

March 15, 2019

Absaroka Energy & Environmental - WY

Sample Delivery Group: L1077139
Samples Received: 03/08/2019
Project Number: SDE.CO.0171 SDE COL
Description: Ray Ranch 1-16H Spill support
Site: 462206
Report To: Max Moran
112 High St
Buffalo, WY 82834

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.



SDE_SS_RR_01 L1077139-01 Solid

Collected by
Maxwell Moran

Collected date/time
03/05/19 14:10

Received date/time
03/08/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1247742	1	03/14/19 11:47	03/14/19 11:47	TRB	Mt. Juliet, TN
Calculated Results	WG1248292	1	03/12/19 05:45	03/12/19 20:22	TRB	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1247872	1	03/10/19 08:41	03/11/19 12:23	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1247537	1	03/09/19 12:20	03/09/19 13:25	TH	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1248447	1	03/12/19 14:02	03/12/19 22:35	TCC	Mt. Juliet, TN
Mercury by Method 7471A	WG1248361	1	03/11/19 18:28	03/12/19 13:16	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1248292	1	03/12/19 05:45	03/12/19 20:22	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1248232	100	03/09/19 21:00	03/11/19 20:00	ACE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1247914	8	03/09/19 21:00	03/10/19 19:16	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1248379	40	03/12/19 08:26	03/13/19 13:10	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1247968	1	03/12/19 09:30	03/12/19 18:10	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1247968	20	03/12/19 09:30	03/13/19 10:40	DMG	Mt. Juliet, TN

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

SDE_SS_RR_CFM_01 L1077139-02 Solid

Collected by
Maxwell Moran

Collected date/time
03/05/19 14:30

Received date/time
03/08/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1247742	1	03/14/19 11:51	03/14/19 11:51	TRB	Mt. Juliet, TN
Calculated Results	WG1248292	1	03/12/19 05:45	03/12/19 20:24	TRB	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1247872	1	03/10/19 08:41	03/11/19 12:23	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1247537	1	03/09/19 12:20	03/09/19 13:25	TH	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1248447	1	03/12/19 14:02	03/12/19 22:35	TCC	Mt. Juliet, TN
Mercury by Method 7471A	WG1248361	1	03/11/19 18:28	03/12/19 13:19	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1248292	1	03/12/19 05:45	03/12/19 20:24	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1248232	1	03/09/19 21:00	03/11/19 17:32	ACE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1248140	1	03/09/19 21:00	03/13/19 19:58	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1248379	1	03/12/19 08:26	03/12/19 17:40	DMW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1247968	1	03/12/19 09:30	03/13/19 10:42	DMG	Mt. Juliet, TN

ACCOUNT:

Absaroka Energy & Environmental - WY

PROJECT:

SDE.CO.0171 SDE COL

SDG:

L1077139

DATE/TIME:

03/15/19 11:07

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	1.77		1	03/14/2019 11:47	WG1247742

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	10.8		0.140	1.00	1	03/12/2019 20:22	WG1248292

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	U		0.640	2.00	1	03/11/2019 12:23	WG1247872

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.27	T8	1	03/09/2019 13:25	WG1247537

Sample Narrative:

L1077139-01 WG1247537: 9.27 at 20.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4950		10.0	1	03/12/2019 22:35	WG1248447

Mercury by Method 7471A

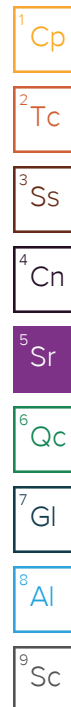
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0135	J	0.00280	0.0200	1	03/12/2019 13:16	WG1248361

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.962	J	0.460	2.00	1	03/12/2019 20:22	WG1248292
Barium	1410		0.170	0.500	1	03/12/2019 20:22	WG1248292
Boron	U		1.26	10.0	1	03/12/2019 20:22	WG1248292
Cadmium	U		0.0700	0.500	1	03/12/2019 20:22	WG1248292
Chromium	10.8		0.140	1.00	1	03/12/2019 20:22	WG1248292
Copper	8.23		0.530	2.00	1	03/12/2019 20:22	WG1248292
Lead	4.52		0.190	0.500	1	03/12/2019 20:22	WG1248292
Nickel	6.50		0.490	2.00	1	03/12/2019 20:22	WG1248292
Selenium	U		0.620	2.00	1	03/12/2019 20:22	WG1248292
Silver	U		0.120	1.00	1	03/12/2019 20:22	WG1248292
Zinc	33.0		0.590	5.00	1	03/12/2019 20:22	WG1248292

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	125		2.17	10.0	100	03/11/2019 20:00	WG1248232
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	96.5			77.0-120		03/11/2019 20:00	WG1248232





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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00894		0.00320	0.00800	8	03/10/2019 19:16	WG1247914
Toluene	0.160		0.0100	0.0400	8	03/10/2019 19:16	WG1247914
Ethylbenzene	0.419		0.00424	0.0200	8	03/10/2019 19:16	WG1247914
Total Xylenes	1.98		0.0382	0.0520	8	03/10/2019 19:16	WG1247914
(S) Toluene-d8	97.6			75.0-131		03/10/2019 19:16	WG1247914
(S) Dibromofluoromethane	112			65.0-129		03/10/2019 19:16	WG1247914
(S) a,a,a-Trifluorotoluene	97.4			80.0-120		03/10/2019 19:16	WG1247914
(S) 4-Bromofluorobenzene	118			67.0-138		03/10/2019 19:16	WG1247914

Sample Narrative:

L1077139-01 WG1247914: Non-target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	11100		30.8	160	40	03/13/2019 13:10	WG1248379
(S) o-Terphenyl	0.000	J7		18.0-148		03/13/2019 13:10	WG1248379

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.387		0.0120	0.120	20	03/13/2019 10:40	WG1247968
Acenaphthene	0.430		0.0120	0.120	20	03/13/2019 10:40	WG1247968
Acenaphthylene	U		0.0120	0.120	20	03/13/2019 10:40	WG1247968
Benzo(a)anthracene	0.0161		0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Benzo(a)pyrene	0.0171		0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Benzo(b)fluoranthene	0.00847		0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Benzo(g,h,i)perylene	0.0114	J3	0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Benzo(k)fluoranthene	0.00364	J	0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Chrysene	0.0316		0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Dibenz(a,h)anthracene	U		0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Fluoranthene	0.0189	J	0.0120	0.120	20	03/13/2019 10:40	WG1247968
Fluorene	0.459		0.0120	0.120	20	03/13/2019 10:40	WG1247968
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600	1	03/12/2019 18:10	WG1247968
Naphthalene	0.848		0.0400	0.400	20	03/13/2019 10:40	WG1247968
Phenanthrene	0.625		0.0120	0.120	20	03/13/2019 10:40	WG1247968
Pyrene	0.506	J3 V	0.000600	0.00600	1	03/12/2019 18:10	WG1247968
1-Methylnaphthalene	2.24		0.0400	0.400	20	03/13/2019 10:40	WG1247968
2-Methylnaphthalene	2.94		0.0400	0.400	20	03/13/2019 10:40	WG1247968
2-Chloronaphthalene	U		0.0400	0.400	20	03/13/2019 10:40	WG1247968
(S) p-Terphenyl-d14	106			23.0-120		03/12/2019 18:10	WG1247968
(S) p-Terphenyl-d14	74.2	J7		23.0-120		03/13/2019 10:40	WG1247968
(S) Nitrobenzene-d5	0.000	J2		14.0-149		03/12/2019 18:10	WG1247968
(S) Nitrobenzene-d5	1410	J7		14.0-149		03/13/2019 10:40	WG1247968
(S) 2-Fluorobiphenyl	83.7	J7		34.0-125		03/13/2019 10:40	WG1247968
(S) 2-Fluorobiphenyl	0.000	J2		34.0-125		03/12/2019 18:10	WG1247968

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	0.341		1	03/14/2019 11:51	WG1247742

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	14.3		0.140	1.00	1	03/12/2019 20:24	WG1248292

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	U		0.640	2.00	1	03/11/2019 12:23	WG1247872

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.98	T8	1	03/09/2019 13:25	WG1247537

Sample Narrative:

L1077139-02 WG1247537: 8.98 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	112		10.0	1	03/12/2019 22:35	WG1248447

Mercury by Method 7471A

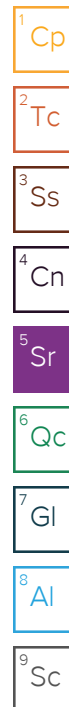
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0136	J	0.00280	0.0200	1	03/12/2019 13:19	WG1248361

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.58	J	0.460	2.00	1	03/12/2019 20:24	WG1248292
Barium	134		0.170	0.500	1	03/12/2019 20:24	WG1248292
Boron	U		1.26	10.0	1	03/12/2019 20:24	WG1248292
Cadmium	0.0974	J	0.0700	0.500	1	03/12/2019 20:24	WG1248292
Chromium	14.3		0.140	1.00	1	03/12/2019 20:24	WG1248292
Copper	11.0		0.530	2.00	1	03/12/2019 20:24	WG1248292
Lead	5.32		0.190	0.500	1	03/12/2019 20:24	WG1248292
Nickel	10.3		0.490	2.00	1	03/12/2019 20:24	WG1248292
Selenium	1.21	J	0.620	2.00	1	03/12/2019 20:24	WG1248292
Silver	U		0.120	1.00	1	03/12/2019 20:24	WG1248292
Zinc	38.9		0.590	5.00	1	03/12/2019 20:24	WG1248292

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0345	J	0.0217	0.100	1	03/11/2019 17:32	WG1248232
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	94.6			77.0-120		03/11/2019 17:32	WG1248232





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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000400	0.00100	1	03/13/2019 19:58	WG1248140
Toluene	U		0.00125	0.00500	1	03/13/2019 19:58	WG1248140
Ethylbenzene	U		0.000530	0.00250	1	03/13/2019 19:58	WG1248140
Total Xylenes	U		0.00478	0.00650	1	03/13/2019 19:58	WG1248140
(S) Toluene-d8	103			75.0-131		03/13/2019 19:58	WG1248140
(S) a,a,a-Trifluorotoluene	91.0			80.0-120		03/13/2019 19:58	WG1248140
(S) 4-Bromofluorobenzene	94.8			67.0-138		03/13/2019 19:58	WG1248140
(S) 1,2-Dichloroethane-d4	99.5			70.0-130		03/13/2019 19:58	WG1248140

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	17.4		0.769	4.00	1	03/12/2019 17:40	WG1248379
(S) o-Terphenyl	62.3			18.0-148		03/12/2019 17:40	WG1248379

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00165	U	0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Acenaphthene	0.00159	U	0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Acenaphthylene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Benzo(a)anthracene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Benzo(a)pyrene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Benzo(g,h,i)perylene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Chrysene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Dibenz(a,h)anthracene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Fluoranthene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Fluorene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Naphthalene	0.00746	U	0.00200	0.0200	1	03/13/2019 10:42	WG1247968
Phenanthrene	0.00169	U	0.000600	0.00600	1	03/13/2019 10:42	WG1247968
Pyrene	0.00148	U	0.000600	0.00600	1	03/13/2019 10:42	WG1247968
1-Methylnaphthalene	U		0.00200	0.0200	1	03/13/2019 10:42	WG1247968
2-Methylnaphthalene	0.00688	U	0.00200	0.0200	1	03/13/2019 10:42	WG1247968
2-Chloronaphthalene	U		0.00200	0.0200	1	03/13/2019 10:42	WG1247968
(S) p-Terphenyl-d14	77.4			23.0-120		03/13/2019 10:42	WG1247968
(S) Nitrobenzene-d5	59.6			14.0-149		03/13/2019 10:42	WG1247968
(S) 2-Fluorobiphenyl	71.4			34.0-125		03/13/2019 10:42	WG1247968

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



Method Blank (MB)

(MB) R3390466-1 03/11/19 11:33

	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

L1076527-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1076527-14 03/11/19 12:00 • (DUP) R3390466-3 03/11/19 12:00

	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

L1076527-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1076527-24 03/11/19 12:17 • (DUP) R3390466-4 03/11/19 12:21

	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)

(LCS) R3390466-2 03/11/19 11:42

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	20.7	86.3	80.0-120	

L1077263-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1077263-01 03/11/19 12:25 • (MS) R3390466-5 03/11/19 12:25 • (MSD) R3390466-6 03/11/19 12:26

	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	24.6	ND	20.6	18.9	83.8	76.6	1	75.0-125			8.98	20



L1077263-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1077263-01 03/11/19 12:25 • (MS) R3390466-7 03/11/19 12:27

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MS Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Chromium,Hexavalent	855	ND	688	80.5	50	75.0-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1075925-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1075925-02 03/09/19 13:25 • (DUP) R3390146-3 03/09/19 13:25

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.12	7.09	1	0.422		1

Sample Narrative:
OS: 7.12 at 22.8C
DUP: 7.09 at 22.8C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1077168-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1077168-05 03/09/19 13:25 • (DUP) R3390146-5 03/09/19 13:25

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	6.41	6.38	1	0.469		1

Sample Narrative:
OS: 6.41 at 19.7C
DUP: 6.38 at 19.7C

Laboratory Control Sample (LCS)

(LCS) R3390146-1 03/09/19 13:25

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

Sample Narrative:
LCS: 10.01 at 18.2C

Method Blank (MB)

(MB) R3390975-1 03/12/19 22:35

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

L1076483-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1076483-01 03/12/19 22:35 • (DUP) R3390975-3 03/12/19 22:35

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	479	476	1	0.628		20

L1077573-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1077573-05 03/12/19 22:35 • (DUP) R3390975-4 03/12/19 22:35

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	333	329	1	1.21		20

Laboratory Control Sample (LCS)

(LCS) R3390975-2 03/12/19 22:35

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	877	889	101	90.0-110	



Method Blank (MB)

(MB) R3390832-1 03/12/19 12:07

	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) R3390832-2 03/12/19 12:10 • (LCSD) R3390832-3 03/12/19 12:12

	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	0.519	0.517	104	103	80.0-120			0.318	20

L1076984-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1076984-24 03/12/19 12:15 • (MS) R3390832-4 03/12/19 12:17 • (MSD) R3390832-5 03/12/19 12:20

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	0.0656	0.565	0.580	99.8	103	1	75.0-125			2.69	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3391007-1 03/12/19 19:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	0.290	J	0.170	0.500
Boron	U		1.26	10.0
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) R3391007-2 03/12/19 19:19 • (LCSD) R3391007-3 03/12/19 19:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	98.7	99.2	98.7	99.2	80.0-120			0.472	20
Barium	100	105	106	105	106	80.0-120			0.409	20
Boron	100	99.7	99.4	99.7	99.4	80.0-120			0.318	20
Cadmium	100	101	102	101	102	80.0-120			0.201	20
Chromium	100	105	105	105	105	80.0-120			0.225	20
Copper	100	101	101	101	101	80.0-120			0.0779	20
Lead	100	101	102	101	102	80.0-120			0.900	20
Nickel	100	103	104	103	104	80.0-120			0.677	20
Selenium	100	101	102	101	102	80.0-120			1.11	20
Silver	20.0	19.7	19.5	98.6	97.7	80.0-120			0.886	20
Zinc	100	102	103	102	103	80.0-120			0.565	20

L1077065-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1077065-06 03/12/19 19:24 • (MS) R3391007-6 03/12/19 19:32 • (MSD) R3391007-7 03/12/19 19:34

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	ND	104	98.1	104	98.1	1	75.0-125			5.76	20
Barium	100	6.13	116	110	110	104	1	75.0-125			4.97	20
Boron	100	ND	103	98.6	103	98.6	1	75.0-125			4.15	20
Cadmium	100	ND	105	100	105	100	1	75.0-125			4.73	20
Chromium	100	2.61	111	106	108	104	1	75.0-125			4.27	20



[L1077139-01,02](#)

L1077065-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1077065-06 03/12/19 19:24 • (MS) R3391007-6 03/12/19 19:32 • (MSD) R3391007-7 03/12/19 19:34

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Copper	100	ND	106	100	105	99.8	1	75.0-125			4.94	20
Lead	100	1.43	108	102	106	101	1	75.0-125			5.43	20
Nickel	100	ND	109	104	109	103	1	75.0-125			5.13	20
Selenium	100	ND	106	99.6	106	99.6	1	75.0-125			6.02	20
Silver	20.0	ND	20.3	19.2	101	96.2	1	75.0-125			5.39	20
Zinc	100	ND	111	106	107	101	1	75.0-125			5.12	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3390557-3 03/11/19 13:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	97.2			77.0-120

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

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

(LCS) R3390557-1 03/11/19 11:30 • (LCSD) R3390557-2 03/11/19 11:52

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	5.68	5.63	103	102	72.0-127			0.879	20
(S) a,a,a-Trifluorotoluene(FID)				113	113	77.0-120				

L1077168-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1077168-05 03/11/19 21:46 • (MS) R3390557-4 03/11/19 22:07 • (MSD) R3390557-5 03/11/19 22:28

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 %
TPH (GC/FID) Low Fraction	5.93	0.605	72.9	86.1	48.8	57.7	25	10.0-151			16.6	28
(S) a,a,a-Trifluorotoluene(FID)					104	107		77.0-120				



Method Blank (MB)

(MB) R3391771-2 03/10/19 12:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	104			75.0-131
(S) Dibromofluoromethane	101			65.0-129
(S) a,a,a-Trifluorotoluene	99.7			80.0-120
(S) 4-Bromofluorobenzene	117			67.0-138

Laboratory Control Sample (LCS)

(LCS) R3391771-1 03/10/19 11:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.117	93.8	70.0-123	
Ethylbenzene	0.125	0.100	80.0	74.0-126	
Toluene	0.125	0.108	86.2	75.0-121	
Xylenes, Total	0.375	0.309	82.4	72.0-127	
(S) Toluene-d8			96.8	75.0-131	
(S) Dibromofluoromethane			106	65.0-129	
(S) a,a,a-Trifluorotoluene			97.8	80.0-120	
(S) 4-Bromofluorobenzene			116	67.0-138	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3391417-2 03/13/19 17:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	108			75.0-131
(S) a,a,a-Trifluorotoluene	93.2			80.0-120
(S) 4-Bromofluorobenzene	94.1			67.0-138
(S) 1,2-Dichloroethane-d4	96.2			70.0-130

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Laboratory Control Sample (LCS)

(LCS) R3391417-1 03/13/19 13:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.103	82.7	70.0-123	
Ethylbenzene	0.125	0.111	88.6	74.0-126	
Toluene	0.125	0.0985	78.8	75.0-121	
Xylenes, Total	0.375	0.326	86.9	72.0-127	
(S) Toluene-d8			101	75.0-131	
(S) a,a,a-Trifluorotoluene			100	80.0-120	
(S) 4-Bromofluorobenzene			96.3	67.0-138	
(S) 1,2-Dichloroethane-d4			106	70.0-130	

L1077226-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1077226-08 03/13/19 23:24 • (MS) R3391417-3 03/13/19 23:43 • (MSD) R3391417-4 03/14/19 00:02

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	0.125	U	0.382	0.946	38.2	94.6	8	10.0-149		J3	84.9	37
Ethylbenzene	0.125	2.79	2.23	4.11	0.000	132	8	10.0-160	J6	J3	59.5	38
Toluene	0.125	0.862	0.961	1.92	9.89	106	8	10.0-156	J6	J3	66.6	38
Xylenes, Total	0.375	21.0	16.6	27.4	0.000	215	8	10.0-160	J6 V	E J3 V	49.4	38
(S) Toluene-d8					80.5	105		75.0-131				
(S) a,a,a-Trifluorotoluene					96.6	98.9		80.0-120				
(S) 4-Bromofluorobenzene					109	174		67.0-138		J1		
(S) 1,2-Dichloroethane-d4					105	103		70.0-130				

Sample Narrative:

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



Method Blank (MB)

(MB) R3391132-1 03/12/19 17:04

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	85.4			18.0-148

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

(LCS) R3391132-2 03/12/19 17:16 • (LCSD) R3391132-3 03/12/19 17:28

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	42.6	44.2	85.2	88.4	50.0-150			3.69	20
(S) o-Terphenyl				103	104	18.0-148				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3390874-3 03/12/19 12:11

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	58.5			14.0-149
(S) 2-Fluorobiphenyl	69.2			34.0-125
(S) p-Terphenyl-d14	89.0			23.0-120

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) R3390874-1 03/12/19 11:29 • (LCSD) R3390874-2 03/12/19 11:50

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	0.0683	0.0608	85.4	76.0	50.0-126			11.6	20
Acenaphthene	0.0800	0.0721	0.0643	90.1	80.4	50.0-120			11.4	20
Acenaphthylene	0.0800	0.0691	0.0613	86.4	76.6	50.0-120			12.0	20
Benzo(a)anthracene	0.0800	0.0665	0.0593	83.1	74.1	45.0-120			11.4	20
Benzo(a)pyrene	0.0800	0.0620	0.0547	77.5	68.4	42.0-120			12.5	20
Benzo(b)fluoranthene	0.0800	0.0638	0.0588	79.8	73.5	42.0-121			8.16	20
Benzo(g,h,i)perylene	0.0800	0.0653	0.0589	81.6	73.6	45.0-125			10.3	20
Benzo(k)fluoranthene	0.0800	0.0717	0.0638	89.6	79.8	49.0-125			11.7	20
Chrysene	0.0800	0.0665	0.0591	83.1	73.9	49.0-122			11.8	20
Dibenz(a,h)anthracene	0.0800	0.0672	0.0603	84.0	75.4	47.0-125			10.8	20
Fluoranthene	0.0800	0.0668	0.0588	83.5	73.5	49.0-129			12.7	20



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

(LCS) R3390874-1 03/12/19 11:29 • (LCSD) R3390874-2 03/12/19 11:50

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	0.0709	0.0634	88.6	79.3	49.0-120			11.2	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0673	0.0602	84.1	75.3	46.0-125			11.1	20
Naphthalene	0.0800	0.0591	0.0511	73.9	63.9	50.0-120			14.5	20
Phenanthrene	0.0800	0.0685	0.0619	85.6	77.4	47.0-120			10.1	20
Pyrene	0.0800	0.0638	0.0577	79.8	72.1	43.0-123			10.0	20
1-Methylnaphthalene	0.0800	0.0600	0.0525	75.0	65.6	51.0-121			13.3	20
2-Methylnaphthalene	0.0800	0.0595	0.0519	74.4	64.9	50.0-120			13.6	20
2-Chloronaphthalene	0.0800	0.0668	0.0599	83.5	74.9	50.0-120			10.9	20
(S) Nitrobenzene-d5				70.4	72.3	14.0-149				
(S) 2-Fluorobiphenyl				74.2	74.9	34.0-125				
(S) p-Terphenyl-d14				83.0	76.4	23.0-120				

L1077139-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1077139-01 03/12/19 18:10 • (MS) R3390874-4 03/12/19 18:31 • (MSD) R3390874-5 03/12/19 18:52

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 %
Anthracene	0.0796	U	0.370	0.346	465	435	1	10.0-145	J5	J5	6.70	30
Acenaphthene	0.0796	U	0.0633	0.671	79.5	843	1	14.0-127		J3 J5 V3	166	27
Acenaphthylene	0.0796	U	ND	0.130	0.000	163	1	21.0-124	J6	J3 J5 V3	200	25
Benzo(a)anthracene	0.0796	0.0161	0.0849	0.0815	86.4	82.2	1	10.0-139	V3	V3	4.09	30
Benzo(a)pyrene	0.0796	0.0171	0.0723	0.0895	69.3	91.0	1	10.0-141			21.3	31
Benzo(b)fluoranthene	0.0796	0.00847	0.110	0.0931	128	106	1	10.0-140			16.6	36
Benzo(g,h,i)perylene	0.0796	0.0114	0.0540	0.0788	53.5	84.7	1	10.0-140		J3	37.3	33
Benzo(k)fluoranthene	0.0796	0.00364	0.108	0.0937	131	113	1	10.0-137			14.2	31
Chrysene	0.0796	0.0316	0.0890	0.0874	72.1	70.1	1	10.0-145	V3	V3	1.81	30
Dibenz(a,h)anthracene	0.0796	U	0.0673	0.0798	84.5	100	1	10.0-132			17.0	31
Fluoranthene	0.0796	U	0.0416	0.0201	52.3	25.3	1	10.0-153		J3	69.7	33
Fluorene	0.0796	U	0.126	0.511	158	642	1	11.0-130	J5	J3 J5 V3	121	29
Indeno(1,2,3-cd)pyrene	0.0796	U	0.0553	0.0751	69.5	94.3	1	10.0-137			30.4	32
Naphthalene	0.0796	U	ND	ND	0.000	0.000	1	10.0-135	J6	J6	0.000	27
Phenanthrene	0.0796	U	0.625	0.633	785	795	1	10.0-144	J5	J5	1.27	31
Pyrene	0.0796	0.506	1.09	0.652	734	183	1	10.0-148	V V3	J3 V V3	50.3	35
1-Methylnaphthalene	0.0796	U	ND	ND	0.000	0.000	1	10.0-142	J6	J6	0.000	28
2-Methylnaphthalene	0.0796	U	ND	ND	0.000	0.000	1	10.0-137	J6	J6	0.000	28
2-Chloronaphthalene	0.0796	U	0.0316	0.0714	39.7	89.7	1	29.0-120		J3 V3	77.3	24
(S) Nitrobenzene-d5					0.000	0.000		14.0-149	J2	J2		
(S) 2-Fluorobiphenyl					28.0	1.53		34.0-125	J2	J2		
(S) p-Terphenyl-d14					149	97.2		23.0-120	J1			

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc



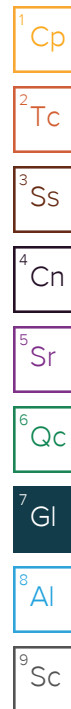
Guide to Reading and Understanding Your Laboratory Report

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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
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.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.
V3	The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high. BDL results will be unaffected.





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.



Hold:	Condition: NCF / OK
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