	0.0800	0.0695	0.0682	86.9	85.3	49.0-129			1.89	20

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

(LCS) R3345930-1 09/27/18 18:48 • (LCSD) R3345930-2 09/27/18 19:10

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 %
Fluorene	0.0800	0.0628	0.0627	78.5	78.4	49.0-120			0.159	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0739	0.0732	92.4	91.5	46.0-125			0.952	20
Naphthalene	0.0800	0.0607	0.0622	75.9	77.8	50.0-120			2.44	20
Phenanthrene	0.0800	0.0645	0.0638	80.6	79.8	47.0-120			1.09	20
Pyrene	0.0800	0.0633	0.0633	79.1	79.1	43.0-123			0.000	20
1-Methylnaphthalene	0.0800	0.0682	0.0690	85.3	86.3	51.0-121			1.17	20
2-Methylnaphthalene	0.0800	0.0622	0.0634	77.8	79.3	50.0-120			1.91	20
2-Chloronaphthalene	0.0800	0.0618	0.0629	77.3	78.6	50.0-120			1.76	20
(S) Nitrobenzene-d5				75.3	83.6	14.0-149				
(S) 2-Fluorobiphenyl				88.4	87.3	34.0-125				
(S) p-Terphenyl-d14				83.1	83.1	23.0-120				

L1028052-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1028052-08 09/27/18 22:49 • (MS) R3345930-4 09/27/18 23:11 • (MSD) R3345930-5 09/27/18 23:33

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 %
Anthracene	0.0928	U	0.0714	0.0660	77.0	71.1	1	10.0-145			7.93	30
Acenaphthene	0.0928	U	0.0681	0.0638	73.4	68.8	1	14.0-127			6.51	27
Acenaphthylene	0.0928	U	0.0692	0.0644	74.6	69.4	1	21.0-124			7.29	25
Benzo(a)anthracene	0.0928	U	0.0708	0.0650	76.4	70.1	1	10.0-139			8.53	30
Benzo(a)pyrene	0.0928	U	0.0746	0.0698	80.4	75.3	1	10.0-141			6.59	31
Benzo(b)fluoranthene	0.0928	U	0.0741	0.0671	79.9	72.4	1	10.0-140			9.85	36
Benzo(g,h,i)perylene	0.0928	U	0.0779	0.0715	84.0	77.1	1	10.0-140			8.53	33
Benzo(k)fluoranthene	0.0928	U	0.0748	0.0733	80.6	79.0	1	10.0-137			2.04	31
Chrysene	0.0928	U	0.0744	0.0695	80.3	74.9	1	10.0-145			6.93	30
Dibenz(a,h)anthracene	0.0928	U	0.0788	0.0720	85.0	77.6	1	10.0-132			9.07	31
Fluoranthene	0.0928	U	0.0750	0.0701	80.9	75.6	1	10.0-153			6.71	33
Fluorene	0.0928	U	0.0688	0.0641	74.1	69.1	1	11.0-130			6.98	29
Indeno(1,2,3-cd)pyrene	0.0928	U	0.0778	0.0720	83.9	77.6	1	10.0-137			7.74	32
Naphthalene	0.0928	0.00428	0.0686	0.0644	69.4	64.8	1	10.0-135			6.45	27
Phenanthrene	0.0928	U	0.0696	0.0654	75.0	70.5	1	10.0-144			6.19	31
Pyrene	0.0928	U	0.0706	0.0656	76.1	70.8	1	10.0-148			7.32	35
1-Methylnaphthalene	0.0928	0.00125	0.0771	0.0718	81.8	76.0	1	10.0-142			7.17	28
2-Methylnaphthalene	0.0928	0.00379	0.0701	0.0652	71.5	66.2	1	10.0-137			7.37	28
2-Chloronaphthalene	0.0928	U	0.0704	0.0647	75.9	69.8	1	29.0-120			8.41	24
(S) Nitrobenzene-d5					82.7	72.2		14.0-149				
(S) 2-Fluorobiphenyl					86.3	77.0		34.0-125				
(S) p-Terphenyl-d14					82.1	72.8		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

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
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	T 104704245-17-14
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.



