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: O-36B 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 O-36B well pad in the Garden Gulch area, Garfield County, Colorado. GPS mapping showed that the landfarm contains an estimated 11,000 yards of material.

Sampling was conducted on May 23rd, 2018. A total of 13 composite soil samples were collected. Each composite sample was combined from six subsamples. All subsamples were collected from a depth of about 16-24 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 13 samples. The laboratory report is contained in Appendix A. TPH ranged from 228.7 mg/kg to 1,761.1 mg/kg and exceeded the standard of 500 mg/kg for nine of the 13 samples. In addition, conductivity exceeded the standard of 4.0 mmhos/cm for three samples, pH exceeded the standard of 9 for four samples, and SAR exceeded the standard of 12 for five samples. Arsenic ranged from 8.37 mg/kg to 14.1 mg/kg, within the range of natural background concentrations for the Garden Gulch area.

Based on the sample results, remediation of the O-36B landfarm should continue. Figure 1 shows the areas of the landfarm that need further treatment based on the sample results.

Nicholson GeoSolutions LLC

David K. Nicholson, P.G.
Principal Geologist

Table 1 O-36B Landfarm Sample Results – May 23, 2018

Parameter	Table 910-1 Standards	O36B-1	O36B-2	O36B-3	O36B-4	O36B-5
sp. conductance (mmhos/cm)	<4	3.93	3.71	**4.41**	3.82	**4.08**
pH (standard units)	6-9	7.86	7.96	8.00	8.00	7.90
SAR (ratio)	<12	7.48	8.83	10.2	9.14	11.2
TVPH – gasoline range	500[1]	<0.1	<0.1	**<0.1**	**<0.1**	**<0.1**
TEPH – diesel/motor oil range		372.9	248	**576.1**	**599.4**	**652**
benzene	0.17	0.00328	0.00248	0.00287	0.00293	0.00241
toluene	85	<0.005	<0.005	0.00516	<0.005	<0.005
ethylbenzene	100	0.00152	0.00177	0.00225	0.00195	0.00176
xylenes	175	0.00292	0.00415	0.00455	0.00428	0.00411
benzo(a)pyrene	0.022	<0.006	<0.006	<0.006	<0.006	<0.006
arsenic	0.39	**14.1**	**10.8**	**11.2**	**10.3**	**9.32**

Parameter	Table 910-1 Standards	O36B-6	O36B-7	O36B-8	O36B-9
sp. conductance (mmhos/cm)	<4	**4.68**	2.60	1.61	2.71
pH (standard units)	6-9	7.86	10.2	**11.0**	**11.4**
SAR (ratio)	<12	11.0	**13.4**	**22.3**	**29.3**
TVPH – gasoline range	500[1]	<0.1	<0.1	0.117	1.28
TEPH – diesel/motor oil range		447	**960.3**	**1,077**	**1,761**
benzene	0.17	0.00299	0.00303	0.0026	0.00305
toluene	85	<0.005	0.00581	<0.005	0.0054
ethylbenzene	100	0.00204	0.00203	0.00164	0.0028
xylenes	175	0.00465	0.00456	0.00471	0.0169
benzo(a)pyrene	0.022	<0.006	<0.006	<0.006	<0.006
arsenic	0.39	**10.8**	**8.71**	**9.95**	**8.37**

Parameter	Table 910-1 Standards	O36B-10	O36B-11	O36B-12	O36B-13
sp. conductance (mmhos/cm)	<4	2.80	1.75	1.95	2.38
pH (standard units)	6-9	**11.4**	**11.3**	7.94	7.85
SAR (ratio)	<12	**23.3**	**25.6**	10.0	8.42
TVPH – gasoline range	500[1]	<0.1	0.303	<0.1	0.105
TEPH – diesel/motor oil range		**1,256**	**1,079.2**	**510.7**	228.6
benzene	0.17	0.00215	0.00316	0.00186	0.00328
toluene	85	<0.005	0.00531	<0.005	0.00525
ethylbenzene	100	0.00117	0.00205	0.000874	0.00231
xylenes	175	0.00317	0.00668	0.00238	0.00474
benzo(a)pyrene	0.022	<0.006	<0.006	<0.006	<0.006
arsenic	0.39	**9.74**	**13.1**	**9.41**	**11.1**

[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 40 80 160 Feet 1 " = 80 '

Berry Petroleum Company

O-36B
Landfarm Final
Composite Soil Samples

APPENDIX A
Laboratory Report

ANALYTICAL REPORT

June 07, 2018

Berry Petroleum - Denver, CO

Sample Delivery Group:	L997754
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:

Mark W. Beasley
Technical Service Representative

TABLE OF CONTENTS

036B-1 L997754-01 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 15:50 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:24	TRB
Wet Chemistry by Method 3060A/7196A	WG1118371	1	06/01/18 06:45	06/01/18 12:17	EEM
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:06	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:07	TRB
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:29	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1120554	1	05/31/18 11:14	06/06/18 18:31	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118768	10	06/01/18 19:24	06/02/18 03:41	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 16:01	KM

036B-2 L997754-02 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 16:00 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:27	TRB
Wet Chemistry by Method 3060A/7196A	WG1118371	1	06/01/18 06:45	06/01/18 12:17	EEM
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:08	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:25	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:32	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 15:03	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118768	10	06/01/18 19:24	06/02/18 03:53	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 17:07	KM

036B-3 L997754-03 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 16:10 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:29	TRB
Wet Chemistry by Method 3060A/7196A	WG1118371	1	06/01/18 06:45	06/01/18 12:18	EEM
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:10	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:29	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:36	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 15:25	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118768	10	06/01/18 19:24	06/02/18 04:05	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 17:29	KM

036B-4 L997754-04 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 16:20 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:32	TRB
Wet Chemistry by Method 3060A/7196A	WG1118371	1	06/01/18 06:45	06/01/18 12:18	EEM
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:12	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:39	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:39	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 15:47	DWR

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

036B-4 L997754-04 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 16:20 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118768	10	06/01/18 19:24	06/02/18 04:17	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 17:51	KM

036B-5 L997754-05 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 16:30 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:35	TRB
Wet Chemistry by Method 3060A/7196A	WG1118371	1	06/01/18 06:45	06/01/18 12:18	EEM
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:19	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:43	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:42	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 16:10	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1119409	5	06/04/18 17:49	06/05/18 03:40	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 18:13	KM

036B-6 L997754-06 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 16:40 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:38	TRB
Wet Chemistry by Method 3060A/7196A	WG1118371	1	06/01/18 06:45	06/01/18 12:18	EEM
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:21	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:46	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:45	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 16:32	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1119409	5	06/04/18 17:49	06/05/18 03:52	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 18:35	KM

036B-7 L997754-07 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 16:50 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:40	TRB
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:46	ITB
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:23	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:50	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:48	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 16:54	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1119409	5	06/04/18 17:49	06/05/18 04:05	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 18:57	KM

036B-8 L997754-08 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 17:00 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:43	TRB
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:47	ITB
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:25	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:54	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:52	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 17:16	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1119409	5	06/04/18 17:49	06/05/18 04:17	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 19:19	KM

036B-9 L997754-09 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 17:10 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:46	TRB
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:47	ITB
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:28	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 17:57	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 12:55	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1118581	1	05/31/18 11:14	06/01/18 19:16	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1119409	5	06/04/18 17:49	06/05/18 04:30	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 19:41	KM

036B-10 L997754-10 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 17:20 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:54	TRB
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:48	ITB
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1117990	1	05/30/18 23:54	05/31/18 01:38	MZ
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:30	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 18:01	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 13:08	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 17:38	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1119409	5	06/04/18 17:49	06/05/18 04:42	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 20:03	KM

036B-11 L997754-11 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 17:30 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:56	TRB
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:49	ITB
Wet Chemistry by Method 9045D	WG1118058	1	05/31/18 08:57	05/31/18 11:50	EEM
Wet Chemistry by Method 9050AMod	WG1119447	1	06/04/18 15:53	06/04/18 16:37	TH
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:32	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 18:05	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 13:11	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 18:01	DWR

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

036B-11 L997754-11 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 17:30 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	10	06/02/18 20:39	06/03/18 15:36	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 20:25	KM

036B-12 L997754-12 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 17:40 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 12:59	TRB
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:49	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1119447	1	06/04/18 15:53	06/04/18 16:37	TH
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:34	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 18:08	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 13:14	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 18:23	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	10	06/02/18 20:39	06/03/18 16:14	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 20:47	KM

036B-13 L997754-13 Solid

Collected by: DK Nicholsen | Collected date/time: 05/23/18 17:50 | Received date/time: 05/30/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1117909	1	06/05/18 10:46	06/06/18 13:01	TRB
Wet Chemistry by Method 3060A/7196A	WG1118372	1	06/01/18 11:03	06/01/18 16:50	ITB
Wet Chemistry by Method 9045D	WG1118326	1	05/31/18 16:04	05/31/18 17:15	ITB
Wet Chemistry by Method 9050AMod	WG1119447	1	06/04/18 15:53	06/04/18 16:37	TH
Mercury by Method 7471A	WG1118274	1	05/31/18 14:24	05/31/18 23:36	EL
Metals (ICP) by Method 6010B	WG1118407	1	05/31/18 17:34	06/01/18 18:12	RDS
Metals (ICP) by Method 6010B	WG1118407	5	05/31/18 17:34	06/02/18 13:18	RDS
Volatile Organic Compounds (GC) by Method 8015/8021	WG1119566	1	05/31/18 11:14	06/04/18 18:45	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1118335	10	06/02/18 20:39	06/04/18 20:21	MTJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1118353	1	06/04/18 08:14	06/04/18 21:09	KM

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

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.

Mark W. Beasley
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.48		1	06/06/2018 12:24	WG1117909

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 12:17	WG1118371

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.86	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-01 WG1118058: 7.86 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3930		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0376		0.0200	1	05/31/2018 23:06	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.1		2.00	1	06/01/2018 17:07	WG1118407
Barium	7150	V	2.50	5	06/02/2018 12:29	WG1118407
Boron	ND		10.0	1	06/01/2018 17:07	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:07	WG1118407
Chromium	21.9		1.00	1	06/01/2018 17:07	WG1118407
Copper	19.6		2.00	1	06/01/2018 17:07	WG1118407
Lead	18.5		0.500	1	06/01/2018 17:07	WG1118407
Nickel	17.6		2.00	1	06/01/2018 17:07	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:07	WG1118407
Silver	ND		1.00	1	06/01/2018 17:07	WG1118407
Zinc	70.2	O1	5.00	1	06/01/2018 17:07	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00328		0.000500	1	06/06/2018 18:31	WG1120554
Toluene	ND		0.00500	1	06/06/2018 18:31	WG1120554
Ethylbenzene	0.00152		0.000500	1	06/06/2018 18:31	WG1120554
Total Xylene	0.00292		0.00150	1	06/06/2018 18:31	WG1120554
TPH (GC/FID) Low Fraction	ND		0.100	1	06/06/2018 18:31	WG1120554
(S) a,a,a-Trifluorotoluene(FID)	*96.4*		*77.0-120*		*06/06/2018 18:31*	WG1120554
(S) a,a,a-Trifluorotoluene(PID)	*97.7*		*75.0-128*		*06/06/2018 18:31*	WG1120554

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	305		40.0	10	06/02/2018 03:41	WG1118768
C28-C40 Oil Range	67.9		40.0	10	06/02/2018 03:41	WG1118768
(S) o-Terphenyl	*82.3*		*18.0-148*		*06/02/2018 03:41*	WG1118768

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0112		0.00600	1	06/04/2018 16:01	WG1118353
Acenaphthene	0.0227		0.00600	1	06/04/2018 16:01	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Chrysene	0.00743		0.00600	1	06/04/2018 16:01	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Fluorene	0.0202		0.00600	1	06/04/2018 16:01	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 16:01	WG1118353
Naphthalene	0.151	J6	0.0200	1	06/04/2018 16:01	WG1118353
Phenanthrene	0.106	J6	0.00600	1	06/04/2018 16:01	WG1118353
Pyrene	0.0620		0.00600	1	06/04/2018 16:01	WG1118353
1-Methylnaphthalene	0.177	J6	0.0200	1	06/04/2018 16:01	WG1118353
2-Methylnaphthalene	0.425	V	0.0200	1	06/04/2018 16:01	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 16:01	WG1118353
(S) p-Terphenyl-d14	*60.8*		*23.0-120*		*06/04/2018 16:01*	WG1118353
(S) Nitrobenzene-d5	*77.5*		*14.0-149*		*06/04/2018 16:01*	WG1118353
(S) 2-Fluorobiphenyl	*65.0*		*34.0-125*		*06/04/2018 16:01*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.83		1	06/06/2018 12:27	WG1117909

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 12:17	WG1118371

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.96	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-02 WG1118058: 7.96 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3710		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0376		0.0200	1	05/31/2018 23:08	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.8		2.00	1	06/01/2018 17:25	WG1118407
Barium	6710		2.50	5	06/02/2018 12:32	WG1118407
Boron	11.1		10.0	1	06/01/2018 17:25	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:25	WG1118407
Chromium	17.3		1.00	1	06/01/2018 17:25	WG1118407
Copper	18.2		2.00	1	06/01/2018 17:25	WG1118407
Lead	17.6		0.500	1	06/01/2018 17:25	WG1118407
Nickel	15.3		2.00	1	06/01/2018 17:25	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:25	WG1118407
Silver	ND		1.00	1	06/01/2018 17:25	WG1118407
Zinc	64.3		5.00	1	06/01/2018 17:25	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00248		0.000500	1	06/04/2018 15:03	WG1119566
Toluene	ND		0.00500	1	06/04/2018 15:03	WG1119566
Ethylbenzene	0.00177		0.000500	1	06/04/2018 15:03	WG1119566
Total Xylene	0.00415	B	0.00150	1	06/04/2018 15:03	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 15:03	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*95.3*		*77.0-120*		*06/04/2018 15:03*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*97.2*		*75.0-128*		*06/04/2018 15:03*	WG1119566

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	248		40.0	10	06/02/2018 03:53	WG1118768
C28-C40 Oil Range	ND		40.0	10	06/02/2018 03:53	WG1118768
(S) o-Terphenyl	*57.7*		*18.0-148*		*06/02/2018 03:53*	WG1118768

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00990		0.00600	1	06/04/2018 17:07	WG1118353
Acenaphthene	0.0181		0.00600	1	06/04/2018 17:07	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Chrysene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Fluorene	0.0143		0.00600	1	06/04/2018 17:07	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 17:07	WG1118353
Naphthalene	0.115		0.0200	1	06/04/2018 17:07	WG1118353
Phenanthrene	0.0784		0.00600	1	06/04/2018 17:07	WG1118353
Pyrene	0.0563		0.00600	1	06/04/2018 17:07	WG1118353
1-Methylnaphthalene	0.133		0.0200	1	06/04/2018 17:07	WG1118353
2-Methylnaphthalene	0.301		0.0200	1	06/04/2018 17:07	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 17:07	WG1118353
(S) p-Terphenyl-d14	*58.0*		*23.0-120*		*06/04/2018 17:07*	WG1118353
(S) Nitrobenzene-d5	*71.9*		*14.0-149*		*06/04/2018 17:07*	WG1118353
(S) 2-Fluorobiphenyl	*63.9*		*34.0-125*		*06/04/2018 17:07*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.2		1	06/06/2018 12:29	WG1117909

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 12:18	WG1118371

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-03 WG1118058: 8 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4410		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0467		0.0200	1	05/31/2018 23:10	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.2		2.00	1	06/01/2018 17:29	WG1118407
Barium	7880		2.50	5	06/02/2018 12:36	WG1118407
Boron	10.4		10.0	1	06/01/2018 17:29	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:29	WG1118407
Chromium	23.6		1.00	1	06/01/2018 17:29	WG1118407
Copper	19.9		2.00	1	06/01/2018 17:29	WG1118407
Lead	18.8		0.500	1	06/01/2018 17:29	WG1118407
Nickel	16.8		2.00	1	06/01/2018 17:29	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:29	WG1118407
Silver	ND		1.00	1	06/01/2018 17:29	WG1118407
Zinc	71.4		5.00	1	06/01/2018 17:29	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00287		0.000500	1	06/04/2018 15:25	WG1119566
Toluene	0.00516		0.00500	1	06/04/2018 15:25	WG1119566
Ethylbenzene	0.00225		0.000500	1	06/04/2018 15:25	WG1119566
Total Xylene	0.00455	B	0.00150	1	06/04/2018 15:25	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 15:25	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*94.4*		*77.0-120*		*06/04/2018 15:25*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*96.2*		*75.0-128*		*06/04/2018 15:25*	WG1119566

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	496		40.0	10	06/02/2018 04:05	WG1118768
C28-C40 Oil Range	80.1		40.0	10	06/02/2018 04:05	WG1118768
(S) o-Terphenyl	*71.8*		*18.0-148*		*06/02/2018 04:05*	WG1118768

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0120		0.00600	1	06/04/2018 17:29	WG1118353
Acenaphthene	0.0190		0.00600	1	06/04/2018 17:29	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Chrysene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Fluorene	0.0151		0.00600	1	06/04/2018 17:29	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 17:29	WG1118353
Naphthalene	0.111		0.0200	1	06/04/2018 17:29	WG1118353
Phenanthrene	0.0884		0.00600	1	06/04/2018 17:29	WG1118353
Pyrene	0.0644		0.00600	1	06/04/2018 17:29	WG1118353
1-Methylnaphthalene	0.131		0.0200	1	06/04/2018 17:29	WG1118353
2-Methylnaphthalene	0.310		0.0200	1	06/04/2018 17:29	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 17:29	WG1118353
(S) p-Terphenyl-d14	*44.4*		*23.0-120*		*06/04/2018 17:29*	WG1118353
(S) Nitrobenzene-d5	*50.0*		*14.0-149*		*06/04/2018 17:29*	WG1118353
(S) 2-Fluorobiphenyl	*50.0*		*34.0-125*		*06/04/2018 17:29*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.14		1	06/06/2018 12:32	WG1117909

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 12:18	WG1118371

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:
L997754-04 WG1118058: 8 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3820		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0457		0.0200	1	05/31/2018 23:12	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.3		2.00	1	06/01/2018 17:39	WG1118407
Barium	6710		2.50	5	06/02/2018 12:39	WG1118407
Boron	10.2		10.0	1	06/01/2018 17:39	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:39	WG1118407
Chromium	17.4		1.00	1	06/01/2018 17:39	WG1118407
Copper	18.0		2.00	1	06/01/2018 17:39	WG1118407
Lead	16.7		0.500	1	06/01/2018 17:39	WG1118407
Nickel	15.2		2.00	1	06/01/2018 17:39	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:39	WG1118407
Silver	ND		1.00	1	06/01/2018 17:39	WG1118407
Zinc	66.8		5.00	1	06/01/2018 17:39	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00293		0.000500	1	06/04/2018 15:47	WG1119566
Toluene	ND		0.00500	1	06/04/2018 15:47	WG1119566
Ethylbenzene	0.00195		0.000500	1	06/04/2018 15:47	WG1119566
Total Xylene	0.00428	B	0.00150	1	06/04/2018 15:47	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 15:47	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*91.0*		*77.0-120*		*06/04/2018 15:47*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*93.4*		*75.0-128*		*06/04/2018 15:47*	WG1119566

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	518		40.0	10	06/02/2018 04:17	WG1118768
C28-C40 Oil Range	81.4		40.0	10	06/02/2018 04:17	WG1118768
(S) o-Terphenyl	*69.3*		*18.0-148*		*06/02/2018 04:17*	WG1118768

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0161		0.00600	1	06/04/2018 17:51	WG1118353
Acenaphthene	0.0300		0.00600	1	06/04/2018 17:51	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 17:51	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 17:51	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 17:51	WG1118353
Benzo(b)fluoranthene	0.00717		0.00600	1	06/04/2018 17:51	WG1118353
Benzo(g,h,i)perylene	0.00623		0.00600	1	06/04/2018 17:51	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 17:51	WG1118353
Chrysene	0.0105		0.00600	1	06/04/2018 17:51	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 17:51	WG1118353
Fluoranthene	0.00956		0.00600	1	06/04/2018 17:51	WG1118353
Fluorene	0.0227		0.00600	1	06/04/2018 17:51	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 17:51	WG1118353
Naphthalene	0.178		0.0200	1	06/04/2018 17:51	WG1118353
Phenanthrene	0.120		0.00600	1	06/04/2018 17:51	WG1118353
Pyrene	0.101		0.00600	1	06/04/2018 17:51	WG1118353
1-Methylnaphthalene	0.199		0.0200	1	06/04/2018 17:51	WG1118353
2-Methylnaphthalene	0.488		0.0200	1	06/04/2018 17:51	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 17:51	WG1118353
(S) p-Terphenyl-d14	*61.5*		*23.0-120*		*06/04/2018 17:51*	WG1118353
(S) Nitrobenzene-d5	*77.2*		*14.0-149*		*06/04/2018 17:51*	WG1118353
(S) 2-Fluorobiphenyl	*63.5*		*34.0-125*		*06/04/2018 17:51*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	11.2		1	06/06/2018 12:35	WG1117909

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 12:18	WG1118371

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-05 WG1118058: 7.9 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4080		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0401		0.0200	1	05/31/2018 23:19	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.32		2.00	1	06/01/2018 17:43	WG1118407
Barium	7170		2.50	5	06/02/2018 12:42	WG1118407
Boron	10.9		10.0	1	06/01/2018 17:43	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:43	WG1118407
Chromium	17.7		1.00	1	06/01/2018 17:43	WG1118407
Copper	17.6		2.00	1	06/01/2018 17:43	WG1118407
Lead	18.1		0.500	1	06/01/2018 17:43	WG1118407
Nickel	14.8		2.00	1	06/01/2018 17:43	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:43	WG1118407
Silver	ND		1.00	1	06/01/2018 17:43	WG1118407
Zinc	69.6		5.00	1	06/01/2018 17:43	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00241		0.000500	1	06/04/2018 16:10	WG1119566
Toluene	ND		0.00500	1	06/04/2018 16:10	WG1119566
Ethylbenzene	0.00176		0.000500	1	06/04/2018 16:10	WG1119566
Total Xylene	0.00411	B	0.00150	1	06/04/2018 16:10	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 16:10	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*92.6*		*77.0-120*		*06/04/2018 16:10*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*94.4*		*75.0-128*		*06/04/2018 16:10*	WG1119566

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	522		20.0	5	06/05/2018 03:40	WG1119409
C28-C40 Oil Range	130		20.0	5	06/05/2018 03:40	WG1119409
(S) o-Terphenyl	*92.0*		*18.0-148*		*06/05/2018 03:40*	WG1119409

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0132		0.00600	1	06/04/2018 18:13	WG1118353
Acenaphthene	0.0262		0.00600	1	06/04/2018 18:13	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 18:13	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 18:13	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 18:13	WG1118353
Benzo(b)fluoranthene	0.00726		0.00600	1	06/04/2018 18:13	WG1118353
Benzo(g,h,i)perylene	0.00701		0.00600	1	06/04/2018 18:13	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 18:13	WG1118353
Chrysene	0.00987		0.00600	1	06/04/2018 18:13	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 18:13	WG1118353
Fluoranthene	0.00874		0.00600	1	06/04/2018 18:13	WG1118353
Fluorene	0.0228		0.00600	1	06/04/2018 18:13	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 18:13	WG1118353
Naphthalene	0.168		0.0200	1	06/04/2018 18:13	WG1118353
Phenanthrene	0.122		0.00600	1	06/04/2018 18:13	WG1118353
Pyrene	0.101		0.00600	1	06/04/2018 18:13	WG1118353
1-Methylnaphthalene	0.193		0.0200	1	06/04/2018 18:13	WG1118353
2-Methylnaphthalene	0.463		0.0200	1	06/04/2018 18:13	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 18:13	WG1118353
(S) p-Terphenyl-d14	*57.8*		*23.0-120*		*06/04/2018 18:13*	WG1118353
(S) Nitrobenzene-d5	*64.4*		*14.0-149*		*06/04/2018 18:13*	WG1118353
(S) 2-Fluorobiphenyl	*58.5*		*34.0-125*		*06/04/2018 18:13*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	11.0		1	06/06/2018 12:38	WG1117909

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 12:18	WG1118371

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.86	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-06 WG1118058: 7.86 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4680		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0595		0.0200	1	05/31/2018 23:21	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.8		2.00	1	06/01/2018 17:46	WG1118407
Barium	8660		2.50	5	06/02/2018 12:45	WG1118407
Boron	13.2		10.0	1	06/01/2018 17:46	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:46	WG1118407
Chromium	20.3		1.00	1	06/01/2018 17:46	WG1118407
Copper	19.7		2.00	1	06/01/2018 17:46	WG1118407
Lead	20.4		0.500	1	06/01/2018 17:46	WG1118407
Nickel	16.9		2.00	1	06/01/2018 17:46	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:46	WG1118407
Silver	ND		1.00	1	06/01/2018 17:46	WG1118407
Zinc	79.9		5.00	1	06/01/2018 17:46	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00299		0.000500	1	06/04/2018 16:32	WG1119566
Toluene	ND		0.00500	1	06/04/2018 16:32	WG1119566
Ethylbenzene	0.00204		0.000500	1	06/04/2018 16:32	WG1119566
Total Xylene	0.00465	B	0.00150	1	06/04/2018 16:32	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 16:32	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*90.7*		*77.0-120*		*06/04/2018 16:32*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*93.7*		*75.0-128*		*06/04/2018 16:32*	WG1119566

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	337		20.0	5	06/05/2018 03:52	WG1119409
C28-C40 Oil Range	110		20.0	5	06/05/2018 03:52	WG1119409
(S) o-Terphenyl	*81.5*		*18.0-148*		*06/05/2018 03:52*	WG1119409

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0744		0.00600	1	06/04/2018 18:35	WG1118353
Acenaphthene	0.159		0.00600	1	06/04/2018 18:35	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 18:35	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 18:35	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 18:35	WG1118353
Benzo(b)fluoranthene	0.00683		0.00600	1	06/04/2018 18:35	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 18:35	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 18:35	WG1118353
Chrysene	0.0120		0.00600	1	06/04/2018 18:35	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 18:35	WG1118353
Fluoranthene	0.0260		0.00600	1	06/04/2018 18:35	WG1118353
Fluorene	0.125		0.00600	1	06/04/2018 18:35	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 18:35	WG1118353
Naphthalene	0.533		0.0200	1	06/04/2018 18:35	WG1118353
Phenanthrene	0.667		0.00600	1	06/04/2018 18:35	WG1118353
Pyrene	0.199		0.00600	1	06/04/2018 18:35	WG1118353
1-Methylnaphthalene	1.30		0.0200	1	06/04/2018 18:35	WG1118353
2-Methylnaphthalene	1.71		0.0200	1	06/04/2018 18:35	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 18:35	WG1118353
(S) p-Terphenyl-d14	*58.9*		*23.0-120*		*06/04/2018 18:35*	WG1118353
(S) Nitrobenzene-d5	*154*	J1	*14.0-149*		*06/04/2018 18:35*	WG1118353
(S) 2-Fluorobiphenyl	*75.1*		*34.0-125*		*06/04/2018 18:35*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	13.4		1	06/06/2018 12:40	WG1117909

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 16:46	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	10.2	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-07 WG1118058: 10.2 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2600		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0390		0.0200	1	05/31/2018 23:23	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.71		2.00	1	06/01/2018 17:50	WG1118407
Barium	7770		2.50	5	06/02/2018 12:48	WG1118407
Boron	11.8		10.0	1	06/01/2018 17:50	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:50	WG1118407
Chromium	18.1		1.00	1	06/01/2018 17:50	WG1118407
Copper	16.9		2.00	1	06/01/2018 17:50	WG1118407
Lead	18.3		0.500	1	06/01/2018 17:50	WG1118407
Nickel	15.2		2.00	1	06/01/2018 17:50	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:50	WG1118407
Silver	ND		1.00	1	06/01/2018 17:50	WG1118407
Zinc	72.6		5.00	1	06/01/2018 17:50	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00303		0.000500	1	06/04/2018 16:54	WG1119566
Toluene	0.00581		0.00500	1	06/04/2018 16:54	WG1119566
Ethylbenzene	0.00203		0.000500	1	06/04/2018 16:54	WG1119566
Total Xylene	0.00456	B	0.00150	1	06/04/2018 16:54	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 16:54	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*93.6*		*77.0-120*		*06/04/2018 16:54*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*95.2*		*75.0-128*		*06/04/2018 16:54*	WG1119566

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	863		20.0	5	06/05/2018 04:05	WG1119409
C28-C40 Oil Range	97.3		20.0	5	06/05/2018 04:05	WG1119409
(S) o-Terphenyl	*146*		*18.0-148*		*06/05/2018 04:05*	WG1119409

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00811		0.00600	1	06/04/2018 18:57	WG1118353
Acenaphthene	0.0162		0.00600	1	06/04/2018 18:57	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Chrysene	0.00632		0.00600	1	06/04/2018 18:57	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Fluorene	0.0167		0.00600	1	06/04/2018 18:57	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 18:57	WG1118353
Naphthalene	0.124		0.0200	1	06/04/2018 18:57	WG1118353
Phenanthrene	0.0842		0.00600	1	06/04/2018 18:57	WG1118353
Pyrene	0.0456		0.00600	1	06/04/2018 18:57	WG1118353
1-Methylnaphthalene	0.151		0.0200	1	06/04/2018 18:57	WG1118353
2-Methylnaphthalene	0.345		0.0200	1	06/04/2018 18:57	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 18:57	WG1118353
(S) p-Terphenyl-d14	*52.3*		*23.0-120*		*06/04/2018 18:57*	WG1118353
(S) Nitrobenzene-d5	*57.4*		*14.0-149*		*06/04/2018 18:57*	WG1118353
(S) 2-Fluorobiphenyl	*74.7*		*34.0-125*		*06/04/2018 18:57*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	22.3		1	06/06/2018 12:43	WG1117909

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 16:47	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	11.0	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-08 WG1118058: 10.98 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1610		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0392		0.0200	1	05/31/2018 23:25	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.95		2.00	1	06/01/2018 17:54	WG1118407
Barium	8320		2.50	5	06/02/2018 12:52	WG1118407
Boron	13.0		10.0	1	06/01/2018 17:54	WG1118407
Cadmium	ND		0.500	1	06/01/2018 17:54	WG1118407
Chromium	18.4		1.00	1	06/01/2018 17:54	WG1118407
Copper	17.1		2.00	1	06/01/2018 17:54	WG1118407
Lead	17.7		0.500	1	06/01/2018 17:54	WG1118407
Nickel	15.2		2.00	1	06/01/2018 17:54	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:54	WG1118407
Silver	ND		1.00	1	06/01/2018 17:54	WG1118407
Zinc	69.4		5.00	1	06/01/2018 17:54	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00260		0.000500	1	06/04/2018 17:16	WG1119566
Toluene	ND		0.00500	1	06/04/2018 17:16	WG1119566
Ethylbenzene	0.00164		0.000500	1	06/04/2018 17:16	WG1119566
Total Xylene	0.00471	B	0.00150	1	06/04/2018 17:16	WG1119566
TPH (GC/FID) Low Fraction	0.117		0.100	1	06/04/2018 17:16	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*94.8*		*77.0-120*		*06/04/2018 17:16*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*95.7*		*75.0-128*		*06/04/2018 17:16*	WG1119566

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	976		20.0	5	06/05/2018 04:17	WG1119409
C28-C40 Oil Range	101		20.0	5	06/05/2018 04:17	WG1119409
(S) o-Terphenyl	*124*		*18.0-148*		*06/05/2018 04:17*	WG1119409

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0476		0.00600	1	06/04/2018 19:19	WG1118353
Acenaphthene	0.0817		0.00600	1	06/04/2018 19:19	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Chrysene	0.00987		0.00600	1	06/04/2018 19:19	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Fluoranthene	0.0206		0.00600	1	06/04/2018 19:19	WG1118353
Fluorene	0.0390		0.00600	1	06/04/2018 19:19	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 19:19	WG1118353
Naphthalene	0.236		0.0200	1	06/04/2018 19:19	WG1118353
Phenanthrene	0.275		0.00600	1	06/04/2018 19:19	WG1118353
Pyrene	0.163		0.00600	1	06/04/2018 19:19	WG1118353
1-Methylnaphthalene	0.457		0.0200	1	06/04/2018 19:19	WG1118353
2-Methylnaphthalene	0.655		0.0200	1	06/04/2018 19:19	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 19:19	WG1118353
(S) p-Terphenyl-d14	*61.6*		*23.0-120*		*06/04/2018 19:19*	WG1118353
(S) Nitrobenzene-d5	*81.2*		*14.0-149*		*06/04/2018 19:19*	WG1118353
(S) 2-Fluorobiphenyl	*66.5*		*34.0-125*		*06/04/2018 19:19*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	29.3		1	06/06/2018 12:46	WG1117909

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 16:47	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	11.4	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-09 WG1118058: 11.36 at 20.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2710		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0515		0.0200	1	05/31/2018 23:28	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.37		2.00	1	06/01/2018 17:57	WG1118407
Barium	8600		2.50	5	06/02/2018 12:55	WG1118407
Boron	13.6		10.0	1	06/01/2018 17:57	WG1118407
Cadmium	0.597		0.500	1	06/01/2018 17:57	WG1118407
Chromium	18.0		1.00	1	06/01/2018 17:57	WG1118407
Copper	16.7		2.00	1	06/01/2018 17:57	WG1118407
Lead	18.1		0.500	1	06/01/2018 17:57	WG1118407
Nickel	14.4		2.00	1	06/01/2018 17:57	WG1118407
Selenium	ND		2.00	1	06/01/2018 17:57	WG1118407
Silver	ND		1.00	1	06/01/2018 17:57	WG1118407
Zinc	71.2		5.00	1	06/01/2018 17:57	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00305	J6	0.000500	1	06/01/2018 19:16	WG1118581
Toluene	0.00540	J6	0.00500	1	06/01/2018 19:16	WG1118581
Ethylbenzene	0.00280	J6	0.000500	1	06/01/2018 19:16	WG1118581
Total Xylene	0.0169	J6	0.00150	1	06/01/2018 19:16	WG1118581
TPH (GC/FID) Low Fraction	1.28	J3 J6	0.100	1	06/01/2018 19:16	WG1118581
(S) a,a,a-Trifluorotoluene(FID)	*97.7*		*77.0-120*		*06/01/2018 19:16*	WG1118581
(S) a,a,a-Trifluorotoluene(PID)	*103*		*75.0-128*		*06/01/2018 19:16*	WG1118581

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	1640		20.0	5	06/05/2018 04:30	WG1119409
C28-C40 Oil Range	121		20.0	5	06/05/2018 04:30	WG1119409
(S) o-Terphenyl	*41.4*		*18.0-148*		*06/05/2018 04:30*	WG1119409

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0515		0.00600	1	06/04/2018 19:41	WG1118353
Acenaphthene	0.0892		0.00600	1	06/04/2018 19:41	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Chrysene	0.00934		0.00600	1	06/04/2018 19:41	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Fluoranthene	0.0144		0.00600	1	06/04/2018 19:41	WG1118353
Fluorene	0.0594		0.00600	1	06/04/2018 19:41	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 19:41	WG1118353
Naphthalene	0.242		0.0200	1	06/04/2018 19:41	WG1118353
Phenanthrene	0.328		0.00600	1	06/04/2018 19:41	WG1118353
Pyrene	0.149		0.00600	1	06/04/2018 19:41	WG1118353
1-Methylnaphthalene	0.507		0.0200	1	06/04/2018 19:41	WG1118353
2-Methylnaphthalene	0.731		0.0200	1	06/04/2018 19:41	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 19:41	WG1118353
(S) p-Terphenyl-d14	*54.3*		*23.0-120*		*06/04/2018 19:41*	WG1118353
(S) Nitrobenzene-d5	*58.0*		*14.0-149*		*06/04/2018 19:41*	WG1118353
(S) 2-Fluorobiphenyl	*63.8*		*34.0-125*		*06/04/2018 19:41*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	23.3		1	06/06/2018 12:54	WG1117909

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 16:48	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	11.4	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-10 WG1118058: 11.37 at 20.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2800		10.0	1	05/31/2018 01:38	WG1117990

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0371		0.0200	1	05/31/2018 23:30	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.74		2.00	1	06/01/2018 18:01	WG1118407
Barium	8020		2.50	5	06/02/2018 13:08	WG1118407
Boron	12.9		10.0	1	06/01/2018 18:01	WG1118407
Cadmium	0.746		0.500	1	06/01/2018 18:01	WG1118407
Chromium	17.5		1.00	1	06/01/2018 18:01	WG1118407
Copper	17.2		2.00	1	06/01/2018 18:01	WG1118407
Lead	18.6		0.500	1	06/01/2018 18:01	WG1118407
Nickel	14.2		2.00	1	06/01/2018 18:01	WG1118407
Selenium	2.89		2.00	1	06/01/2018 18:01	WG1118407
Silver	ND		1.00	1	06/01/2018 18:01	WG1118407
Zinc	71.8		5.00	1	06/01/2018 18:01	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00215		0.000500	1	06/04/2018 17:38	WG1119566
Toluene	ND		0.00500	1	06/04/2018 17:38	WG1119566
Ethylbenzene	0.00117		0.000500	1	06/04/2018 17:38	WG1119566
Total Xylene	0.00317	B	0.00150	1	06/04/2018 17:38	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 17:38	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*93.7*		*77.0-120*		*06/04/2018 17:38*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*95.3*		*75.0-128*		*06/04/2018 17:38*	WG1119566

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	1140		20.0	5	06/05/2018 04:42	WG1119409
C28-C40 Oil Range	116		20.0	5	06/05/2018 04:42	WG1119409
(S) o-Terphenyl	*30.2*		*18.0-148*		*06/05/2018 04:42*	WG1119409

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0545		0.00600	1	06/04/2018 20:03	WG1118353
Acenaphthene	0.109		0.00600	1	06/04/2018 20:03	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 20:03	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 20:03	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 20:03	WG1118353
Benzo(b)fluoranthene	0.00654		0.00600	1	06/04/2018 20:03	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 20:03	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 20:03	WG1118353
Chrysene	0.0125		0.00600	1	06/04/2018 20:03	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 20:03	WG1118353
Fluoranthene	0.0229		0.00600	1	06/04/2018 20:03	WG1118353
Fluorene	0.0737		0.00600	1	06/04/2018 20:03	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 20:03	WG1118353
Naphthalene	0.350		0.0200	1	06/04/2018 20:03	WG1118353
Phenanthrene	0.439		0.00600	1	06/04/2018 20:03	WG1118353
Pyrene	0.172		0.00600	1	06/04/2018 20:03	WG1118353
1-Methylnaphthalene	0.494		0.0200	1	06/04/2018 20:03	WG1118353
2-Methylnaphthalene	0.747		0.0200	1	06/04/2018 20:03	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 20:03	WG1118353
(S) p-Terphenyl-d14	*62.0*		*23.0-120*		*06/04/2018 20:03*	WG1118353
(S) Nitrobenzene-d5	*99.8*		*14.0-149*		*06/04/2018 20:03*	WG1118353
(S) 2-Fluorobiphenyl	*77.5*		*34.0-125*		*06/04/2018 20:03*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	25.6		1	06/06/2018 12:56	WG1117909

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 16:49	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	11.3	T8	1	05/31/2018 11:50	WG1118058

Sample Narrative:

L997754-11 WG1118058: 11.25 at 20.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1750		10.0	1	06/04/2018 16:37	WG1119447

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0415		0.0200	1	05/31/2018 23:32	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.1		2.00	1	06/01/2018 18:05	WG1118407
Barium	6850		2.50	5	06/02/2018 13:11	WG1118407
Boron	11.2		10.0	1	06/01/2018 18:05	WG1118407
Cadmium	ND		0.500	1	06/01/2018 18:05	WG1118407
Chromium	18.9		1.00	1	06/01/2018 18:05	WG1118407
Copper	15.2		2.00	1	06/01/2018 18:05	WG1118407
Lead	17.3		0.500	1	06/01/2018 18:05	WG1118407
Nickel	13.4		2.00	1	06/01/2018 18:05	WG1118407
Selenium	ND		2.00	1	06/01/2018 18:05	WG1118407
Silver	ND		1.00	1	06/01/2018 18:05	WG1118407
Zinc	64.2		5.00	1	06/01/2018 18:05	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00316		0.000500	1	06/04/2018 18:01	WG1119566
Toluene	0.00531		0.00500	1	06/04/2018 18:01	WG1119566
Ethylbenzene	0.00205		0.000500	1	06/04/2018 18:01	WG1119566
Total Xylene	0.00668	B	0.00150	1	06/04/2018 18:01	WG1119566
TPH (GC/FID) Low Fraction	0.303		0.100	1	06/04/2018 18:01	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*92.7*		*77.0-120*		*06/04/2018 18:01*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*93.6*		*75.0-128*		*06/04/2018 18:01*	WG1119566

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	1030	J3	40.0	10	06/03/2018 15:36	WG1118335
C28-C40 Oil Range	49.2		40.0	10	06/03/2018 15:36	WG1118335
(S) o-Terphenyl	*187*	J1	*18.0-148*		*06/03/2018 15:36*	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	0.0458		0.00600	1	06/04/2018 20:25	WG1118353
Acenaphthene	0.106		0.00600	1	06/04/2018 20:25	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Chrysene	0.00968		0.00600	1	06/04/2018 20:25	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Fluoranthene	0.0190		0.00600	1	06/04/2018 20:25	WG1118353
Fluorene	0.0786		0.00600	1	06/04/2018 20:25	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 20:25	WG1118353
Naphthalene	0.343		0.0200	1	06/04/2018 20:25	WG1118353
Phenanthrene	0.409		0.00600	1	06/04/2018 20:25	WG1118353
Pyrene	0.204		0.00600	1	06/04/2018 20:25	WG1118353
1-Methylnaphthalene	0.835		0.0200	1	06/04/2018 20:25	WG1118353
2-Methylnaphthalene	1.02		0.0200	1	06/04/2018 20:25	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 20:25	WG1118353
(S) p-Terphenyl-d14	*91.9*		*23.0-120*		*06/04/2018 20:25*	WG1118353
(S) Nitrobenzene-d5	*76.2*		*14.0-149*		*06/04/2018 20:25*	WG1118353
(S) 2-Fluorobiphenyl	*74.7*		*34.0-125*		*06/04/2018 20:25*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.0		1	06/06/2018 12:59	WG1117909

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 16:49	WG1118372

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.94	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997754-12 WG1118326: 7.94 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1950		10.0	1	06/04/2018 16:37	WG1119447

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0336		0.0200	1	05/31/2018 23:34	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.41		2.00	1	06/01/2018 18:08	WG1118407
Barium	6340		2.50	5	06/02/2018 13:14	WG1118407
Boron	ND		10.0	1	06/01/2018 18:08	WG1118407
Cadmium	ND		0.500	1	06/01/2018 18:08	WG1118407
Chromium	18.1		1.00	1	06/01/2018 18:08	WG1118407
Copper	18.2		2.00	1	06/01/2018 18:08	WG1118407
Lead	18.6		0.500	1	06/01/2018 18:08	WG1118407
Nickel	15.7		2.00	1	06/01/2018 18:08	WG1118407
Selenium	ND		2.00	1	06/01/2018 18:08	WG1118407
Silver	ND		1.00	1	06/01/2018 18:08	WG1118407
Zinc	75.2		5.00	1	06/01/2018 18:08	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00186		0.000500	1	06/04/2018 18:23	WG1119566
Toluene	ND		0.00500	1	06/04/2018 18:23	WG1119566
Ethylbenzene	0.000874		0.000500	1	06/04/2018 18:23	WG1119566
Total Xylene	0.00238	B	0.00150	1	06/04/2018 18:23	WG1119566
TPH (GC/FID) Low Fraction	ND		0.100	1	06/04/2018 18:23	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*92.1*		*77.0-120*		*06/04/2018 18:23*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*93.1*		*75.0-128*		*06/04/2018 18:23*	WG1119566

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	452	J3	40.0	10	06/03/2018 16:14	WG1118335
C28-C40 Oil Range	58.7		40.0	10	06/03/2018 16:14	WG1118335
(S) o-Terphenyl	*106*		*18.0-148*		*06/03/2018 16:14*	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	0.0114		0.00600	1	06/04/2018 20:47	WG1118353
Acenaphthene	0.0285		0.00600	1	06/04/2018 20:47	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Chrysene	0.00818		0.00600	1	06/04/2018 20:47	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Fluoranthene	0.00705		0.00600	1	06/04/2018 20:47	WG1118353
Fluorene	0.0257		0.00600	1	06/04/2018 20:47	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 20:47	WG1118353
Naphthalene	0.177		0.0200	1	06/04/2018 20:47	WG1118353
Phenanthrene	0.127		0.00600	1	06/04/2018 20:47	WG1118353
Pyrene	0.0563		0.00600	1	06/04/2018 20:47	WG1118353
1-Methylnaphthalene	0.202		0.0200	1	06/04/2018 20:47	WG1118353
2-Methylnaphthalene	0.462		0.0200	1	06/04/2018 20:47	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 20:47	WG1118353
(S) p-Terphenyl-d14	*61.8*		*23.0-120*		*06/04/2018 20:47*	WG1118353
(S) Nitrobenzene-d5	*48.9*		*14.0-149*		*06/04/2018 20:47*	WG1118353
(S) 2-Fluorobiphenyl	*68.0*		*34.0-125*		*06/04/2018 20:47*	WG1118353

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.42		1	06/06/2018 13:01	WG1117909

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	J6 O1	2.00	1	06/01/2018 16:50	WG1118372

Sample Narrative:

L997754-13 WG1118372: Sample is a reducer

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.85	T8	1	05/31/2018 17:15	WG1118326

Sample Narrative:

L997754-13 WG1118326: 7.85 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2380		10.0	1	06/04/2018 16:37	WG1119447

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0314		0.0200	1	05/31/2018 23:36	WG1118274

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.1		2.00	1	06/01/2018 18:12	WG1118407
Barium	5140		2.50	5	06/02/2018 13:18	WG1118407
Boron	ND		10.0	1	06/01/2018 18:12	WG1118407
Cadmium	ND		0.500	1	06/01/2018 18:12	WG1118407
Chromium	21.2		1.00	1	06/01/2018 18:12	WG1118407
Copper	20.1		2.00	1	06/01/2018 18:12	WG1118407
Lead	21.2		0.500	1	06/01/2018 18:12	WG1118407
Nickel	23.0		2.00	1	06/01/2018 18:12	WG1118407
Selenium	ND		2.00	1	06/01/2018 18:12	WG1118407
Silver	ND		1.00	1	06/01/2018 18:12	WG1118407
Zinc	87.3		5.00	1	06/01/2018 18:12	WG1118407

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00328		0.000500	1	06/04/2018 18:45	WG1119566
Toluene	0.00525		0.00500	1	06/04/2018 18:45	WG1119566
Ethylbenzene	0.00231		0.000500	1	06/04/2018 18:45	WG1119566
Total Xylene	0.00474	B	0.00150	1	06/04/2018 18:45	WG1119566
TPH (GC/FID) Low Fraction	0.105		0.100	1	06/04/2018 18:45	WG1119566
(S) a,a,a-Trifluorotoluene(FID)	*91.2*		*77.0-120*		*06/04/2018 18:45*	WG1119566
(S) a,a,a-Trifluorotoluene(PID)	*94.9*		*75.0-128*		*06/04/2018 18:45*	WG1119566

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	154	J3	40.0	10	06/04/2018 20:21	WG1118335
C28-C40 Oil Range	74.6		40.0	10	06/04/2018 20:21	WG1118335
(S) o-Terphenyl	*69.4*		*18.0-148*		*06/04/2018 20:21*	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 21:09	WG1118353
Acenaphthene	0.00959		0.00600	1	06/04/2018 21:09	WG1118353
Acenaphthylene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Benzo(a)anthracene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Benzo(a)pyrene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Benzo(b)fluoranthene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Benzo(g,h,i)perylene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Benzo(k)fluoranthene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Chrysene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Dibenz(a,h)anthracene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Fluoranthene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Fluorene	0.0112		0.00600	1	06/04/2018 21:09	WG1118353
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/04/2018 21:09	WG1118353
Naphthalene	0.0832		0.0200	1	06/04/2018 21:09	WG1118353
Phenanthrene	0.0519		0.00600	1	06/04/2018 21:09	WG1118353
Pyrene	0.0321		0.00600	1	06/04/2018 21:09	WG1118353
1-Methylnaphthalene	0.0918		0.0200	1	06/04/2018 21:09	WG1118353
2-Methylnaphthalene	0.223		0.0200	1	06/04/2018 21:09	WG1118353
2-Chloronaphthalene	ND		0.0200	1	06/04/2018 21:09	WG1118353
(S) p-Terphenyl-d14	*68.9*		*23.0-120*		*06/04/2018 21:09*	WG1118353
(S) Nitrobenzene-d5	*33.4*		*14.0-149*		*06/04/2018 21:09*	WG1118353
(S) 2-Fluorobiphenyl	*53.1*		*34.0-125*		*06/04/2018 21:09*	WG1118353

Method Blank (MB)

(MB) R3314573-1 06/01/18 12:01

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

L997751-08 Original Sample (OS) • Duplicate (DUP)

(OS) L997751-08 06/01/18 12:13 • (DUP) R3314573-8 06/01/18 12:13

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

L997751-11 Original Sample (OS) • Duplicate (DUP)

(OS) L997751-11 06/01/18 12:16 • (DUP) R3314573-9 06/01/18 12:16

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	0.720	1	0.000		20

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

(LCS) R3314573-2 06/01/18 12:01 • (LCSD) R3314573-3 06/01/18 12:02

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	23.1	23.2	96.3	96.5	80.0-120			0.173	20

L997751-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997751-04 06/01/18 12:06 • (MS) R3314573-4 06/01/18 12:08 • (MSD) R3314573-5 06/01/18 12:09

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 %
Chromium,Hexavalent	20.0	ND	6.56	6.40	32.8	32.0	1	75.0-125	J6	J6	2.47	20

L997751-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L997751-04 06/01/18 12:06 • (MS) R3314573-7 06/01/18 12:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	669	ND	481	71.9	50	75.0-125	J6

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

L997754-01 Original Sample (OS) • Duplicate (DUP)

(OS) L997754-01 05/31/18 11:50 • (DUP) R3314201-3 05/31/18 11:50

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	7.86	7.86	1	0.000		1

Sample Narrative:
OS: 7.86 at 21.2C
DUP: 7.86 at 21.1C

L997754-11 Original Sample (OS) • Duplicate (DUP)

(OS) L997754-11 05/31/18 11:50 • (DUP) R3314201-4 05/31/18 11:50

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	11.3	11.2	1	0.267		1

Sample Narrative:
OS: 11.25 at 20.7C
DUP: 11.22 at 20.8C

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

(LCS) R3314201-1 05/31/18 11:50 • (LCSD) R3314201-2 05/31/18 11:50

Analyte	Spike Amount su	LCS Result su	LCSD Result su	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
pH	10.0	9.99	9.98	99.9	99.8	99.0-101			0.100	1

Sample Narrative:
LCS: 9.99 at 20.8C
LCSD: 9.98 at 20.8C

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) R3314031-1 05/31/18 01:38

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

L997751-02 Original Sample (OS) • Duplicate (DUP)

(OS) L997751-02 05/31/18 01:38 • (DUP) R3314031-4 05/31/18 01:38

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	215	214	1	0.000		20

L997766-03 Original Sample (OS) • Duplicate (DUP)

(OS) L997766-03 05/31/18 01:38 • (DUP) R3314031-5 05/31/18 01:38

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	622	620	1	0.322		20

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

(LCS) R3314031-2 05/31/18 01:38 • (LCSD) R3314031-3 05/31/18 01:38

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	877	875	872	99.8	99.4	85.0-115			0.343	20

Method Blank (MB)

(MB) R3315218-1 06/04/18 16:37

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

L997754-11 Original Sample (OS) • Duplicate (DUP)

(OS) L997754-11 06/04/18 16:37 • (DUP) R3315218-4 06/04/18 16:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	1750	1750	1	0.000		20

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

(LCS) R3315218-2 06/04/18 16:37 • (LCSD) R3315218-3 06/04/18 16:37

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	863	863	98.4	98.4	85.0-115			0.000	20

Method Blank (MB)

(MB) R3314425-1 05/31/18 22:52

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) R3314425-2 05/31/18 22:55 • (LCSD) R3314425-3 05/31/18 22:57

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	0.278	0.271	92.6	90.4	80.0-120			2.34	20

L997838-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997838-01 05/31/18 22:59 • (MS) R3314425-4 05/31/18 23:01 • (MSD) R3314425-5 05/31/18 23:03

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 %
Mercury	0.349	0.0353	0.334	0.334	85.6	85.6	1	75.0-125			0.000	20

Method Blank (MB)

(MB) R3314768-1 06/01/18 16:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.650	2.00
Barium	0.799		0.170	0.500
Boron	U		1.26	10.0
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Copper	1.09	J	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	0.739	J	0.590	5.00

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

(LCS) R3314768-2 06/01/18 17:00 • (LCSD) R3314768-3 06/01/18 17:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	96.6	103	96.6	103	80.0-120			6.50	20
Barium	100	101	107	101	107	80.0-120			6.28	20
Boron	100	95.4	101	95.4	101	80.0-120			5.51	20
Cadmium	100	95.7	102	95.7	102	80.0-120			6.23	20
Chromium	100	97.4	102	97.4	102	80.0-120			4.94	20
Copper	100	95.7	101	95.7	101	80.0-120			5.60	20
Lead	100	95.1	102	95.1	102	80.0-120			6.51	20
Nickel	100	96.6	103	96.6	103	80.0-120			5.93	20
Selenium	100	96.6	103	96.6	103	80.0-120			6.85	20
Silver	20.0	17.6	18.5	88.1	92.7	80.0-120			5.16	20
Zinc	100	97.4	104	97.4	104	80.0-120			6.23	20

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

(OS) L997754-01 06/01/18 17:07 • (MS) R3314768-6 06/01/18 17:18 • (MSD) R3314768-7 06/01/18 17:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	14.1	113	116	98.9	102	1	75.0-125			2.36	20
Barium	100	5870	5740	5400	0.000	0.000	1	75.0-125	E V	E V	6.00	20
Boron	100	ND	104	103	94.0	93.5	1	75.0-125			0.437	20
Cadmium	100	ND	102	102	102	101	1	75.0-125			0.597	20
Chromium	100	21.9	113	112	90.9	90.5	1	75.0-125			0.364	20

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

(OS) L997754-01 06/01/18 17:07 • (MS) R3314768-6 06/01/18 17:18 • (MSD) R3314768-7 06/01/18 17:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	100	19.6	120	123	101	103	1	75.0-125			2.33	20
Lead	100	18.5	117	117	98.5	98.6	1	75.0-125			0.0404	20
Nickel	100	17.6	116	123	98.3	105	1	75.0-125			5.85	20
Selenium	100	ND	104	103	103	102	1	75.0-125			0.875	20
Silver	20.0	ND	18.6	18.3	92.9	91.7	1	75.0-125			1.34	20
Zinc	100	70.2	158	163	87.8	92.7	1	75.0-125			3.09	20

Method Blank (MB)

(MB) R3314684-5 06/01/18 11:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000396	J	0.000150	0.00500
Ethylbenzene	0.000123	J	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)	*104*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*106*			*75.0-128*

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

(LCS) R3314684-1 06/01/18 09:47 • (LCSD) R3314684-2 06/01/18 10:08

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 %
Benzene	0.0500	0.0485	0.0477	97.0	95.4	71.0-121			1.61	20
Toluene	0.0500	0.0480	0.0469	96.1	93.8	72.0-120			2.38	20
Ethylbenzene	0.0500	0.0526	0.0516	105	103	76.0-121			2.07	20
Total Xylene	0.150	0.160	0.156	107	104	75.0-124			2.47	20
(S) a,a,a-Trifluorotoluene(FID)				*99.4*	*100*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*104*	*104*	*75.0-128*				

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

(LCS) R3314684-3 06/01/18 10:29 • (LCSD) R3314684-4 06/01/18 10:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.46	4.56	81.0	82.9	70.0-136			2.25	20
(S) a,a,a-Trifluorotoluene(FID)				*92.1*	*92.2*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*113*	*112*	*75.0-128*				

L997754-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997754-09 06/01/18 19:16 • (MS) R3314684-6 06/01/18 19:37 • (MSD) R3314684-7 06/01/18 19:58

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	0.00305	0.00565	0.00441	5.18	2.71	1	10.0-146	J6	J6	24.6	29
Toluene	0.0500	0.00540	0.00626	0.00532	1.71	0.000	1	10.0-143	J6	J6	16.2	30
Ethylbenzene	0.0500	0.00280	0.00307	0.00266	0.534	0.000	1	10.0-147	J6	J6	14.2	31
Total Xylene	0.150	0.0169	0.0140	0.0126	0.000	0.000	1	10.0-149	J6	J6	10.1	30
(S) a,a,a-Trifluorotoluene(FID)					*98.0*	*97.3*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*105*	*104*		*75.0-128*				

L997754-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997754-09 06/01/18 19:16 • (MS) R3314684-8 06/01/18 20:19 • (MSD) R3314684-9 06/01/18 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 %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	1.28	1.31	1.85	0.525	10.3	1	10.0-147	J6	J3	34.1	30
(S) a,a,a-Trifluorotoluene(FID)					*97.4*	*93.2*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*104*	*102*		*75.0-128*				

Method Blank (MB)

(MB) R3315747-5 06/04/18 12:30

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)	*100*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*100*			*75.0-128*

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

(LCS) R3315747-1 06/04/18 10:38 • (LCSD) R3315747-2 06/04/18 11:00

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	0.0532	0.0534	106	107	71.0-121			0.475	20
Toluene	0.0500	0.0550	0.0543	110	109	72.0-120			1.23	20
Ethylbenzene	0.0500	0.0545	0.0548	109	110	76.0-121			0.677	20
Total Xylene	0.150	0.163	0.164	109	110	75.0-124			0.856	20
(S) a,a,a-Trifluorotoluene(FID)				*99.8*	*100*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*98.0*	*99.9*	*75.0-128*				

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

(LCS) R3315747-3 06/04/18 11:23 • (LCSD) R3315747-4 06/04/18 11:45

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 %
TPH (GC/FID) Low Fraction	5.50	6.31	6.32	115	115	70.0-136			0.166	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*105*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*109*	*110*	*75.0-128*				

L997766-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997766-02 06/04/18 20:37 • (MS) R3315747-6 06/04/18 20:59 • (MSD) R3315747-7 06/04/18 21:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.00107	0.0333	0.0315	64.6	60.8	1	10.0-146			5.73	29
Toluene	0.0500	ND	0.0291	0.0272	54.4	50.5	1	10.0-143			6.87	30
Ethylbenzene	0.0500	0.000825	0.0216	0.0201	41.5	38.6	1	10.0-147			6.82	31
Total Xylene	0.150	ND	0.0596	0.0565	38.8	36.7	1	10.0-149	J6	J6	5.34	30
(S) a,a,a-Trifluorotoluene(FID)					*93.6*	*92.6*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*93.7*	*92.4*		*75.0-128*				

L997766-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L997766-02 06/04/18 20:37 • (MS) R3315747-8 06/04/18 21:43 • (MSD) R3315747-9 06/04/18 22:05

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	ND	1.97	2.56	35.9	46.6	1	10.0-147			25.9	30
(S) a,a,a-Trifluorotoluene(FID)					*94.3*	*94.1*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*98.1*	*98.4*		*75.0-128*				

Method Blank (MB)

(MB) R3315985-5 06/06/18 17:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000138	J	0.000120	0.000500
Toluene	0.000206	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)	*100*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*101*			*75.0-128*

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

(LCS) R3315985-1 06/06/18 15:44 • (LCSD) R3315985-2 06/06/18 16:07

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	0.0481	0.0522	96.2	104	71.0-121			8.13	20
Toluene	0.0500	0.0506	0.0535	101	107	72.0-120			5.69	20
Ethylbenzene	0.0500	0.0505	0.0538	101	108	76.0-121			6.29	20
Total Xylene	0.150	0.151	0.161	101	107	75.0-124			6.41	20
(S) a,a,a-Trifluorotoluene(FID)				*99.6*	*100*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*99.7*	*100*	*75.0-128*				

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

(LCS) R3315985-3 06/06/18 16:29 • (LCSD) R3315985-4 06/06/18 16:51

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	5.67	5.57	103	101	70.0-136			1.74	20
(S) a,a,a-Trifluorotoluene(FID)				*105*	*104*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*109*	*109*	*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) R3314806-1 06/01/18 23:54

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	*74.3*			*18.0-148*

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

(LCS) R3314806-2 06/02/18 00:06 • (LCSD) R3314806-3 06/02/18 00:17

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 %
C10-C28 Diesel Range	50.0	27.6	27.3	55.2	54.6	50.0-150			1.08	20
(S) o-Terphenyl				*102*	*103*	*18.0-148*				

L998202-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L998202-01 06/02/18 00:29 • (MS) R3314806-4 06/02/18 00:41 • (MSD) R3314806-5 06/02/18 00:53

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 %
C10-C28 Diesel Range	55.9	ND	26.4	30.4	47.3	54.4	1	50.0-150	J6		13.9	20
(S) o-Terphenyl					*78.3*	*88.2*		*18.0-148*				

Method Blank (MB)

(MB) R3315390-1 06/05/18 00:56

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	*85.6*			*18.0-148*

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

(LCS) R3315390-2 06/05/18 01:09 • (LCSD) R3315390-3 06/05/18 01:21

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	35.7	37.5	71.5	75.1	50.0-150			4.90	20
(S) o-Terphenyl				*79.5*	*85.4*	*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*				

Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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

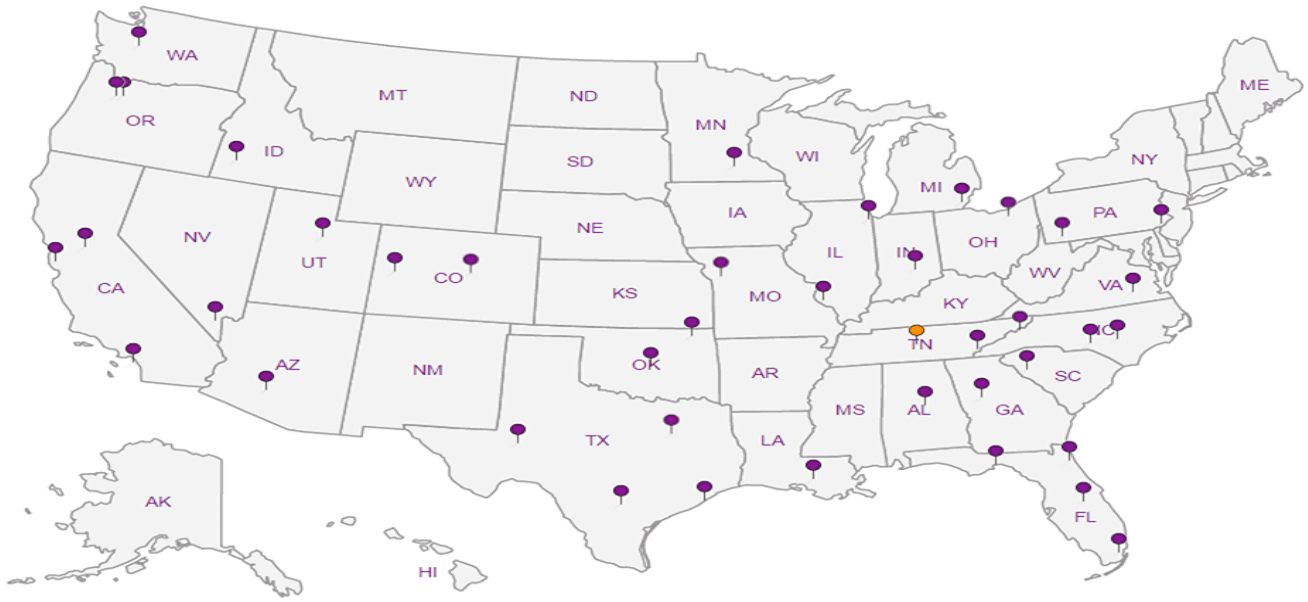
Third Party Federal Accreditations

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.
3433 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)
036B-1		SS		5/23	1550	5	X	X	X	X	X		01
036B-2		SS			1600		X	X	X	X	X		02
036B-3		SS			1610		X	X	X	X	X		03
036B-4		SS			1620		X	X	X	X	X		04
036B-5		SS			1630		X	X	X	X	X		05
036B-6		SS			1640		X	X	X	X	X		06
036B-7		SS			1650		X	X	X	X	X		07
036B-8		SS			1700		X	X	X	X	X		08
036B-9		SS			1710		X	X	X	X	X		09
036B-10		SS			1720		X	X	X	X	X		10

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

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

4276 0141 2862
4196 3257 1122 / 1133

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)

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: 0.6 °C Bottles Received: 65
Date: 5/30/18 Time: 8:45

Hold #

Condition: (lab use only) OK

COC Seal Intact: ___ Y ___ N ___ NA

pH Checked: NCF:

Chain of Custody Page 1 of 2

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

L# 997754
E077

Acctnum: BERPETDCO
Template: T136417
Prelogin: P654393
TSR: Mark Beasley
Cooler:
Shipped Via:

Company Name/Address:
Nicholson GeoSolutions. LLC.
3433 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):
Immediately
Packed on Ice N ___ Y ___

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

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

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

L# 947754

Table #

Acctnum: BERPETDCO
Template: T136417
Prelogin: P654393
TSR: Mark Beasley
Cooler:
Shipped Via:

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)
D36B-11		SS		5/23	1730	5	X	X	X	X	X		11
D36B-12		SS		↓	1740	↓	X	X	X	X	X		12
D36B-13		SS		↓	1750	↓	X	X	X	X	X		13
		SS											
		SS											
		SS											
		SS											
		SS											
		SS											
		SS											

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

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

pH ___ Temp ___
Flow ___ Other ___

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	5/29/18	1200	FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			8Q

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

Temp: 0.6 °C Bottles Received: 65

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

Condition: (lab use only) OK

COC Seal Intact: ___ Y ___ N ___ NA

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: BERGETO Co	SDG#	99 7154	
Cooler Received/Opened On: 5/30/18	Temperature:	0.6	
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?			