

Absaroka Energy & Environmental - WY

Sample Delivery Group: L1073298
Samples Received: 02/26/2019
Project Number: SANDRIDGE ENERGY COL
Description: Mutual 1-17H
Site: 324757
Report To: Joel Mason
112 High St
Buffalo, WY 82834

Entire Report Reviewed By:

[Preliminary Report]

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_M1-17_SS_02_1_2 L1073298-01 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:05

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1242573	1	02/28/19 16:25	02/28/19 16:25	TRB	Mt. Juliet, TN
Calculated Results	WG1241960	1	02/26/19 18:12	02/28/19 16:44	JZW	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1242757	1	02/27/19 13:08	02/27/19 15:20	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1242515	1	02/27/19 13:14	02/27/19 15:14	MJA	Mt. Juliet, TN
Mercury by Method 7471A	WG1242473	1	02/26/19 17:38	02/26/19 21:44	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1241960	1	02/26/19 18:12	02/27/19 11:16	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1242770	1	02/26/19 19:41	02/27/19 19:33	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1242705	1	02/27/19 17:37	02/27/19 22:35	DMW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1242218	1	02/26/19 18:02	02/26/19 23:51	DMG	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Gl

⁷ Al

⁸ Sc

SDE_M1-17_SS_C_1_2 L1073298-02 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:30

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1242573	1	02/28/19 16:27	02/28/19 16:27	TRB	Mt. Juliet, TN
Calculated Results	WG1241960	1	02/26/19 18:12	02/28/19 16:44	JZW	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1242757	1	02/27/19 13:08	02/27/19 15:20	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1242515	1	02/27/19 13:14	02/27/19 15:14	MJA	Mt. Juliet, TN
Mercury by Method 7471A	WG1242473	1	02/26/19 17:38	02/26/19 21:47	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1241960	1	02/26/19 18:12	02/27/19 11:19	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1242770	1	02/26/19 19:41	02/27/19 19:54	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1242705	1	02/27/19 17:37	02/27/19 22:47	DMW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1242218	1	02/26/19 18:02	02/27/19 00:13	DMG	Mt. Juliet, TN

ACCOUNT:

Absaroka Energy & Environmental - WY

PROJECT:

SANDRIDGE ENERGY COL

SDG:

L1073298

DATE/TIME:

03/01/19 16:58

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.

[Preliminary Report]

Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Gl

⁷ Al

⁸ Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.94		1	02/28/2019 16:25	WG1242573

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	10.4		0.140	1.00	1	02/28/2019 16:44	WG1241960

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.87	<u>T8</u>	1	02/27/2019 15:20	WG1242757

Sample Narrative:

L1073298-01 WG1242757: 7.87 at 19.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2840		10.0	1	02/27/2019 15:14	WG1242515

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0103	<u>J</u>	0.00280	0.0200	1	02/26/2019 21:44	WG1242473

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.49	<u>J</u>	0.460	2.00	1	02/27/2019 11:16	WG1241960
Barium	543		0.170	0.500	1	02/27/2019 11:16	WG1241960
Boron	U		1.26	10.0	1	02/27/2019 11:16	WG1241960
Cadmium	U		0.0700	0.500	1	02/27/2019 11:16	WG1241960
Chromium	10.4		0.140	1.00	1	02/27/2019 11:16	WG1241960
Copper	11.0		0.530	2.00	1	02/27/2019 11:16	WG1241960
Lead	2.79		0.190	0.500	1	02/27/2019 11:16	WG1241960
Nickel	12.1		0.490	2.00	1	02/27/2019 11:16	WG1241960
Selenium	U		0.620	2.00	1	02/27/2019 11:16	WG1241960
Silver	U		0.120	1.00	1	02/27/2019 11:16	WG1241960
Zinc	35.2		0.590	5.00	1	02/27/2019 11:16	WG1241960

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000340	<u>J</u>	0.000120	0.000500	1	02/27/2019 19:33	WG1242770
Toluene	0.000529	<u>B J</u>	0.000150	0.00500	1	02/27/2019 19:33	WG1242770
Ethylbenzene	0.00101		0.000110	0.000500	1	02/27/2019 19:33	WG1242770
Total Xylene	0.000714	<u>J</u>	0.000460	0.00150	1	02/27/2019 19:33	WG1242770
TPH (GC/FID) Low Fraction	0.0424	<u>J</u>	0.0217	0.100	1	02/27/2019 19:33	WG1242770
(S) a,a,a-Trifluorotoluene(FID)	93.8			77.0-120		02/27/2019 19:33	WG1242770
(S) a,a,a-Trifluorotoluene(PID)	95.0			72.0-128		02/27/2019 19:33	WG1242770





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	11.3		0.769	4.00	1	02/27/2019 22:35	WG1242705
(S) o-Terphenyl	69.1			18.0-148		02/27/2019 22:35	WG1242705

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

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	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Acenaphthene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Acenaphthylene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Benzo(a)anthracene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Benzo(a)pyrene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Benzo(b)fluoranthene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Benzo(g,h,i)perylene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Benzo(k)fluoranthene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Chrysene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Dibenz(a,h)anthracene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Fluoranthene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Fluorene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Naphthalene	U		0.00200	0.0200	1	02/26/2019 23:51	WG1242218
Phenanthrene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
Pyrene	U		0.000600	0.00600	1	02/26/2019 23:51	WG1242218
1-Methylnaphthalene	0.00208	U	0.00200	0.0200	1	02/26/2019 23:51	WG1242218
2-Methylnaphthalene	0.00273	U	0.00200	0.0200	1	02/26/2019 23:51	WG1242218
2-Chloronaphthalene	U		0.00200	0.0200	1	02/26/2019 23:51	WG1242218
(S) p-Terphenyl-d14	45.6			23.0-120		02/26/2019 23:51	WG1242218
(S) Nitrobenzene-d5	58.6			14.0-149		02/26/2019 23:51	WG1242218
(S) 2-Fluorobiphenyl	50.4			34.0-125		02/26/2019 23:51	WG1242218



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	22.6		1	02/28/2019 16:27	WG1242573

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	8.76		0.140	1.00	1	02/28/2019 16:44	WG1241960

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95	T8	1	02/27/2019 15:20	WG1242757

Sample Narrative:

L1073298-02 WG1242757: 7.95 at 18.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1630		10.0	1	02/27/2019 15:14	WG1242515

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0149	J	0.00280	0.0200	1	02/26/2019 21:47	WG1242473

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.658	J	0.460	2.00	1	02/27/2019 11:19	WG1241960
Barium	425		0.170	0.500	1	02/27/2019 11:19	WG1241960
Boron	U		1.26	10.0	1	02/27/2019 11:19	WG1241960
Cadmium	U		0.0700	0.500	1	02/27/2019 11:19	WG1241960
Chromium	8.76		0.140	1.00	1	02/27/2019 11:19	WG1241960
Copper	9.74		0.530	2.00	1	02/27/2019 11:19	WG1241960
Lead	2.73		0.190	0.500	1	02/27/2019 11:19	WG1241960
Nickel	8.17		0.490	2.00	1	02/27/2019 11:19	WG1241960
Selenium	U		0.620	2.00	1	02/27/2019 11:19	WG1241960
Silver	U		0.120	1.00	1	02/27/2019 11:19	WG1241960
Zinc	27.8		0.590	5.00	1	02/27/2019 11:19	WG1241960

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000737		0.000120	0.000500	1	02/27/2019 19:54	WG1242770
Toluene	0.00105	B J	0.000150	0.00500	1	02/27/2019 19:54	WG1242770
Ethylbenzene	0.000479	J	0.000110	0.000500	1	02/27/2019 19:54	WG1242770
Total Xylene	0.00254		0.000460	0.00150	1	02/27/2019 19:54	WG1242770
TPH (GC/FID) Low Fraction	0.178		0.0217	0.100	1	02/27/2019 19:54	WG1242770
(S) a,a,a-Trifluorotoluene(FID)	88.0			77.0-120		02/27/2019 19:54	WG1242770
(S) a,a,a-Trifluorotoluene(PID)	90.8			72.0-128		02/27/2019 19:54	WG1242770



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	9.43		0.769	4.00	1	02/27/2019 22:47	WG1242705
(S) o-Terphenyl	62.2			18.0-148		02/27/2019 22:47	WG1242705

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	0.000838	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Acenaphthene	U		0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Acenaphthylene	U		0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Benzo(a)anthracene	0.00160	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Benzo(a)pyrene	0.00100	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Benzo(b)fluoranthene	0.00156	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Benzo(g,h,i)perylene	0.000789	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Benzo(k)fluoranthene	0.000612	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Chrysene	0.00129	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Dibenz(a,h)anthracene	U		0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Fluoranthene	0.00263	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Fluorene	0.00118	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Naphthalene	0.00458	U	0.00200	0.0200	1	02/27/2019 00:13	WG1242218
Phenanthrene	0.00293	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
Pyrene	0.00314	U	0.000600	0.00600	1	02/27/2019 00:13	WG1242218
1-Methylnaphthalene	0.00901	U	0.00200	0.0200	1	02/27/2019 00:13	WG1242218
2-Methylnaphthalene	0.00950	U	0.00200	0.0200	1	02/27/2019 00:13	WG1242218
2-Chloronaphthalene	U		0.00200	0.0200	1	02/27/2019 00:13	WG1242218
(S) p-Terphenyl-d14	86.6			23.0-120		02/27/2019 00:13	WG1242218
(S) Nitrobenzene-d5	108			14.0-149		02/27/2019 00:13	WG1242218
(S) 2-Fluorobiphenyl	92.1			34.0-125		02/27/2019 00:13	WG1242218

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 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

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
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.
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

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 Gl

⁷ Al

⁸ 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.



Absaroka Energy & Environmental - WY

Billing Information:

Accounts Payable- Randolph Moses
112 High St
Buffalo, WY 82834

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Joel Mason

Email To: joel.mason@absarokasolutions.com
max.moran@absarokasolutions.com

Project Mutual 1-17H
Description:

City/State
Collected: Jackson County, CO

Phone: 307-262-8975
Fax:

Client Project #
SandRidge Energy
Colorado Spill Support

Lab Project #
ABSENEBWY-TABLE910

Collected by (print):
Joel Mason

Site/Facility ID #
324757

P.O. #
SDE.CO.0171.01

Collected by (signature):

Rush? (Lab MUST Be Notified)
Same Day ☒ Five Day
Next Day ☐ 5 Day (Rad Only)
Two Day ☐ 10 Day (Rad Only)
☒ Three Day

Quote #

Date Results Needed

Immediately
Packed on Ice N ☐ Y ☒

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	CR3, CR6, SAR, SPCON, 4ozClr-NoPres	DRO, SV8270PAHSIM, 4ozClr-NoPres	Metals, PH 4ozClr-NoPres	V8260BTEX 4ozClr-NoPres											Remarks	Sample # (lab only)
SDE_M1-17_SS_01_1_2	Grab	SS	1-2"	2/23/2019	12:00	4	X	X	X	X											Hold	
SDE_M1-17_SS_02_1_2	Grab	SS	1-2"	2/23/2019	12:05	4	X	X	X	X											Analyze	-01
SDE_M1-17_SS_03_1_2	Grab	SS	1-2"	2/23/2019	12:10	4	X	X	X	X											Hold	
SDE_M1-17_SS_04_1_2	Grab	SS	1-2"	2/23/2019	12:15	4	X	X	X	X											Hold	
SDE_M1-17_SS_05_1_2	Grab	SS	1-2"	2/23/2019	12:20	4	X	X	X	X											Hold	
SDE_M1-17_SS_06_1_2	Grab	SS	1-2"	2/23/2019	12:25	4	X	X	X	X											Hold	
SDE_M1-17_SS_C_1_2	Comp	SS	1-2"	2/23/2019	12:30	4	X	X	X	X											Analyze	02

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

Remarks:

COGCC Table 910-1 Constituents of Concern
Analyze Sample 2 and C ASAP, may analyze others depending on results

pH Temp

Flow Other

Samples returned via:

UPS FedEx Courier

Tracking # 4276 0139 6932

Sample Receipt Checklist

COC Seal Present/Intact: NP ☒ Y ☐ N
COC Signed/Accurate: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
If Applicable
VOA Zero Headspace: ☐ Y ☒ N
Preservation Correct/Checked: ☐ Y ☒ N
RAD SCHEM: <0.5 mR/hr

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes / No
HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received: 28
10+2=12 AM

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 02/26/12 Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition:
NCF OK

Absaroka Energy & Environmental - WY

Sample Delivery Group: L1075449
Samples Received: 02/26/2019
Project Number: SANDRIDGE ENERGY COL
Description: Mutual 1-17H
Site: 324757
Report To: Joel Mason
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_M1-17_SS_01_1_2 L1075449-01 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:00

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:40	03/06/19 17:40	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:11	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:06	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 09:54	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:11	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 02:04	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 00:32	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 19:58	DMG	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

SDE_M1-17_SS_03_1_2 L1075449-02 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:10

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:43	03/06/19 17:43	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:14	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:07	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 09:57	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:14	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 02:25	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 01:44	DMW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 21:01	DMG	Mt. Juliet, TN

SDE_M1-17_SS_04_1_2 L1075449-03 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:15

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:46	03/06/19 17:46	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:16	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:12	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 09:59	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:16	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 02:46	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/06/19 23:08	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 21:22	DMG	Mt. Juliet, TN

SDE_M1-17_SS_05_1_2 L1075449-04 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:20

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:49	03/06/19 17:49	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:19	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:12	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 10:02	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:19	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 03:08	JHH	Mt. Juliet, TN

ACCOUNT:

Absaroka Energy & Environmental - WY

PROJECT:

SANDRIDGE ENERGY COL

SDG:

L1075449

DATE/TIME:

03/08/19 15:16

PAGE:

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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



SDE_M1-17_SS_05_1_2 L1075449-04 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:20

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 00:44	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 21:44	DMG	Mt. Juliet, TN

¹Cp

²Tc

³Ss

SDE_M1-17_SS_06_1_2 L1075449-05 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:25

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:52	03/06/19 17:52	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:22	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:13	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 10:04	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:22	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 03:29	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 00:56	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 22:05	DMG	Mt. Juliet, TN

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

ACCOUNT:

Absaroka Energy & Environmental - WY

PROJECT:

SANDRIDGE ENERGY COL

SDG:

L1075449

DATE/TIME:

03/08/19 15:16

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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	24.6		1	03/06/2019 17:40	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	3.14		0.140	1.00	1	03/08/2019 00:11	WG1245758

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	03/07/2019 17:06	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.85	T8	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-01 WG1245738: 7.85 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1450		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

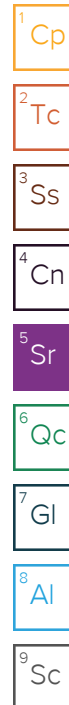
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.00919	J	0.00280	0.0200	1	03/06/2019 09:54	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.739	J	0.460	2.00	1	03/08/2019 00:11	WG1245758
Barium	1040		0.170	0.500	1	03/08/2019 00:11	WG1245758
Boron	5.64	J	1.26	10.0	1	03/08/2019 00:11	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:11	WG1245758
Chromium	3.14		0.140	1.00	1	03/08/2019 00:11	WG1245758
Copper	4.81		0.530	2.00	1	03/08/2019 00:11	WG1245758
Lead	1.41		0.190	0.500	1	03/08/2019 00:11	WG1245758
Nickel	2.82		0.490	2.00	1	03/08/2019 00:11	WG1245758
Selenium	0.620	J	0.620	2.00	1	03/08/2019 00:11	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:11	WG1245758
Zinc	10.7		0.590	5.00	1	03/08/2019 00:11	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00431		0.000120	0.000500	1	03/07/2019 02:04	WG1246326
Toluene	0.00586		0.000150	0.00500	1	03/07/2019 02:04	WG1246326
Ethylbenzene	0.00140		0.000110	0.000500	1	03/07/2019 02:04	WG1246326
Total Xylene	0.00660		0.000460	0.00150	1	03/07/2019 02:04	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.329		0.0217	0.100	1	03/07/2019 02:04	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	92.0			77.0-120		03/07/2019 02:04	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	95.0			72.0-128		03/07/2019 02:04	WG1246326

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	20.4		0.769	4.00	1	03/07/2019 00:32	WG1245457
(S) o-Terphenyl	50.5			18.0-148		03/07/2019 00:32	WG1245457

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	0.00441	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(a)pyrene	0.000620	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(b)fluoranthene	U	J3	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(g,h,i)perylene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(k)fluoranthene	U	J3	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Dibenz(a,h)anthracene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Fluoranthene	0.000702	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Fluorene	0.00112	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Naphthalene	0.00676	J	0.00200	0.0200	1	03/06/2019 19:58	WG1245473
Phenanthrene	0.00254	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Pyrene	0.00646		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
1-Methylnaphthalene	0.00658	J	0.00200	0.0200	1	03/06/2019 19:58	WG1245473
2-Methylnaphthalene	0.00607	J	0.00200	0.0200	1	03/06/2019 19:58	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 19:58	WG1245473
(S) p-Terphenyl-d14	71.1			23.0-120		03/06/2019 19:58	WG1245473
(S) Nitrobenzene-d5	84.5			14.0-149		03/06/2019 19:58	WG1245473
(S) 2-Fluorobiphenyl	86.5			34.0-125		03/06/2019 19:58	WG1245473

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	15.4		1	03/06/2019 17:43	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	5.94		0.140	1.00	1	03/08/2019 00:14	WG1245758

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	03/07/2019 17:07	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95	T8	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-02 WG1245738: 7.95 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3100		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

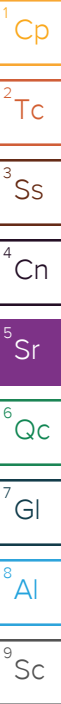
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0170	J	0.00280	0.0200	1	03/06/2019 09:57	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.743	J	0.460	2.00	1	03/08/2019 00:14	WG1245758
Barium	782		0.170	0.500	1	03/08/2019 00:14	WG1245758
Boron	U		1.26	10.0	1	03/08/2019 00:14	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:14	WG1245758
Chromium	5.94		0.140	1.00	1	03/08/2019 00:14	WG1245758
Copper	9.77		0.530	2.00	1	03/08/2019 00:14	WG1245758
Lead	3.13		0.190	0.500	1	03/08/2019 00:14	WG1245758
Nickel	6.75		0.490	2.00	1	03/08/2019 00:14	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:14	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:14	WG1245758
Zinc	22.0		0.590	5.00	1	03/08/2019 00:14	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00503		0.000120	0.000500	1	03/07/2019 02:25	WG1246326
Toluene	0.00561		0.000150	0.00500	1	03/07/2019 02:25	WG1246326
Ethylbenzene	0.00114		0.000110	0.000500	1	03/07/2019 02:25	WG1246326
Total Xylene	0.00540		0.000460	0.00150	1	03/07/2019 02:25	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.184		0.0217	0.100	1	03/07/2019 02:25	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	90.9			77.0-120		03/07/2019 02:25	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	94.7			72.0-128		03/07/2019 02:25	WG1246326

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	53.3		0.769	4.00	1	03/07/2019 01:44	WG1245457
(S) o-Terphenyl	51.2			18.0-148		03/07/2019 01:44	WG1245457

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	0.00342	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(g,h,i)perylene	U	J3	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Dibenz(a,h)anthracene	U	J3	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Fluorene	0.00102	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Indeno(1,2,3-cd)pyrene	U	J3	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Naphthalene	0.00386	J	0.00200	0.0200	1	03/06/2019 21:01	WG1245473
Phenanthrene	0.00153	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Pyrene	0.00498	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
1-Methylnaphthalene	0.00250	J	0.00200	0.0200	1	03/06/2019 21:01	WG1245473
2-Methylnaphthalene	0.00257	J	0.00200	0.0200	1	03/06/2019 21:01	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 21:01	WG1245473
(S) p-Terphenyl-d14	36.4			23.0-120		03/06/2019 21:01	WG1245473
(S) Nitrobenzene-d5	59.6			14.0-149		03/06/2019 21:01	WG1245473
(S) 2-Fluorobiphenyl	59.3			34.0-125		03/06/2019 21:01	WG1245473

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	21.5		1	03/06/2019 17:46	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	9.39		0.140	1.00	1	03/08/2019 00:16	WG1245758

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	03/07/2019 17:12	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.06	T8	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-03 WG1245738: 8.06 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3260		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0166	J	0.00280	0.0200	1	03/06/2019 09:59	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.627	J	0.460	2.00	1	03/08/2019 00:16	WG1245758
Barium	284		0.170	0.500	1	03/08/2019 00:16	WG1245758
Boron	U		1.26	10.0	1	03/08/2019 00:16	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:16	WG1245758
Chromium	9.39		0.140	1.00	1	03/08/2019 00:16	WG1245758
Copper	10.5		0.530	2.00	1	03/08/2019 00:16	WG1245758
Lead	3.58		0.190	0.500	1	03/08/2019 00:16	WG1245758
Nickel	8.27		0.490	2.00	1	03/08/2019 00:16	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:16	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:16	WG1245758
Zinc	25.2		0.590	5.00	1	03/08/2019 00:16	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00239		0.000120	0.000500	1	03/07/2019 02:46	WG1246326
Toluene	0.00226	J	0.000150	0.00500	1	03/07/2019 02:46	WG1246326
Ethylbenzene	0.000639		0.000110	0.000500	1	03/07/2019 02:46	WG1246326
Total Xylene	0.00299		0.000460	0.00150	1	03/07/2019 02:46	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.116		0.0217	0.100	1	03/07/2019 02:46	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	93.0			77.0-120		03/07/2019 02:46	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	95.7			72.0-128		03/07/2019 02:46	WG1246326

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	3.71	J	0.769	4.00	1	03/06/2019 23:08	WG1245457
(S) o-Terphenyl	59.6			18.0-148		03/06/2019 23:08	WG1245457

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	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(g,h,i)perylene	U	J3	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Dibenz(a,h)anthracene	U	J3	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Fluorene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Indeno(1,2,3-cd)pyrene	U	J3	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Naphthalene	0.00451	J	0.00200	0.0200	1	03/06/2019 21:22	WG1245473
Phenanthrene	0.000617	J	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Pyrene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
1-Methylnaphthalene	0.00217	J	0.00200	0.0200	1	03/06/2019 21:22	WG1245473
2-Methylnaphthalene	0.00255	J	0.00200	0.0200	1	03/06/2019 21:22	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 21:22	WG1245473
(S) p-Terphenyl-d14	52.7			23.0-120		03/06/2019 21:22	WG1245473
(S) Nitrobenzene-d5	62.6			14.0-149		03/06/2019 21:22	WG1245473
(S) 2-Fluorobiphenyl	68.0			34.0-125		03/06/2019 21:22	WG1245473

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	12.1		1	03/06/2019 17:49	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	12.6		0.140	1.00	1	03/08/2019 00:19	WG1245758

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	03/07/2019 17:12	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.37	<u>T8</u>	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-04 WG1245738: 8.37 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2310		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

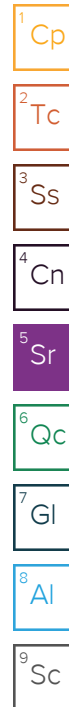
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0202		0.00280	0.0200	1	03/06/2019 10:02	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.06	<u>J</u>	0.460	2.00	1	03/08/2019 00:19	WG1245758
Barium	553		0.170	0.500	1	03/08/2019 00:19	WG1245758
Boron	U		1.26	10.0	1	03/08/2019 00:19	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:19	WG1245758
Chromium	12.6		0.140	1.00	1	03/08/2019 00:19	WG1245758
Copper	15.6		0.530	2.00	1	03/08/2019 00:19	WG1245758
Lead	5.77		0.190	0.500	1	03/08/2019 00:19	WG1245758
Nickel	10.6		0.490	2.00	1	03/08/2019 00:19	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:19	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:19	WG1245758
Zinc	35.6		0.590	5.00	1	03/08/2019 00:19	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00111		0.000120	0.000500	1	03/07/2019 03:08	WG1246326
Toluene	0.000888	<u>B J</u>	0.000150	0.00500	1	03/07/2019 03:08	WG1246326
Ethylbenzene	0.000216	<u>J</u>	0.000110	0.000500	1	03/07/2019 03:08	WG1246326
Total Xylene	0.00112	<u>J</u>	0.000460	0.00150	1	03/07/2019 03:08	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

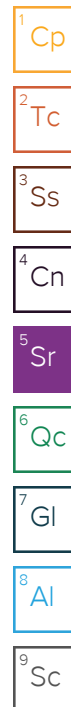
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0561	J	0.0217	0.100	1	03/07/2019 03:08	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	93.6			77.0-120		03/07/2019 03:08	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	97.9			72.0-128		03/07/2019 03:08	WG1246326

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	31.2		0.769	4.00	1	03/07/2019 00:44	WG1245457
(S) o-Terphenyl	56.2			18.0-148		03/07/2019 00:44	WG1245457

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	0.000670	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(a)anthracene	0.00105	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(g,h,i)perylene	U	J3	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Dibenz(a,h)anthracene	U	J3	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Fluorene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Indeno(1,2,3-cd)pyrene	U	J3	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Naphthalene	0.00381	J	0.00200	0.0200	1	03/06/2019 21:44	WG1245473
Phenanthrene	0.00235	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Pyrene	0.00158	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
1-Methylnaphthalene	U		0.00200	0.0200	1	03/06/2019 21:44	WG1245473
2-Methylnaphthalene	0.00234	J	0.00200	0.0200	1	03/06/2019 21:44	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 21:44	WG1245473
(S) p-Terphenyl-d14	55.8			23.0-120		03/06/2019 21:44	WG1245473
(S) Nitrobenzene-d5	77.6			14.0-149		03/06/2019 21:44	WG1245473
(S) 2-Fluorobiphenyl	82.0			34.0-125		03/06/2019 21:44	WG1245473





Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	29.0		1	03/06/2019 17:52	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	7.11		0.140	1.00	1	03/08/2019 00:22	WG1245758

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	03/07/2019 17:13	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.91	<u>T8</u>	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-05 WG1245738: 7.91 at 19.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3160		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

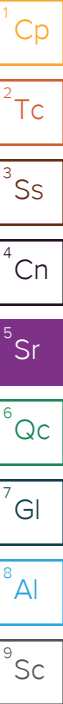
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0156	<u>J</u>	0.00280	0.0200	1	03/06/2019 10:04	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.16	<u>J</u>	0.460	2.00	1	03/08/2019 00:22	WG1245758
Barium	1710		0.170	0.500	1	03/08/2019 00:22	WG1245758
Boron	2.42	<u>J</u>	1.26	10.0	1	03/08/2019 00:22	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:22	WG1245758
Chromium	7.11		0.140	1.00	1	03/08/2019 00:22	WG1245758
Copper	11.6		0.530	2.00	1	03/08/2019 00:22	WG1245758
Lead	4.16		0.190	0.500	1	03/08/2019 00:22	WG1245758
Nickel	6.92		0.490	2.00	1	03/08/2019 00:22	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:22	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:22	WG1245758
Zinc	24.1		0.590	5.00	1	03/08/2019 00:22	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00191		0.000120	0.000500	1	03/07/2019 03:29	WG1246326
Toluene	0.00257	<u>J</u>	0.000150	0.00500	1	03/07/2019 03:29	WG1246326
Ethylbenzene	0.000610		0.000110	0.000500	1	03/07/2019 03:29	WG1246326
Total Xylene	0.00361		0.000460	0.00150	1	03/07/2019 03:29	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.342		0.0217	0.100	1	03/07/2019 03:29	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	92.8			77.0-120		03/07/2019 03:29	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	95.2			72.0-128		03/07/2019 03:29	WG1246326

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	10.6		0.769	4.00	1	03/07/2019 00:56	WG1245457
(S) o-Terphenyl	51.5			18.0-148		03/07/2019 00:56	WG1245457

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	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(g,h,i)perylene	U	<u>J3</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Dibenz(a,h)anthracene	U	<u>J3</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Fluorene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Indeno(1,2,3-cd)pyrene	U	<u>J3</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Naphthalene	0.00579	<u>J</u>	0.00200	0.0200	1	03/06/2019 22:05	WG1245473
Phenanthrene	0.000966	<u>J</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Pyrene	0.00117	<u>J</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
1-Methylnaphthalene	0.00405	<u>J</u>	0.00200	0.0200	1	03/06/2019 22:05	WG1245473
2-Methylnaphthalene	0.00484	<u>J</u>	0.00200	0.0200	1	03/06/2019 22:05	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 22:05	WG1245473
(S) p-Terphenyl-d14	62.8			23.0-120		03/06/2019 22:05	WG1245473
(S) Nitrobenzene-d5	62.9			14.0-149		03/06/2019 22:05	WG1245473
(S) 2-Fluorobiphenyl	69.6			34.0-125		03/06/2019 22:05	WG1245473

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



Method Blank (MB)

(MB) R3389740-1 03/07/19 16:58

	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

L1075219-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1075219-03 03/07/19 17:01 • (DUP) R3389740-3 03/07/19 17:05

	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

L1075827-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1075827-05 03/07/19 17:41 • (DUP) R3389740-8 03/07/19 17:43

	Original Result	DUP Result	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) R3389740-2 03/07/19 16:59

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	22.4	93.2	80.0-120	

L1075826-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1075826-02 03/07/19 17:30 • (MS) R3389740-4 03/07/19 17:32 • (MSD) R3389740-5 03/07/19 17:34

	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	25.3	192	180	179	0.000	0.000	1	75.0-125	E V	E V	0.563	20

L1075826-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1075826-02 03/07/19 17:30 • (MS) R3389740-6 03/07/19 17:38

	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	822	192	660	56.9	50	75.0-125	<u>J6</u>

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



L1075394-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1075394-06 03/06/19 13:00 • (DUP) R3389189-3 03/06/19 13:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	9.37	9.37	1	0.000		1

Sample Narrative:

OS: 9.37 at 19.7C

DUP: 9.37 at 19.8C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1075626-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1075626-01 03/06/19 13:00 • (DUP) R3389189-4 03/06/19 13:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.59	7.63	1	0.526		1

Sample Narrative:

OS: 7.59 at 19.7C

DUP: 7.63 at 19.6C

Laboratory Control Sample (LCS)

(LCS) R3389189-1 03/06/19 13:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 17.7C

Method Blank (MB)

(MB) R3389320-1 03/06/19 21:03

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

L1075168-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1075168-20 03/06/19 21:03 • (DUP) R3389320-3 03/06/19 21:03

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	umhos/cm	umhos/cm		%		%
Specific Conductance	933	936	1	0.321		20

L1075732-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1075732-04 03/06/19 21:03 • (DUP) R3389320-4 03/06/19 21:03

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	umhos/cm	umhos/cm		%		%
Specific Conductance	122	122	1	0.164		20

Laboratory Control Sample (LCS)

(LCS) R3389320-2 03/06/19 21:03

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	umhos/cm	umhos/cm	%	%	
Specific Conductance	877	876	99.9	90.0-110	

Method Blank (MB)

(MB) R3389130-1 03/06/19 08:53				
	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.00280	0.0200

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) R3389130-2 03/06/19 08:56 • (LCSD) R3389130-3 03/06/19 08:58										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Mercury	0.500	0.491	0.499	98.3	99.8	80.0-120			1.57	20

L1075512-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1075512-01 03/06/19 09:01 • (MS) R3389130-4 03/06/19 09:03 • (MSD) R3389130-5 03/06/19 09:06												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	ND	0.515	0.491	100	95.3	1	75.0-125			4.81	20



Method Blank (MB)

(MB) R3389360-1 03/06/19 18:53

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
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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R3389360-2 03/06/19 18:55 • (LCSD) R3389360-3 03/06/19 18:58

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	91.8	92.9	91.8	92.9	80.0-120			1.18	20
Barium	100	100	101	100	101	80.0-120			0.814	20
Boron	100	93.7	94.6	93.7	94.6	80.0-120			0.978	20
Cadmium	100	94.9	96.0	94.9	96.0	80.0-120			1.15	20
Chromium	100	97.7	99.2	97.7	99.2	80.0-120			1.53	20
Copper	100	95.1	96.3	95.1	96.3	80.0-120			1.19	20
Lead	100	93.7	95.3	93.7	95.3	80.0-120			1.63	20
Nickel	100	96.8	98.1	96.8	98.1	80.0-120			1.34	20
Selenium	100	94.4	95.9	94.4	95.9	80.0-120			1.52	20
Silver	20.0	18.2	18.5	91.2	92.6	80.0-120			1.46	20
Zinc	100	95.8	97.1	95.8	97.1	80.0-120			1.39	20

L1074993-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1074993-04 03/06/19 19:00 • (MS) R3389360-6 03/06/19 19:08 • (MSD) R3389360-7 03/06/19 19:10

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	4.82	97.5	95.5	92.7	90.7	1	75.0-125			2.07	20
Barium	100	105	181	185	76.5	80.3	1	75.0-125			2.06	20
Boron	100	22.0	110	108	87.9	86.1	1	75.0-125			1.67	20
Cadmium	100	0.178	95.1	94.2	94.9	94.0	1	75.0-125			0.894	20
Chromium	100	9.33	102	99.7	92.6	90.4	1	75.0-125			2.21	20



L1074993-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1074993-04 03/06/19 19:00 • (MS) R3389360-6 03/06/19 19:08 • (MSD) R3389360-7 03/06/19 19:10

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 %
Copper	100	21.5	113	112	91.2	90.1	1	75.0-125			0.964	20
Lead	100	10.2	105	104	95.2	93.9	1	75.0-125			1.29	20
Nickel	100	9.76	109	108	99.6	97.8	1	75.0-125			1.65	20
Selenium	100	U	93.9	93.1	93.9	93.1	1	75.0-125			0.909	20
Silver	20.0	U	18.7	18.5	93.3	92.5	1	75.0-125			0.841	20
Zinc	100	40.1	128	125	87.5	85.4	1	75.0-125			1.70	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3389398-4 03/06/19 23:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000152	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)	95.3			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	98.5			72.0-128

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3389398-1 03/06/19 21:27 • (LCSD) R3389398-2 03/06/19 21:48

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	0.0428	0.0437	85.5	87.4	76.0-121			2.20	20
Toluene	0.0500	0.0419	0.0428	83.8	85.5	80.0-120			2.02	20
Ethylbenzene	0.0500	0.0444	0.0454	88.9	90.7	80.0-124			2.06	20
Total Xylene	0.150	0.128	0.130	85.3	86.7	37.0-160			1.63	20
(S) a,a,a-Trifluorotoluene(FID)				95.9	95.7	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				98.5	98.9	72.0-128				

Laboratory Control Sample (LCS)

(LCS) R3389398-3 03/06/19 22:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.75	86.3	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			105	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			105	72.0-128	

Method Blank (MB)

(MB) R3389498-1 03/06/19 21:44

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	72.2			18.0-148

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3389498-2 03/06/19 21:56 • (LCSD) R3389498-3 03/06/19 22:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	50.0	39.3	41.4	78.6	82.8	50.0-150			5.20	20
(S) o-Terphenyl				91.3	94.6	18.0-148				

Method Blank (MB)

(MB) R3389383-3 03/06/19 14:19

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	75.5			14.0-149
(S) 2-Fluorobiphenyl	84.7			34.0-125
(S) p-Terphenyl-d14	88.1			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3389383-1 03/06/19 13:37 • (LCSD) R3389383-2 03/06/19 13:58

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	0.0629	0.0625	78.6	78.1	50.0-126			0.638	20
Acenaphthene	0.0800	0.0636	0.0637	79.5	79.6	50.0-120			0.157	20
Acenaphthylene	0.0800	0.0667	0.0664	83.4	83.0	50.0-120			0.451	20
Benzo(a)anthracene	0.0800	0.0605	0.0605	75.6	75.6	45.0-120			0.000	20
Benzo(a)pyrene	0.0800	0.0486	0.0506	60.8	63.3	42.0-120			4.03	20
Benzo(b)fluoranthene	0.0800	0.0525	0.0602	65.6	75.3	42.0-121			13.7	20
Benzo(g,h,i)perylene	0.0800	0.0461	0.0577	57.6	72.1	45.0-125		J3	22.4	20
Benzo(k)fluoranthene	0.0800	0.0655	0.0730	81.9	91.3	49.0-125			10.8	20
Chrysene	0.0800	0.0661	0.0635	82.6	79.4	49.0-122			4.01	20
Dibenz(a,h)anthracene	0.0800	0.0527	0.0657	65.9	82.1	47.0-125		J3	22.0	20
Fluoranthene	0.0800	0.0798	0.0743	99.8	92.9	49.0-129			7.14	20

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

(LCS) R3389383-1 03/06/19 13:37 • (LCSD) R3389383-2 03/06/19 13:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Fluorene	0.0800	0.0712	0.0696	89.0	87.0	49.0-120			2.27	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0488	0.0615	61.0	76.9	46.0-125		J3	23.0	20
Naphthalene	0.0800	0.0598	0.0619	74.8	77.4	50.0-120			3.45	20
Phenanthrene	0.0800	0.0620	0.0620	77.5	77.5	47.0-120			0.000	20
Pyrene	0.0800	0.0579	0.0584	72.4	73.0	43.0-123			0.860	20
1-Methylnaphthalene	0.0800	0.0643	0.0664	80.4	83.0	51.0-121			3.21	20
2-Methylnaphthalene	0.0800	0.0639	0.0661	79.9	82.6	50.0-120			3.38	20
2-Chloronaphthalene	0.0800	0.0627	0.0641	78.4	80.1	50.0-120			2.21	20
(S) Nitrobenzene-d5				81.9	75.2	14.0-149				
(S) 2-Fluorobiphenyl				89.2	82.9	34.0-125				
(S) p-Terphenyl-d14				74.1	73.9	23.0-120				

L1075449-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1075449-01 03/06/19 19:58 • (MS) R3389383-4 03/06/19 20:19 • (MSD) R3389383-5 03/06/19 20:40

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	0.0796	0.00441	0.0502	0.0504	57.5	58.1	1	10.0-145			0.398	30
Acenaphthene	0.0796	U	0.0523	0.0541	65.7	68.3	1	14.0-127			3.38	27
Acenaphthylene	0.0796	U	0.0587	0.0634	73.7	80.1	1	21.0-124			7.70	25
Benzo(a)anthracene	0.0796	U	0.0507	0.0516	63.7	65.2	1	10.0-139			1.76	30
Benzo(a)pyrene	0.0796	0.000620	0.0466	0.0451	57.8	56.2	1	10.0-141			3.27	31
Benzo(b)fluoranthene	0.0796	U	0.0294	0.0462	36.9	58.3	1	10.0-140		J3	44.4	36
Benzo(g,h,i)perylene	0.0796	U	0.0456	0.0445	57.3	56.2	1	10.0-140			2.44	33
Benzo(k)fluoranthene	0.0796	U	0.0312	0.0463	39.2	58.5	1	10.0-137		J3	39.0	31
Chrysene	0.0796	U	0.0469	0.0508	58.9	64.1	1	10.0-145			7.98	30
Dibenz(a,h)anthracene	0.0796	U	0.0461	0.0516	57.9	65.2	1	10.0-132			11.3	31
Fluoranthene	0.0796	0.000702	0.0708	0.0568	88.1	70.8	1	10.0-153			21.9	33
Fluorene	0.0796	0.00112	0.0468	0.0607	57.4	75.2	1	11.0-130			25.9	29
Indeno(1,2,3-cd)pyrene	0.0796	U	0.0422	0.0481	53.0	60.7	1	10.0-137			13.1	32
Naphthalene	0.0796	0.00676	0.0573	0.0584	63.5	65.2	1	10.0-135			1.90	27
Phenanthrene	0.0796	0.00254	0.0489	0.0424	58.2	50.3	1	10.0-144			14.2	31
Pyrene	0.0796	0.00646	0.0500	0.0672	54.7	76.7	1	10.0-148			29.4	35
1-Methylnaphthalene	0.0796	0.00658	0.0658	0.0681	74.4	77.7	1	10.0-142			3.44	28
2-Methylnaphthalene	0.0796	0.00607	0.0652	0.0676	74.3	77.7	1	10.0-137			3.61	28
2-Chloronaphthalene	0.0796	U	0.0546	0.0587	68.6	74.1	1	29.0-120			7.24	24
(S) Nitrobenzene-d5					72.3	60.9		14.0-149				
(S) 2-Fluorobiphenyl					67.2	74.9		34.0-125				
(S) p-Terphenyl-d14					59.4	77.4		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.
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

B	The same analyte is found in the associated blank.
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.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico 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.



Absaroka Energy & Environmental - WY

Billing Information:

Accounts Payable- Randolph Moses
112 High St
Buffalo, WY 82834

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical

Report to:

Joel Mason

Email To: joel.mason@absarokasolutions.com
max.moran@absarokasolutions.com

Project Mutual 1-17H

Description:

City/State
Collected: Jackson County, CO

Phone: 307-262-8975

Fax:

Client Project #
SandRidge Energy
Colorado Spill Support

Lab Project #
ABSENEBWY-TABLE910

Collected by (print):

Joel Mason

Site/Facility ID #
324757

P.O. #
SDE.CO.0171.01

Collected by (signature):

Rush? (Lab MUST Be Notified)

Same Day ☒ Five Day
Next Day ☐ 5 Day (Rad Only)
Two Day ☐ 10 Day (Rad Only)
☒ Three Day

Quote #

Date Results Needed

No.
of
Cntrs

Immediately
Packed on Ice N ☐ Y ☒

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CR3, CR6, SAR, SPCON, 4ozClr-NoPres	DRO, SV8270PAHSIM, 4ozClr-NoPres	Metals, PH 4ozClr-NoPres	V8260BTEX 4ozClr-NoPres										
SDE_M1-17_SS_01_1_2	Grab	SS	1-2"	2/23/2019	12:00	4	X	X	X	X										
SDE_M1-17_SS_02_1_2	Grab	SS	1-2"	2/23/2019	12:05	4	X	X	X	X										
SDE_M1-17_SS_03_1_2	Grab	SS	1-2"	2/23/2019	12:10	4	X	X	X	X										
SDE_M1-17_SS_04_1_2	Grab	SS	1-2"	2/23/2019	12:15	4	X	X	X	X										
SDE_M1-17_SS_05_1_2	Grab	SS	1-2"	2/23/2019	12:20	4	X	X	X	X										
SDE_M1-17_SS_06_1_2	Grab	SS	1-2"	2/23/2019	12:25	4	X	X	X	X										
SDE_M1-17_SS_C_1_2	Comp	SS	1-2"	2/23/2019	12:30	4	X	X	X	X										

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

Remarks:

COGCC Table 910-1 Constituents of Concern
Analyze Sample 2 and C ASAP, may analyze others depending on results

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:

☐ UPS ☐ FedEx ☐ Courier ☐ _____

Tracking # 4276 0139 6932

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No
HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:
10+2=12 AM 28

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 2/26/12 Time: 9830

Sample Receipt Checklist
COC Seal Present/Intact: ☒ NP ☐ Y ☐ N
COC Signed/Accurate: ☒ ☐ Y ☐ N
Bottles arrive intact: ☒ ☐ Y ☐ N
Correct bottles used: ☒ ☐ Y ☐ N
Sufficient volume sent: ☒ ☐ Y ☐ N
If Applicable
VOA Zero Headspace: ☐ Y ☐ N
Preservation Correct/Checked: ☐ Y ☐ N
RAD SC: <0.5 mR/hr

If preservation required by Login: Date/Time

Hold:

Condition:
NCF ☒ OK

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# L1073299

F144
L1075449

PV
3/5/17

Acctnum: ABSENEBWY

Template: T114171

Prelogin:

Chris Ward

PB:

Shipped Via: FedEx Express

Remarks

Sample # (lab only)

Hold

-01

Analyze

-01

Hold

-02

Hold

-03

Hold

-04

Hold

-05

Analyze

-02

Andy Vann

From: Chris Ward
Sent: Tuesday, March 05, 2019 10:41 AM
To: Login
Cc: Due VOC; Due SVOC; Due Metals; Due WetLab; SOIL PREPREP
Subject: *RUSH* L1073298 *ABSENEBWY* Take Samples off HOLD = 02-160

Importance: High

Please take all hold samples off hold for

BICP
TABLE910

Make due 3/8

Thanks,
Chris Ward
Project Manager

Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road | Mt. Juliet, TN 37122

cward@pacenational.com | www.pacenational.com

615.773.9712

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ESC Lab Sciences is now Pace Analytical National Center for Testing & Innovation! Please make note of my new email address and website

Absaroka Energy & Environmental - WY

Sample Delivery Group: L1075449
Samples Received: 02/26/2019
Project Number: SANDRIDGE ENERGY COL
Description: Mutual 1-17H
Site: 324757
Report To: Joel Mason
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_M1-17_SS_01_1_2 L1075449-01 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:00

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:40	03/06/19 17:40	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:11	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:06	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 09:54	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:11	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 02:04	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 00:32	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 19:58	DMG	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

SDE_M1-17_SS_03_1_2 L1075449-02 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:10

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:43	03/06/19 17:43	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:14	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:07	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 09:57	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:14	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 02:25	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 01:44	DMW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 21:01	DMG	Mt. Juliet, TN

SDE_M1-17_SS_04_1_2 L1075449-03 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:15

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:46	03/06/19 17:46	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:16	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:12	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 09:59	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:16	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 02:46	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/06/19 23:08	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 21:22	DMG	Mt. Juliet, TN

SDE_M1-17_SS_05_1_2 L1075449-04 Solid

Collected by
Joel Mason

Collected date/time
02/23/19 12:20

Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:49	03/06/19 17:49	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:19	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:12	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 10:02	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:19	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 03:08	JHH	Mt. Juliet, TN

ACCOUNT:

Absaroka Energy & Environmental - WY

PROJECT:

SANDRIDGE ENERGY COL

SDG:

L1075449

DATE/TIME:

03/08/19 15:16

PAGE:

3 of 30



SDE_M1-17_SS_05_1_2 L1075449-04 Solid

Collected by
Joel MasonCollected date/time
02/23/19 12:20Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 00:44	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 21:44	DMG	Mt. Juliet, TN

¹Cp²Tc³Ss

SDE_M1-17_SS_06_1_2 L1075449-05 Solid

Collected by
Joel MasonCollected date/time
02/23/19 12:25Received date/time
02/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1244889	1	03/06/19 17:52	03/06/19 17:52	CCE	Mt. Juliet, TN
Calculated Results	WG1245758	1	03/06/19 10:03	03/08/19 00:22	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1246014	1	03/07/19 09:00	03/07/19 17:13	TH	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1245738	1	03/06/19 11:45	03/06/19 13:00	SJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1245948	1	03/06/19 15:35	03/06/19 21:03	RDW	Mt. Juliet, TN
Mercury by Method 7471A	WG1245608	1	03/05/19 19:57	03/06/19 10:04	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1245758	1	03/06/19 10:03	03/08/19 00:22	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1246326	1	03/06/19 09:46	03/07/19 03:29	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1245457	1	03/06/19 00:06	03/07/19 00:56	TH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1245473	1	03/06/19 07:21	03/06/19 22:05	DMG	Mt. Juliet, TN

⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



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	24.6		1	03/06/2019 17:40	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	3.14		0.140	1.00	1	03/08/2019 00:11	WG1245758

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	03/07/2019 17:06	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.85	T8	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-01 WG1245738: 7.85 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1450		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.00919	J	0.00280	0.0200	1	03/06/2019 09:54	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.739	J	0.460	2.00	1	03/08/2019 00:11	WG1245758
Barium	1040		0.170	0.500	1	03/08/2019 00:11	WG1245758
Boron	5.64	J	1.26	10.0	1	03/08/2019 00:11	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:11	WG1245758
Chromium	3.14		0.140	1.00	1	03/08/2019 00:11	WG1245758
Copper	4.81		0.530	2.00	1	03/08/2019 00:11	WG1245758
Lead	1.41		0.190	0.500	1	03/08/2019 00:11	WG1245758
Nickel	2.82		0.490	2.00	1	03/08/2019 00:11	WG1245758
Selenium	0.620	J	0.620	2.00	1	03/08/2019 00:11	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:11	WG1245758
Zinc	10.7		0.590	5.00	1	03/08/2019 00:11	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00431		0.000120	0.000500	1	03/07/2019 02:04	WG1246326
Toluene	0.00586		0.000150	0.00500	1	03/07/2019 02:04	WG1246326
Ethylbenzene	0.00140		0.000110	0.000500	1	03/07/2019 02:04	WG1246326
Total Xylene	0.00660		0.000460	0.00150	1	03/07/2019 02:04	WG1246326

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



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.329		0.0217	0.100	1	03/07/2019 02:04	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	92.0			77.0-120		03/07/2019 02:04	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	95.0			72.0-128		03/07/2019 02:04	WG1246326

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	20.4		0.769	4.00	1	03/07/2019 00:32	WG1245457
(S) o-Terphenyl	50.5			18.0-148		03/07/2019 00:32	WG1245457

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	0.00441	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(a)pyrene	0.000620	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(b)fluoranthene	U	J3	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(g,h,i)perylene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Benzo(k)fluoranthene	U	J3	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Dibenz(a,h)anthracene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Fluoranthene	0.000702	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Fluorene	0.00112	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Naphthalene	0.00676	J	0.00200	0.0200	1	03/06/2019 19:58	WG1245473
Phenanthrene	0.00254	J	0.000600	0.00600	1	03/06/2019 19:58	WG1245473
Pyrene	0.00646		0.000600	0.00600	1	03/06/2019 19:58	WG1245473
1-Methylnaphthalene	0.00658	J	0.00200	0.0200	1	03/06/2019 19:58	WG1245473
2-Methylnaphthalene	0.00607	J	0.00200	0.0200	1	03/06/2019 19:58	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 19:58	WG1245473
(S) p-Terphenyl-d14	71.1			23.0-120		03/06/2019 19:58	WG1245473
(S) Nitrobenzene-d5	84.5			14.0-149		03/06/2019 19:58	WG1245473
(S) 2-Fluorobiphenyl	86.5			34.0-125		03/06/2019 19:58	WG1245473

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	15.4		1	03/06/2019 17:43	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	5.94		0.140	1.00	1	03/08/2019 00:14	WG1245758

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	03/07/2019 17:07	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95	T8	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-02 WG1245738: 7.95 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3100		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

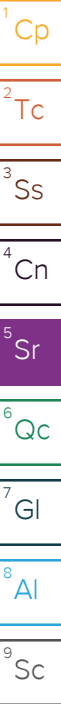
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0170	J	0.00280	0.0200	1	03/06/2019 09:57	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.743	J	0.460	2.00	1	03/08/2019 00:14	WG1245758
Barium	782		0.170	0.500	1	03/08/2019 00:14	WG1245758
Boron	U		1.26	10.0	1	03/08/2019 00:14	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:14	WG1245758
Chromium	5.94		0.140	1.00	1	03/08/2019 00:14	WG1245758
Copper	9.77		0.530	2.00	1	03/08/2019 00:14	WG1245758
Lead	3.13		0.190	0.500	1	03/08/2019 00:14	WG1245758
Nickel	6.75		0.490	2.00	1	03/08/2019 00:14	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:14	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:14	WG1245758
Zinc	22.0		0.590	5.00	1	03/08/2019 00:14	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00503		0.000120	0.000500	1	03/07/2019 02:25	WG1246326
Toluene	0.00561		0.000150	0.00500	1	03/07/2019 02:25	WG1246326
Ethylbenzene	0.00114		0.000110	0.000500	1	03/07/2019 02:25	WG1246326
Total Xylene	0.00540		0.000460	0.00150	1	03/07/2019 02:25	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.184		0.0217	0.100	1	03/07/2019 02:25	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	90.9			77.0-120		03/07/2019 02:25	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	94.7			72.0-128		03/07/2019 02:25	WG1246326

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	53.3		0.769	4.00	1	03/07/2019 01:44	WG1245457
(S) o-Terphenyl	51.2			18.0-148		03/07/2019 01:44	WG1245457

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	0.00342	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(g,h,i)perylene	U	J3	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Dibenz(a,h)anthracene	U	J3	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Fluorene	0.00102	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Indeno(1,2,3-cd)pyrene	U	J3	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Naphthalene	0.00386	J	0.00200	0.0200	1	03/06/2019 21:01	WG1245473
Phenanthrene	0.00153	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
Pyrene	0.00498	J	0.000600	0.00600	1	03/06/2019 21:01	WG1245473
1-Methylnaphthalene	0.00250	J	0.00200	0.0200	1	03/06/2019 21:01	WG1245473
2-Methylnaphthalene	0.00257	J	0.00200	0.0200	1	03/06/2019 21:01	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 21:01	WG1245473
(S) p-Terphenyl-d14	36.4			23.0-120		03/06/2019 21:01	WG1245473
(S) Nitrobenzene-d5	59.6			14.0-149		03/06/2019 21:01	WG1245473
(S) 2-Fluorobiphenyl	59.3			34.0-125		03/06/2019 21:01	WG1245473

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	21.5		1	03/06/2019 17:46	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	9.39		0.140	1.00	1	03/08/2019 00:16	WG1245758

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	03/07/2019 17:12	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.06	T8	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-03 WG1245738: 8.06 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3260		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

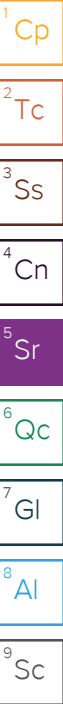
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0166	J	0.00280	0.0200	1	03/06/2019 09:59	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.627	J	0.460	2.00	1	03/08/2019 00:16	WG1245758
Barium	284		0.170	0.500	1	03/08/2019 00:16	WG1245758
Boron	U		1.26	10.0	1	03/08/2019 00:16	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:16	WG1245758
Chromium	9.39		0.140	1.00	1	03/08/2019 00:16	WG1245758
Copper	10.5		0.530	2.00	1	03/08/2019 00:16	WG1245758
Lead	3.58		0.190	0.500	1	03/08/2019 00:16	WG1245758
Nickel	8.27		0.490	2.00	1	03/08/2019 00:16	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:16	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:16	WG1245758
Zinc	25.2		0.590	5.00	1	03/08/2019 00:16	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00239		0.000120	0.000500	1	03/07/2019 02:46	WG1246326
Toluene	0.00226	J	0.000150	0.00500	1	03/07/2019 02:46	WG1246326
Ethylbenzene	0.000639		0.000110	0.000500	1	03/07/2019 02:46	WG1246326
Total Xylene	0.00299		0.000460	0.00150	1	03/07/2019 02:46	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.116		0.0217	0.100	1	03/07/2019 02:46	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	93.0			77.0-120		03/07/2019 02:46	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	95.7			72.0-128		03/07/2019 02:46	WG1246326

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	3.71	J	0.769	4.00	1	03/06/2019 23:08	WG1245457
(S) o-Terphenyl	59.6			18.0-148		03/06/2019 23:08	WG1245457

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	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(g,h,i)perylene	U	J3	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Dibenz(a,h)anthracene	U	J3	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Fluorene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Indeno(1,2,3-cd)pyrene	U	J3	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Naphthalene	0.00451	J	0.00200	0.0200	1	03/06/2019 21:22	WG1245473
Phenanthrene	0.000617	J	0.000600	0.00600	1	03/06/2019 21:22	WG1245473
Pyrene	U		0.000600	0.00600	1	03/06/2019 21:22	WG1245473
1-Methylnaphthalene	0.00217	J	0.00200	0.0200	1	03/06/2019 21:22	WG1245473
2-Methylnaphthalene	0.00255	J	0.00200	0.0200	1	03/06/2019 21:22	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 21:22	WG1245473
(S) p-Terphenyl-d14	52.7			23.0-120		03/06/2019 21:22	WG1245473
(S) Nitrobenzene-d5	62.6			14.0-149		03/06/2019 21:22	WG1245473
(S) 2-Fluorobiphenyl	68.0			34.0-125		03/06/2019 21:22	WG1245473

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	12.1		1	03/06/2019 17:49	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	12.6		0.140	1.00	1	03/08/2019 00:19	WG1245758

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	03/07/2019 17:12	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.37	<u>T8</u>	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-04 WG1245738: 8.37 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2310		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

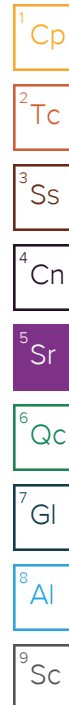
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0202		0.00280	0.0200	1	03/06/2019 10:02	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.06	<u>J</u>	0.460	2.00	1	03/08/2019 00:19	WG1245758
Barium	553		0.170	0.500	1	03/08/2019 00:19	WG1245758
Boron	U		1.26	10.0	1	03/08/2019 00:19	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:19	WG1245758
Chromium	12.6		0.140	1.00	1	03/08/2019 00:19	WG1245758
Copper	15.6		0.530	2.00	1	03/08/2019 00:19	WG1245758
Lead	5.77		0.190	0.500	1	03/08/2019 00:19	WG1245758
Nickel	10.6		0.490	2.00	1	03/08/2019 00:19	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:19	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:19	WG1245758
Zinc	35.6		0.590	5.00	1	03/08/2019 00:19	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00111		0.000120	0.000500	1	03/07/2019 03:08	WG1246326
Toluene	0.000888	<u>B J</u>	0.000150	0.00500	1	03/07/2019 03:08	WG1246326
Ethylbenzene	0.000216	<u>J</u>	0.000110	0.000500	1	03/07/2019 03:08	WG1246326
Total Xylene	0.00112	<u>J</u>	0.000460	0.00150	1	03/07/2019 03:08	WG1246326





Volatile Organic Compounds (GC) by Method 8015/8021

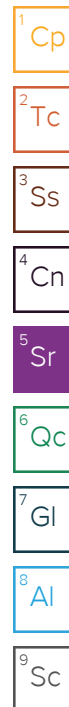
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0561	J	0.0217	0.100	1	03/07/2019 03:08	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	93.6			77.0-120		03/07/2019 03:08	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	97.9			72.0-128		03/07/2019 03:08	WG1246326

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	31.2		0.769	4.00	1	03/07/2019 00:44	WG1245457
(S) o-Terphenyl	56.2			18.0-148		03/07/2019 00:44	WG1245457

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	0.000670	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(a)anthracene	0.00105	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(g,h,i)perylene	U	J3	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Dibenz(a,h)anthracene	U	J3	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Fluorene	U		0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Indeno(1,2,3-cd)pyrene	U	J3	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Naphthalene	0.00381	J	0.00200	0.0200	1	03/06/2019 21:44	WG1245473
Phenanthrene	0.00235	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
Pyrene	0.00158	J	0.000600	0.00600	1	03/06/2019 21:44	WG1245473
1-Methylnaphthalene	U		0.00200	0.0200	1	03/06/2019 21:44	WG1245473
2-Methylnaphthalene	0.00234	J	0.00200	0.0200	1	03/06/2019 21:44	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 21:44	WG1245473
(S) p-Terphenyl-d14	55.8			23.0-120		03/06/2019 21:44	WG1245473
(S) Nitrobenzene-d5	77.6			14.0-149		03/06/2019 21:44	WG1245473
(S) 2-Fluorobiphenyl	82.0			34.0-125		03/06/2019 21:44	WG1245473





Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	29.0		1	03/06/2019 17:52	WG1244889

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	7.11		0.140	1.00	1	03/08/2019 00:22	WG1245758

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	03/07/2019 17:13	WG1246014

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.91	<u>T8</u>	1	03/06/2019 13:00	WG1245738

Sample Narrative:

L1075449-05 WG1245738: 7.91 at 19.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3160		10.0	1	03/06/2019 21:03	WG1245948

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0156	<u>J</u>	0.00280	0.0200	1	03/06/2019 10:04	WG1245608

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.16	<u>J</u>	0.460	2.00	1	03/08/2019 00:22	WG1245758
Barium	1710		0.170	0.500	1	03/08/2019 00:22	WG1245758
Boron	2.42	<u>J</u>	1.26	10.0	1	03/08/2019 00:22	WG1245758
Cadmium	U		0.0700	0.500	1	03/08/2019 00:22	WG1245758
Chromium	7.11		0.140	1.00	1	03/08/2019 00:22	WG1245758
Copper	11.6		0.530	2.00	1	03/08/2019 00:22	WG1245758
Lead	4.16		0.190	0.500	1	03/08/2019 00:22	WG1245758
Nickel	6.92		0.490	2.00	1	03/08/2019 00:22	WG1245758
Selenium	U		0.620	2.00	1	03/08/2019 00:22	WG1245758
Silver	U		0.120	1.00	1	03/08/2019 00:22	WG1245758
Zinc	24.1		0.590	5.00	1	03/08/2019 00:22	WG1245758

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00191		0.000120	0.000500	1	03/07/2019 03:29	WG1246326
Toluene	0.00257	<u>J</u>	0.000150	0.00500	1	03/07/2019 03:29	WG1246326
Ethylbenzene	0.000610		0.000110	0.000500	1	03/07/2019 03:29	WG1246326
Total Xylene	0.00361		0.000460	0.00150	1	03/07/2019 03:29	WG1246326

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



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.342		0.0217	0.100	1	03/07/2019 03:29	WG1246326
(S) a,a,a-Trifluorotoluene(FID)	92.8			77.0-120		03/07/2019 03:29	WG1246326
(S) a,a,a-Trifluorotoluene(PID)	95.2			72.0-128		03/07/2019 03:29	WG1246326

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	10.6		0.769	4.00	1	03/07/2019 00:56	WG1245457
(S) o-Terphenyl	51.5			18.0-148		03/07/2019 00:56	WG1245457

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	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Acenaphthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Acenaphthylene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(a)anthracene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(a)pyrene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(b)fluoranthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(g,h,i)perylene	U	<u>J3</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Benzo(k)fluoranthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Chrysene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Dibenz(a,h)anthracene	U	<u>J3</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Fluoranthene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Fluorene	U		0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Indeno(1,2,3-cd)pyrene	U	<u>J3</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Naphthalene	0.00579	<u>J</u>	0.00200	0.0200	1	03/06/2019 22:05	WG1245473
Phenanthrene	0.000966	<u>J</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
Pyrene	0.00117	<u>J</u>	0.000600	0.00600	1	03/06/2019 22:05	WG1245473
1-Methylnaphthalene	0.00405	<u>J</u>	0.00200	0.0200	1	03/06/2019 22:05	WG1245473
2-Methylnaphthalene	0.00484	<u>J</u>	0.00200	0.0200	1	03/06/2019 22:05	WG1245473
2-Chloronaphthalene	U		0.00200	0.0200	1	03/06/2019 22:05	WG1245473
(S) p-Terphenyl-d14	62.8			23.0-120		03/06/2019 22:05	WG1245473
(S) Nitrobenzene-d5	62.9			14.0-149		03/06/2019 22:05	WG1245473
(S) 2-Fluorobiphenyl	69.6			34.0-125		03/06/2019 22:05	WG1245473

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



Method Blank (MB)

(MB) R3389740-1 03/07/19 16:58

	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

L1075219-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1075219-03 03/07/19 17:01 • (DUP) R3389740-3 03/07/19 17:05

	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

L1075827-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1075827-05 03/07/19 17:41 • (DUP) R3389740-8 03/07/19 17:43

	Original Result	DUP Result	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) R3389740-2 03/07/19 16:59

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	22.4	93.2	80.0-120	

L1075826-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1075826-02 03/07/19 17:30 • (MS) R3389740-4 03/07/19 17:32 • (MSD) R3389740-5 03/07/19 17:34

	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	25.3	192	180	179	0.000	0.000	1	75.0-125	E V	E V	0.563	20

L1075826-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1075826-02 03/07/19 17:30 • (MS) R3389740-6 03/07/19 17:38

	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	822	192	660	56.9	50	75.0-125	<u>J6</u>

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



L1075394-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1075394-06 03/06/19 13:00 • (DUP) R3389189-3 03/06/19 13:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	9.37	9.37	1	0.000		1

Sample Narrative:

OS: 9.37 at 19.7C

DUP: 9.37 at 19.8C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1075626-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1075626-01 03/06/19 13:00 • (DUP) R3389189-4 03/06/19 13:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.59	7.63	1	0.526		1

Sample Narrative:

OS: 7.59 at 19.7C

DUP: 7.63 at 19.6C

Laboratory Control Sample (LCS)

(LCS) R3389189-1 03/06/19 13:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 17.7C

Method Blank (MB)

(MB) R3389320-1 03/06/19 21:03

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

L1075168-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1075168-20 03/06/19 21:03 • (DUP) R3389320-3 03/06/19 21:03

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	933	936	1	0.321		20

L1075732-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1075732-04 03/06/19 21:03 • (DUP) R3389320-4 03/06/19 21:03

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	122	122	1	0.164		20

Laboratory Control Sample (LCS)

(LCS) R3389320-2 03/06/19 21:03

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	877	876	99.9	90.0-110	



Method Blank (MB)

(MB) R3389130-1 03/06/19 08:53

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3389130-2 03/06/19 08:56 • (LCSD) R3389130-3 03/06/19 08:58

	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	0.491	0.499	98.3	99.8	80.0-120			1.57	20

L1075512-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1075512-01 03/06/19 09:01 • (MS) R3389130-4 03/06/19 09:03 • (MSD) R3389130-5 03/06/19 09:06

	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	0.515	0.491	100	95.3	1	75.0-125			4.81	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3389360-1 03/06/19 18:53

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
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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R3389360-2 03/06/19 18:55 • (LCSD) R3389360-3 03/06/19 18:58

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	91.8	92.9	91.8	92.9	80.0-120			1.18	20
Barium	100	100	101	100	101	80.0-120			0.814	20
Boron	100	93.7	94.6	93.7	94.6	80.0-120			0.978	20
Cadmium	100	94.9	96.0	94.9	96.0	80.0-120			1.15	20
Chromium	100	97.7	99.2	97.7	99.2	80.0-120			1.53	20
Copper	100	95.1	96.3	95.1	96.3	80.0-120			1.19	20
Lead	100	93.7	95.3	93.7	95.3	80.0-120			1.63	20
Nickel	100	96.8	98.1	96.8	98.1	80.0-120			1.34	20
Selenium	100	94.4	95.9	94.4	95.9	80.0-120			1.52	20
Silver	20.0	18.2	18.5	91.2	92.6	80.0-120			1.46	20
Zinc	100	95.8	97.1	95.8	97.1	80.0-120			1.39	20

L1074993-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1074993-04 03/06/19 19:00 • (MS) R3389360-6 03/06/19 19:08 • (MSD) R3389360-7 03/06/19 19:10

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	4.82	97.5	95.5	92.7	90.7	1	75.0-125			2.07	20
Barium	100	105	181	185	76.5	80.3	1	75.0-125			2.06	20
Boron	100	22.0	110	108	87.9	86.1	1	75.0-125			1.67	20
Cadmium	100	0.178	95.1	94.2	94.9	94.0	1	75.0-125			0.894	20
Chromium	100	9.33	102	99.7	92.6	90.4	1	75.0-125			2.21	20



L1074993-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1074993-04 03/06/19 19:00 • (MS) R3389360-6 03/06/19 19:08 • (MSD) R3389360-7 03/06/19 19:10

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 %
Copper	100	21.5	113	112	91.2	90.1	1	75.0-125			0.964	20
Lead	100	10.2	105	104	95.2	93.9	1	75.0-125			1.29	20
Nickel	100	9.76	109	108	99.6	97.8	1	75.0-125			1.65	20
Selenium	100	U	93.9	93.1	93.9	93.1	1	75.0-125			0.909	20
Silver	20.0	U	18.7	18.5	93.3	92.5	1	75.0-125			0.841	20
Zinc	100	40.1	128	125	87.5	85.4	1	75.0-125			1.70	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3389398-4 03/06/19 23:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000152	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)	95.3			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	98.5			72.0-128

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3389398-1 03/06/19 21:27 • (LCSD) R3389398-2 03/06/19 21:48

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	0.0428	0.0437	85.5	87.4	76.0-121			2.20	20
Toluene	0.0500	0.0419	0.0428	83.8	85.5	80.0-120			2.02	20
Ethylbenzene	0.0500	0.0444	0.0454	88.9	90.7	80.0-124			2.06	20
Total Xylene	0.150	0.128	0.130	85.3	86.7	37.0-160			1.63	20
(S) a,a,a-Trifluorotoluene(FID)				95.9	95.7	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				98.5	98.9	72.0-128				

Laboratory Control Sample (LCS)

(LCS) R3389398-3 03/06/19 22:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.75	86.3	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			105	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			105	72.0-128	

Method Blank (MB)

(MB) R3389498-1 03/06/19 21:44

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	72.2			18.0-148

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

(LCS) R3389498-2 03/06/19 21:56 • (LCSD) R3389498-3 03/06/19 22:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	50.0	39.3	41.4	78.6	82.8	50.0-150			5.20	20
(S) o-Terphenyl				91.3	94.6	18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3389383-3 03/06/19 14:19

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	75.5			14.0-149
(S) 2-Fluorobiphenyl	84.7			34.0-125
(S) p-Terphenyl-d14	88.1			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3389383-1 03/06/19 13:37 • (LCSD) R3389383-2 03/06/19 13:58

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	0.0629	0.0625	78.6	78.1	50.0-126			0.638	20
Acenaphthene	0.0800	0.0636	0.0637	79.5	79.6	50.0-120			0.157	20
Acenaphthylene	0.0800	0.0667	0.0664	83.4	83.0	50.0-120			0.451	20
Benzo(a)anthracene	0.0800	0.0605	0.0605	75.6	75.6	45.0-120			0.000	20
Benzo(a)pyrene	0.0800	0.0486	0.0506	60.8	63.3	42.0-120			4.03	20
Benzo(b)fluoranthene	0.0800	0.0525	0.0602	65.6	75.3	42.0-121			13.7	20
Benzo(g,h,i)perylene	0.0800	0.0461	0.0577	57.6	72.1	45.0-125		J3	22.4	20
Benzo(k)fluoranthene	0.0800	0.0655	0.0730	81.9	91.3	49.0-125			10.8	20
Chrysene	0.0800	0.0661	0.0635	82.6	79.4	49.0-122			4.01	20
Dibenz(a,h)anthracene	0.0800	0.0527	0.0657	65.9	82.1	47.0-125		J3	22.0	20
Fluoranthene	0.0800	0.0798	0.0743	99.8	92.9	49.0-129			7.14	20

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

(LCS) R3389383-1 03/06/19 13:37 • (LCSD) R3389383-2 03/06/19 13:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Fluorene	0.0800	0.0712	0.0696	89.0	87.0	49.0-120			2.27	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0488	0.0615	61.0	76.9	46.0-125		J3	23.0	20
Naphthalene	0.0800	0.0598	0.0619	74.8	77.4	50.0-120			3.45	20
Phenanthrene	0.0800	0.0620	0.0620	77.5	77.5	47.0-120			0.000	20
Pyrene	0.0800	0.0579	0.0584	72.4	73.0	43.0-123			0.860	20
1-Methylnaphthalene	0.0800	0.0643	0.0664	80.4	83.0	51.0-121			3.21	20
2-Methylnaphthalene	0.0800	0.0639	0.0661	79.9	82.6	50.0-120			3.38	20
2-Chloronaphthalene	0.0800	0.0627	0.0641	78.4	80.1	50.0-120			2.21	20
(S) Nitrobenzene-d5				81.9	75.2	14.0-149				
(S) 2-Fluorobiphenyl				89.2	82.9	34.0-125				
(S) p-Terphenyl-d14				74.1	73.9	23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1075449-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1075449-01 03/06/19 19:58 • (MS) R3389383-4 03/06/19 20:19 • (MSD) R3389383-5 03/06/19 20:40

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	0.0796	0.00441	0.0502	0.0504	57.5	58.1	1	10.0-145			0.398	30
Acenaphthene	0.0796	U	0.0523	0.0541	65.7	68.3	1	14.0-127			3.38	27
Acenaphthylene	0.0796	U	0.0587	0.0634	73.7	80.1	1	21.0-124			7.70	25
Benzo(a)anthracene	0.0796	U	0.0507	0.0516	63.7	65.2	1	10.0-139			1.76	30
Benzo(a)pyrene	0.0796	0.000620	0.0466	0.0451	57.8	56.2	1	10.0-141			3.27	31
Benzo(b)fluoranthene	0.0796	U	0.0294	0.0462	36.9	58.3	1	10.0-140		J3	44.4	36
Benzo(g,h,i)perylene	0.0796	U	0.0456	0.0445	57.3	56.2	1	10.0-140			2.44	33
Benzo(k)fluoranthene	0.0796	U	0.0312	0.0463	39.2	58.5	1	10.0-137		J3	39.0	31
Chrysene	0.0796	U	0.0469	0.0508	58.9	64.1	1	10.0-145			7.98	30
Dibenz(a,h)anthracene	0.0796	U	0.0461	0.0516	57.9	65.2	1	10.0-132			11.3	31
Fluoranthene	0.0796	0.000702	0.0708	0.0568	88.1	70.8	1	10.0-153			21.9	33
Fluorene	0.0796	0.00112	0.0468	0.0607	57.4	75.2	1	11.0-130			25.9	29
Indeno(1,2,3-cd)pyrene	0.0796	U	0.0422	0.0481	53.0	60.7	1	10.0-137			13.1	32
Naphthalene	0.0796	0.00676	0.0573	0.0584	63.5	65.2	1	10.0-135			1.90	27
Phenanthrene	0.0796	0.00254	0.0489	0.0424	58.2	50.3	1	10.0-144			14.2	31
Pyrene	0.0796	0.00646	0.0500	0.0672	54.7	76.7	1	10.0-148			29.4	35
1-Methylnaphthalene	0.0796	0.00658	0.0658	0.0681	74.4	77.7	1	10.0-142			3.44	28
2-Methylnaphthalene	0.0796	0.00607	0.0652	0.0676	74.3	77.7	1	10.0-137			3.61	28
2-Chloronaphthalene	0.0796	U	0.0546	0.0587	68.6	74.1	1	29.0-120			7.24	24
(S) Nitrobenzene-d5					72.3	60.9		14.0-149				
(S) 2-Fluorobiphenyl					67.2	74.9		34.0-125				
(S) p-Terphenyl-d14					59.4	77.4		23.0-120				



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

B	The same analyte is found in the associated blank.
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.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico 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]

Andy Vann

From: Chris Ward
Sent: Tuesday, March 05, 2019 10:41 AM
To: Login
Cc: Due VOC; Due SVOC; Due Metals; Due WetLab; SOIL PREPREP
Subject: *RUSH* L1073298 *ABSENEBWY* Take Samples off HOLD = 02-160

Importance: High

Please take all hold samples off hold for

BICP
TABLE910

Make due 3/8

Thanks,
Chris Ward
Project Manager

Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road | Mt. Juliet, TN 37122

cward@pacenational.com | www.pacenational.com

615.773.9712

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