Nicholson GeoSolutions LLC
3433 East Lake Drive
Centennial, CO 80121

June 1, 2021

Mr. Jon Armstrong
Berry Petroleum Company
5201 Truxtun Avenue #100
Bakersfield, CA 90399

Subject: Long Ridge M-15 Landfarm Final Discrete Sampling Results

Dear Jon:

Nicholson GeoSolutions LLC conducted final discrete soil sampling of the landfarm on the M-15 well pad on Long Ridge in the Garden Gulch area, Garfield County, Colorado on May 7th, 2021. The sampling was conducted in accordance with the new COGCC Series 900 Rules that are in effect as of January 15th, 2021 and discussions with COGCC personnel.

This landfarm has been extensively tilled and some portions were passed under the older Rules. The final remnant of the original landfarm contained an estimated 2,580 cubic yards of material and averaged about 12 inches deep at the time of sampling. Five discrete soil samples were collected. The locations of the samples are shown on Figure 1. One sample was analyzed for PAHs only (the only remaining COCs in the landfarm soil) and one sample was analyzed for the entire Table 915-1 list of parameters to demonstrate compliance with the new Rules. The Table 915-1 list includes 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, PAHs, and selected VOCs (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene).

Table 1 provides a summary of the analytical results for the five samples. The laboratory report is contained in Appendix A. All parameters are below the Table 915-1 standards except for arsenic. Arsenic ranged from 4.49 to 5.63 mg/kg and is within the range of natural background concentrations in soils of the Garden Gulch area (Nicholson 2014).

Based on the sample results, remediation of the LR M-15 landfarm is now complete. Since all SAR pH, and conductivity values are below the Table 915-1 standards, this material does not need to be buried and can be used for general site purposes pending COGCC approval.

Nicholson GeoSolutions LLC

David K. Nicholson, P.G.
Principal Geologist

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

Table 1 LR M-15 Landfarm Sample Results – May 7, 2021

Parameter	Table 915-1 Standards	Sample ID				
		M15-1	M15-2	M15-3	M15-4	M15-5
Contaminants of Concern						
TVPH – gasoline range	500[1]	NA	<0.1	NA	0.114	NA
TEPH – diesel/motor oil range		NA	374	NA	14.6	NA
Soil Suitability for Reclamation						
sp. conductance (mmhos/cm)	<4	NA	1.71	NA	1.96	NA
SAR (ratio)	<6	NA	4.77	NA	5.33	NA
pH (standard units)	6-8.3	NA	7.95	NA	7.77	NA
boron (hot water extract)	2.0	NA	0.826	NA	0.904	NA
Organic Compounds in Soils						
benzene	1.2	NA	0.00548	NA	0.00263	NA
toluene	490	NA	<0.005	NA	0.0154	NA
ethylbenzene	5.8	NA	0.00577	NA	0.00485	NA
xylenes	58	NA	0.0497	NA	0.0365	NA
1,2,4-trimethylbenzene	30	NA	0.0416	NA	0.0363	NA
1,3,5-trimethylbenzene	27	NA	0.01	NA	0.00843	NA
acenaphthene	360	<0.006	<0.006	<0.006	<0.006	<0.006
anthracene	1800	<0.006	<0.006	<0.006	<0.006	<0.006
benzo(a)anthracene	1.1	0.016	0.0226	0.017	<0.006	0.0172
benzo(b)flouranthene	1.1	0.0405	0.056	0.0443	0.00939	0.0444
benzo(k)flouranthene	11	0.0117	0.0163	0.0123	<0.006	0.0128
benzo(a)pyrene	0.11	0.0236	0.0334	0.0253	<0.006	0.0259
chrysene	110	0.0196	0.0281	0.0221	<0.006	0.0244
dibenz(a,h)anthracene	0.11	0.00825	0.012	0.00874	<0.006	0.00919
fluoranthene	240	0.0174	0.0237	0.0201	<0.006	0.018
flourene	240	0.0141	0.0221	0.0188	<0.006	0.0188
indeno(1,2,3-cd)pyrene	1.1	0.0356	0.0497	0.0383	0.00819	0.0385
1-methylnaphthalene	18	0.155	0.236	0.187	0.0447	0.191
2-methylnaphthalene	24	0.399	0.59	0.462	0.116	0.478
naphthalene	2	0.151	0.221	0.173	0.0498	0.181
pyrene	180	0.0504	0.0664	0.0542	0.0125	0.0485
Metals in Soils						
arsenic	0.68	NA	**4.49**	NA	**5.63**	NA
barium	15,000	NA	429	NA	406	NA
cadmium	71	NA	<0.5	NA	0.54	NA
chromium VI	0.3	NA	<2	NA	<2	NA
copper	3,100	NA	21.8	NA	23.5	NA
lead	400	NA	11.4	NA	11.23	NA
nickel	1,500	NA	17.2	NA	16.8	NA
selenium	390	NA	<2	NA	<2	NA
silver	390	NA	<1	NA	<1	NA
zinc	23,000	NA	51.4	NA	49.0	NA

[1]The standard is 500 for the combined total of TVPH and TEPH NA = not analyzed

Values in bold type exceed standards

All units and standards in mg/kg except where indicated

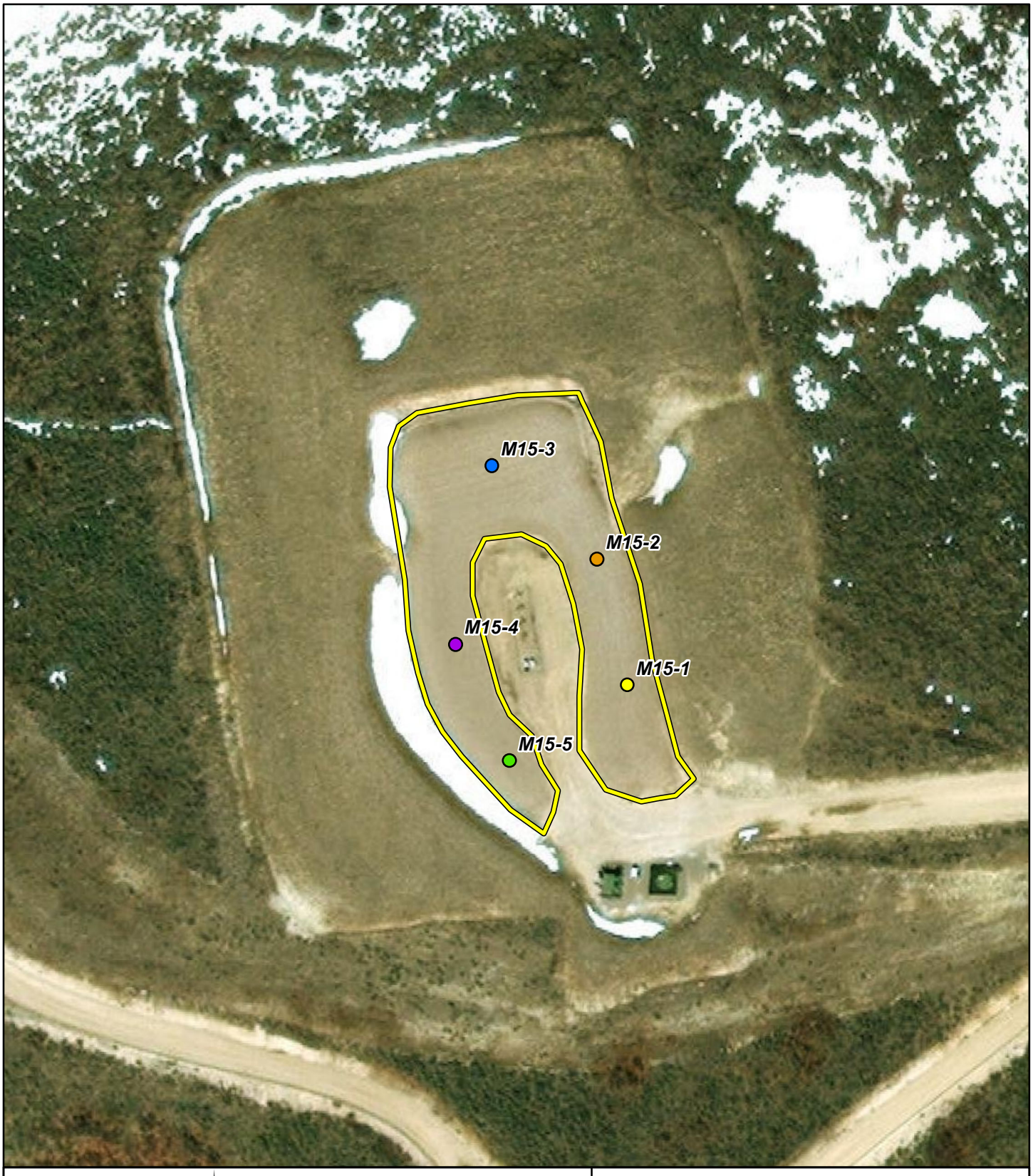


Figure 1

May
2021

GeoSolutions
NICHOLSON

Legend

Final Discrete Confirmation Sample

Landfarm Perimeter

0 25 50 100 150 200 Feet

1 " = 100 '

Berry Petroleum Company

Long Ridge M-15
Landfarm Final
Discrete Confirmation Samples

APPENDIX A
Laboratory Report

ANALYTICAL REPORT

May 27, 2021

Berry Petroleum - Denver, CO

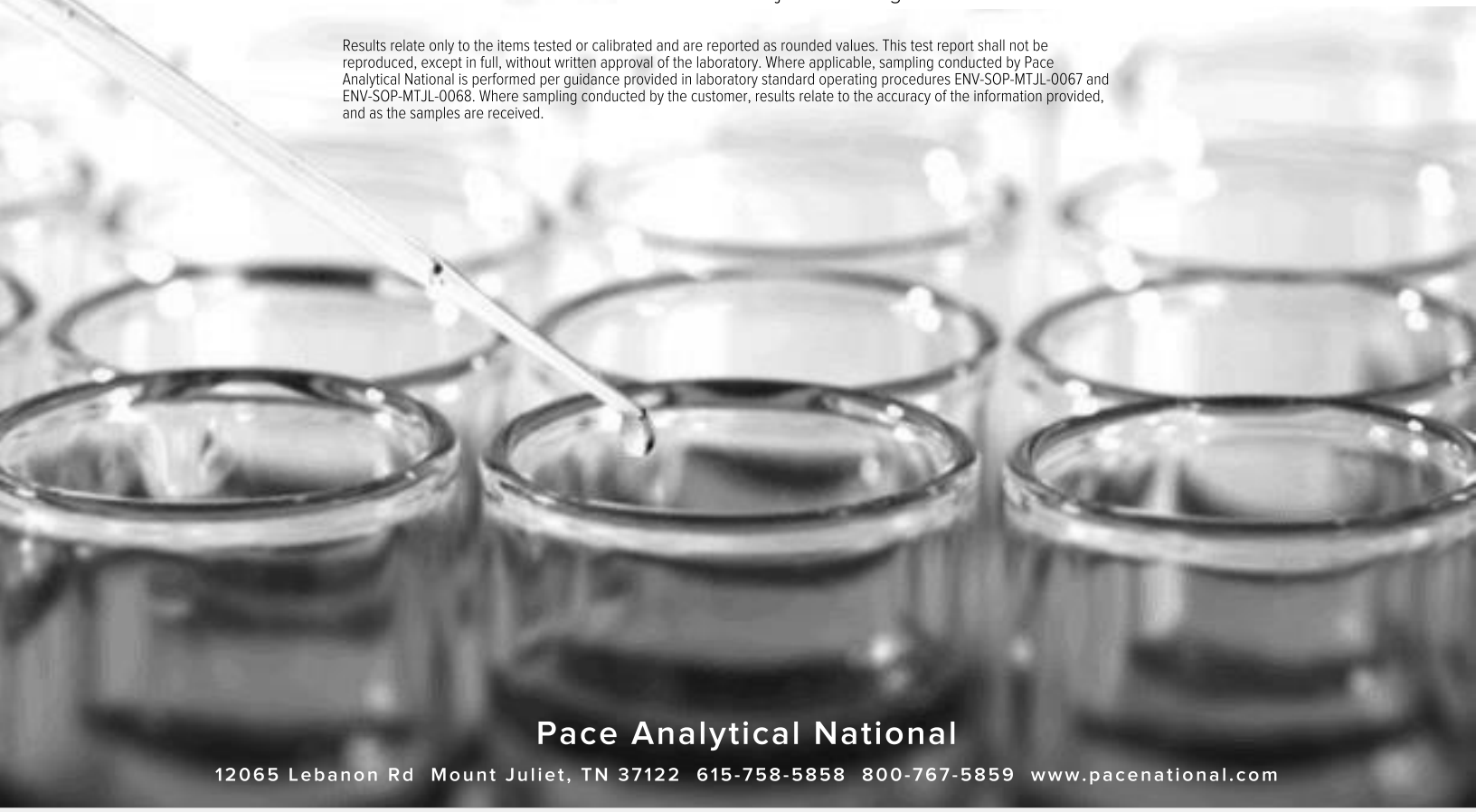
Sample Delivery Group:	L1351250
Samples Received:	05/11/2021
Project Number:	
Description:	Berry Landfarms Old Mountain

Report To:

Dave Nicholson
3433 E. Lake Dr
Centennial, CO 80121

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

M15-1 L1351250-01 Solid

Collected by: DK Nicholson | Collected date/time: 05/07/21 11:00 | Received date/time: 05/11/21 14:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1671076	1	05/14/21 22:14	05/15/21 16:14	LEA	Mt. Juliet, TN

M15-2 L1351250-02 Solid

Collected by: DK Nicholson | Collected date/time: 05/07/21 11:05 | Received date/time: 05/11/21 14:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1669026	1	05/26/21 14:21	05/26/21 14:21	KMG	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1671320	1	05/16/21 19:16	05/18/21 21:59	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1672335	1	05/18/21 07:50	05/18/21 10:20	ARM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1669177	1	05/18/21 03:18	05/18/21 08:08	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1671425	1	05/18/21 13:20	05/19/21 18:50	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1669024	1	05/20/21 14:43	05/21/21 23:01	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1671180	1	05/14/21 17:17	05/15/21 16:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1671185	1	05/14/21 17:17	05/15/21 17:47	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1671600	5	05/16/21 16:41	05/18/21 00:06	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1671076	1	05/14/21 22:14	05/15/21 17:06	LEA	Mt. Juliet, TN

M15-3 L1351250-03 Solid

Collected by: DK Nicholson | Collected date/time: 05/07/21 11:10 | Received date/time: 05/11/21 14:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1671076	1	05/14/21 22:14	05/15/21 16:48	LEA	Mt. Juliet, TN

M15-4 L1351250-04 Solid

Collected by: DK Nicholson | Collected date/time: 05/07/21 11:15 | Received date/time: 05/11/21 14:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1669026	1	05/26/21 14:23	05/26/21 14:23	KMG	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1671320	1	05/16/21 19:16	05/18/21 22:00	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1672335	1	05/18/21 07:50	05/18/21 10:20	ARM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1669177	1	05/18/21 03:18	05/18/21 08:08	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1671427	1	05/17/21 06:01	05/19/21 10:40	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1669024	1	05/20/21 14:43	05/21/21 23:05	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1671180	1	05/14/21 17:17	05/15/21 16:57	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1671185	1	05/14/21 17:17	05/15/21 18:06	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1671600	1	05/16/21 16:41	05/18/21 14:17	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1671076	1	05/14/21 22:14	05/15/21 15:22	LEA	Mt. Juliet, TN

M15-5 L1351250-05 Solid

Collected by: DK Nicholson | Collected date/time: 05/07/21 11:20 | Received date/time: 05/11/21 14:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1671076	1	05/14/21 22:14	05/15/21 16:31	LEA	Mt. Juliet, TN

CASE NARRATIVE

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

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	05/15/2021 16:14	WG1671076
Acenaphthene	ND		0.00600	1	05/15/2021 16:14	WG1671076
Acenaphthylene	ND		0.00600	1	05/15/2021 16:14	WG1671076
Benzo(a)anthracene	0.0160		0.00600	1	05/15/2021 16:14	WG1671076
Benzo(a)pyrene	0.0236		0.00600	1	05/15/2021 16:14	WG1671076
Benzo(b)fluoranthene	0.0405		0.00600	1	05/15/2021 16:14	WG1671076
Benzo(g,h,i)perylene	0.0442		0.00600	1	05/15/2021 16:14	WG1671076
Benzo(k)fluoranthene	0.0117		0.00600	1	05/15/2021 16:14	WG1671076
Chrysene	0.0196		0.00600	1	05/15/2021 16:14	WG1671076
Dibenz(a,h)anthracene	0.00825		0.00600	1	05/15/2021 16:14	WG1671076
Fluoranthene	0.0174		0.00600	1	05/15/2021 16:14	WG1671076
Fluorene	0.0141		0.00600	1	05/15/2021 16:14	WG1671076
Indeno(1,2,3-cd)pyrene	0.0356		0.00600	1	05/15/2021 16:14	WG1671076
Naphthalene	0.151		0.0200	1	05/15/2021 16:14	WG1671076
Phenanthrene	0.0680		0.00600	1	05/15/2021 16:14	WG1671076
Pyrene	0.0504		0.00600	1	05/15/2021 16:14	WG1671076
1-Methylnaphthalene	0.155		0.0200	1	05/15/2021 16:14	WG1671076
2-Methylnaphthalene	0.399		0.0200	1	05/15/2021 16:14	WG1671076
2-Chloronaphthalene	ND		0.0200	1	05/15/2021 16:14	WG1671076
(S) p-Terphenyl-d14	*97.5*		*23.0-120*		*05/15/2021 16:14*	WG1671076
(S) Nitrobenzene-d5	*91.6*		*14.0-149*		*05/15/2021 16:14*	WG1671076
(S) 2-Fluorobiphenyl	*80.2*		*34.0-125*		*05/15/2021 16:14*	WG1671076

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.77		1	05/26/2021 14:21	WG1669026

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	05/18/2021 21:59	WG1671320

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95	T8	1	05/18/2021 10:20	WG1672335

Sample Narrative:

L1351250-02 WG1672335: 7.95 at 22.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1710		10.0	1	05/18/2021 08:08	WG1669177

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.49		2.00	1	05/19/2021 18:50	WG1671425
Barium	429		0.500	1	05/19/2021 18:50	WG1671425
Cadmium	ND		0.500	1	05/19/2021 18:50	WG1671425
Copper	21.8		2.00	1	05/19/2021 18:50	WG1671425
Lead	11.4		0.500	1	05/19/2021 18:50	WG1671425
Nickel	17.2		2.00	1	05/19/2021 18:50	WG1671425
Selenium	ND		2.00	1	05/19/2021 18:50	WG1671425
Silver	ND		1.00	1	05/19/2021 18:50	WG1671425
Zinc	51.4		5.00	1	05/19/2021 18:50	WG1671425

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.826		0.200	1	05/21/2021 23:01	WG1669024

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/15/2021 16:35	WG1671180
(S) a,a,a-Trifluorotoluene(FID)	*108*		*77.0-120*		*05/15/2021 16:35*	WG1671180

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0500	1	05/15/2021 17:47	WG1671185
Acrylonitrile	ND		0.0125	1	05/15/2021 17:47	WG1671185
Benzene	0.00548		0.00100	1	05/15/2021 17:47	WG1671185
Bromobenzene	ND		0.0125	1	05/15/2021 17:47	WG1671185
Bromodichloromethane	ND		0.00250	1	05/15/2021 17:47	WG1671185

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Bromoform	ND		0.0250	1	05/15/2021 17:47	WG1671185
Bromomethane	ND		0.0125	1	05/15/2021 17:47	WG1671185
n-Butylbenzene	ND		0.0125	1	05/15/2021 17:47	WG1671185
sec-Butylbenzene	ND		0.0125	1	05/15/2021 17:47	WG1671185
tert-Butylbenzene	ND		0.00500	1	05/15/2021 17:47	WG1671185
Carbon tetrachloride	ND		0.00500	1	05/15/2021 17:47	WG1671185
Chlorobenzene	ND		0.00250	1	05/15/2021 17:47	WG1671185
Chlorodibromomethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
Chloroethane	ND	J3	0.00500	1	05/15/2021 17:47	WG1671185
Chloroform	ND		0.00250	1	05/15/2021 17:47	WG1671185
Chloromethane	ND		0.0125	1	05/15/2021 17:47	WG1671185
2-Chlorotoluene	ND	J3	0.00250	1	05/15/2021 17:47	WG1671185
4-Chlorotoluene	ND		0.00500	1	05/15/2021 17:47	WG1671185
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	05/15/2021 17:47	WG1671185
1,2-Dibromoethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
Dibromomethane	ND		0.00500	1	05/15/2021 17:47	WG1671185
1,2-Dichlorobenzene	ND		0.00500	1	05/15/2021 17:47	WG1671185
1,3-Dichlorobenzene	ND		0.00500	1	05/15/2021 17:47	WG1671185
1,4-Dichlorobenzene	ND		0.00500	1	05/15/2021 17:47	WG1671185
Dichlorodifluoromethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,1-Dichloroethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,2-Dichloroethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,1-Dichloroethene	ND		0.00250	1	05/15/2021 17:47	WG1671185
cis-1,2-Dichloroethene	ND		0.00250	1	05/15/2021 17:47	WG1671185
trans-1,2-Dichloroethene	ND		0.00500	1	05/15/2021 17:47	WG1671185
1,2-Dichloropropane	ND		0.00500	1	05/15/2021 17:47	WG1671185
1,1-Dichloropropene	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,3-Dichloropropane	ND		0.00500	1	05/15/2021 17:47	WG1671185
cis-1,3-Dichloropropene	ND		0.00250	1	05/15/2021 17:47	WG1671185
trans-1,3-Dichloropropene	ND		0.00500	1	05/15/2021 17:47	WG1671185
2,2-Dichloropropane	ND	J3	0.00250	1	05/15/2021 17:47	WG1671185
Di-isopropyl ether	ND		0.00100	1	05/15/2021 17:47	WG1671185
Ethylbenzene	0.00577		0.00250	1	05/15/2021 17:47	WG1671185
Hexachloro-1,3-butadiene	ND		0.0250	1	05/15/2021 17:47	WG1671185
Isopropylbenzene	ND		0.00250	1	05/15/2021 17:47	WG1671185
p-Isopropyltoluene	ND		0.00500	1	05/15/2021 17:47	WG1671185
2-Butanone (MEK)	ND		0.100	1	05/15/2021 17:47	WG1671185
Methylene Chloride	ND		0.0250	1	05/15/2021 17:47	WG1671185
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	05/15/2021 17:47	WG1671185
Methyl tert-butyl ether	ND		0.00100	1	05/15/2021 17:47	WG1671185
Naphthalene	ND		0.0125	1	05/15/2021 17:47	WG1671185
n-Propylbenzene	0.00833		0.00500	1	05/15/2021 17:47	WG1671185
Styrene	ND		0.0125	1	05/15/2021 17:47	WG1671185
1,1,1,2-Tetrachloroethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,1,2,2-Tetrachloroethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
Tetrachloroethene	ND		0.00250	1	05/15/2021 17:47	WG1671185
Toluene	0.0228		0.00500	1	05/15/2021 17:47	WG1671185
1,2,3-Trichlorobenzene	ND	J4	0.0125	1	05/15/2021 17:47	WG1671185
1,2,4-Trichlorobenzene	ND		0.0125	1	05/15/2021 17:47	WG1671185
1,1,1-Trichloroethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,1,2-Trichloroethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
Trichloroethene	ND	J4	0.00100	1	05/15/2021 17:47	WG1671185
Trichlorofluoromethane	ND		0.00250	1	05/15/2021 17:47	WG1671185
1,2,3-Trichloropropane	ND		0.0125	1	05/15/2021 17:47	WG1671185
1,2,4-Trimethylbenzene	0.0416		0.00500	1	05/15/2021 17:47	WG1671185

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1,2,3-Trimethylbenzene	0.0111	J4	0.00500	1	05/15/2021 17:47	WG1671185
1,3,5-Trimethylbenzene	0.0100		0.00500	1	05/15/2021 17:47	WG1671185
Vinyl chloride	ND	J3	0.00250	1	05/15/2021 17:47	WG1671185
Xylenes, Total	0.0497		0.00650	1	05/15/2021 17:47	WG1671185
(S) Toluene-d8	*106*		*75.0-131*		*05/15/2021 17:47*	WG1671185
(S) 4-Bromofluorobenzene	*90.1*		*67.0-138*		*05/15/2021 17:47*	WG1671185
(S) 1,2-Dichloroethane-d4	*80.6*		*70.0-130*		*05/15/2021 17:47*	WG1671185

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	224		20.0	5	05/18/2021 00:06	WG1671600
C28-C36 Motor Oil Range	150		20.0	5	05/18/2021 00:06	WG1671600
(S) o-Terphenyl	*48.0*		*18.0-148*		*05/18/2021 00:06*	WG1671600

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	05/15/2021 17:06	WG1671076
Acenaphthene	ND		0.00600	1	05/15/2021 17:06	WG1671076
Acenaphthylene	ND		0.00600	1	05/15/2021 17:06	WG1671076
Benzo(a)anthracene	0.0226		0.00600	1	05/15/2021 17:06	WG1671076
Benzo(a)pyrene	0.0334		0.00600	1	05/15/2021 17:06	WG1671076
Benzo(b)fluoranthene	0.0560		0.00600	1	05/15/2021 17:06	WG1671076
Benzo(g,h,i)perylene	0.0617		0.00600	1	05/15/2021 17:06	WG1671076
Benzo(k)fluoranthene	0.0163		0.00600	1	05/15/2021 17:06	WG1671076
Chrysene	0.0281		0.00600	1	05/15/2021 17:06	WG1671076
Dibenz(a,h)anthracene	0.0120		0.00600	1	05/15/2021 17:06	WG1671076
Fluoranthene	0.0237		0.00600	1	05/15/2021 17:06	WG1671076
Fluorene	0.0221		0.00600	1	05/15/2021 17:06	WG1671076
Indeno(1,2,3-cd)pyrene	0.0497		0.00600	1	05/15/2021 17:06	WG1671076
Naphthalene	0.221		0.0200	1	05/15/2021 17:06	WG1671076
Phenanthrene	0.101		0.00600	1	05/15/2021 17:06	WG1671076
Pyrene	0.0664		0.00600	1	05/15/2021 17:06	WG1671076
1-Methylnaphthalene	0.236		0.0200	1	05/15/2021 17:06	WG1671076
2-Methylnaphthalene	0.590		0.0200	1	05/15/2021 17:06	WG1671076
2-Chloronaphthalene	ND		0.0200	1	05/15/2021 17:06	WG1671076
(S) p-Terphenyl-d14	*96.3*		*23.0-120*		*05/15/2021 17:06*	WG1671076
(S) Nitrobenzene-d5	*96.0*		*14.0-149*		*05/15/2021 17:06*	WG1671076
(S) 2-Fluorobiphenyl	*76.0*		*34.0-125*		*05/15/2021 17:06*	WG1671076

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	05/15/2021 16:48	WG1671076
Acenaphthene	ND		0.00600	1	05/15/2021 16:48	WG1671076
Acenaphthylene	ND		0.00600	1	05/15/2021 16:48	WG1671076
Benzo(a)anthracene	0.0170		0.00600	1	05/15/2021 16:48	WG1671076
Benzo(a)pyrene	0.0253		0.00600	1	05/15/2021 16:48	WG1671076
Benzo(b)fluoranthene	0.0443		0.00600	1	05/15/2021 16:48	WG1671076
Benzo(g,h,i)perylene	0.0473		0.00600	1	05/15/2021 16:48	WG1671076
Benzo(k)fluoranthene	0.0123		0.00600	1	05/15/2021 16:48	WG1671076
Chrysene	0.0221		0.00600	1	05/15/2021 16:48	WG1671076
Dibenz(a,h)anthracene	0.00874		0.00600	1	05/15/2021 16:48	WG1671076
Fluoranthene	0.0201		0.00600	1	05/15/2021 16:48	WG1671076
Fluorene	0.0188		0.00600	1	05/15/2021 16:48	WG1671076
Indeno(1,2,3-cd)pyrene	0.0383		0.00600	1	05/15/2021 16:48	WG1671076
Naphthalene	0.173		0.0200	1	05/15/2021 16:48	WG1671076
Phenanthrene	0.0894		0.00600	1	05/15/2021 16:48	WG1671076
Pyrene	0.0542		0.00600	1	05/15/2021 16:48	WG1671076
1-Methylnaphthalene	0.187		0.0200	1	05/15/2021 16:48	WG1671076
2-Methylnaphthalene	0.462		0.0200	1	05/15/2021 16:48	WG1671076
2-Chloronaphthalene	ND		0.0200	1	05/15/2021 16:48	WG1671076
(S) p-Terphenyl-d14	*91.4*		*23.0-120*		*05/15/2021 16:48*	WG1671076
(S) Nitrobenzene-d5	*92.5*		*14.0-149*		*05/15/2021 16:48*	WG1671076
(S) 2-Fluorobiphenyl	*74.5*		*34.0-125*		*05/15/2021 16:48*	WG1671076

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.33		1	05/26/2021 14:23	WG1669026

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	05/18/2021 22:00	WG1671320

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.77	T8	1	05/18/2021 10:20	WG1672335

Sample Narrative:

L1351250-04 WG1672335: 7.77 at 22.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1960		10.0	1	05/18/2021 08:08	WG1669177

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.63		2.00	1	05/19/2021 10:40	WG1671427
Barium	406		0.500	1	05/19/2021 10:40	WG1671427
Cadmium	0.540		0.500	1	05/19/2021 10:40	WG1671427
Copper	23.5		2.00	1	05/19/2021 10:40	WG1671427
Lead	11.2		0.500	1	05/19/2021 10:40	WG1671427
Nickel	16.8		2.00	1	05/19/2021 10:40	WG1671427
Selenium	ND		2.00	1	05/19/2021 10:40	WG1671427
Silver	ND		1.00	1	05/19/2021 10:40	WG1671427
Zinc	49.0		5.00	1	05/19/2021 10:40	WG1671427

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.904		0.200	1	05/21/2021 23:05	WG1669024

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.114		0.100	1	05/15/2021 16:57	WG1671180
(S) a,a,a-Trifluorotoluene(FID)	*107*		*77.0-120*		*05/15/2021 16:57*	WG1671180

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0500	1	05/15/2021 18:06	WG1671185
Acrylonitrile	ND		0.0125	1	05/15/2021 18:06	WG1671185
Benzene	0.00263		0.00100	1	05/15/2021 18:06	WG1671185
Bromobenzene	ND		0.0125	1	05/15/2021 18:06	WG1671185
Bromodichloromethane	ND		0.00250	1	05/15/2021 18:06	WG1671185

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Bromoform	ND		0.0250	1	05/15/2021 18:06	WG1671185
Bromomethane	ND		0.0125	1	05/15/2021 18:06	WG1671185
n-Butylbenzene	ND		0.0125	1	05/15/2021 18:06	WG1671185
sec-Butylbenzene	ND		0.0125	1	05/15/2021 18:06	WG1671185
tert-Butylbenzene	ND		0.00500	1	05/15/2021 18:06	WG1671185
Carbon tetrachloride	ND		0.00500	1	05/15/2021 18:06	WG1671185
Chlorobenzene	ND		0.00250	1	05/15/2021 18:06	WG1671185
Chlorodibromomethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
Chloroethane	ND	J3	0.00500	1	05/15/2021 18:06	WG1671185
Chloroform	ND		0.00250	1	05/15/2021 18:06	WG1671185
Chloromethane	ND		0.0125	1	05/15/2021 18:06	WG1671185
2-Chlorotoluene	ND	J3	0.00250	1	05/15/2021 18:06	WG1671185
4-Chlorotoluene	ND		0.00500	1	05/15/2021 18:06	WG1671185
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	05/15/2021 18:06	WG1671185
1,2-Dibromoethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
Dibromomethane	ND		0.00500	1	05/15/2021 18:06	WG1671185
1,2-Dichlorobenzene	ND		0.00500	1	05/15/2021 18:06	WG1671185
1,3-Dichlorobenzene	ND		0.00500	1	05/15/2021 18:06	WG1671185
1,4-Dichlorobenzene	ND		0.00500	1	05/15/2021 18:06	WG1671185
Dichlorodifluoromethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,1-Dichloroethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,2-Dichloroethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,1-Dichloroethene	ND		0.00250	1	05/15/2021 18:06	WG1671185
cis-1,2-Dichloroethene	ND		0.00250	1	05/15/2021 18:06	WG1671185
trans-1,2-Dichloroethene	ND		0.00500	1	05/15/2021 18:06	WG1671185
1,2-Dichloropropane	ND		0.00500	1	05/15/2021 18:06	WG1671185
1,1-Dichloropropene	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,3-Dichloropropane	ND		0.00500	1	05/15/2021 18:06	WG1671185
cis-1,3-Dichloropropene	ND		0.00250	1	05/15/2021 18:06	WG1671185
trans-1,3-Dichloropropene	ND		0.00500	1	05/15/2021 18:06	WG1671185
2,2-Dichloropropane	ND	J3	0.00250	1	05/15/2021 18:06	WG1671185
Di-isopropyl ether	ND		0.00100	1	05/15/2021 18:06	WG1671185
Ethylbenzene	0.00485		0.00250	1	05/15/2021 18:06	WG1671185
Hexachloro-1,3-butadiene	ND		0.0250	1	05/15/2021 18:06	WG1671185
Isopropylbenzene	ND		0.00250	1	05/15/2021 18:06	WG1671185
p-Isopropyltoluene	ND		0.00500	1	05/15/2021 18:06	WG1671185
2-Butanone (MEK)	ND		0.100	1	05/15/2021 18:06	WG1671185
Methylene Chloride	ND		0.0250	1	05/15/2021 18:06	WG1671185
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	05/15/2021 18:06	WG1671185
Methyl tert-butyl ether	ND		0.00100	1	05/15/2021 18:06	WG1671185
Naphthalene	ND		0.0125	1	05/15/2021 18:06	WG1671185
n-Propylbenzene	0.00665		0.00500	1	05/15/2021 18:06	WG1671185
Styrene	ND		0.0125	1	05/15/2021 18:06	WG1671185
1,1,1,2-Tetrachloroethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,1,2,2-Tetrachloroethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
Tetrachloroethene	ND		0.00250	1	05/15/2021 18:06	WG1671185
Toluene	0.0154		0.00500	1	05/15/2021 18:06	WG1671185
1,2,3-Trichlorobenzene	ND	J4	0.0125	1	05/15/2021 18:06	WG1671185
1,2,4-Trichlorobenzene	ND		0.0125	1	05/15/2021 18:06	WG1671185
1,1,1-Trichloroethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,1,2-Trichloroethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
Trichloroethene	ND	J4	0.00100	1	05/15/2021 18:06	WG1671185
Trichlorofluoromethane	ND		0.00250	1	05/15/2021 18:06	WG1671185
1,2,3-Trichloropropane	ND		0.0125	1	05/15/2021 18:06	WG1671185
1,2,4-Trimethylbenzene	0.0363		0.00500	1	05/15/2021 18:06	WG1671185

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1,2,3-Trimethylbenzene	0.00840	J4	0.00500	1	05/15/2021 18:06	WG1671185
1,3,5-Trimethylbenzene	0.00843		0.00500	1	05/15/2021 18:06	WG1671185
Vinyl chloride	ND	J3	0.00250	1	05/15/2021 18:06	WG1671185
Xylenes, Total	0.0365		0.00650	1	05/15/2021 18:06	WG1671185
(S) Toluene-d8	*107*		*75.0-131*		*05/15/2021 18:06*	WG1671185
(S) 4-Bromofluorobenzene	*88.7*		*67.0-138*		*05/15/2021 18:06*	WG1671185
(S) 1,2-Dichloroethane-d4	*81.5*		*70.0-130*		*05/15/2021 18:06*	WG1671185

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.38		4.00	1	05/18/2021 14:17	WG1671600
C28-C36 Motor Oil Range	5.22		4.00	1	05/18/2021 14:17	WG1671600
(S) o-Terphenyl	*62.0*		*18.0-148*		*05/18/2021 14:17*	WG1671600

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	05/15/2021 15:22	WG1671076
Acenaphthene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Acenaphthylene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Benzo(a)anthracene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Benzo(a)pyrene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Benzo(b)fluoranthene	0.00939		0.00600	1	05/15/2021 15:22	WG1671076
Benzo(g,h,i)perylene	0.00985		0.00600	1	05/15/2021 15:22	WG1671076
Benzo(k)fluoranthene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Chrysene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Dibenz(a,h)anthracene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Fluoranthene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Fluorene	ND		0.00600	1	05/15/2021 15:22	WG1671076
Indeno(1,2,3-cd)pyrene	0.00819		0.00600	1	05/15/2021 15:22	WG1671076
Naphthalene	0.0498		0.0200	1	05/15/2021 15:22	WG1671076
Phenanthrene	0.0190		0.00600	1	05/15/2021 15:22	WG1671076
Pyrene	0.0125		0.00600	1	05/15/2021 15:22	WG1671076
1-Methylnaphthalene	0.0447		0.0200	1	05/15/2021 15:22	WG1671076
2-Methylnaphthalene	0.116		0.0200	1	05/15/2021 15:22	WG1671076
2-Chloronaphthalene	ND		0.0200	1	05/15/2021 15:22	WG1671076
(S) p-Terphenyl-d14	*72.4*		*23.0-120*		*05/15/2021 15:22*	WG1671076
(S) Nitrobenzene-d5	*77.6*		*14.0-149*		*05/15/2021 15:22*	WG1671076
(S) 2-Fluorobiphenyl	*69.7*		*34.0-125*		*05/15/2021 15:22*	WG1671076

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	05/15/2021 16:31	WG1671076
Acenaphthene	ND		0.00600	1	05/15/2021 16:31	WG1671076
Acenaphthylene	ND		0.00600	1	05/15/2021 16:31	WG1671076
Benzo(a)anthracene	0.0172		0.00600	1	05/15/2021 16:31	WG1671076
Benzo(a)pyrene	0.0259		0.00600	1	05/15/2021 16:31	WG1671076
Benzo(b)fluoranthene	0.0444		0.00600	1	05/15/2021 16:31	WG1671076
Benzo(g,h,i)perylene	0.0476		0.00600	1	05/15/2021 16:31	WG1671076
Benzo(k)fluoranthene	0.0128		0.00600	1	05/15/2021 16:31	WG1671076
Chrysene	0.0244		0.00600	1	05/15/2021 16:31	WG1671076
Dibenz(a,h)anthracene	0.00919		0.00600	1	05/15/2021 16:31	WG1671076
Fluoranthene	0.0180		0.00600	1	05/15/2021 16:31	WG1671076
Fluorene	0.0188		0.00600	1	05/15/2021 16:31	WG1671076
Indeno(1,2,3-cd)pyrene	0.0385		0.00600	1	05/15/2021 16:31	WG1671076
Naphthalene	0.181		0.0200	1	05/15/2021 16:31	WG1671076
Phenanthrene	0.0847		0.00600	1	05/15/2021 16:31	WG1671076
Pyrene	0.0485		0.00600	1	05/15/2021 16:31	WG1671076
1-Methylnaphthalene	0.191		0.0200	1	05/15/2021 16:31	WG1671076
2-Methylnaphthalene	0.478		0.0200	1	05/15/2021 16:31	WG1671076
2-Chloronaphthalene	ND		0.0200	1	05/15/2021 16:31	WG1671076
(S) p-Terphenyl-d14	*100*		*23.0-120*		*05/15/2021 16:31*	WG1671076
(S) Nitrobenzene-d5	*94.6*		*14.0-149*		*05/15/2021 16:31*	WG1671076
(S) 2-Fluorobiphenyl	*82.7*		*34.0-125*		*05/15/2021 16:31*	WG1671076

Method Blank (MB)

(MB) R3656116-1 05/18/21 21:54

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

L1350230-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1350230-05 05/18/21 21:56 • (DUP) R3656116-7 05/18/21 21:56

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	7.19	7.23	1	0.528		20

L1351250-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1351250-02 05/18/21 21:59 • (DUP) R3656116-8 05/18/21 21:59

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

Laboratory Control Sample (LCS)

(LCS) R3656116-2 05/18/21 21:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	25.9	108	80.0-120	

L1350230-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1350230-01 05/18/21 21:54 • (MS) R3656116-3 05/18/21 21:54 • (MSD) R3656116-4 05/18/21 21:55

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	19.8	20.6	99.2	103	1	75.0-125			3.93	20

L1350230-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1350230-01 05/18/21 21:54 • (MS) R3656116-5 05/18/21 21:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	641	ND	657	102	50	75.0-125	

L1351085-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1351085-01 05/18/21 10:20 • (DUP) R3655804-2 05/18/21 10:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.12	8.11	1	0.123		1

Sample Narrative:

OS: 8.12 at 22.6C

DUP: 8.11 at 22.7C

L1351256-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1351256-01 05/18/21 10:20 • (DUP) R3655804-3 05/18/21 10:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.07	8.06	1	0.124		1

Sample Narrative:

OS: 8.07 at 22.6C

DUP: 8.06 at 22.5C

Laboratory Control Sample (LCS)

(LCS) R3655804-1 05/18/21 10:20

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.07 at 22.2C

Method Blank (MB)

(MB) R3655625-1 05/18/21 08:08

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

L1351085-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1351085-01 05/18/21 08:08 • (DUP) R3655625-3 05/18/21 08:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	454	440	1	3.13		20

L1351256-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1351256-01 05/18/21 08:08 • (DUP) R3655625-4 05/18/21 08:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	244	247	1	1.55		20

Laboratory Control Sample (LCS)

(LCS) R3655625-2 05/18/21 08:08

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	umhos/cm	umhos/cm	%	%	
Specific Conductance	268	273	102	85.0-115	

Method Blank (MB)

(MB) R3656766-1 05/19/21 17:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3656766-2 05/19/21 17:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.8	93.8	80.0-120	
Barium	100	98.8	98.8	80.0-120	
Cadmium	100	95.3	95.3	80.0-120	
Copper	100	95.9	95.9	80.0-120	
Lead	100	96.6	96.6	80.0-120	
Nickel	100	99.3	99.3	80.0-120	
Selenium	100	95.4	95.4	80.0-120	
Silver	20.0	17.7	88.5	80.0-120	
Zinc	100	96.9	96.9	80.0-120	

L1351909-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1351909-03 05/19/21 17:35 • (MS) R3656766-5 05/19/21 17:43 • (MSD) R3656766-6 05/19/21 17:46

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	3.09	86.8	90.9	83.7	87.8	1	75.0-125			4.63	20
Barium	100	72.1	165	171	92.8	98.8	1	75.0-125			3.60	20
Cadmium	100	ND	87.4	91.3	87.1	91.1	1	75.0-125			4.43	20
Copper	100	10.3	98.5	102	88.2	91.5	1	75.0-125			3.34	20
Lead	100	5.58	95.1	98.9	89.6	93.3	1	75.0-125			3.88	20
Nickel	100	12.6	106	110	93.0	97.4	1	75.0-125			4.16	20
Selenium	100	ND	85.9	90.0	85.9	90.0	1	75.0-125			4.64	20
Silver	20.0	ND	16.4	17.2	82.1	85.8	1	75.0-125			4.37	20
Zinc	100	31.4	118	123	86.7	91.7	1	75.0-125			4.14	20

Method Blank (MB)

(MB) R3656696-1 05/19/21 09:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3656696-2 05/19/21 09:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	95.5	95.5	80.0-120	
Barium	100	99.0	99.0	80.0-120	
Cadmium	100	96.0	96.0	80.0-120	
Copper	100	99.1	99.1	80.0-120	
Lead	100	96.1	96.1	80.0-120	
Nickel	100	98.1	98.1	80.0-120	
Selenium	100	98.4	98.4	80.0-120	
Silver	20.0	19.4	97.0	80.0-120	
Zinc	100	94.6	94.6	80.0-120	

L1350199-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1350199-03 05/19/21 09:38 • (MS) R3656696-5 05/19/21 09:46 • (MSD) R3656696-6 05/19/21 09:48

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	99.7	2.00	98.8	101	96.8	99.1	1	75.0-125			2.34	20
Barium	99.7	153	248	250	94.9	96.3	1	75.0-125			0.581	20
Cadmium	99.7	ND	101	102	101	102	1	75.0-125			1.43	20
Copper	99.7	9.78	117	117	107	107	1	75.0-125			0.387	20
Lead	99.7	14.1	115	118	100	104	1	75.0-125			2.66	20
Nickel	99.7	11.4	114	115	103	103	1	75.0-125			0.443	20
Selenium	99.7	ND	102	104	100	103	1	75.0-125			2.54	20
Silver	20.0	ND	20.5	20.8	103	104	1	75.0-125			1.41	20
Zinc	99.7	39.4	137	142	97.6	102	1	75.0-125			3.40	20

Method Blank (MB)

(MB) R3657861-1 05/21/21 22:14

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R3657861-2 05/21/21 22:17 • (LCSD) R3657861-3 05/21/21 22:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.970	0.959	97.0	95.9	80.0-120			1.12	20

Method Blank (MB)

(MB) R3654989-2 05/15/21 09:57

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

Laboratory Control Sample (LCS)

(LCS) R3654989-1 05/15/21 08:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.69	103	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*111*	*77.0-120*	

L1351229-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1351229-01 05/15/21 16:13 • (MS) R3654989-3 05/15/21 18:25 • (MSD) R3654989-4 05/15/21 18:47

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	196	18.3	111	147	57.9	80.4	29	10.0-151			27.9	28
(S) a,a,a-Trifluorotoluene(FID)					*107*	*107*		*77.0-120*				

Method Blank (MB)

(MB) R3655460-3 05/15/21 09:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0365	0.0500
Acrylonitrile	U		0.00361	0.0125
Benzene	U		0.000467	0.00100
Bromobenzene	U		0.000900	0.0125
Bromodichloromethane	U		0.000725	0.00250
Bromoform	U		0.00117	0.0250
Bromomethane	U		0.00197	0.0125
n-Butylbenzene	U		0.00525	0.0125
sec-Butylbenzene	U		0.00288	0.0125
tert-Butylbenzene	U		0.00195	0.00500
Carbon tetrachloride	U		0.000898	0.00500
Chlorobenzene	U		0.000210	0.00250
Chlorodibromomethane	U		0.000612	0.00250
Chloroethane	U		0.00170	0.00500
Chloroform	U		0.00103	0.00250
Chloromethane	U		0.00435	0.0125
2-Chlorotoluene	U		0.000865	0.00250
4-Chlorotoluene	U		0.000450	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00390	0.0250
1,2-Dibromoethane	U		0.000648	0.00250
Dibromomethane	U		0.000750	0.00500
1,2-Dichlorobenzene	U		0.000425	0.00500
1,3-Dichlorobenzene	U		0.000600	0.00500
1,4-Dichlorobenzene	U		0.000700	0.00500
Dichlorodifluoromethane	U		0.00161	0.00250
1,1-Dichloroethane	U		0.000491	0.00250
1,2-Dichloroethane	U		0.000649	0.00250
1,1-Dichloroethene	U		0.000606	0.00250
cis-1,2-Dichloroethene	U		0.000734	0.00250
trans-1,2-Dichloroethene	U		0.00104	0.00500
1,2-Dichloropropane	U		0.00142	0.00500
1,1-Dichloropropene	U		0.000809	0.00250
1,3-Dichloropropane	U		0.000501	0.00500
cis-1,3-Dichloropropene	U		0.000757	0.00250
trans-1,3-Dichloropropene	U		0.00114	0.00500
2,2-Dichloropropane	U		0.00138	0.00250
Di-isopropyl ether	U		0.000410	0.00100
Ethylbenzene	U		0.000737	0.00250
Hexachloro-1,3-butadiene	U		0.00600	0.0250
Isopropylbenzene	U		0.000425	0.00250

Method Blank (MB)

(MB) R3655460-3 05/15/21 09:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00255	0.00500
2-Butanone (MEK)	U		0.0635	0.100
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.00228	0.0250
Methyl tert-butyl ether	U		0.000350	0.00100
Naphthalene	U		0.00488	0.0125
n-Propylbenzene	U		0.000950	0.00500
Styrene	U		0.000229	0.0125
1,1,1,2-Tetrachloroethane	U		0.000948	0.00250
1,1,2,2-Tetrachloroethane	U		0.000695	0.00250
Tetrachloroethene	U		0.000896	0.00250
Toluene	U		0.00130	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000754	0.00250
1,2,3-Trichlorobenzene	U		0.00733	0.0125
1,2,4-Trichlorobenzene	U		0.00440	0.0125
1,1,1-Trichloroethane	U		0.000923	0.00250
1,1,2-Trichloroethane	U		0.000597	0.00250
Trichloroethene	U		0.000584	0.00100
Trichlorofluoromethane	U		0.000827	0.00250
1,2,3-Trichloropropane	U		0.00162	0.0125
1,2,3-Trimethylbenzene	U		0.00158	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Vinyl chloride	U		0.00116	0.00250
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	*107*			*75.0-131*
(S) 4-Bromofluorobenzene	*93.4*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*80.1*			*70.0-130*

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

(LCS) R3655460-1 05/15/21 07:55 • (LCSD) R3655460-2 05/15/21 08:14

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 %
Acetone	0.625	0.993	1.16	159	186	10.0-160		J4	15.5	31
Acrylonitrile	0.625	0.769	0.752	123	120	45.0-153			2.24	22
Benzene	0.125	0.125	0.107	100	85.6	70.0-123			15.5	20
Bromobenzene	0.125	0.126	0.110	101	88.0	73.0-121			13.6	20
Bromodichloromethane	0.125	0.120	0.108	96.0	86.4	73.0-121			10.5	20

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

(LCS) R3655460-1 05/15/21 07:55 • (LCSD) R3655460-2 05/15/21 08:14

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 %
Bromoform	0.125	0.116	0.104	92.8	83.2	64.0-132			10.9	20
Bromomethane	0.125	0.123	0.105	98.4	84.0	56.0-147			15.8	20
n-Butylbenzene	0.125	0.130	0.119	104	95.2	68.0-135			8.84	20
sec-Butylbenzene	0.125	0.130	0.115	104	92.0	74.0-130			12.2	20
tert-Butylbenzene	0.125	0.125	0.108	100	86.4	75.0-127			14.6	20
Carbon tetrachloride	0.125	0.106	0.0895	84.8	71.6	66.0-128			16.9	20
Chlorobenzene	0.125	0.127	0.110	102	88.0	76.0-128			14.3	20
Chlorodibromomethane	0.125	0.121	0.107	96.8	85.6	74.0-127			12.3	20
Chloroethane	0.125	0.112	0.0905	89.6	72.4	61.0-134		J3	21.2	20
Chloroform	0.125	0.107	0.0966	85.6	77.3	72.0-123			10.2	20
Chloromethane	0.125	0.117	0.102	93.6	81.6	51.0-138			13.7	20
2-Chlorotoluene	0.125	0.136	0.110	109	88.0	75.0-124		J3	21.1	20
4-Chlorotoluene	0.125	0.134	0.117	107	93.6	75.0-124			13.5	20
1,2-Dibromo-3-Chloropropane	0.125	0.117	0.120	93.6	96.0	59.0-130			2.53	20
1,2-Dibromoethane	0.125	0.122	0.111	97.6	88.8	74.0-128			9.44	20
Dibromomethane	0.125	0.123	0.112	98.4	89.6	75.0-122			9.36	20
1,2-Dichlorobenzene	0.125	0.126	0.117	101	93.6	76.0-124			7.41	20
1,3-Dichlorobenzene	0.125	0.123	0.113	98.4	90.4	76.0-125			8.47	20
1,4-Dichlorobenzene	0.125	0.126	0.112	101	89.6	77.0-121			11.8	20
Dichlorodifluoromethane	0.125	0.0937	0.0859	75.0	68.7	43.0-156			8.69	20
1,1-Dichloroethane	0.125	0.126	0.110	101	88.0	70.0-127			13.6	20
1,2-Dichloroethane	0.125	0.113	0.102	90.4	81.6	65.0-131			10.2	20
1,1-Dichloroethene	0.125	0.103	0.0864	82.4	69.1	65.0-131			17.5	20
cis-1,2-Dichloroethene	0.125	0.113	0.104	90.4	83.2	73.0-125			8.29	20
trans-1,2-Dichloroethene	0.125	0.104	0.0898	83.2	71.8	71.0-125			14.7	20
1,2-Dichloropropane	0.125	0.128	0.110	102	88.0	74.0-125			15.1	20
1,1-Dichloropropene	0.125	0.112	0.0980	89.6	78.4	73.0-125			13.3	20
1,3-Dichloropropane	0.125	0.132	0.118	106	94.4	80.0-125			11.2	20
cis-1,3-Dichloropropene	0.125	0.114	0.102	91.2	81.6	76.0-127			11.1	20
trans-1,3-Dichloropropene	0.125	0.125	0.110	100	88.0	73.0-127			12.8	20
2,2-Dichloropropane	0.125	0.140	0.110	112	88.0	59.0-135		J3	24.0	20
Di-isopropyl ether	0.125	0.127	0.109	102	87.2	60.0-136			15.3	20
Ethylbenzene	0.125	0.127	0.106	102	84.8	74.0-126			18.0	20
Hexachloro-1,3-butadiene	0.125	0.0906	0.0923	72.5	73.8	57.0-150			1.86	20
Isopropylbenzene	0.125	0.120	0.106	96.0	84.8	72.0-127			12.4	20
p-Isopropyltoluene	0.125	0.121	0.107	96.8	85.6	72.0-133			12.3	20
2-Butanone (MEK)	0.625	0.838	0.892	134	143	30.0-160			6.24	24
Methylene Chloride	0.125	0.121	0.118	96.8	94.4	68.0-123			2.51	20
4-Methyl-2-pentanone (MIBK)	0.625	0.788	0.707	126	113	56.0-143			10.8	20
Methyl tert-butyl ether	0.125	0.128	0.121	102	96.8	66.0-132			5.62	20

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

(LCS) R3655460-1 05/15/21 07:55 • (LCSD) R3655460-2 05/15/21 08:14

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 %
Naphthalene	0.125	0.0952	0.0983	76.2	78.6	59.0-130			3.20	20
n-Propylbenzene	0.125	0.147	0.127	118	102	74.0-126			14.6	20
Styrene	0.125	0.121	0.109	96.8	87.2	72.0-127			10.4	20
1,1,1,2-Tetrachloroethane	0.125	0.117	0.102	93.6	81.6	74.0-129			13.7	20
1,1,2,2-Tetrachloroethane	0.125	0.150	0.135	120	108	68.0-128			10.5	20
Tetrachloroethene	0.125	0.129	0.110	103	88.0	70.0-136			15.9	20
Toluene	0.125	0.129	0.111	103	88.8	75.0-121			15.0	20
1,1,2-Trichlorotrifluoroethane	0.125	0.112	0.0977	89.6	78.2	61.0-139			13.6	20
1,2,3-Trichlorobenzene	0.125	0.0712	0.0738	57.0	59.0	59.0-139	J4		3.59	20
1,2,4-Trichlorobenzene	0.125	0.0929	0.0928	74.3	74.2	62.0-137			0.108	20
1,1,1-Trichloroethane	0.125	0.109	0.0932	87.2	74.6	69.0-126			15.6	20
1,1,2-Trichloroethane	0.125	0.123	0.111	98.4	88.8	78.0-123			10.3	20
Trichloroethene	0.125	0.112	0.0933	89.6	74.6	76.0-126		J4	18.2	20
Trichlorofluoromethane	0.125	0.0866	0.0765	69.3	61.2	61.0-142			12.4	20
1,2,3-Trichloropropane	0.125	0.132	0.122	106	97.6	67.0-129			7.87	20
1,2,3-Trimethylbenzene	0.125	0.0951	0.0832	76.1	66.6	74.0-124		J4	13.3	20
1,2,4-Trimethylbenzene	0.125	0.123	0.110	98.4	88.0	70.0-126			11.2	20
1,3,5-Trimethylbenzene	0.125	0.119	0.103	95.2	82.4	73.0-127			14.4	20
Vinyl chloride	0.125	0.112	0.0868	89.6	69.4	63.0-134		J3	25.4	20
Xylenes, Total	0.375	0.366	0.333	97.6	88.8	72.0-127			9.44	20
(S) Toluene-d8				*105*	*103*	*75.0-131*				
(S) 4-Bromofluorobenzene				*95.7*	*96.4*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*96.8*	*99.5*	*70.0-130*				

L1351251-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1351251-01 05/15/21 18:25 • (MS) R3655460-4 05/15/21 19:03 • (MSD) R3655460-5 05/15/21 19:22

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 %
Acetone	0.558	ND	0.463	0.449	83.0	80.5	1	10.0-160			3.07	40
Acrylonitrile	0.558	ND	0.511	0.365	91.6	65.4	1	10.0-160			33.3	40
Benzene	0.112	ND	0.0701	0.0556	62.0	49.0	1	10.0-149			23.1	37
Bromobenzene	0.112	ND	0.0878	0.0766	78.4	68.4	1	10.0-156			13.6	38
Bromodichloromethane	0.112	ND	0.0720	0.0624	64.3	55.7	1	10.0-143			14.3	37
Bromoform	0.112	ND	0.0860	0.0720	76.8	64.3	1	10.0-146			17.7	36
Bromomethane	0.112	ND	0.0350	0.0304	31.3	27.1	1	10.0-149			14.1	38
n-Butylbenzene	0.112	ND	0.0773	0.0668	69.0	59.6	1	10.0-160			14.6	40
sec-Butylbenzene	0.112	ND	0.0744	0.0680	66.4	60.7	1	10.0-159			8.99	39
tert-Butylbenzene	0.112	ND	0.0737	0.0645	65.8	57.6	1	10.0-156			13.3	39

L1351251-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1351251-01 05/15/21 18:25 • (MS) R3655460-4 05/15/21 19:03 • (MSD) R3655460-5 05/15/21 19:22

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 %
Carbon tetrachloride	0.112	ND	0.0464	0.0382	41.4	34.1	1	10.0-145			19.4	37
Chlorobenzene	0.112	ND	0.0810	0.0636	72.3	56.8	1	10.0-152			24.1	39
Chlorodibromomethane	0.112	ND	0.0919	0.0769	82.1	68.7	1	10.0-146			17.8	37
Chloroethane	0.112	ND	0.0250	0.0213	22.3	19.0	1	10.0-146			16.0	40
Chloroform	0.112	ND	0.0615	0.0501	54.9	44.7	1	10.0-146			20.4	37
Chloromethane	0.112	ND	0.0590	0.0474	52.7	42.3	1	10.0-159			21.8	37
2-Chlorotoluene	0.112	ND	0.0794	0.0657	70.9	58.7	1	10.0-159			18.9	38
4-Chlorotoluene	0.112	ND	0.0890	0.0741	79.5	66.2	1	10.0-155			18.3	39
1,2-Dibromo-3-Chloropropane	0.112	ND	0.0831	0.0788	74.2	70.4	1	10.0-151			5.31	39
1,2-Dibromoethane	0.112	ND	0.108	0.0886	96.4	79.1	1	10.0-148			19.7	34
Dibromomethane	0.112	ND	0.0802	0.0704	71.6	62.9	1	10.0-147			13.0	35
1,2-Dichlorobenzene	0.112	ND	0.0871	0.0753	77.8	67.2	1	10.0-155			14.5	37
1,3-Dichlorobenzene	0.112	ND	0.0818	0.0730	73.0	65.2	1	10.0-153			11.4	38
1,4-Dichlorobenzene	0.112	ND	0.0881	0.0750	78.7	67.0	1	10.0-151			16.1	38
Dichlorodifluoromethane	0.112	ND	0.0431	0.0361	38.5	32.2	1	10.0-160			17.7	35
1,1-Dichloroethane	0.112	ND	0.0674	0.0541	60.2	48.3	1	10.0-147			21.9	37
1,2-Dichloroethane	0.112	ND	0.0702	0.0641	62.7	57.2	1	10.0-148			9.08	35
1,1-Dichloroethene	0.112	ND	0.0486	0.0396	43.4	35.4	1	10.0-155			20.4	37
cis-1,2-Dichloroethene	0.112	ND	0.0651	0.0527	58.1	47.1	1	10.0-149			21.1	37
trans-1,2-Dichloroethene	0.112	ND	0.0554	0.0465	49.5	41.5	1	10.0-150			17.5	37
1,2-Dichloropropane	0.112	ND	0.0765	0.0621	68.3	55.4	1	10.0-148			20.8	37
1,1-Dichloropropene	0.112	ND	0.0535	0.0422	47.8	37.7	1	10.0-153			23.6	35
1,3-Dichloropropane	0.112	ND	0.111	0.0940	99.1	83.9	1	10.0-154			16.6	35
cis-1,3-Dichloropropene	0.112	ND	0.0797	0.0651	71.2	58.1	1	10.0-151			20.2	37
trans-1,3-Dichloropropene	0.112	ND	0.0995	0.0833	88.8	74.4	1	10.0-148			17.7	37
2,2-Dichloropropane	0.112	ND	0.0410	0.0322	36.6	28.8	1	10.0-138			24.0	36
Di-isopropyl ether	0.112	ND	0.0827	0.0690	73.8	61.6	1	10.0-147			18.1	36
Ethylbenzene	0.112	ND	0.0702	0.0563	61.6	49.2	1	10.0-160			22.0	38
Hexachloro-1,3-butadiene	0.112	ND	0.0600	0.0524	53.6	46.8	1	10.0-160			13.5	40
Isopropylbenzene	0.112	ND	0.0616	0.0502	55.0	44.8	1	10.0-155			20.4	38
p-Isopropyltoluene	0.112	ND	0.0707	0.0613	63.1	54.7	1	10.0-160			14.2	40
2-Butanone (MEK)	0.558	0.157	0.678	0.537	93.4	68.1	1	10.0-160			23.2	40
Methylene Chloride	0.112	ND	0.0843	0.0713	75.3	63.7	1	10.0-141			16.7	37
4-Methyl-2-pentanone (MIBK)	0.558	ND	0.616	0.546	110	97.8	1	10.0-160			12.0	35
Methyl tert-butyl ether	0.112	ND	0.0832	0.0718	74.3	64.1	1	11.0-147			14.7	35
Naphthalene	0.112	ND	0.0768	0.0815	68.6	72.8	1	10.0-160			5.94	36
n-Propylbenzene	0.112	ND	0.0835	0.0700	73.6	61.5	1	10.0-158			17.6	38
Styrene	0.112	ND	0.0756	0.0629	67.5	56.2	1	10.0-160			18.3	40
1,1,1,2-Tetrachloroethane	0.112	ND	0.0704	0.0568	62.9	50.7	1	10.0-149			21.4	39
1,1,2,2-Tetrachloroethane	0.112	ND	0.128	0.119	114	106	1	10.0-160			7.29	35

L1351251-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1351251-01 05/15/21 18:25 • (MS) R3655460-4 05/15/21 19:03 • (MSD) R3655460-5 05/15/21 19:22

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 %
Tetrachloroethene	0.112	0.00280	0.0668	0.0546	57.1	46.3	1	10.0-156			20.1	39
Toluene	0.112	0.00545	0.0842	0.0672	70.3	55.1	1	10.0-156			22.5	38
1,1,2-Trichlorotrifluoroethane	0.112	ND	0.0539	0.0476	48.1	42.5	1	10.0-160			12.4	36
1,2,3-Trichlorobenzene	0.112	ND	0.0576	0.0598	51.4	53.4	1	10.0-160			3.75	40
1,2,4-Trichlorobenzene	0.112	ND	0.0636	0.0576	56.8	51.4	1	10.0-160			9.90	40
1,1,1-Trichloroethane	0.112	ND	0.0535	0.0385	47.8	34.4	1	10.0-144			32.6	35
1,1,2-Trichloroethane	0.112	ND	0.101	0.0849	90.2	75.8	1	10.0-160			17.3	35
Trichloroethene	0.112	ND	0.0573	0.0459	51.2	41.0	1	10.0-156			22.1	38
Trichlorofluoromethane	0.112	ND	0.0166	0.0156	14.8	13.9	1	10.0-160			6.21	40
1,2,3-Trichloropropane	0.112	ND	0.112	0.108	100	96.4	1	10.0-156			3.64	35
1,2,3-Trimethylbenzene	0.112	ND	0.0633	0.0545	54.5	46.6	1	10.0-160			14.9	36
1,2,4-Trimethylbenzene	0.112	ND	0.0791	0.0667	66.7	55.6	1	10.0-160			17.0	36
1,3,5-Trimethylbenzene	0.112	ND	0.0693	0.0605	61.9	54.0	1	10.0-160			13.6	38
Vinyl chloride	0.112	ND	0.0542	0.0434	48.4	38.8	1	10.0-160			22.1	37
Xylenes, Total	0.335	0.0108	0.226	0.182	64.2	51.1	1	10.0-160			21.6	38
(S) Toluene-d8					*109*	*106*		*75.0-131*				
(S) 4-Bromofluorobenzene					*89.3*	*89.4*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*80.8*	*81.6*		*70.0-130*				

Method Blank (MB)

(MB) R3655585-1 05/17/21 18:00

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-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*76.1*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3655585-2 05/17/21 18:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	39.1	78.2	50.0-150	
(S) o-Terphenyl			*65.3*	*18.0-148*	

Method Blank (MB)

(MB) R3655101-2 05/15/21 11:54

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	*92.7*			*14.0-149*
(S) 2-Fluorobiphenyl	*91.7*			*34.0-125*
(S) p-Terphenyl-d14	*103*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3655101-1 05/15/21 11:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0708	88.5	50.0-126	
Acenaphthene	0.0800	0.0739	92.4	50.0-120	
Acenaphthylene	0.0800	0.0777	97.1	50.0-120	
Benzo(a)anthracene	0.0800	0.0713	89.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0554	69.3	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0712	89.0	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0708	88.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0691	86.4	49.0-125	
Chrysene	0.0800	0.0711	88.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0720	90.0	47.0-125	
Fluoranthene	0.0800	0.0748	93.5	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3655101-1 05/15/21 11:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0743	92.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0710	88.8	46.0-125	
Naphthalene	0.0800	0.0718	89.8	50.0-120	
Phenanthrene	0.0800	0.0732	91.5	47.0-120	
Pyrene	0.0800	0.0714	89.3	43.0-123	
1-Methylnaphthalene	0.0800	0.0751	93.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0714	89.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0726	90.8	50.0-120	
(S) Nitrobenzene-d5			*95.9*	*14.0-149*	
(S) 2-Fluorobiphenyl			*93.9*	*34.0-125*	
(S) p-Terphenyl-d14			*103*	*23.0-120*	

L1351181-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1351181-01 05/15/21 14:12 • (MS) R3655101-3 05/15/21 14:30 • (MSD) R3655101-4 05/15/21 14:47

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	0.0792	ND	0.0688	0.0676	86.9	85.8	1	10.0-145			1.76	30
Acenaphthene	0.0792	ND	0.0684	0.0698	86.4	88.6	1	14.0-127			2.03	27
Acenaphthylene	0.0792	ND	0.0693	0.0709	87.5	90.0	1	21.0-124			2.28	25
Benzo(a)anthracene	0.0792	0.0111	0.107	0.0744	121	80.3	1	10.0-139		J3	35.9	30
Benzo(a)pyrene	0.0792	0.0159	0.0989	0.0770	105	77.5	1	10.0-141			24.9	31
Benzo(b)fluoranthene	0.0792	0.0283	0.128	0.0904	126	78.8	1	10.0-140			34.4	36
Benzo(g,h,i)perylene	0.0792	0.0196	0.0989	0.0839	100	81.6	1	10.0-140			16.4	33
Benzo(k)fluoranthene	0.0792	0.0103	0.0915	0.0749	103	82.0	1	10.0-137			20.0	31
Chrysene	0.0792	0.0172	0.116	0.0811	125	81.1	1	10.0-145		J3	35.4	30
Dibenz(a,h)anthracene	0.0792	ND	0.0726	0.0703	87.0	84.5	1	10.0-132			3.22	31
Fluoranthene	0.0792	0.0196	0.148	0.0878	162	86.5	1	10.0-153	J5	J3	51.1	33
Fluorene	0.0792	ND	0.0678	0.0699	85.6	88.7	1	11.0-130			3.05	29
Indeno(1,2,3-cd)pyrene	0.0792	0.0175	0.0968	0.0799	100	79.2	1	10.0-137			19.1	32
Naphthalene	0.0792	ND	0.0662	0.0689	83.6	87.4	1	10.0-135			4.00	27
Phenanthrene	0.0792	ND	0.0906	0.0739	109	88.1	1	10.0-144			20.3	31
Pyrene	0.0792	0.0169	0.125	0.0822	136	82.9	1	10.0-148		J3	41.3	35
1-Methylnaphthalene	0.0792	ND	0.0683	0.0705	86.2	89.5	1	10.0-142			3.17	28
2-Methylnaphthalene	0.0792	ND	0.0648	0.0671	81.8	85.2	1	10.0-137			3.49	28
2-Chloronaphthalene	0.0792	ND	0.0667	0.0684	84.2	86.8	1	29.0-120			2.52	24
(S) Nitrobenzene-d5					*91.3*	*90.9*		*14.0-149*				
(S) 2-Fluorobiphenyl					*91.4*	*91.4*		*34.0-125*				
(S) p-Terphenyl-d14					*101*	*101*		*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.

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
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
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

* 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 Analytical.

Company Name/Address:
Berry Petroleum - Denver, CO

3433 E. Lake Dr
Centennial, CO 80121

Billing Information: ~~Don Wilbourn~~ Christy Halsell
~~235 Callahan Ave~~
~~Parachute, CO 81635~~ Berry
Roosevelt, UT

Pres Chk

Report to: **Dave Nicholson**

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

Project Description: **Berry Landfarms** old Mountain

City/State Collected:

Please Circle: PT MT CT ET

Phone: **303-601-2023**

Client Project #

Lab Project # **BERPETDCO-NICHOLSON**

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature): DK Nicholson
Immediately Packed on Ice N ___ Y (Y)

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

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative: *Metals 4ozClr-NoPres, CrVI, SAR	~~CR6 4ozClr-NoPres~~	DRO/ORO 4ozClr-NoPres	GRO 4ozClr-NoPres	PH 4ozClr-NoPres, SPCON	~~SAR 4ozClr-NoPres~~ Hot water Boron	~~SPCON 4ozClr-NoPres~~	SV8270PAHSIM 4ozClr-NoPres	V8260 4ozClr-NoPres Full Screen*	Remarks	Sample # (lab only)
~~MW~~ MI5-1		SS		5/7	1100	~~6~~ 1	~~X~~							X			-01
MI5-2		SS			1105	~~6~~ 6	X		X	X	X	X		X	X		02
MI5-3		SS			1110	)								X			03
MI5-4		SS			1115	~~6~~ 6	X		X	X	X	X		X	X		04
MI5-5		SS			1120	)								X			05
		SS															
		SS															
		SS															
		SS															
		SS															

Chain of Custody Page 1 of 1

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1351250

Table # G143

Acctnum: **BERPETDCO**

Template: **T186990**

Prelogin: **P845515**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via:

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

Remarks:Metals = Ag, As, Ba, Cd, CR6, Cu, Hot Water B, Ni, Pb, Se, Zn
* incl. 1,2,4-TMB, 1,3,5-TMB, and napthalene

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 9883 0089 1935

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR
DK Nicholson	5/10/21	1200	Fedex	A201
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.4, 1.1=1.5 °C Bottles Received: 9
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/11/21 Time: 1245

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)