Nicholson GeoSolutions LLC
3433 East Lake Drive
Centennial, CO 80121

June 24, 2018

Mr. Derek Johnson
Berry Petroleum Company
235 Callahan Avenue
Parachute, Colorado 81635

Subject: F-01 Final Landfarm Sampling Results

Dear Derek:

Nicholson GeoSolutions LLC was retained by Berry Petroleum Company (Berry) to conduct soil sampling of the landfarm on the F-01 well pad in the Garden Gulch area, Garfield County, Colorado. GPS mapping showed that the landfarm contains an estimated 5,300 yards of material. The landfarm material averages about 15 inches deep.

Sampling was conducted on May 24th, 2018. A total of eight composite soil samples were collected. Each composite sample was combined from six subsamples. All subsamples were collected from a depth of about 8-12 inches. The locations of the samples are shown on Figure 1.

All samples were analyzed for Total Volatile Petroleum Hydrocarbons (TVPH – gasoline range), Total Extractable Petroleum Hydrocarbons (TEPH – diesel and motor oil range), BTEX (benzene, toluene, ethylbenzene, and xylenes), sodium adsorption ratio (SAR), pH, conductivity, metals, and PAHs to evaluate compliance with the COGCC Table 910-1 standards and further treatment needs.

Table 1 provides a summary of the analytical results for the eight samples. The laboratory report is contained in Appendix A. Benzo(a)pyrene ranged from <0.006 mg/kg to 0.0531 mg/kg and exceeded the standard of 0.022 mg/kg for three of the eight samples. All other results were below the COGCC standards except for arsenic. Arsenic ranged from 3.63 mg/kg to 6.12 mg/kg, within the range of natural background concentrations for the Garden Gulch area.

Based on the sample results, remediation of the F-01 landfarm should continue. Figure 1 shows the areas of the landfarm that need further treatment based on the sample results. Since all SAR pH, and conductivity values are below the standards for all samples, the material in the areas of the landfarm that passed the benzo(a)pyrene standard does not need to be buried and can be used for general site purposes pending COGCC approval.

Nicholson GeoSolutions LLC

David K. Nicholson, P.G.
Principal Geologist

Table 1 F-01 Landfarm Sample Results – May 24, 2018

Parameter	Table 910-1 Standards	F01-1	F01-2	F01-3	F01-4
sp. conductance (mmhos/cm)	<4	0.283	0.252	0.264	0.247
pH (standard units)	6-9	8.08	8.23	8.32	8.16
SAR (ratio)	<12	2.57	2.85	2.63	2.71
TVPH – gasoline range	500[1]	0.113	0.139	0.119	0.141
TEPH – diesel/motor oil range		10.43	4.77	5.86	151.3
benzene	0.17	0.00127	0.00174	0.00148	0.00154
toluene	85	<0.005	<0.005	<0.005	<0.005
ethylbenzene	100	0.00609	0.00128	0.000851	0.00111
xylenes	175	<0.0015	0.00316	<0.0015	0.00202
benzo(a)pyrene	0.022	<0.006	0.00761	<0.006	**0.0531**
arsenic	0.39	**6.12**	**3.82**	**4.15**	**5.06**

Parameter	Table 910-1 Standards	F01-5	F01-6	F01-7	F01-8
sp. conductance (mmhos/cm)	<4	0.175	0.263	0.104	0.261
pH (standard units)	6-9	8.18	8.42	8.26	8.28
SAR (ratio)	<12	2.63	2.78	2.13	2.63
TVPH – gasoline range	500[1]	0.124	0.146	0.115	0.234
TEPH – diesel/motor oil range		4.40	<8.0	133.5	114.3
benzene	0.17	0.00158	0.00154	0.00129	0.00281
toluene	85	<0.005	<0.005	<0.005	0.00553
ethylbenzene	100	0.00091	0.00104	0.000883	0.00187
xylenes	175	0.00177	0.0017	0.00168	0.00334
benzo(a)pyrene	0.022	<0.006	<0.006	**0.0516**	**0.0504**
arsenic	0.39	**3.63**	**4.05**	**5.66**	**5.09**

[1]The standard is 500 for the combined total of TVPH and TEPH
Values in bold type exceed standards
All units in mg/kg except where indicated

Figure 1

June
2018

GeoSolutions
NICHOLSON

Legend

- Sub Sample
- Area Needing Further Treatment

0 25 50 100 150 Feet

1 " = 80 '

Berry Petroleum Company

F-01
Landfarm Final
Composite Soil Samples

APPENDIX A
Laboratory Report

ANALYTICAL REPORT

June 07, 2018

Berry Petroleum - Denver, CO

Sample Delivery Group:	L997768
Samples Received:	05/30/2018
Project Number:	
Description:	Berry Landfarms

Report To: Dave Nicholson
1999 Broadway, Suite 3700
Denver, CO 93309

Entire Report Reviewed By:

Olivia Studebaker
Technical Service Representative

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

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F01-1 L997768-01 Solid

Collected by: DK Nicholsen | Collected date/time: 05/24/18 11:10 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 10:52	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:53	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 01:06	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 09:45	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 14:52	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	1	06/02/18 20:39	06/03/18 12:01	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 21:31	KM

F01-2 L997768-02 Solid

Collected by: DK Nicholsen | Collected date/time: 05/24/18 11:15 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 10:55	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:55	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 00:22	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 09:47	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 15:14	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	1	06/02/18 20:39	06/03/18 12:40	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 21:53	KM

F01-3 L997768-03 Solid

Collected by: DK Nicholsen | Collected date/time: 05/24/18 11:20 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 10:59	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:55	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 01:08	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 09:50	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 15:36	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	1	06/02/18 20:39	06/03/18 12:54	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 22:15	KM

F01-4 L997768-04 Solid

Collected by: DK Nicholsen | Collected date/time: 05/24/18 11:25 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 11:02	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:56	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 01:10	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 09:52	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 15:57	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	10	06/02/18 20:39	06/03/18 16:27	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 22:37	KM

F01-5 L997768-05 Solid

Collected by	Collected date/time	Received date/time
DK Nicholsen	05/24/18 11:30	05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 11:05	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:57	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 01:12	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 10:05	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 16:19	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	1	06/02/18 20:39	06/03/18 13:08	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 22:59	KM

F01-6 L997768-06 Solid

Collected by	Collected date/time	Received date/time
DK Nicholsen	05/24/18 11:35	05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 11:08	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:57	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 01:14	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 10:08	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 16:41	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	1	06/02/18 20:39	06/03/18 13:24	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 23:21	KM

F01-7 L997768-07 Solid

Collected by	Collected date/time	Received date/time
DK Nicholsen	05/24/18 11:40	05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 11:12	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:59	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 01:17	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 10:10	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 17:02	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	10	06/02/18 20:39	06/03/18 16:40	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 23:43	KM

F01-8 L997768-08 Solid

Collected by	Collected date/time	Received date/time
DK Nicholsen	05/24/18 11:45	05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117907	1	06/05/18 08:29	06/06/18 11:21	CCE
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 17:02	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1118011	1	05/31/18 13:33	05/31/18 17:18	TH
Mercury by Method 7471A	WG1118292	1	05/31/18 14:41	06/01/18 01:19	EL
Metals (ICP) by Method 6010B	WG1118281	1	05/31/18 14:43	06/01/18 10:13	TRB
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119639	1	05/31/18 13:12	06/04/18 17:24	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	10	06/02/18 20:39	06/03/18 16:52	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118744	1	06/01/18 17:03	06/02/18 13:43	LEA

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Olivia Studebaker
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.57		1	06/06/2018 10:52	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 16:53	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.08	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-01 WG1118326: 8.08 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	283		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0236		0.0200	1	06/01/2018 01:06	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.12		2.00	1	06/01/2018 09:45	WG1118281
Barium	242		0.500	1	06/01/2018 09:45	WG1118281
Boron	ND		10.0	1	06/01/2018 09:45	WG1118281
Cadmium	ND		0.500	1	06/01/2018 09:45	WG1118281
Chromium	19.1		1.00	1	06/01/2018 09:45	WG1118281
Copper	18.9		2.00	1	06/01/2018 09:45	WG1118281
Lead	12.7		0.500	1	06/01/2018 09:45	WG1118281
Nickel	14.3		2.00	1	06/01/2018 09:45	WG1118281
Selenium	ND		2.00	1	06/01/2018 09:45	WG1118281
Silver	ND		1.00	1	06/01/2018 09:45	WG1118281
Zinc	55.4		5.00	1	06/01/2018 09:45	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00127		0.000500	1	06/04/2018 14:52	WG1119639
Toluene	ND		0.00500	1	06/04/2018 14:52	WG1119639
Ethylbenzene	0.000609		0.000500	1	06/04/2018 14:52	WG1119639
Total Xylene	ND		0.00150	1	06/04/2018 14:52	WG1119639
TPH (GC/FID) Low Fraction	0.113		0.100	1	06/04/2018 14:52	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*98.1*		*77.0-120*		*06/04/2018 14:52*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*87.6*		*75.0-128*		*06/04/2018 14:52*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.28		4.00	1	06/03/2018 12:01	WG1118335
C28-C40 Oil Range	4.15		4.00	1	06/03/2018 12:01	WG1118335
(S) o-Terphenyl	*98.0*		*18.0-148*		*06/03/2018 12:01*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Acenaphthene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Benzo(b)fluoranthene	0.00983		0.00600	1	06/04/2018 21:31	WG1118353
Benzo(g,h,i)perylene	0.00730		0.00600	1	06/04/2018 21:31	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Chrysene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Fluorene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Naphthalene	ND		0.0200	1	06/04/2018 21:31	WG1118353
Phenanthrene	ND		0.00600	1	06/04/2018 21:31	WG1118353
Pyrene	ND		0.00600	1	06/04/2018 21:31	WG1118353
1-Methylnaphthalene	ND		0.0200	1	06/04/2018 21:31	WG1118353
2-Methylnaphthalene	ND		0.0200	1	06/04/2018 21:31	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 21:31	WG1118353
(S) p-Terphenyl-d14	*75.2*		*23.0-120*		*06/04/2018 21:31*	WG1118353
(S) Nitrobenzene-d5	*60.7*		*14.0-149*		*06/04/2018 21:31*	WG1118353
(S) 2-Fluorobiphenyl	*72.4*		*34.0-125*		*06/04/2018 21:31*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.85		1	06/06/2018 10:55	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 16:55	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.23	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-02 WG1118326: 8.23 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	252		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	06/01/2018 00:22	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.82		2.00	1	06/01/2018 09:47	WG1118281
Barium	267		0.500	1	06/01/2018 09:47	WG1118281
Boron	ND		10.0	1	06/01/2018 09:47	WG1118281
Cadmium	ND		0.500	1	06/01/2018 09:47	WG1118281
Chromium	20.6		1.00	1	06/01/2018 09:47	WG1118281
Copper	19.3		2.00	1	06/01/2018 09:47	WG1118281
Lead	10.1		0.500	1	06/01/2018 09:47	WG1118281
Nickel	14.2		2.00	1	06/01/2018 09:47	WG1118281
Selenium	ND		2.00	1	06/01/2018 09:47	WG1118281
Silver	ND		1.00	1	06/01/2018 09:47	WG1118281
Zinc	54.1		5.00	1	06/01/2018 09:47	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00174		0.000500	1	06/04/2018 15:14	WG1119639
Toluene	ND		0.00500	1	06/04/2018 15:14	WG1119639
Ethylbenzene	0.00128		0.000500	1	06/04/2018 15:14	WG1119639
Total Xylene	0.00316		0.00150	1	06/04/2018 15:14	WG1119639
TPH (GC/FID) Low Fraction	0.139		0.100	1	06/04/2018 15:14	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*99.7*		*77.0-120*		*06/04/2018 15:14*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*89.2*		*75.0-128*		*06/04/2018 15:14*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.77	J3	4.00	1	06/03/2018 12:40	WG1118335
C28-C40 Oil Range	ND		4.00	1	06/03/2018 12:40	WG1118335
(S) o-Terphenyl	*110*		*18.0-148*		*06/03/2018 12:40*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	06/04/2018 21:53	WG1118353
Acenaphthene	ND		0.00600	1	06/04/2018 21:53	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 21:53	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 21:53	WG1118353
Benzo(a)pyrene	0.00761		0.00600	1	06/04/2018 21:53	WG1118353
Benzo(b)fluoranthene	0.0165		0.00600	1	06/04/2018 21:53	WG1118353
Benzo(g,h,i)perylene	0.0115		0.00600	1	06/04/2018 21:53	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 21:53	WG1118353
Chrysene	0.00850		0.00600	1	06/04/2018 21:53	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 21:53	WG1118353
Fluoranthene	0.00614		0.00600	1	06/04/2018 21:53	WG1118353
Fluorene	ND		0.00600	1	06/04/2018 21:53	WG1118353
Indeno(1,2,3-cd)pyrene	0.00828		0.00600	1	06/04/2018 21:53	WG1118353
Naphthalene	ND		0.0200	1	06/04/2018 21:53	WG1118353
Phenanthrene	0.00639		0.00600	1	06/04/2018 21:53	WG1118353
Pyrene	ND		0.00600	1	06/04/2018 21:53	WG1118353
1-Methylnaphthalene	ND		0.0200	1	06/04/2018 21:53	WG1118353
2-Methylnaphthalene	ND		0.0200	1	06/04/2018 21:53	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 21:53	WG1118353
(S) p-Terphenyl-d14	*62.8*		*23.0-120*		*06/04/2018 21:53*	WG1118353
(S) Nitrobenzene-d5	*47.4*		*14.0-149*		*06/04/2018 21:53*	WG1118353
(S) 2-Fluorobiphenyl	*70.9*		*34.0-125*		*06/04/2018 21:53*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.63		1	06/06/2018 10:59	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 16:55	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.32	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-03 WG1118326: 8.32 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	264		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0247		0.0200	1	06/01/2018 01:08	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.15		2.00	1	06/01/2018 09:50	WG1118281
Barium	230		0.500	1	06/01/2018 09:50	WG1118281
Boron	ND		10.0	1	06/01/2018 09:50	WG1118281
Cadmium	ND		0.500	1	06/01/2018 09:50	WG1118281
Chromium	21.5		1.00	1	06/01/2018 09:50	WG1118281
Copper	17.2		2.00	1	06/01/2018 09:50	WG1118281
Lead	12.7		0.500	1	06/01/2018 09:50	WG1118281
Nickel	14.6		2.00	1	06/01/2018 09:50	WG1118281
Selenium	ND		2.00	1	06/01/2018 09:50	WG1118281
Silver	ND		1.00	1	06/01/2018 09:50	WG1118281
Zinc	56.9		5.00	1	06/01/2018 09:50	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00148		0.000500	1	06/04/2018 15:36	WG1119639
Toluene	ND		0.00500	1	06/04/2018 15:36	WG1119639
Ethylbenzene	0.000851		0.000500	1	06/04/2018 15:36	WG1119639
Total Xylene	ND		0.00150	1	06/04/2018 15:36	WG1119639
TPH (GC/FID) Low Fraction	0.119		0.100	1	06/04/2018 15:36	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*99.0*		*77.0-120*		*06/04/2018 15:36*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*88.4*		*75.0-128*		*06/04/2018 15:36*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	5.86	J3	4.00	1	06/03/2018 12:54	WG1118335
C28-C40 Oil Range	ND		4.00	1	06/03/2018 12:54	WG1118335
(S) o-Terphenyl	*88.8*		*18.0-148*		*06/03/2018 12:54*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Acenaphthene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Benzo(b)fluoranthene	0.00617		0.00600	1	06/04/2018 22:15	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Chrysene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Fluorene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Naphthalene	ND		0.0200	1	06/04/2018 22:15	WG1118353
Phenanthrene	ND		0.00600	1	06/04/2018 22:15	WG1118353
Pyrene	ND		0.00600	1	06/04/2018 22:15	WG1118353
1-Methylnaphthalene	ND		0.0200	1	06/04/2018 22:15	WG1118353
2-Methylnaphthalene	ND		0.0200	1	06/04/2018 22:15	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 22:15	WG1118353
(S) p-Terphenyl-d14	*70.6*		*23.0-120*		*06/04/2018 22:15*	WG1118353
(S) Nitrobenzene-d5	*67.0*		*14.0-149*		*06/04/2018 22:15*	WG1118353
(S) 2-Fluorobiphenyl	*76.4*		*34.0-125*		*06/04/2018 22:15*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.71		1	06/06/2018 11:02	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 16:56	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.16	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-04 WG1118326: 8.16 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	247		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0259		0.0200	1	06/01/2018 01:10	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.06		2.00	1	06/01/2018 09:52	WG1118281
Barium	290		0.500	1	06/01/2018 09:52	WG1118281
Boron	ND		10.0	1	06/01/2018 09:52	WG1118281
Cadmium	ND		0.500	1	06/01/2018 09:52	WG1118281
Chromium	23.5		1.00	1	06/01/2018 09:52	WG1118281
Copper	23.6		2.00	1	06/01/2018 09:52	WG1118281
Lead	13.5		0.500	1	06/01/2018 09:52	WG1118281
Nickel	17.0		2.00	1	06/01/2018 09:52	WG1118281
Selenium	ND		2.00	1	06/01/2018 09:52	WG1118281
Silver	ND		1.00	1	06/01/2018 09:52	WG1118281
Zinc	64.8		5.00	1	06/01/2018 09:52	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00154		0.000500	1	06/04/2018 15:57	WG1119639
Toluene	ND		0.00500	1	06/04/2018 15:57	WG1119639
Ethylbenzene	0.00111		0.000500	1	06/04/2018 15:57	WG1119639
Total Xylene	0.00202		0.00150	1	06/04/2018 15:57	WG1119639
TPH (GC/FID) Low Fraction	0.141		0.100	1	06/04/2018 15:57	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*98.2*		*77.0-120*		*06/04/2018 15:57*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*88.0*		*75.0-128*		*06/04/2018 15:57*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	91.5	J3	40.0	10	06/03/2018 16:27	WG1118335
C28-C40 Oil Range	59.8		40.0	10	06/03/2018 16:27	WG1118335
(S) o-Terphenyl	*7.21*	J2	*18.0-148*		*06/03/2018 16:27*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00804		0.00600	1	06/04/2018 22:37	WG1118353
Acenaphthene	ND		0.00600	1	06/04/2018 22:37	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 22:37	WG1118353
Benzo(a)anthracene	0.0406		0.00600	1	06/04/2018 22:37	WG1118353
Benzo(a)pyrene	0.0531		0.00600	1	06/04/2018 22:37	WG1118353
Benzo(b)fluoranthene	0.116		0.00600	1	06/04/2018 22:37	WG1118353
Benzo(g,h,i)perylene	0.0771		0.00600	1	06/04/2018 22:37	WG1118353
Benzo(k)fluoranthene	0.0337		0.00600	1	06/04/2018 22:37	WG1118353
Chrysene	0.0469		0.00600	1	06/04/2018 22:37	WG1118353
Dibenz(a,h)anthracene	0.0212		0.00600	1	06/04/2018 22:37	WG1118353
Fluoranthene	0.0476		0.00600	1	06/04/2018 22:37	WG1118353
Fluorene	0.0104		0.00600	1	06/04/2018 22:37	WG1118353
Indeno(1,2,3-cd)pyrene	0.0523		0.00600	1	06/04/2018 22:37	WG1118353
Naphthalene	0.0851		0.0200	1	06/04/2018 22:37	WG1118353
Phenanthrene	0.0651		0.00600	1	06/04/2018 22:37	WG1118353
Pyrene	0.0377		0.00600	1	06/04/2018 22:37	WG1118353
1-Methylnaphthalene	0.0835		0.0200	1	06/04/2018 22:37	WG1118353
2-Methylnaphthalene	0.127		0.0200	1	06/04/2018 22:37	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 22:37	WG1118353
(S) p-Terphenyl-d14	*63.7*		*23.0-120*		*06/04/2018 22:37*	WG1118353
(S) Nitrobenzene-d5	*60.6*		*14.0-149*		*06/04/2018 22:37*	WG1118353
(S) 2-Fluorobiphenyl	*68.1*		*34.0-125*		*06/04/2018 22:37*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.63		1	06/06/2018 11:05	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 16:57	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.18	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-05 WG1118326: 8.18 at 20.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	175		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0229		0.0200	1	06/01/2018 01:12	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.63		2.00	1	06/01/2018 10:05	WG1118281
Barium	248		0.500	1	06/01/2018 10:05	WG1118281
Boron	ND		10.0	1	06/01/2018 10:05	WG1118281
Cadmium	ND		0.500	1	06/01/2018 10:05	WG1118281
Chromium	20.5		1.00	1	06/01/2018 10:05	WG1118281
Copper	18.7		2.00	1	06/01/2018 10:05	WG1118281
Lead	11.2		0.500	1	06/01/2018 10:05	WG1118281
Nickel	14.2		2.00	1	06/01/2018 10:05	WG1118281
Selenium	ND		2.00	1	06/01/2018 10:05	WG1118281
Silver	ND		1.00	1	06/01/2018 10:05	WG1118281
Zinc	53.6		5.00	1	06/01/2018 10:05	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00158		0.000500	1	06/04/2018 16:19	WG1119639
Toluene	ND		0.00500	1	06/04/2018 16:19	WG1119639
Ethylbenzene	0.000910		0.000500	1	06/04/2018 16:19	WG1119639
Total Xylene	0.00177		0.00150	1	06/04/2018 16:19	WG1119639
TPH (GC/FID) Low Fraction	0.124		0.100	1	06/04/2018 16:19	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*100*		*77.0-120*		*06/04/2018 16:19*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*89.3*		*75.0-128*		*06/04/2018 16:19*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.40	J3	4.00	1	06/03/2018 13:08	WG1118335
C28-C40 Oil Range	ND		4.00	1	06/03/2018 13:08	WG1118335
(S) o-Terphenyl	*108*		*18.0-148*		*06/03/2018 13:08*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Acenaphthene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Chrysene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Fluorene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Naphthalene	ND		0.0200	1	06/04/2018 22:59	WG1118353
Phenanthrene	ND		0.00600	1	06/04/2018 22:59	WG1118353
Pyrene	ND		0.00600	1	06/04/2018 22:59	WG1118353
1-Methylnaphthalene	ND		0.0200	1	06/04/2018 22:59	WG1118353
2-Methylnaphthalene	ND		0.0200	1	06/04/2018 22:59	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 22:59	WG1118353
(S) p-Terphenyl-d14	*67.5*		*23.0-120*		*06/04/2018 22:59*	WG1118353
(S) Nitrobenzene-d5	*70.8*		*14.0-149*		*06/04/2018 22:59*	WG1118353
(S) 2-Fluorobiphenyl	*93.7*		*34.0-125*		*06/04/2018 22:59*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.78		1	06/06/2018 11:08	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 16:57	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-06 WG1118326: 8.42 at 20.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	263		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0233		0.0200	1	06/01/2018 01:14	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.05		2.00	1	06/01/2018 10:08	WG1118281
Barium	270		0.500	1	06/01/2018 10:08	WG1118281
Boron	ND		10.0	1	06/01/2018 10:08	WG1118281
Cadmium	ND		0.500	1	06/01/2018 10:08	WG1118281
Chromium	20.3		1.00	1	06/01/2018 10:08	WG1118281
Copper	17.8		2.00	1	06/01/2018 10:08	WG1118281
Lead	10.7		0.500	1	06/01/2018 10:08	WG1118281
Nickel	14.3		2.00	1	06/01/2018 10:08	WG1118281
Selenium	ND		2.00	1	06/01/2018 10:08	WG1118281
Silver	ND		1.00	1	06/01/2018 10:08	WG1118281
Zinc	54.8		5.00	1	06/01/2018 10:08	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00154		0.000500	1	06/04/2018 16:41	WG1119639
Toluene	ND		0.00500	1	06/04/2018 16:41	WG1119639
Ethylbenzene	0.00104		0.000500	1	06/04/2018 16:41	WG1119639
Total Xylene	0.00170		0.00150	1	06/04/2018 16:41	WG1119639
TPH (GC/FID) Low Fraction	0.146		0.100	1	06/04/2018 16:41	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*96.8*		*77.0-120*		*06/04/2018 16:41*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*87.0*		*75.0-128*		*06/04/2018 16:41*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND	J3	4.00	1	06/03/2018 13:24	WG1118335
C28-C40 Oil Range	ND		4.00	1	06/03/2018 13:24	WG1118335
(S) o-Terphenyl	*102*		*18.0-148*		*06/03/2018 13:24*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Acenaphthene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Benzo(b)fluoranthene	0.00802		0.00600	1	06/04/2018 23:21	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Chrysene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Fluorene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Naphthalene	ND		0.0200	1	06/04/2018 23:21	WG1118353
Phenanthrene	ND		0.00600	1	06/04/2018 23:21	WG1118353
Pyrene	ND		0.00600	1	06/04/2018 23:21	WG1118353
1-Methylnaphthalene	ND		0.0200	1	06/04/2018 23:21	WG1118353
2-Methylnaphthalene	ND		0.0200	1	06/04/2018 23:21	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 23:21	WG1118353
(S) p-Terphenyl-d14	*61.0*		*23.0-120*		*06/04/2018 23:21*	WG1118353
(S) Nitrobenzene-d5	*62.3*		*14.0-149*		*06/04/2018 23:21*	WG1118353
(S) 2-Fluorobiphenyl	*74.5*		*34.0-125*		*06/04/2018 23:21*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.13		1	06/06/2018 11:12	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 16:59	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.26	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-07 WG1118326: 8.26 at 20.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	104		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0286		0.0200	1	06/01/2018 01:17	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.66		2.00	1	06/01/2018 10:10	WG1118281
Barium	308		0.500	1	06/01/2018 10:10	WG1118281
Boron	ND		10.0	1	06/01/2018 10:10	WG1118281
Cadmium	ND		0.500	1	06/01/2018 10:10	WG1118281
Chromium	27.4		1.00	1	06/01/2018 10:10	WG1118281
Copper	23.2		2.00	1	06/01/2018 10:10	WG1118281
Lead	15.3		0.500	1	06/01/2018 10:10	WG1118281
Nickel	19.4		2.00	1	06/01/2018 10:10	WG1118281
Selenium	ND		2.00	1	06/01/2018 10:10	WG1118281
Silver	ND		1.00	1	06/01/2018 10:10	WG1118281
Zinc	68.1		5.00	1	06/01/2018 10:10	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00129		0.000500	1	06/04/2018 17:02	WG1119639
Toluene	ND		0.00500	1	06/04/2018 17:02	WG1119639
Ethylbenzene	0.000883		0.000500	1	06/04/2018 17:02	WG1119639
Total Xylene	0.00168		0.00150	1	06/04/2018 17:02	WG1119639
TPH (GC/FID) Low Fraction	0.115		0.100	1	06/04/2018 17:02	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*100*		*77.0-120*		*06/04/2018 17:02*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*88.6*		*75.0-128*		*06/04/2018 17:02*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	78.9	J3	40.0	10	06/03/2018 16:40	WG1118335
C28-C40 Oil Range	54.6		40.0	10	06/03/2018 16:40	WG1118335
(S) o-Terphenyl	*85.3*		*18.0-148*		*06/03/2018 16:40*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00757		0.00600	1	06/04/2018 23:43	WG1118353
Acenaphthene	ND		0.00600	1	06/04/2018 23:43	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 23:43	WG1118353
Benzo(a)anthracene	0.0412		0.00600	1	06/04/2018 23:43	WG1118353
Benzo(a)pyrene	0.0516		0.00600	1	06/04/2018 23:43	WG1118353
Benzo(b)fluoranthene	0.123		0.00600	1	06/04/2018 23:43	WG1118353
Benzo(g,h,i)perylene	0.0733		0.00600	1	06/04/2018 23:43	WG1118353
Benzo(k)fluoranthene	0.0244		0.00600	1	06/04/2018 23:43	WG1118353
Chrysene	0.0469		0.00600	1	06/04/2018 23:43	WG1118353
Dibenz(a,h)anthracene	0.0212		0.00600	1	06/04/2018 23:43	WG1118353
Fluoranthene	0.0474		0.00600	1	06/04/2018 23:43	WG1118353
Fluorene	0.00842		0.00600	1	06/04/2018 23:43	WG1118353
Indeno(1,2,3-cd)pyrene	0.0508		0.00600	1	06/04/2018 23:43	WG1118353
Naphthalene	0.0771		0.0200	1	06/04/2018 23:43	WG1118353
Phenanthrene	0.0608		0.00600	1	06/04/2018 23:43	WG1118353
Pyrene	0.0375		0.00600	1	06/04/2018 23:43	WG1118353
1-Methylnaphthalene	0.0872		0.0200	1	06/04/2018 23:43	WG1118353
2-Methylnaphthalene	0.136		0.0200	1	06/04/2018 23:43	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 23:43	WG1118353
(S) p-Terphenyl-d14	*72.1*		*23.0-120*		*06/04/2018 23:43*	WG1118353
(S) Nitrobenzene-d5	*67.8*		*14.0-149*		*06/04/2018 23:43*	WG1118353
(S) 2-Fluorobiphenyl	*74.9*		*34.0-125*		*06/04/2018 23:43*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.63		1	06/06/2018 11:21	WG1117907

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	06/01/2018 17:02	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.28	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997768-08 WG1118326: 8.28 at 20.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	261		10.0	1	05/31/2018 17:18	WG1118011

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0266		0.0200	1	06/01/2018 01:19	WG1118292

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.09		2.00	1	06/01/2018 10:13	WG1118281
Barium	296		0.500	1	06/01/2018 10:13	WG1118281
Boron	ND		10.0	1	06/01/2018 10:13	WG1118281
Cadmium	ND		0.500	1	06/01/2018 10:13	WG1118281
Chromium	21.9		1.00	1	06/01/2018 10:13	WG1118281
Copper	20.9		2.00	1	06/01/2018 10:13	WG1118281
Lead	13.3		0.500	1	06/01/2018 10:13	WG1118281
Nickel	16.9		2.00	1	06/01/2018 10:13	WG1118281
Selenium	ND		2.00	1	06/01/2018 10:13	WG1118281
Silver	ND		1.00	1	06/01/2018 10:13	WG1118281
Zinc	59.7		5.00	1	06/01/2018 10:13	WG1118281

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00281		0.000500	1	06/04/2018 17:24	WG1119639
Toluene	0.00553		0.00500	1	06/04/2018 17:24	WG1119639
Ethylbenzene	0.00187		0.000500	1	06/04/2018 17:24	WG1119639
Total Xylene	0.00334		0.00150	1	06/04/2018 17:24	WG1119639
TPH (GC/FID) Low Fraction	0.234		0.100	1	06/04/2018 17:24	WG1119639
(S) a,a,a-Trifluorotoluene(FID)	*98.9*		*77.0-120*		*06/04/2018 17:24*	WG1119639
(S) a,a,a-Trifluorotoluene(PID)	*89.8*		*75.0-128*		*06/04/2018 17:24*	WG1119639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	68.6	J3	40.0	10	06/03/2018 16:52	WG1118335
C28-C40 Oil Range	45.7		40.0	10	06/03/2018 16:52	WG1118335
(S) o-Terphenyl	*67.8*		*18.0-148*		*06/03/2018 16:52*	WG1118335

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00758		0.00600	1	06/02/2018 13:43	WG1118744
Acenaphthene	ND		0.00600	1	06/02/2018 13:43	WG1118744
Acenaphthylene	ND		0.00600	1	06/02/2018 13:43	WG1118744
Benzo(a)anthracene	0.0356		0.00600	1	06/02/2018 13:43	WG1118744
Benzo(a)pyrene	0.0504		0.00600	1	06/02/2018 13:43	WG1118744
Benzo(b)fluoranthene	0.115		0.00600	1	06/02/2018 13:43	WG1118744
Benzo(g,h,i)perylene	0.0746		0.00600	1	06/02/2018 13:43	WG1118744
Benzo(k)fluoranthene	0.0235		0.00600	1	06/02/2018 13:43	WG1118744
Chrysene	0.0605		0.00600	1	06/02/2018 13:43	WG1118744
Dibenz(a,h)anthracene	0.0120		0.00600	1	06/02/2018 13:43	WG1118744
Fluoranthene	0.0418		0.00600	1	06/02/2018 13:43	WG1118744
Fluorene	0.0116		0.00600	1	06/02/2018 13:43	WG1118744
Indeno(1,2,3-cd)pyrene	0.0522		0.00600	1	06/02/2018 13:43	WG1118744
Naphthalene	0.0961		0.0200	1	06/02/2018 13:43	WG1118744
Phenanthrene	0.0638		0.00600	1	06/02/2018 13:43	WG1118744
Pyrene	0.0340		0.00600	1	06/02/2018 13:43	WG1118744
1-Methylnaphthalene	0.113		0.0200	1	06/02/2018 13:43	WG1118744
2-Methylnaphthalene	0.177		0.0200	1	06/02/2018 13:43	WG1118744
2-Chloronaphthalene	ND		0.0200	1	06/02/2018 13:43	WG1118744
(S) p-Terphenyl-d14	*77.4*		*23.0-120*		*06/02/2018 13:43*	WG1118744
(S) Nitrobenzene-d5	*45.4*		*14.0-149*		*06/02/2018 13:43*	WG1118744
(S) 2-Fluorobiphenyl	*78.1*		*34.0-125*		*06/02/2018 13:43*	WG1118744

Method Blank (MB)

(MB) R3314708-1 06/01/18 16:31

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

L997754-07 Original Sample (OS) • Duplicate (DUP)

(OS) L997754-07 06/01/18 16:46 • (DUP) R3314708-4 06/01/18 16:46

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

L997768-07 Original Sample (OS) • Duplicate (DUP)

(OS) L997768-07 06/01/18 16:59 • (DUP) R3314708-9 06/01/18 17:00

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

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

(LCS) R3314708-2 06/01/18 16:44 • (LCSD) R3314708-3 06/01/18 16:45

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 %
Chromium,Hexavalent	24.0	21.8	22.3	91.0	92.8	80.0-120			1.99	20

L997754-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997754-13 06/01/18 16:50 • (MS) R3314708-5 06/01/18 16:50 • (MSD) R3314708-6 06/01/18 16:50

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 %
Chromium,Hexavalent	20.0	ND	8.84	10.5	44.2	52.6	1	75.0-125	J6	J6	17.4	20

Sample Narrative:

OS: Sample is a reducer

L997754-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L997754-13 06/01/18 16:50 • (MS) R3314708-7 06/01/18 16:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	6560	ND	583	8.88	50	75.0-125	J6

Sample Narrative:

OS: Sample is a reducer

L997754-13 Original Sample (OS) • Duplicate (DUP)

(OS) L997754-13 05/31/18 17:15 • (DUP) R3314372-3 05/31/18 17:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.85	7.88	1	0.381		1

Sample Narrative:

OS: 7.85 at 21.3C

DUP: 7.88 at 21.4C

L997768-08 Original Sample (OS) • Duplicate (DUP)

(OS) L997768-08 05/31/18 17:15 • (DUP) R3314372-4 05/31/18 17:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.28	8.24	1	0.484		1

Sample Narrative:

OS: 8.28 at 20.5C

DUP: 8.24 at 20.4C

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

(LCS) R3314372-1 05/31/18 17:15 • (LCSD) R3314372-2 05/31/18 17:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.94	9.97	99.4	99.7	99.0-101			0.301	1

Sample Narrative:

LCS: 9.94 at 20.6C

LCSD: 9.97 at 20.7C

Method Blank (MB)

(MB) R3314362-1 05/31/18 17:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

L997768-08 Original Sample (OS) • Duplicate (DUP)

(OS) L997768-08 05/31/18 17:18 • (DUP) R3314362-4 05/31/18 17:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	261	262	1	0.382		20

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

(LCS) R3314362-2 05/31/18 17:18 • (LCSD) R3314362-3 05/31/18 17:18

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	877	866	866	98.7	98.7	85.0-115			0.000	20

Method Blank (MB)

(MB) R3314426-1 06/01/18 00:15

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

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

(LCS) R3314426-2 06/01/18 00:17 • (LCSD) R3314426-3 06/01/18 00:19

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 %
Mercury	0.300	0.242	0.270	80.7	90.1	80.0-120			11.1	20

L997768-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997768-02 06/01/18 00:22 • (MS) R3314426-4 06/01/18 00:24 • (MSD) R3314426-5 06/01/18 00:26

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 %
Mercury	0.300	ND	0.244	0.249	76.0	77.5	1	75.0-125			1.91	20

Method Blank (MB)

(MB) R3314564-1 06/01/18 09:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.650	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		0.740	2.00
Silver	U		0.280	1.00
Zinc	U		0.590	5.00

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

(LCS) R3314564-2 06/01/18 09:02 • (LCSD) R3314564-3 06/01/18 09:05

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	99.3	101	99.3	101	80.0-120			1.24	20
Barium	100	103	104	103	104	80.0-120			0.994	20
Boron	100	101	103	101	103	80.0-120			1.71	20
Cadmium	100	98.5	99.2	98.5	99.2	80.0-120			0.756	20
Chromium	100	100	102	100	102	80.0-120			1.34	20
Copper	100	101	103	101	103	80.0-120			1.28	20
Lead	100	101	109	101	109	80.0-120			8.14	20
Nickel	100	103	105	103	105	80.0-120			1.37	20
Selenium	100	99.4	99.2	99.4	99.2	80.0-120			0.219	20
Silver	20.0	18.3	18.5	91.6	92.5	80.0-120			0.971	20
Zinc	100	100	102	100	102	80.0-120			1.19	20

L997729-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997729-01 06/01/18 09:07 • (MS) R3314564-6 06/01/18 09:15 • (MSD) R3314564-7 06/01/18 09:17

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	4.68	102	100	97.4	95.3	1	75.0-125			2.15	20
Barium	100	360	487	486	127	126	1	75.0-125	J5	J5	0.210	20
Boron	100	ND	95.4	96.3	95.4	96.3	1	75.0-125			0.925	20
Cadmium	100	ND	97.6	96.2	97.4	96.0	1	75.0-125			1.39	20
Chromium	100	34.0	131	130	96.6	96.5	1	75.0-125			0.101	20

L997729-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997729-01 06/01/18 09:07 • (MS) R3314564-6 06/01/18 09:15 • (MSD) R3314564-7 06/01/18 09:17

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	13.2	115	114	102	101	1	75.0-125			0.769	20
Lead	100	10.2	113	111	103	101	1	75.0-125			1.69	20
Nickel	100	21.6	127	127	105	105	1	75.0-125			0.181	20
Selenium	100	ND	96.6	96.0	96.6	96.0	1	75.0-125			0.557	20
Silver	20.0	ND	18.0	17.7	89.8	88.4	1	75.0-125			1.61	20
Zinc	100	56.6	147	148	90.0	91.1	1	75.0-125			0.739	20

Method Blank (MB)

(MB) R3315406-5 06/04/18 12:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*105*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*92.7*			*75.0-128*

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

(LCS) R3315406-1 06/04/18 10:49 • (LCSD) R3315406-2 06/04/18 11:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0546	0.0494	109	98.8	71.0-121			9.93	20
Toluene	0.0500	0.0546	0.0498	109	99.5	72.0-120			9.31	20
Ethylbenzene	0.0500	0.0574	0.0518	115	104	76.0-121			10.3	20
Total Xylene	0.150	0.168	0.151	112	101	75.0-124			10.3	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*104*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*99.4*	*100*	*75.0-128*				

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

(LCS) R3315406-3 06/04/18 11:32 • (LCSD) R3315406-4 06/04/18 11:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.60	5.60	102	102	70.0-136			0.00211	20
(S) a,a,a-Trifluorotoluene(FID)				*102*	*102*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*106*	*106*	*75.0-128*				

L998733-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L998733-05 06/04/18 21:42 • (MS) R3315406-6 06/04/18 22:04 • (MSD) R3315406-7 06/04/18 22:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0234	1.11	1.19	87.1	93.0	25	10.0-146			6.46	29
Toluene	0.0500	ND	1.13	1.19	86.3	91.0	25	10.0-143			5.09	30
Ethylbenzene	0.0500	0.0859	1.22	1.28	90.4	95.9	25	10.0-147			5.53	31
Total Xylene	0.150	0.526	3.74	3.93	85.7	90.8	25	10.0-149			4.95	30
(S) a,a,a-Trifluorotoluene(FID)					*107*	*105*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*102*	*100*		*75.0-128*				

L998733-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L998733-05 06/04/18 21:42 • (MS) R3315406-8 06/04/18 22:48 • (MSD) R3315406-9 06/04/18 23:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	7.80	120	123	81.6	83.6	25	10.0-147			2.33	30
(S) a,a,a-Trifluorotoluene(FID)					*103*	*103*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*106*	*107*		*75.0-128*				

Method Blank (MB)

(MB) R3315166-1 06/03/18 10:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*94.6*			*18.0-148*

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

(LCS) R3315166-2 06/03/18 10:27 • (LCSD) R3315166-3 06/03/18 10:42

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 %
C10-C28 Diesel Range	50.0	26.0	41.7	52.1	83.5	50.0-150		J3	46.4	20
(S) o-Terphenyl				*71.2*	*114*	*18.0-148*				

L997768-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997768-01 06/03/18 12:01 • (MS) R3315166-4 06/03/18 12:13 • (MSD) R3315166-5 06/03/18 12:26

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 %
C10-C28 Diesel Range	50.0	6.28	41.1	46.0	69.5	79.5	1	50.0-150			11.5	20
(S) o-Terphenyl					*83.9*	*83.0*		*18.0-148*				

Method Blank (MB)

(MB) R3315533-3 06/04/18 15:39

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	*70.5*			*14.0-149*
(S) 2-Fluorobiphenyl	*67.4*			*34.0-125*
(S) p-Terphenyl-d14	*59.1*			*23.0-120*

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

(LCS) R3315533-1 06/04/18 14:55 • (LCSD) R3315533-2 06/04/18 15:17

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	0.0596	0.0556	74.5	69.5	50.0-125			6.88	20
Acenaphthene	0.0800	0.0542	0.0524	67.7	65.5	52.0-120			3.26	20
Acenaphthylene	0.0800	0.0589	0.0551	73.6	68.9	51.0-120			6.64	20
Benzo(a)anthracene	0.0800	0.0549	0.0510	68.6	63.7	46.0-121			7.43	20
Benzo(a)pyrene	0.0800	0.0504	0.0464	62.9	58.0	42.0-121			8.23	20
Benzo(b)fluoranthene	0.0800	0.0490	0.0488	61.3	61.0	42.0-123			0.506	20
Benzo(g,h,i)perylene	0.0800	0.0560	0.0524	70.1	65.5	43.0-128			6.75	20
Benzo(k)fluoranthene	0.0800	0.0571	0.0507	71.4	63.4	45.0-128			11.8	20
Chrysene	0.0800	0.0560	0.0530	69.9	66.2	48.0-127			5.51	20
Dibenz(a,h)anthracene	0.0800	0.0548	0.0512	68.4	64.1	43.0-132			6.62	20
Fluoranthene	0.0800	0.0531	0.0535	66.4	66.9	49.0-129			0.746	20

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

(LCS) R3315533-1 06/04/18 14:55 • (LCSD) R3315533-2 06/04/18 15:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0563	0.0535	70.3	66.8	50.0-120			5.13	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0546	0.0509	68.2	63.6	44.0-131			7.00	20
Naphthalene	0.0800	0.0562	0.0529	70.3	66.1	50.0-120			6.10	20
Phenanthrene	0.0800	0.0560	0.0520	70.0	65.0	48.0-120			7.52	20
Pyrene	0.0800	0.0504	0.0457	62.9	57.1	48.0-135			9.71	20
1-Methylnaphthalene	0.0800	0.0581	0.0554	72.6	69.2	52.0-122			4.77	20
2-Methylnaphthalene	0.0800	0.0553	0.0526	69.1	65.8	52.0-120			4.92	20
2-Chloronaphthalene	0.0800	0.0548	0.0516	68.5	64.6	50.0-120			5.89	20
(S) Nitrobenzene-d5				*67.1*	*66.0*	*14.0-149*				
(S) 2-Fluorobiphenyl				*67.3*	*62.5*	*34.0-125*				
(S) p-Terphenyl-d14				*58.5*	*53.8*	*23.0-120*				

L997754-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997754-01 06/04/18 16:01 • (MS) R3315533-4 06/04/18 16:23 • (MSD) R3315533-5 06/04/18 16:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0112	0.0541	0.0474	53.6	45.2	1	20.0-136			13.2	24
Acenaphthene	0.0800	0.0227	0.0563	0.0529	42.0	37.7	1	29.0-124			6.24	20
Acenaphthylene	0.0800	ND	0.0480	0.0436	60.0	54.5	1	35.0-120			9.61	20
Benzo(a)anthracene	0.0800	ND	0.0460	0.0390	54.8	46.0	1	13.0-132			16.5	27
Benzo(a)pyrene	0.0800	ND	0.0419	0.0378	50.7	45.5	1	14.0-138			10.5	27
Benzo(b)fluoranthene	0.0800	ND	0.0434	0.0387	47.8	42.0	1	10.0-129			11.3	31
Benzo(g,h,i)perylene	0.0800	ND	0.0446	0.0380	49.2	40.9	1	10.0-133			16.1	30
Benzo(k)fluoranthene	0.0800	ND	0.0417	0.0383	51.1	46.9	1	15.0-131			8.40	27
Chrysene	0.0800	0.00743	0.0504	0.0410	53.7	42.0	1	15.0-137			20.5	25
Dibenz(a,h)anthracene	0.0800	ND	0.0417	0.0352	50.6	42.4	1	15.0-132			17.0	27
Fluoranthene	0.0800	ND	0.0503	0.0426	56.0	46.4	1	13.0-139			16.6	28
Fluorene	0.0800	0.0202	0.0560	0.0500	44.9	37.3	1	27.0-122			11.5	22
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0409	0.0350	49.6	42.3	1	11.0-133			15.4	29
Naphthalene	0.0800	0.151	0.147	0.139	0.000	0.000	1	18.0-136	J6	J6	5.75	21
Phenanthrene	0.0800	0.106	0.116	0.0914	12.2	0.000	1	15.0-133	J6	J6	23.7	25
Pyrene	0.0800	0.0620	0.0807	0.0799	23.4	22.3	1	11.0-146			1.03	29
1-Methylnaphthalene	0.0800	0.177	0.157	0.144	0.000	0.000	1	24.0-137	J6	J6	8.37	22
2-Methylnaphthalene	0.0800	0.425	0.323	0.290	0.000	0.000	1	23.0-136	V	V	10.7	22
2-Chloronaphthalene	0.0800	ND	0.0425	0.0415	53.1	51.8	1	36.0-120			2.49	20
(S) Nitrobenzene-d5					*66.9*	*61.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*60.3*	*52.7*		*34.0-125*				
(S) p-Terphenyl-d14					*57.3*	*44.6*		*23.0-120*				

Method Blank (MB)

(MB) R3314833-3 06/02/18 09:29

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	*59.7*			*14.0-149*
(S) 2-Fluorobiphenyl	*89.6*			*34.0-125*
(S) p-Terphenyl-d14	*82.5*			*23.0-120*

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

(LCS) R3314833-1 06/02/18 08:47 • (LCSD) R3314833-2 06/02/18 09:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0821	0.0808	103	101	50.0-125			1.55	20
Acenaphthene	0.0800	0.0705	0.0696	88.1	87.0	52.0-120			1.32	20
Acenaphthylene	0.0800	0.0742	0.0729	92.8	91.1	51.0-120			1.82	20
Benzo(a)anthracene	0.0800	0.0720	0.0712	90.0	89.0	46.0-121			1.12	20
Benzo(a)pyrene	0.0800	0.0654	0.0619	81.7	77.4	42.0-121			5.36	20
Benzo(b)fluoranthene	0.0800	0.0732	0.0703	91.5	87.9	42.0-123			4.08	20
Benzo(g,h,i)perylene	0.0800	0.0757	0.0746	94.6	93.2	43.0-128			1.47	20
Benzo(k)fluoranthene	0.0800	0.0717	0.0742	89.7	92.7	45.0-128			3.30	20
Chrysene	0.0800	0.0745	0.0751	93.1	93.9	48.0-127			0.848	20
Dibenz(a,h)anthracene	0.0800	0.0772	0.0766	96.5	95.8	43.0-132			0.746	20
Fluoranthene	0.0800	0.0800	0.0797	100	99.6	49.0-129			0.477	20

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

(LCS) R3314833-1 06/02/18 08:47 • (LCSD) R3314833-2 06/02/18 09:08

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 %
Fluorene	0.0800	0.0753	0.0739	94.2	92.4	50.0-120			1.86	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0761	0.0754	95.1	94.3	44.0-131			0.828	20
Naphthalene	0.0800	0.0663	0.0645	82.9	80.7	50.0-120			2.72	20
Phenanthrene	0.0800	0.0769	0.0767	96.1	95.8	48.0-120			0.293	20
Pyrene	0.0800	0.0703	0.0692	87.9	86.5	48.0-135			1.66	20
1-Methylnaphthalene	0.0800	0.0746	0.0733	93.2	91.6	52.0-122			1.81	20
2-Methylnaphthalene	0.0800	0.0719	0.0704	89.8	88.0	52.0-120			2.03	20
2-Chloronaphthalene	0.0800	0.0733	0.0726	91.6	90.7	50.0-120			0.936	20
(S) Nitrobenzene-d5				*65.0*	*62.7*	*14.0-149*				
(S) 2-Fluorobiphenyl				*93.1*	*91.7*	*34.0-125*				
(S) p-Terphenyl-d14				*89.8*	*88.0*	*23.0-120*				

L998045-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L998045-01 06/02/18 14:04 • (MS) R3314833-4 06/02/18 14:25 • (MSD) R3314833-5 06/02/18 14:46

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.111	1.34	1.01	1.91	0.000	513	1	20.0-136	V V3	J3 V V3	61.7	24
Acenaphthene	0.111	1.23	0.0415	0.193	0.000	0.000	1	29.0-124	V	J3 V	129	20
Acenaphthylene	0.111	0.101	0.0184	0.643	0.000	490	1	35.0-120	J6	J3 J5	189	20
Benzo(a)anthracene	0.111	0.0192	0.137	0.142	107	111	1	13.0-132	V3	V3	3.28	27
Benzo(a)pyrene	0.111	ND	0.0955	0.0968	85.0	86.1	1	14.0-138	V3	V3	1.30	27
Benzo(b)fluoranthene	0.111	ND	0.0929	0.0870	80.8	75.5	1	10.0-129	V3	V3	6.54	31
Benzo(g,h,i)perylene	0.111	ND	0.277	0.188	248	167	1	10.0-133	J5 V3	J3 J5 V3	38.6	30
Benzo(k)fluoranthene	0.111	ND	0.0802	0.0805	72.5	72.8	1	15.0-131	V3	V3	0.372	27
Chrysene	0.111	0.0372	0.188	0.263	136	204	1	15.0-137	V3	J3 J5 V3	33.6	25
Dibenz(a,h)anthracene	0.111	ND	0.245	0.173	221	156	1	15.0-132	J5 V3	J3 J5 V3	34.5	27
Fluoranthene	0.111	0.148	0.311	0.493	147	312	1	13.0-139	J5 V3	J3 J5 V3	45.4	28
Fluorene	0.111	1.30	0.291	1.35	0.000	44.1	1	27.0-122	V	J3	129	22
Indeno(1,2,3-cd)pyrene	0.111	ND	0.238	0.166	215	150	1	11.0-133	J5 V3	J3 J5 V3	35.4	29
Naphthalene	0.111	0.842	1.10	1.15	235	278	1	18.0-136	V	V	4.18	21
Phenanthrene	0.111	1.57	4.55	7.68	2690	5520	1	15.0-133	V V3	E J3 V V3	51.2	25
Pyrene	0.111	1.01	3.98	2.83	2680	1640	1	11.0-146	V V3	J3 V V3	33.7	29
1-Methylnaphthalene	0.111	1.58	4.11	4.29	2290	2450	1	24.0-137	V	V	4.37	22
2-Methylnaphthalene	0.111	0.915	4.19	4.42	2960	3170	1	23.0-136	V	V	5.39	22
2-Chloronaphthalene	0.111	0.171	0.0614	ND	0.000	0.000	1	36.0-120	J6	J3 J6	200	20
(S) Nitrobenzene-d5					*22.7*	*42.5*		*14.0-149*				
(S) 2-Fluorobiphenyl					*41.9*	*144*		*34.0-125*		J1		
(S) p-Terphenyl-d14					*113*	*83.3*		*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.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.
V3	The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high. BDL results will be unaffected.

ESC Lab Sciences 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 ESC Lab Sciences.

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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

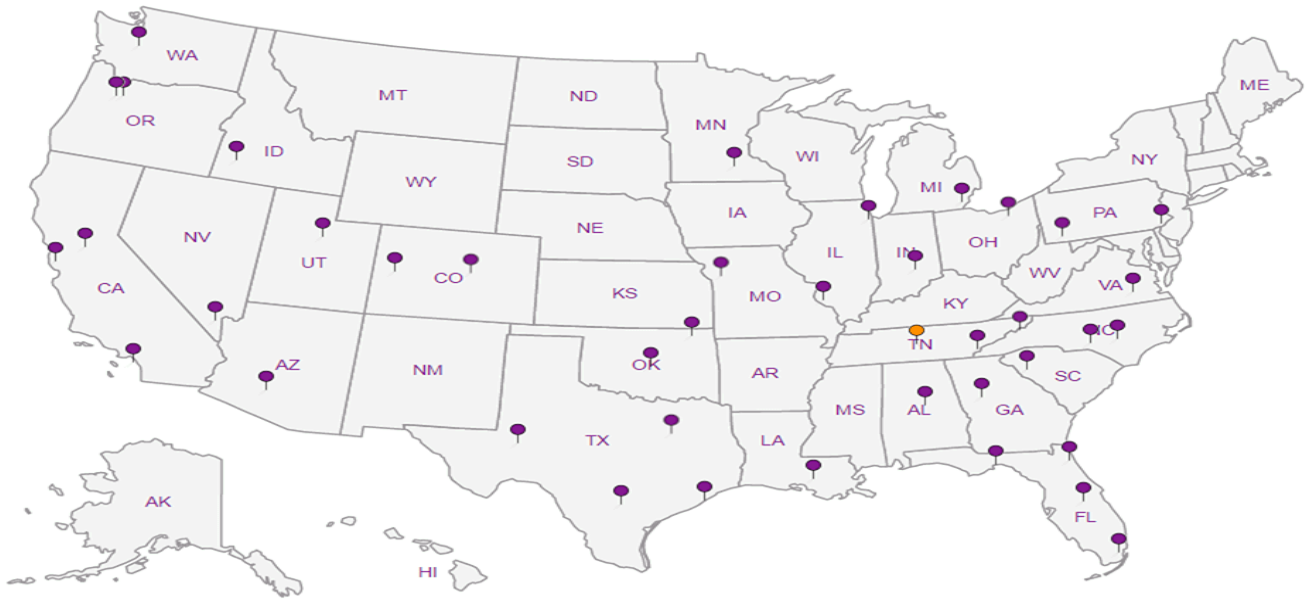
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

Our Locations

ESC Lab Sciences 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. ESC Lab Sciences performs all testing at our central laboratory.



Company Name/Address:
Nicholson GeoSolutions. LLC.
3133 E. Lake Dr.
Centennial, CO 80121

Billing Information:
Don Wilbourn
Berry Petroleum Company
235 Callahan Ave
Parachute, CO 81635

Report to: **Dave Nicholson**

Email To: **dknicholson@q.com**

Project Description: **Berry Landfarms**

City/State Collected:

Phone: **303-601-2023**

Fax:

Client Project #

Lab Project # **BERPETDCO-NICHOLSON**

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature): DKNicholson

Immediately Packed on Ice: N ___ (Y) X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes

FAX? X No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TEPH(8015)Diesel & Oil Range (1) 4oz Clear-No Pres	BTEX/GRO/TVPH (1) 4oz Clear - No Pres	Metals, SAR, CR6 - 4oz Clear - No Pres	SPCON, pH - 4oz Clear - No Pres	SV8270PAHSIM - 4oz Clear - No Pres	Rem./Contaminant	Sample # (lab only)
FO1-1		SS		5/24	1110	5	X	X	X	X	X		01
FO1-2		SS			1115		X	X	X	X	X		02
FO1-3		SS			1120		X	X	X	X	X		03
FO1-4		SS			1125		X	X	X	X	X		04
FO1-5		SS			1130		X	X	X	X	X		05
FO1-6		SS			1135		X	X	X	X	X		06
FO1-7		SS			1140		X	X	X	X	X		07
FO1-8		SS			1145	4	X	X	X	X	X		08
		SS											
		SS											

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks: Metals= MRCRA8+B,Cu,Ni,Zn,CR6

4276 0141 2857

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
DKNicholson	5/29/18	1200	FedEx
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: 4.0 °C Bottles Received: 40

Date: 5/30/18 Time: 8:45

Hold #

Condition: (lab use only)

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

Chain of Custody Page 1 of 1

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 947768

E080

Acctnum: BERPETDCO

Template: T136417

Prelogin: P654393

TSR: Mark Beasley

Cooler:

Shipped Via:

ESC LAB SCIENCES
Cooler Receipt Form

Client: Berlet Dco	SDG#	997768
Cooler Received/Opened On: 5/30/18	Temperature:	1.0
Received By: Kevin Turner		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	/		
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			