



**Nicholson GeoSolutions, LLC**

3433 East Lake Drive  
Centennial, CO 80121

May 13, 2020

Mr. Don Wilbourn  
Berry Petroleum Company  
235 Callahan Avenue  
Parachute, Colorado 81635

**Subject: J15 Pipeline Spill Additional Soil Investigation**

Dear Don:

Nicholson GeoSolutions LLC was retained by Berry Petroleum Company (Berry) to conduct additional soil sampling at the site of a produced water/condensate spill near the J15 well pad on Long Ridge, Garfield County, Colorado. About 50 barrels of produced water and condensate were reported to be lost from a pipeline that runs along the main road on Long Ridge to the J15 well pad. Upon discovery of the leak, an excavation contractor was immediately mobilized to the site to begin excavation of impacted soils.

Nicholson GeoSolutions initially inspected the site on April 8<sup>th</sup>, 2020. The results of the inspection and sampling conducted at that time were provided in the previous letter report dated April 21, 2020. These results showed that TPH impacts remained on the NW wall, west wall, and floor of the excavation. Following the previous sampling, additional excavation was conducted on the northwest and west walls and the excavation was deepened by about 3-4 feet in the northern portion of the excavation and by about 2 feet across the remaining area.

For the additional sampling, seven discrete soil samples were collected on May 4<sup>th</sup>, 2020 to evaluate compliance with COGCC standards (samples J15-S-1A and J15-S-2A, and J15-S-8 through J15-S-12). Figure 1 shows the approximate extent of the excavation and the locations of the seven confirmation samples collected. Table 1 provides the locations and depths of the samples collected.

Samples J15-S-1A and J-15-S-2A were collected from the same locations as previous samples J15-S-1 and J15-S-2 and analyzed for metals and PAHs to complete the suite of Table 910-1 analyses for these sample locations. All other 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, total metals, and PAHs.

**Table 1 Sample Depths**

	Sample ID						
	J15-S-1/1A	J15-S-2/2A	J15-S-8	J15-S-9	J15-S-10	J15-S-11	J15-S-12
Sample Location	East wall	North wall	NW wall	North floor	West wall	Center floor	South floor
Depth bgs (ft)	8	12	4	12	6	8	8
Depth below pipeline (ft)	3	5	2	5	3	4	4

bgs = below ground surface

Table 2 provides analytical results for the soil samples collected. The laboratory analytical report is contained in Appendix A.

**Table 2 J15 Spill Soil Sample Results – May 4, 2020**

Parameter	Table 910-1 Standards	J15-S-1A East Wall	J15-S-2A North Wall	J15-S-8 NW Wall	J15-S-9 North Floor
sp. conductance (mmhos/cm)	<4			1.31	<b>4.35</b>
pH (standard units)	6-9			7.75	7.83
SAR (ratio)	<12			2.53	<b>31.6</b>
TVPH – gasoline range	500 <sup>1</sup>			0.226	<b>153</b>
TEPH – diesel/motor oil range				80.54	<b>3,462.2</b>
benzene	0.17			0.00192	<0.0125
toluene	85			<0.005	<0.125
ethylbenzene	100			<0.0005	<0.0125
xylenes	175			0.00271	0.269
arsenic	0.39	<b>4.16</b>	<b>5.66</b>	<b>3.69</b>	<b>3.61</b>
PAHs	varies	All ND	All ND	All BS	All BS

Parameter	Table 910-1 Standards	J15-S-10 West Wall	J15-S-11 Center Floor	J15-S-12 South Floor
sp. conductance (mmhos/cm)	<4	0.969	1.71	0.259
pH (standard units)	6-9	7.92	7.89	8.35
SAR (ratio)	<12	2.13	8.65	0.672
TVPH – gasoline range	500 <sup>1</sup>	<b>48.5</b>	<b>93.2</b>	<b>232</b>
TEPH – diesel/motor oil range		<b>741.5</b>	<b>1,984.1</b>	<b>1,650</b>
benzene	0.17	<0.0125	<0.0125	<0.05
toluene	85	<0.125	<0.125	<0.5
ethylbenzene	100	<0.0125	<0.0125	<0.05
xylenes	175	0.0682	0.10	11.5
arsenic	0.39	<b>4.59</b>	<b>3.01</b>	<b>5.44</b>
PAHs	varies	All BS	All BS	All BS

<sup>1</sup>The standard is 500 for the combined total of TVPH and TEPH

Values in bold type exceed standards ND = Not Detected BS = Below Standards

All units in mg/kg except where indicated

All parameters for the samples from the east wall and north wall (the metals and PAH results from samples J15-S-1A and J15-S-2A and the previous results for samples J15-S-1 and J15-S-2) were below the COGCC Table 910-1 standards, except for arsenic. All results for new sample J15-S-8 (NW wall) were also below the standards except for arsenic. TPH exceeded the standard of 500 mg/kg for the remaining samples and ranged from 790 mg/kg for the west wall to 3,615.2 mg/kg for the north floor. Conductivity and SAR also exceeded the standards for this sample. All PAH and metals results (except arsenic) were below the standards for all samples. Arsenic ranged from 3.01 mg/kg to 5.66 mg/kg, within the range of natural background concentrations for the Garden Gulch area (Nicholson GeoSolutions 2014).

Nicholson GeoSolutions LLC

A handwritten signature in blue ink that reads "DK Nicholson". The signature is fluid and cursive, with the initials "DK" being prominent.

David K. Nicholson, P.G.  
Principal Geologist

### **Reference**

Nicholson GeoSolutions LLC, 2014, Analysis of Background Arsenic Concentrations for the Garden Gulch, Old Mountain, and Long Ridge Areas, Garfield County, Colorado. Prepared for Berry Petroleum Company, February 24, 2014



Figure 1

May  
2020

GeoSolutions  
NICHOLSON

### Legend

 Confirmation Sample

 Pipeline

 Spill Perimeter

0 30 60 Feet

1" = 60'

**Berry Petroleum Company**

Long Ridge J-15 Pipeline  
Spill Response  
Garfield County, Colorado

# **APPENDIX A**

## **Laboratory Report**

May 12, 2020

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Berry Petroleum - Denver, CO

Sample Delivery Group: L1215166

Samples Received: 05/05/2020

Project Number:

Description: J15 Spill

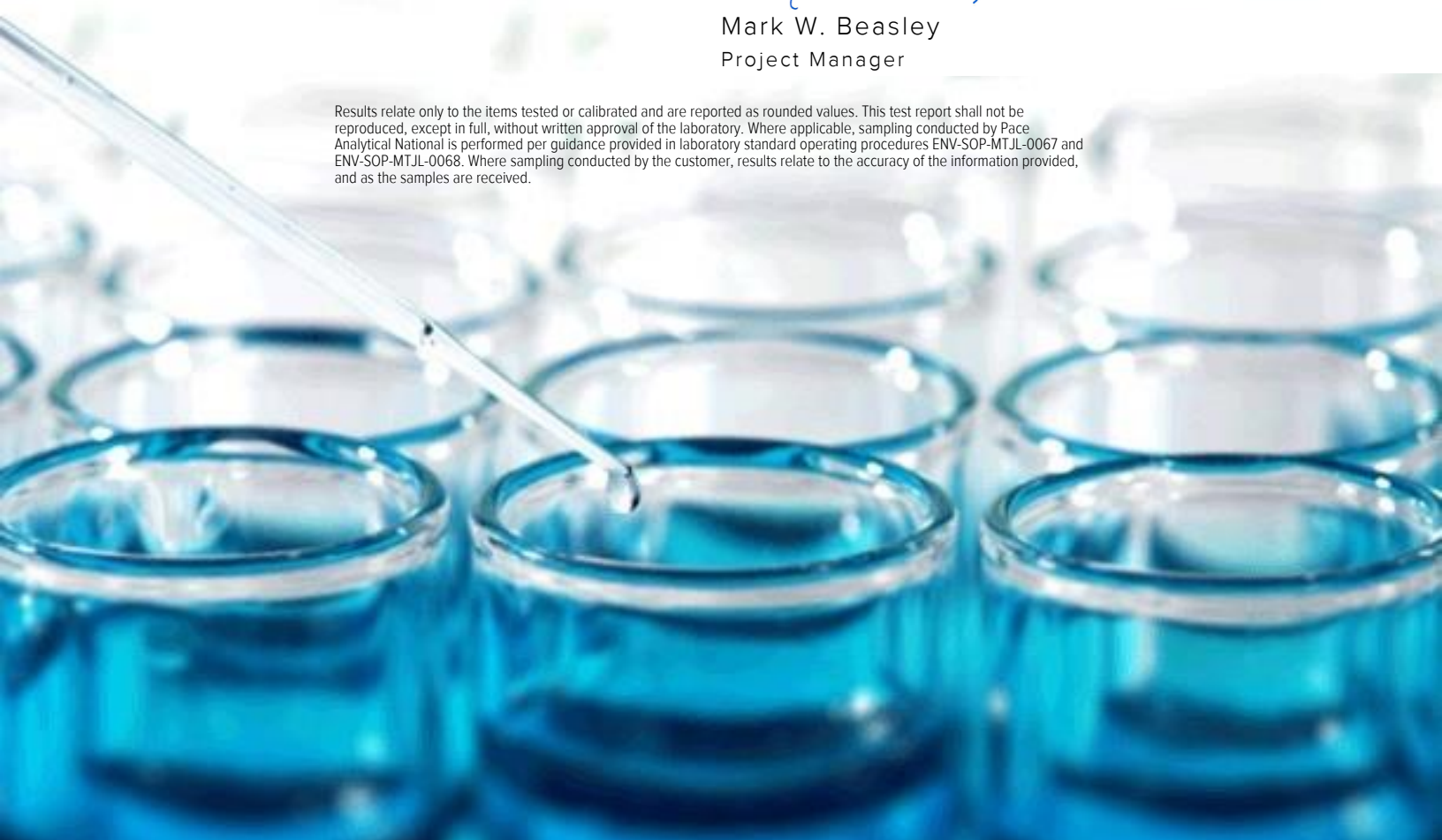
Report To: Dave Nicholson  
3433 E. Lake Dr  
Centennial, CO 80121

Entire Report Reviewed By:



Mark W. Beasley  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





<b>Cp: Cover Page</b>	<b>1</b>
<b>Tc: Table of Contents</b>	<b>2</b>
<b>Ss: Sample Summary</b>	<b>3</b>
<b>Cn: Case Narrative</b>	<b>5</b>
<b>Sr: Sample Results</b>	<b>6</b>
J15-S-1A L1215166-01	6
J15-S-2A L1215166-02	7
J15-S-8 L1215166-03	8
J15-S-9 L1215166-04	10
J15-S-10 L1215166-05	12
J15-S-11 L1215166-06	14
J15-S-12 L1215166-07	16
<b>Qc: Quality Control Summary</b>	<b>18</b>
Wet Chemistry by Method 3060A/7196A	18
Wet Chemistry by Method 9045D	19
Wet Chemistry by Method 9050AMod	20
Mercury by Method 7471A	21
Metals (ICP) by Method 6010B	22
Volatile Organic Compounds (GC) by Method 8015/8021	26
Semi-Volatile Organic Compounds (GC) by Method 8015	29
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	30
<b>Gl: Glossary of Terms</b>	<b>32</b>
<b>Al: Accreditations &amp; Locations</b>	<b>34</b>
<b>Sc: Sample Chain of Custody</b>	<b>35</b>





# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## J15-S-1A L1215166-01 Solid

				Collected by	Collected date/time	Received date/time
				DK Nicholson	05/04/20 09:40	05/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1471265	1	05/06/20 10:00	05/07/20 18:06	KEG	Mt. Juliet, TN
Mercury by Method 7471A	WG1472608	1	05/08/20 06:08	05/08/20 10:21	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1472068	1	05/08/20 06:04	05/09/20 12:39	TRB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	1	05/08/20 02:35	05/08/20 07:23	JF	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## J15-S-2A L1215166-02 Solid

				Collected by	Collected date/time	Received date/time
				DK Nicholson	05/04/20 09:50	05/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1471265	1	05/06/20 10:00	05/07/20 18:07	KEG	Mt. Juliet, TN
Mercury by Method 7471A	WG1472608	1	05/08/20 06:08	05/08/20 10:23	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1472068	1	05/08/20 06:04	05/09/20 12:42	TRB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	1	05/08/20 02:35	05/08/20 07:44	JF	Mt. Juliet, TN

## J15-S-8 L1215166-03 Solid

				Collected by	Collected date/time	Received date/time
				DK Nicholson	05/04/20 10:00	05/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1473262	1	05/11/20 21:19	05/11/20 21:19	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1471265	1	05/06/20 10:00	05/07/20 18:09	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1473961	1	05/11/20 12:08	05/11/20 14:47	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1473049	1	05/09/20 17:00	05/09/20 19:00	CAT	Mt. Juliet, TN
Mercury by Method 7471A	WG1472608	1	05/08/20 06:08	05/08/20 10:26	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1472068	1	05/08/20 06:04	05/09/20 12:45	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1473682	1	05/09/20 12:36	05/11/20 06:06	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1472941	1	05/09/20 19:35	05/11/20 08:04	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	1	05/08/20 02:35	05/08/20 08:05	JF	Mt. Juliet, TN

## J15-S-9 L1215166-04 Solid

				Collected by	Collected date/time	Received date/time
				DK Nicholson	05/04/20 10:10	05/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1473262	1	05/11/20 21:22	05/11/20 21:22	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1471265	1	05/06/20 10:00	05/07/20 18:09	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1473961	1	05/11/20 12:08	05/11/20 14:47	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1473049	1	05/09/20 17:00	05/09/20 19:00	CAT	Mt. Juliet, TN
Mercury by Method 7471A	WG1472608	1	05/08/20 06:08	05/08/20 10:28	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1472068	1	05/08/20 06:04	05/09/20 12:48	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1474149	25	05/09/20 12:36	05/12/20 05:23	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1472941	10	05/09/20 19:35	05/11/20 09:23	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1472941	200	05/09/20 19:35	05/11/20 15:16	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	1	05/08/20 02:35	05/08/20 08:25	JF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	20	05/08/20 02:35	05/08/20 14:37	DMG	Mt. Juliet, TN

## J15-S-10 L1215166-05 Solid

				Collected by	Collected date/time	Received date/time
				DK Nicholson	05/04/20 10:20	05/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1473262	1	05/11/20 21:24	05/11/20 21:24	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1471265	1	05/06/20 10:00	05/07/20 18:10	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1473961	1	05/11/20 12:08	05/11/20 14:47	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1473049	1	05/09/20 17:00	05/09/20 19:00	CAT	Mt. Juliet, TN

ACCOUNT:

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# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## J15-S-10 L1215166-05 Solid

Collected by  
DK Nicholson

Collected date/time  
05/04/20 10:20

Received date/time  
05/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1472608	1	05/08/20 06:08	05/08/20 10:31	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1472068	1	05/08/20 06:04	05/09/20 12:51	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1474149	25	05/09/20 12:36	05/12/20 05:43	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1472941	10	05/09/20 19:35	05/11/20 09:36	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	1	05/08/20 02:35	05/08/20 08:46	JF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	10	05/08/20 02:35	05/08/20 14:57	DMG	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## J15-S-11 L1215166-06 Solid

Collected by  
DK Nicholson

Collected date/time  
05/04/20 10:30

Received date/time  
05/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1473262	1	05/11/20 21:27	05/11/20 21:27	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1471265	1	05/06/20 10:00	05/07/20 18:11	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1473961	1	05/11/20 12:08	05/11/20 14:47	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1473049	1	05/09/20 17:00	05/09/20 19:00	CAT	Mt. Juliet, TN
Mercury by Method 7471A	WG1472608	1	05/08/20 06:08	05/08/20 10:33	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1472068	1	05/08/20 06:04	05/09/20 13:00	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1474149	25	05/09/20 12:36	05/12/20 06:04	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1472941	10	05/09/20 19:35	05/11/20 09:49	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	1	05/08/20 02:35	05/08/20 09:07	JF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	10	05/08/20 02:35	05/08/20 15:18	DMG	Mt. Juliet, TN

## J15-S-12 L1215166-07 Solid

Collected by  
DK Nicholson

Collected date/time  
05/04/20 10:40

Received date/time  
05/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1473262	1	05/11/20 21:30	05/11/20 21:30	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1471265	1	05/06/20 10:00	05/07/20 18:11	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1473961	1	05/11/20 12:08	05/11/20 14:47	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1473049	1	05/09/20 17:00	05/09/20 19:00	CAT	Mt. Juliet, TN
Mercury by Method 7471A	WG1472608	1	05/08/20 06:08	05/08/20 10:41	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1472716	1	05/08/20 12:46	05/10/20 12:32	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1473682	100	05/09/20 12:36	05/11/20 07:28	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1472941	10	05/09/20 19:35	05/11/20 10:02	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	1	05/08/20 02:35	05/08/20 09:27	JF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1472564	5	05/08/20 02:35	05/08/20 15:38	DMG	Mt. Juliet, TN

ACCOUNT:

Berry Petroleum - Denver, CO

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

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## 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	05/07/2020 18:06	<a href="#">WG1471265</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.275		0.0400	1	05/08/2020 10:21	<a href="#">WG1472608</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.16		2.00	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Barium	236		0.500	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Boron	ND		20.0	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Cadmium	ND		0.500	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Chromium	29.9		1.00	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Copper	16.2		2.00	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Lead	9.98		0.500	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Nickel	16.7		2.00	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Selenium	ND		2.00	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Silver	ND		1.00	1	05/09/2020 12:39	<a href="#">WG1472068</a>
Zinc	38.0		5.00	1	05/09/2020 12:39	<a href="#">WG1472068</a>

## 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	05/08/2020 07:23	<a href="#">WG1472564</a>
Acenaphthene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Acenaphthylene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Benzo(a)anthracene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Benzo(a)pyrene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Benzo(g,h,i)perylene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Chrysene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Fluoranthene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Fluorene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Naphthalene	ND		0.0200	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Phenanthrene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
Pyrene	ND		0.00600	1	05/08/2020 07:23	<a href="#">WG1472564</a>
1-Methylnaphthalene	ND		0.0200	1	05/08/2020 07:23	<a href="#">WG1472564</a>
2-Methylnaphthalene	ND		0.0200	1	05/08/2020 07:23	<a href="#">WG1472564</a>
2-Chloronaphthalene	ND		0.0200	1	05/08/2020 07:23	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	86.1		23.0-120		05/08/2020 07:23	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	79.8		14.0-149		05/08/2020 07:23	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	67.5		34.0-125		05/08/2020 07:23	<a href="#">WG1472564</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## 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	05/07/2020 18:07	<a href="#">WG1471265</a>

## Mercury by Method 7471A

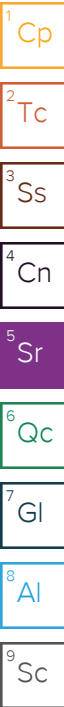
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.193		0.0400	1	05/08/2020 10:23	<a href="#">WG1472608</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.66		2.00	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Barium	292		0.500	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Boron	ND		20.0	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Cadmium	ND		0.500	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Chromium	32.6		1.00	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Copper	20.4		2.00	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Lead	13.0		0.500	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Nickel	20.4		2.00	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Selenium	ND		2.00	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Silver	ND		1.00	1	05/09/2020 12:42	<a href="#">WG1472068</a>
Zinc	48.2		5.00	1	05/09/2020 12:42	<a href="#">WG1472068</a>

## 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	05/08/2020 07:44	<a href="#">WG1472564</a>
Acenaphthene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Acenaphthylene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Benzo(a)anthracene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Benzo(a)pyrene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Benzo(g,h,i)perylene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Chrysene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Fluoranthene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Fluorene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Naphthalene	ND		0.0200	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Phenanthrene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
Pyrene	ND		0.00600	1	05/08/2020 07:44	<a href="#">WG1472564</a>
1-Methylnaphthalene	ND		0.0200	1	05/08/2020 07:44	<a href="#">WG1472564</a>
2-Methylnaphthalene	ND		0.0200	1	05/08/2020 07:44	<a href="#">WG1472564</a>
2-Chloronaphthalene	ND		0.0200	1	05/08/2020 07:44	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	95.3		23.0-120		05/08/2020 07:44	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	78.7		14.0-149		05/08/2020 07:44	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	67.9		34.0-125		05/08/2020 07:44	<a href="#">WG1472564</a>





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.53		1	05/11/2020 21:19	WG1473262

## 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	05/07/2020 18:09	<a href="#">WG1471265</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.75	<b>T8</b>	1	05/11/2020 14:47	<a href="#">WG1473961</a>

## Sample Narrative:

L1215166-03 WG1473961: 7.75 at 23.9C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1310		10.0	1	05/09/2020 19:00	<a href="#">WG1473049</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0469		0.0400	1	05/08/2020 10:26	<a href="#">WG1472608</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.69		2.00	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Barium	248		0.500	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Boron	ND		20.0	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Cadmium	ND		0.500	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Chromium	30.9		1.00	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Copper	16.0		2.00	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Lead	11.2		0.500	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Nickel	18.1		2.00	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Selenium	ND		2.00	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Silver	ND		1.00	1	05/09/2020 12:45	<a href="#">WG1472068</a>
Zinc	42.0		5.00	1	05/09/2020 12:45	<a href="#">WG1472068</a>

## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00192		0.000500	1	05/11/2020 06:06	<a href="#">WG1473682</a>
Toluene	ND		0.00500	1	05/11/2020 06:06	<a href="#">WG1473682</a>
Ethylbenzene	ND		0.000500	1	05/11/2020 06:06	<a href="#">WG1473682</a>
Total Xylene	0.00271		0.00150	1	05/11/2020 06:06	<a href="#">WG1473682</a>
TPH (GC/FID) Low Fraction	0.226		0.100	1	05/11/2020 06:06	<a href="#">WG1473682</a>
(S) a,a,a-Trifluorotoluene(FID)	91.1		77.0-120		05/11/2020 06:06	<a href="#">WG1473682</a>
(S) a,a,a-Trifluorotoluene(PID)	99.0		72.0-128		05/11/2020 06:06	<a href="#">WG1473682</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 05/04/20 10:00

L1215166

## 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	73.6		4.00	1	05/11/2020 08:04	<a href="#">WG1472941</a>
C28-C40 Oil Range	6.94		4.00	1	05/11/2020 08:04	<a href="#">WG1472941</a>
(S) o-Terphenyl	57.3		18.0-148		05/11/2020 08:04	<a href="#">WG1472941</a>

## 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	05/08/2020 08:05	<a href="#">WG1472564</a>
Acenaphthene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Acenaphthylene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Benzo(a)anthracene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Benzo(a)pyrene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Benzo(g,h,i)perylene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Chrysene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Fluoranthene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Fluorene	0.00959		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Naphthalene	ND		0.0200	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Phenanthrene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
Pyrene	ND		0.00600	1	05/08/2020 08:05	<a href="#">WG1472564</a>
1-Methylnaphthalene	ND		0.0200	1	05/08/2020 08:05	<a href="#">WG1472564</a>
2-Methylnaphthalene	ND		0.0200	1	05/08/2020 08:05	<a href="#">WG1472564</a>
2-Chloronaphthalene	ND		0.0200	1	05/08/2020 08:05	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	95.8		23.0-120		05/08/2020 08:05	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	136		14.0-149		05/08/2020 08:05	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	83.7		34.0-125		05/08/2020 08:05	<a href="#">WG1472564</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	31.6		1	05/11/2020 21:22	WG1473262

## 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	05/07/2020 18:09	<a href="#">WG1471265</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.83	<a href="#">T8</a>	1	05/11/2020 14:47	<a href="#">WG1473961</a>

## Sample Narrative:

L1215166-04 WG1473961: 7.83 at 23.9C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4350		10.0	1	05/09/2020 19:00	<a href="#">WG1473049</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.548		0.0400	1	05/08/2020 10:28	<a href="#">WG1472608</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.61		2.00	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Barium	487		0.500	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Boron	ND		20.0	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Cadmium	ND		0.500	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Chromium	32.5		1.00	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Copper	21.0		2.00	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Lead	12.3		0.500	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Nickel	18.7		2.00	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Selenium	ND		2.00	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Silver	ND		1.00	1	05/09/2020 12:48	<a href="#">WG1472068</a>
Zinc	51.5		5.00	1	05/09/2020 12:48	<a href="#">WG1472068</a>

## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0125	25	05/12/2020 05:23	<a href="#">WG1474149</a>
Toluene	ND		0.125	25	05/12/2020 05:23	<a href="#">WG1474149</a>
Ethylbenzene	ND		0.0125	25	05/12/2020 05:23	<a href="#">WG1474149</a>
Total Xylene	0.269		0.0375	25	05/12/2020 05:23	<a href="#">WG1474149</a>
TPH (GC/FID) Low Fraction	153		2.50	25	05/12/2020 05:23	<a href="#">WG1474149</a>
(S) a,a,a-Trifluorotoluene(FID)	89.9		77.0-120		05/12/2020 05:23	<a href="#">WG1474149</a>
(S) a,a,a-Trifluorotoluene(PID)	98.9		72.0-128		05/12/2020 05:23	<a href="#">WG1474149</a>

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





Collected date/time: 05/04/20 10:10

L1215166

## 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	3380		800	200	05/11/2020 15:16	<a href="#">WG1472941</a>
C28-C40 Oil Range	84.2		40.0	10	05/11/2020 09:23	<a href="#">WG1472941</a>
(S) o-Terphenyl	419	<u>J1</u>	18.0-148		05/11/2020 09:23	<a href="#">WG1472941</a>
(S) o-Terphenyl	0.000	<u>J7</u>	18.0-148		05/11/2020 15:16	<a href="#">WG1472941</a>

## Sample Narrative:

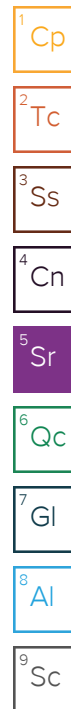
L1215166-04 WG1472941: Surrogate failure due to matrix interference

## 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	05/08/2020 08:25	<a href="#">WG1472564</a>
Acenaphthene	ND		0.120	20	05/08/2020 14:37	<a href="#">WG1472564</a>
Acenaphthylene	ND		0.120	20	05/08/2020 14:37	<a href="#">WG1472564</a>
Benzo(a)anthracene	ND		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Benzo(a)pyrene	ND		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Benzo(g,h,i)perylene	ND		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Chrysene	0.00758		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Fluoranthene	0.00714		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Fluorene	0.134		0.120	20	05/08/2020 14:37	<a href="#">WG1472564</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Naphthalene	ND		0.400	20	05/08/2020 14:37	<a href="#">WG1472564</a>
Phenanthrene	0.585		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
Pyrene	0.0180		0.00600	1	05/08/2020 08:25	<a href="#">WG1472564</a>
1-Methylnaphthalene	0.436		0.400	20	05/08/2020 14:37	<a href="#">WG1472564</a>
2-Methylnaphthalene	0.474		0.400	20	05/08/2020 14:37	<a href="#">WG1472564</a>
2-Chloronaphthalene	ND		0.400	20	05/08/2020 14:37	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	217	<u>J7</u>	23.0-120		05/08/2020 14:37	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	108		23.0-120		05/08/2020 08:25	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	824	<u>J1</u>	14.0-149		05/08/2020 08:25	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	63.0	<u>J7</u>	14.0-149		05/08/2020 14:37	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	82.2		34.0-125		05/08/2020 08:25	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	223	<u>J7</u>	34.0-125		05/08/2020 14:37	<a href="#">WG1472564</a>

## Sample Narrative:

L1215166-04 WG1472564: IS/SURR failed on lower dilution.





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.13		1	05/11/2020 21:24	WG1473262

## 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	05/07/2020 18:10	<a href="#">WG1471265</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.92	<b>T8</b>	1	05/11/2020 14:47	<a href="#">WG1473961</a>

## Sample Narrative:

L1215166-05 WG1473961: 7.92 at 23.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	969		10.0	1	05/09/2020 19:00	<a href="#">WG1473049</a>

## Mercury by Method 7471A

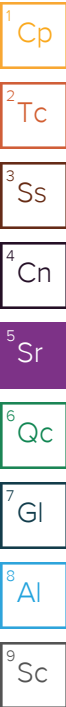
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.282		0.0400	1	05/08/2020 10:31	<a href="#">WG1472608</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.59		2.00	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Barium	255		0.500	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Boron	ND		20.0	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Cadmium	ND		0.500	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Chromium	32.0		1.00	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Copper	17.3		2.00	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Lead	11.8		0.500	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Nickel	18.9		2.00	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Selenium	ND		2.00	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Silver	ND		1.00	1	05/09/2020 12:51	<a href="#">WG1472068</a>
Zinc	44.4		5.00	1	05/09/2020 12:51	<a href="#">WG1472068</a>

## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0125	25	05/12/2020 05:43	<a href="#">WG1474149</a>
Toluene	ND		0.125	25	05/12/2020 05:43	<a href="#">WG1474149</a>
Ethylbenzene	ND		0.0125	25	05/12/2020 05:43	<a href="#">WG1474149</a>
Total Xylene	0.0682		0.0375	25	05/12/2020 05:43	<a href="#">WG1474149</a>
TPH (GC/FID) Low Fraction	48.5		2.50	25	05/12/2020 05:43	<a href="#">WG1474149</a>
(S) a,a,a-Trifluorotoluene(FID)	91.4		77.0-120		05/12/2020 05:43	<a href="#">WG1474149</a>
(S) a,a,a-Trifluorotoluene(PID)	99.9		72.0-128		05/12/2020 05:43	<a href="#">WG1474149</a>





Collected date/time: 05/04/20 10:20

L1215166

## Semi-Volatile Organic Compounds (GC) by Method 8015

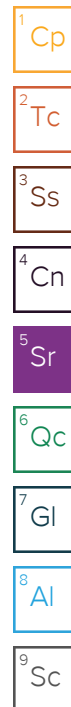
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	689		40.0	10	05/11/2020 09:36	<a href="#">WG1472941</a>
C28-C40 Oil Range	52.5		40.0	10	05/11/2020 09:36	<a href="#">WG1472941</a>
(S) o-Terphenyl	119		18.0-148		05/11/2020 09:36	<a href="#">WG1472941</a>

## 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	05/08/2020 08:46	<a href="#">WG1472564</a>
Acenaphthene	0.0688		0.0600	10	05/08/2020 14:57	<a href="#">WG1472564</a>
Acenaphthylene	ND		0.0600	10	05/08/2020 14:57	<a href="#">WG1472564</a>
Benzo(a)anthracene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Benzo(a)pyrene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Benzo(g,h,i)perylene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Chrysene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Fluoranthene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Fluorene	0.551		0.0600	10	05/08/2020 14:57	<a href="#">WG1472564</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Naphthalene	ND		0.200	10	05/08/2020 14:57	<a href="#">WG1472564</a>
Phenanthrene	0.0647		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
Pyrene	ND		0.00600	1	05/08/2020 08:46	<a href="#">WG1472564</a>
1-Methylnaphthalene	1.26		0.200	10	05/08/2020 14:57	<a href="#">WG1472564</a>
2-Methylnaphthalene	3.27		0.200	10	05/08/2020 14:57	<a href="#">WG1472564</a>
2-Chloronaphthalene	ND		0.200	10	05/08/2020 14:57	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	99.6		23.0-120		05/08/2020 08:46	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	50.9		23.0-120		05/08/2020 14:57	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	35.9		14.0-149		05/08/2020 08:46	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	1950	J1	14.0-149		05/08/2020 14:57	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	92.0		34.0-125		05/08/2020 08:46	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	41.2		34.0-125		05/08/2020 14:57	<a href="#">WG1472564</a>

## Sample Narrative:

L1215166-05 WG1472564: IS/SURR failed on lower dilution.





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.65		1	05/11/2020 21:27	WG1473262

## 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	05/07/2020 18:11	<a href="#">WG1471265</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.89	<b>T8</b>		1	05/11/2020 14:47	<a href="#">WG1473961</a>

## Sample Narrative:

L1215166-06 WG1473961: 7.89 at 23C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1710		10.0	1	05/09/2020 19:00	<a href="#">WG1473049</a>

## Mercury by Method 7471A

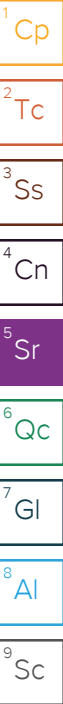
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.289		0.0400	1	05/08/2020 10:33	<a href="#">WG1472608</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.01		2.00	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Barium	352		0.500	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Boron	ND		20.0	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Cadmium	ND		0.500	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Chromium	28.6		1.00	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Copper	15.8		2.00	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Lead	9.99		0.500	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Nickel	15.6		2.00	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Selenium	ND		2.00	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Silver	ND		1.00	1	05/09/2020 13:00	<a href="#">WG1472068</a>
Zinc	39.7		5.00	1	05/09/2020 13:00	<a href="#">WG1472068</a>

## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0125	25	05/12/2020 06:04	<a href="#">WG1474149</a>
Toluene	ND		0.125	25	05/12/2020 06:04	<a href="#">WG1474149</a>
Ethylbenzene	ND		0.0125	25	05/12/2020 06:04	<a href="#">WG1474149</a>
Total Xylene	0.100		0.0375	25	05/12/2020 06:04	<a href="#">WG1474149</a>
TPH (GC/FID) Low Fraction	93.2		2.50	25	05/12/2020 06:04	<a href="#">WG1474149</a>
(S) a,a,a-Trifluorotoluene(FID)	91.0		77.0-120		05/12/2020 06:04	<a href="#">WG1474149</a>
(S) a,a,a-Trifluorotoluene(PID)	99.6		72.0-128		05/12/2020 06:04	<a href="#">WG1474149</a>





Collected date/time: 05/04/20 10:30

L1215166

## 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	1930		40.0	10	05/11/2020 09:49	<a href="#">WG1472941</a>
C28-C40 Oil Range	54.1		40.0	10	05/11/2020 09:49	<a href="#">WG1472941</a>
(S) o-Terphenyl	309	<u>J1</u>	18.0-148		05/11/2020 09:49	<a href="#">WG1472941</a>

## Sample Narrative:

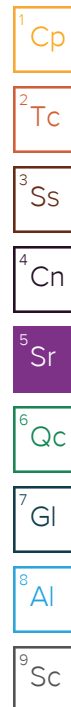
L1215166-06 WG1472941: Surrogate failure due to matrix interference

## 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	05/08/2020 09:07	<a href="#">WG1472564</a>
Acenaphthene	ND		0.0600	10	05/08/2020 15:18	<a href="#">WG1472564</a>
Acenaphthylene	ND		0.0600	10	05/08/2020 15:18	<a href="#">WG1472564</a>
Benzo(a)anthracene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Benzo(a)pyrene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Benzo(g,h,i)perylene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Chrysene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Fluoranthene	0.00652		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Fluorene	0.110		0.0600	10	05/08/2020 15:18	<a href="#">WG1472564</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Naphthalene	ND		0.200	10	05/08/2020 15:18	<a href="#">WG1472564</a>
Phenanthrene	0.220		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
Pyrene	0.00893		0.00600	1	05/08/2020 09:07	<a href="#">WG1472564</a>
1-Methylnaphthalene	0.286		0.200	10	05/08/2020 15:18	<a href="#">WG1472564</a>
2-Methylnaphthalene	0.736		0.200	10	05/08/2020 15:18	<a href="#">WG1472564</a>
2-Chloronaphthalene	ND		0.200	10	05/08/2020 15:18	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	91.8		23.0-120		05/08/2020 15:18	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	106		23.0-120		05/08/2020 09:07	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	368	<u>J1</u>	14.0-149		05/08/2020 15:18	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	259	<u>J1</u>	14.0-149		05/08/2020 09:07	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	78.3		34.0-125		05/08/2020 15:18	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	15.3	<u>J2</u>	34.0-125		05/08/2020 09:07	<a href="#">WG1472564</a>

## Sample Narrative:

L1215166-06 WG1472564: IS/SURR failed on lower dilution.





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.672		1	05/11/2020 21:30	WG1473262

## 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	05/07/2020 18:11	<a href="#">WG1471265</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.35	<b>T8</b>	1	05/11/2020 14:47	<a href="#">WG1473961</a>

## Sample Narrative:

L1215166-07 WG1473961: 8.35 at 23C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	259		10.0	1	05/09/2020 19:00	<a href="#">WG1473049</a>

## Mercury by Method 7471A

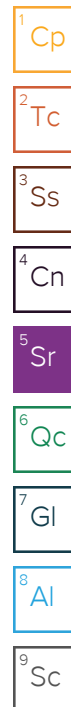
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	05/08/2020 10:41	<a href="#">WG1472608</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.44		2.00	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Barium	326		0.500	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Boron	ND		20.0	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Cadmium	ND		0.500	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Chromium	35.3		1.00	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Copper	22.8		2.00	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Lead	15.4		0.500	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Nickel	25.3	<b>Q1</b>	2.00	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Selenium	ND		2.00	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Silver	ND		1.00	1	05/10/2020 12:32	<a href="#">WG1472716</a>
Zinc	53.4		5.00	1	05/10/2020 12:32	<a href="#">WG1472716</a>

## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	100	05/11/2020 07:28	<a href="#">WG1473682</a>
Toluene	ND		0.500	100	05/11/2020 07:28	<a href="#">WG1473682</a>
Ethylbenzene	0.173		0.0500	100	05/11/2020 07:28	<a href="#">WG1473682</a>
Total Xylene	11.5		0.150	100	05/11/2020 07:28	<a href="#">WG1473682</a>
TPH (GC/FID) Low Fraction	232		10.0	100	05/11/2020 07:28	<a href="#">WG1473682</a>
(S) a,a,a-Trifluorotoluene(FID)	95.1		77.0-120		05/11/2020 07:28	<a href="#">WG1473682</a>
(S) a,a,a-Trifluorotoluene(PID)	104		72.0-128		05/11/2020 07:28	<a href="#">WG1473682</a>





Collected date/time: 05/04/20 10:40

L1215166

## 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	1650		40.0	10	05/11/2020 10:02	<a href="#">WG1472941</a>
C28-C40 Oil Range	ND		40.0	10	05/11/2020 10:02	<a href="#">WG1472941</a>
(S) o-Terphenyl	248	<u>J1</u>	18.0-148		05/11/2020 10:02	<a href="#">WG1472941</a>

## Sample Narrative:

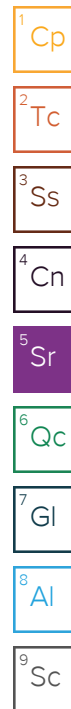
L1215166-07 WG1472941: Surrogate failure due to matrix interference.dilution due to matrix viscosity

## 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	05/08/2020 09:27	<a href="#">WG1472564</a>
Acenaphthene	0.0307		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Acenaphthylene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Benzo(a)anthracene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Benzo(a)pyrene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Benzo(g,h,i)perylene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Chrysene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Fluoranthene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Fluorene	0.114		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Naphthalene	ND		0.100	5	05/08/2020 15:38	<a href="#">WG1472564</a>
Phenanthrene	0.0564		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
Pyrene	ND		0.00600	1	05/08/2020 09:27	<a href="#">WG1472564</a>
1-Methylnaphthalene	0.306		0.100	5	05/08/2020 15:38	<a href="#">WG1472564</a>
2-Methylnaphthalene	0.674		0.100	5	05/08/2020 15:38	<a href="#">WG1472564</a>
2-Chloronaphthalene	ND		0.0200	1	05/08/2020 09:27	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	79.5		23.0-120		05/08/2020 09:27	<a href="#">WG1472564</a>
(S) p-Terphenyl-d14	57.2		23.0-120		05/08/2020 15:38	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	570	<u>J1</u>	14.0-149		05/08/2020 15:38	<a href="#">WG1472564</a>
(S) Nitrobenzene-d5	1230	<u>J1</u>	14.0-149		05/08/2020 09:27	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	72.4		34.0-125		05/08/2020 09:27	<a href="#">WG1472564</a>
(S) 2-Fluorobiphenyl	53.5		34.0-125		05/08/2020 15:38	<a href="#">WG1472564</a>

## Sample Narrative:

L1215166-07 WG1472564: IS/SURR failed on lower dilution.







Method Blank (MB)

(MB) R3525729-1 05/07/20 17:37

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1214942-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1214942-01 05/07/20 17:46 • (DUP) R3525729-3 05/07/20 17:50

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	U	0.922	1	200	J P1	20

L1215166-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1215166-07 05/07/20 18:11 • (DUP) R3525729-8 05/07/20 18:12

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

Laboratory Control Sample (LCS)

(LCS) R3525729-2 05/07/20 17:39

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	21.0	87.5	80.0-120	

L1215162-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215162-01 05/07/20 18:01 • (MS) R3525729-4 05/07/20 18:03 • (MSD) R3525729-5 05/07/20 18:03

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	2.18	2.05	10.9	10.2	1	75.0-125	J6	J6	6.52	20

L1215162-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1215162-01 05/07/20 18:01 • (MS) R3525729-6 05/07/20 18:04

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Chromium,Hexavalent	655	ND	542	82.8	50	75.0-125	

L1215166-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1215166-06 05/11/20 14:47 • (DUP) R3526690-2 05/11/20 14:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.89	7.93	1	0.506		1

Sample Narrative:  
OS: 7.89 at 23C  
DUP: 7.93 at 22.9C

L1216592-54 Original Sample (OS) • Duplicate (DUP)

(OS) L1216592-54 05/11/20 14:47 • (DUP) R3526690-3 05/11/20 14:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.90	8.93	1	0.337		1

Sample Narrative:  
OS: 8.9 at 20.4C  
DUP: 8.93 at 20.5C

Laboratory Control Sample (LCS)

(LCS) R3526690-1 05/11/20 14:47

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:  
LCS: 9.94 at 20.7C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

[L1215166-03,04,05,06,07](#)

Method Blank (MB)

(MB) R3526241-1 05/09/20 19:00

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

L1215166-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1215166-05 05/09/20 19:00 • (DUP) R3526241-3 05/09/20 19:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	969	1060	1	9.16		20

<sup>7</sup>Gl

<sup>8</sup>Al

Laboratory Control Sample (LCS)

(LCS) R3526241-2 05/09/20 19:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	445	445	100	85.0-115	

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3525946-1 05/08/20 09:50

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R3525946-2 05/08/20 09:53

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.547	109	80.0-120	

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1215166-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215166-06 05/08/20 10:33 • (MS) R3525946-3 05/08/20 09:58 • (MSD) R3525946-4 05/08/20 10:00

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	0.289	0.733	0.822	88.8	107	1	75.0-125			11.4	20



Method Blank (MB)

(MB) R3526219-1 05/09/20 11:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.240	0.500
Boron	U		6.89	20.0
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Nickel	U		0.490	2.00
Selenium	U		0.617	2.00
Silver	U		0.228	1.00
Zinc	U		0.939	5.00

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3526219-2 05/09/20 11:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	103	103	80.0-120	
Barium	100	110	110	80.0-120	
Boron	100	106	106	80.0-120	
Cadmium	100	105	105	80.0-120	
Chromium	100	105	105	80.0-120	
Copper	100	104	104	80.0-120	
Lead	100	105	105	80.0-120	
Nickel	100	108	108	80.0-120	
Selenium	100	104	104	80.0-120	
Silver	20.0	20.0	100	80.0-120	
Zinc	100	107	107	80.0-120	

L1215091-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215091-01 05/09/20 11:54 • (MS) R3526219-5 05/09/20 12:03 • (MSD) R3526219-6 05/09/20 12:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	7.39	92.2	98.1	84.8	90.8	1	75.0-125			6.29	20
Barium	100	55.9	136	155	79.9	99.6	1	75.0-125			13.6	20
Boron	100	7.15	85.7	93.0	78.5	85.9	1	75.0-125			8.21	20
Cadmium	100	0.270	84.2	89.7	83.9	89.5	1	75.0-125			6.43	20
Chromium	100	13.2	93.9	103	80.7	89.5	1	75.0-125			8.97	20



[L1215166-01,02,03,04,05,06](#)

L1215091-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215091-01 05/09/20 11:54 • (MS) R3526219-5 05/09/20 12:03 • (MSD) R3526219-6 05/09/20 12:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Copper	100	16.9	103	113	86.0	96.0	1	75.0-125			9.25	20
Lead	100	11.5	94.4	100	82.8	88.5	1	75.0-125			5.83	20
Nickel	100	9.26	93.6	102	84.3	92.9	1	75.0-125			8.81	20
Selenium	100	1.04	82.8	88.7	81.8	87.7	1	75.0-125			6.85	20
Silver	20.0	U	16.5	17.6	82.5	87.8	1	75.0-125			6.23	20
Zinc	100	37.0	115	131	77.6	93.9	1	75.0-125			13.3	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3526421-1 05/10/20 12:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.240	0.500
Boron	U		6.89	20.0
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Nickel	U		0.490	2.00
Selenium	U		0.617	2.00
Silver	U		0.228	1.00
Zinc	U		0.939	5.00



Laboratory Control Sample (LCS)

(LCS) R3526421-2 05/10/20 12:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	99.7	99.7	80.0-120	
Barium	100	106	106	80.0-120	
Boron	100	102	102	80.0-120	
Cadmium	100	101	101	80.0-120	
Chromium	100	102	102	80.0-120	
Copper	100	104	104	80.0-120	
Lead	100	99.3	99.3	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	100	100	80.0-120	
Silver	20.0	18.8	94.2	80.0-120	
Zinc	100	99.0	99.0	80.0-120	

L1215166-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215166-07 05/10/20 12:32 • (MS) R3526421-5 05/10/20 12:40 • (MSD) R3526421-6 05/10/20 12:43

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	5.44	99.3	99.5	93.8	94.0	1	75.0-125			0.203	20
Barium	100	326	414	416	88.5	90.0	1	75.0-125			0.357	20
Boron	100	ND	92.6	93.9	92.6	93.9	1	75.0-125			1.40	20
Cadmium	100	ND	97.8	97.5	97.5	97.2	1	75.0-125			0.301	20
Chromium	100	35.3	129	129	93.4	93.4	1	75.0-125			0.0477	20





L1215166-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215166-07 05/10/20 12:32 • (MS) R3526421-5 05/10/20 12:40 • (MSD) R3526421-6 05/10/20 12:43

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Copper	100	22.8	124	123	101	100	1	75.0-125			0.856	20
Lead	100	15.4	118	117	102	101	1	75.0-125			0.987	20
Nickel	100	25.3	129	129	103	104	1	75.0-125			0.0783	20
Selenium	100	ND	94.1	93.4	94.1	93.4	1	75.0-125			0.751	20
Silver	20.0	ND	18.5	18.5	92.6	92.3	1	75.0-125			0.384	20
Zinc	100	53.4	143	141	89.2	87.6	1	75.0-125			1.08	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3526719-3 05/10/20 23:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000257	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)	96.6			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	106			72.0-128

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3526719-1 05/10/20 22:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0487	97.4	76.0-121	
Toluene	0.0500	0.0480	96.0	80.0-120	
Ethylbenzene	0.0500	0.0519	104	80.0-124	
Total Xylene	0.150	0.164	109	37.0-160	
(S) a,a,a-Trifluorotoluene(FID)			93.7	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			99.5	72.0-128	

Laboratory Control Sample (LCS)

(LCS) R3526719-2 05/10/20 22:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.97	109	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			112	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			112	72.0-128	

L1215166-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215166-07 05/11/20 07:28 • (MS) R3526719-4 05/11/20 07:49 • (MSD) R3526719-5 05/11/20 08:10												
Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	ND	5.31	4.41	106	88.2	100	10.0-155			18.5	32
Toluene	5.00	ND	4.80	4.13	96.0	82.6	100	10.0-160			15.0	34
Ethylbenzene	5.00	0.173	6.10	5.38	119	104	100	10.0-160			12.5	32
Total Xylene	15.0	11.5	21.6	21.8	67.3	68.7	100	10.0-160			0.922	32
(S) a,a,a-Trifluorotoluene(FID)					94.8	95.0		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					100	99.9		72.0-128				

L1215166-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215166-07 05/11/20 07:28 • (MS) R3526719-6 05/11/20 08:30 • (MSD) R3526719-7 05/11/20 08:51												
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	550	232	619	729	70.4	90.4	100	10.0-151			16.3	28
(S) a,a,a-Trifluorotoluene(FID)					108	112		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					109	109		72.0-128				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3526910-5 05/12/20 02:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000187	⬇	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0303	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	91.9			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	101			72.0-128

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

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

(LCS) R3526910-1 05/12/20 00:55 • (LCSD) R3526910-2 05/12/20 01:15

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	0.0504	0.0511	101	102	76.0-121			1.38	20
Toluene	0.0500	0.0486	0.0482	97.2	96.4	80.0-120			0.826	20
Ethylbenzene	0.0500	0.0508	0.0491	102	98.2	80.0-124			3.40	20
Total Xylene	0.150	0.155	0.143	103	95.3	37.0-160			8.05	20
(S) a,a,a-Trifluorotoluene(FID)				91.5	91.3	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				96.9	96.8	72.0-128				

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

(LCS) R3526910-3 05/12/20 01:36 • (LCSD) R3526910-4 05/12/20 01:56

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	5.46	5.68	99.3	103	72.0-127			3.95	20
(S) a,a,a-Trifluorotoluene(FID)				107	108	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				105	104	72.0-128				



Method Blank (MB)

(MB) R3526627-1 05/11/20 01:18

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	53.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3526627-2 05/11/20 01:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	26.7	53.4	50.0-150	
(S) o-Terphenyl			80.3	18.0-148	

L1215095-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1215095-01 05/11/20 08:43 • (MS) R3526627-3 05/11/20 08:56 • (MSD) R3526627-4 05/11/20 09:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	1830	2130	2480	600	1300	10	50.0-150	V	V	15.2	20
(S) o-Terphenyl					626	703		18.0-148	J1	J1		

Sample Narrative:

OS: Surrogate failure due to matrix interference

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3525892-2 05/08/20 06:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	93.3			14.0-149
(S) 2-Fluorobiphenyl	78.2			34.0-125
(S) p-Terphenyl-d14	93.0			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3525892-1 05/08/20 06:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0647	80.9	50.0-126	
Acenaphthene	0.0800	0.0592	74.0	50.0-120	
Acenaphthylene	0.0800	0.0606	75.8	50.0-120	
Benzo(a)anthracene	0.0800	0.0607	75.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0555	69.4	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0567	70.9	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0588	73.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0654	81.8	49.0-125	
Chrysene	0.0800	0.0625	78.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0581	72.6	47.0-125	
Fluoranthene	0.0800	0.0566	70.8	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3525892-1 05/08/20 06:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0605	75.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0594	74.3	46.0-125	
Naphthalene	0.0800	0.0586	73.3	50.0-120	
Phenanthrene	0.0800	0.0627	78.4	47.0-120	
Pyrene	0.0800	0.0618	77.3	43.0-123	
1-Methylnaphthalene	0.0800	0.0597	74.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0556	69.5	50.0-120	
2-Chloronaphthalene	0.0800	0.0588	73.5	50.0-120	
(S) Nitrobenzene-d5			98.3	14.0-149	
(S) 2-Fluorobiphenyl			87.1	34.0-125	
(S) p-Terphenyl-d14			99.8	23.0-120	

L1216110-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1216110-01 05/08/20 13:35 • (MS) R3525892-3 05/08/20 13:55 • (MSD) R3525892-4 05/08/20 14:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0800	5.66	9.08	8.34	4280	3350	1	10.0-145	<a href="#">E V</a>	<a href="#">E V</a>	8.50	30
Acenaphthene	0.0800	0.695	1.84	1.23	1430	669	1	14.0-127	<a href="#">V</a>	<a href="#">J3 V</a>	39.7	27
Acenaphthylene	0.0800	ND	3.78	3.36	4730	4200	1	21.0-124	<a href="#">J5</a>	<a href="#">J5</a>	11.8	25
Benzo(a)anthracene	0.0800	ND	17.4	14.7	21800	18400	1	10.0-139	<a href="#">E J5</a>	<a href="#">E J5</a>	16.8	30
Benzo(a)pyrene	0.0800	ND	49.8	21.6	62300	27000	1	10.0-141	<a href="#">E J5</a>	<a href="#">E J3 J5</a>	79.0	31
Benzo(b)fluoranthene	0.0800	ND	74.0	37.3	92500	46600	1	10.0-140	<a href="#">E J5</a>	<a href="#">E J3 J5</a>	65.9	36
Benzo(g,h,i)perylene	0.0800	ND	41.5	19.6	51900	24500	1	10.0-140	<a href="#">E J5</a>	<a href="#">E J3 J5</a>	71.7	33
Benzo(k)fluoranthene	0.0800	ND	7.81	3.08	9760	3850	1	10.0-137	<a href="#">E J5</a>	<a href="#">J3 J5</a>	86.9	31
Chrysene	0.0800	ND	8.60	9.77	10800	12200	1	10.0-145	<a href="#">E J5</a>	<a href="#">E J5</a>	12.7	30
Dibenz(a,h)anthracene	0.0800	ND	7.19	3.64	8990	4550	1	10.0-132	<a href="#">E J5</a>	<a href="#">J3 J5</a>	65.6	31
Fluoranthene	0.0800	18.3	23.9	22.2	7000	4880	1	10.0-153	<a href="#">E V</a>	<a href="#">E V</a>	7.38	33
Fluorene	0.0800	1.35	3.50	2.37	2690	1270	1	11.0-130	<a href="#">V</a>	<a href="#">J3 V</a>	38.5	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	7.16	3.54	8950	4430	1	10.0-137	<a href="#">E J5</a>	<a href="#">J3 J5</a>	67.7	32
Naphthalene	0.0800	0.501	1.48	1.14	1220	799	1	10.0-135	<a href="#">V</a>	<a href="#">V</a>	26.0	27
Phenanthrene	0.0800	13.4	19.1	18.4	7130	6250	1	10.0-144	<a href="#">E V</a>	<a href="#">E V</a>	3.73	31
Pyrene	0.0800	ND	14.4	14.6	18000	18300	1	10.0-148	<a href="#">E J5</a>	<a href="#">E J5</a>	1.38	35
1-Methylnaphthalene	0.0800	0.334	0.913	0.740	724	508	1	10.0-142	<a href="#">V</a>	<a href="#">V</a>	20.9	28
2-Methylnaphthalene	0.0800	0.395	1.03	0.819	794	530	1	10.0-137	<a href="#">V</a>	<a href="#">V</a>	22.8	28
2-Chloronaphthalene	0.0800	ND	0.0632	0.0627	79.0	78.4	1	29.0-120			0.794	24
(S) Nitrobenzene-d5					105	110		14.0-149				
(S) 2-Fluorobiphenyl					83.1	89.8		34.0-125				
(S) p-Terphenyl-d14					72.4	84.5		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc





## Guide to Reading and Understanding Your Laboratory Report

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

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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



Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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



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

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

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

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



# Nicholson GeoSolutions, LLC

3433 E. Lake Dr.  
Centennial, CO 80121

## Billing Information:

Don Wilborn  
Berry Petroleum  
235 Callahan Ave  
Parachute, CO 81635

Pres  
Chk

## Analysis / Container / Preservative

Chain of Custody Page \_\_\_\_ of \_\_\_\_

## Report to:

Dave Nicholson

dknicholson@  
6.com

## Email To:

dnicholson@q.com

## Project

Description: J15 Spill

## City/State

Collected:

Phone: 303-601-2023

Fax:

Client Project #

Lab Project #

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

\_\_\_\_ Same Day \_\_\_\_ Five Day  
\_\_\_\_ Next Day \_\_\_\_ 5 Day (Rad Only)  
\_\_\_\_ Two Day \_\_\_\_ 10 Day (Rad Only)  
\_\_\_\_ Three Day

Date Results Needed

No.  
of  
Cntrs

Immediately  
Packed on Ice N \_\_\_\_ Y \_\_\_\_

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time		BTEX/TVPH - 4oz Soil Jar	TPH-DRO/ORO - 4oz Soil Jar	Metals + SAR - 4oz Soil Jar	SPCON, pH - 4oz Soil Jar	PAHSIM8270 - 4oz Soil Jar	Metals - 600/6020							
J15-S-1A		SS		5/4	0940	2			X		X	X							-01
J15-S-2A		SS			0950	2			X		X	X							-02
J15-S-8		SS			1000	5	X	X	X	X	X								-03
J15-S-9		SS			1010		X	X	X	X	X								-04
J15-S-10		SS			1020		X	X	X	X	X								-05
J15-S-11		SS			1030		X	X	X	X	X								-06
J15-S-12		SS			1040		X	X	X	X	X								-07
		SS																	
		SS																	
		SS																	

## \* Matrix:

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

## Remarks:

As, Ba, B, Cd, Cr, Cr<sup>VI</sup>, Cu, Pb, Ag,  
Ni, Se, Ag, Zn

Samples returned via:

\_\_\_\_ UPS \_\_\_\_ FedEx \_\_\_\_ Courier \_\_\_\_

Tracking #

17408044338

pH \_\_\_\_ Temp \_\_\_\_

Flow \_\_\_\_ Other \_\_\_\_

## Sample Receipt Checklist

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

Relinquished by: (Signature)

Date:

5/4/20

Time:

1600

Received by: (Signature)

FedEx

Trip Blank Received: Yes ☒ No ☐

HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 24.4 °C  
1.2 ± 0.1.2 24

Bottles Received:

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date:

Time:

Hold:

Condition:  
NCF / OK