



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: O-06 Landfarm Final Discrete Sampling Results

Dear Jon:

Nicholson GeoSolutions LLC conducted final discrete soil sampling of the landfarm on the O-06 well pad in the Garden Gulch area, Garfield County, Colorado on May 14th, 2021. The sampling was conducted in accordance with the new COGCC Series 900 Rules that are in effect as of January 15, 2021 and discussions with COGCC personnel.

This landfarm has been extensively tilled. The final landfarm contained an estimated 4,575 cubic yards of material and averaged about 12 inches deep at the time of sampling. Ten discrete soil samples were collected. The locations of the samples are shown on Figure 1. Seven samples were analyzed for PAHs only (the only remaining COCs in the landfarm soil) and three samples were 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 10 samples. The laboratory report is contained in Appendix A. All results were below the Table 915-1 standards except arsenic for three samples and pH for one sample. Arsenic ranged from 6.22 mg/kg to 7.49 mg/kg, within the range of natural background concentrations for the Garden Gulch area (Nicholson 2014). One sample slightly exceeded the pH standard of 8.3.

Based on the sample results, remediation of the O-06 landfarm is now complete. Since pH is above the Table 915-1 standard for one sample, this material may need to be buried.

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

Table 1 O-06 Landfarm Sample Results – May 14, 2021

		Sample ID				
Parameter	Table 915-1 Standards	O06-1	O06-2	O06-3	O06-4	O06-5
Contaminants of Concern						
TVPH – gasoline range	500 ¹	0.136	NA	NA	NA	0.164
TEPH – diesel/motor oil range		210.1	NA	NA	NA	245
Soil Suitability for Reclamation						
sp. conductance (mmhos/cm)	<4	0.561	NA	NA	NA	0.296
SAR (ratio)	<6	1.65	NA	NA	NA	1.55
pH (standard units)	6-8.3	7.99	NA	NA	NA	7.90
boron (hot water extract)	2.0	0.338	NA	NA	NA	0.287
Organic Compounds in Soils						
benzene	1.2	<0.001	NA	NA	NA	<0.001
toluene	490	<0.005	NA	NA	NA	<0.005
ethylbenzene	5.8	<0.0025	NA	NA	NA	<0.0025
xylenes	58	0.00731	NA	NA	NA	0.00738
1,2,4-trimethylbenzene	30	0.00657	NA	NA	NA	0.0073
1,3,5-trimethylbenzene	27	<0.005	NA	NA	NA	<0.005
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	0.00653	<0.006	0.0104	0.0146	0.0116
benzo(b)flouranthene	1.1	0.0271	<0.006	0.0372	0.0505	0.0404
benzo(k)flouranthene	11	0.00609	<0.006	0.00949	0.0114	0.00992
benzo(a)pyrene	0.11	0.0127	<0.006	0.0182	0.0242	0.0202
chrysene	110	0.00863	<0.006	0.0114	0.0144	0.0135
dibenz(a,h)anthracene	0.11	<0.006	<0.006	<0.006	0.00769	0.00612
fluoranthene	240	0.00694	<0.006	0.0115	0.0154	0.0125
flourene	240	<0.006	<0.006	<0.006	<0.006	<0.006
indeno(1,2,3-cd)pyrene	1.1	0.0234	<0.006	0.0319	0.0413	0.0328
1-methylnaphthalene	18	0.0305	<0.006	0.0526	0.0655	0.0733
2-methylnaphthalene	24	0.0566	0.0209	0.0959	0.129	0.152
naphthalene	2	0.0328	<0.02	0.0525	0.0693	0.0893
pyrene	180	0.0131	<0.006	0.0204	0.0256	0.0208
Metals in Soils						
arsenic	0.68	6.22	NA	NA	NA	7.49
barium	15,000	489	NA	NA	NA	500
cadmium	71	<0.5	NA	NA	NA	<0.5
chromium VI	0.3	<2	NA	NA	NA	<2
copper	3,100	23.1	NA	NA	NA	20.7
lead	400	15.3	NA	NA	NA	12.5
nickel	1,500	24.3	NA	NA	NA	19.7
selenium	390	<2	NA	NA	NA	<2
silver	390	<1	NA	NA	NA	<1
zinc	23,000	62.6	NA	NA	NA	47.7

¹The 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

Table 1 O-06 Landfarm Sample Results – May 14, 2021

		Sample ID				
Parameter	Table 915-1 Standards	O06-6	O06-7	O06-8	O06-9	O06-10
Contaminants of Concern						
TVPH – gasoline range	500 ¹	NA	NA	<0.1	NA	NA
TEPH – diesel/motor oil range		NA	NA	121.1	NA	NA
Soil Suitability for Reclamation						
sp. conductance (mmhos/cm)	<4	NA	NA	0.172	NA	NA
SAR (ratio)	<6	NA	NA	1.24	NA	NA
pH (standard units)	6-8.3	NA	NA	8.43	NA	NA
boron (hot water extract)	2.0	NA	NA	0.281	NA	NA
Organic Compounds in Soils						
benzene	1.2	NA	NA	<0.001	NA	NA
toluene	490	NA	NA	<0.005	NA	NA
ethylbenzene	5.8	NA	NA	<0.0025	NA	NA
xylenes	58	NA	NA	<0.0065	NA	NA
1,2,4-trimethylbenzene	30	NA	NA	<0.005	NA	NA
1,3,5-trimethylbenzene	27	NA	NA	<0.005	NA	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	0.0128	0.0106	<0.006	0.0149	<0.006
benzo(b)flouranthene	1.1	0.0429	0.053	0.0162	0.0525	0.006
benzo(k)flouranthene	11	0.0104	0.0141	<0.006	0.012	<0.006
benzo(a)pyrene	0.11	0.0215	0.0234	0.00764	0.0267	<0.006
chrysene	110	0.0134	0.0125	<0.006	0.0162	<0.006
dibenz(a,h)anthracene	0.11	0.00655	0.00832	<0.006	0.00835	<0.006
fluoranthene	240	0.0131	0.0108	<0.006	0.0145	<0.006
flourene	240	<0.006	<0.006	<0.006	<0.006	<0.006
indeno(1,2,3-cd)pyrene	1.1	0.0355	0.0267	0.0133	0.044	<0.006
1-methylnaphthalene	18	0.0519	0.0472	0.0239	0.0714	<0.02
2-methylnaphthalene	24	0.102	0.0913	0.0442	0.139	<0.02
naphthalene	2	0.0558	0.0496	0.0245	0.0769	<0.02
pyrene	180	0.0232	0.0214	0.0083	0.0284	<0.006
Metals in Soils						
arsenic	0.68	NA	NA	7.30	NA	NA
barium	15,000	NA	NA	406	NA	NA
cadmium	71	NA	NA	<0.5	NA	NA
chromium VI	0.3	NA	NA	<2	NA	NA
copper	3,100	NA	NA	22.8	NA	NA
lead	400	NA	NA	14.4	NA	NA
nickel	1,500	NA	NA	23.0	NA	NA
selenium	390	NA	NA	<2	NA	NA
silver	390	NA	NA	<1	NA	NA
zinc	23,000	NA	NA	46.2	NA	NA

¹The 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

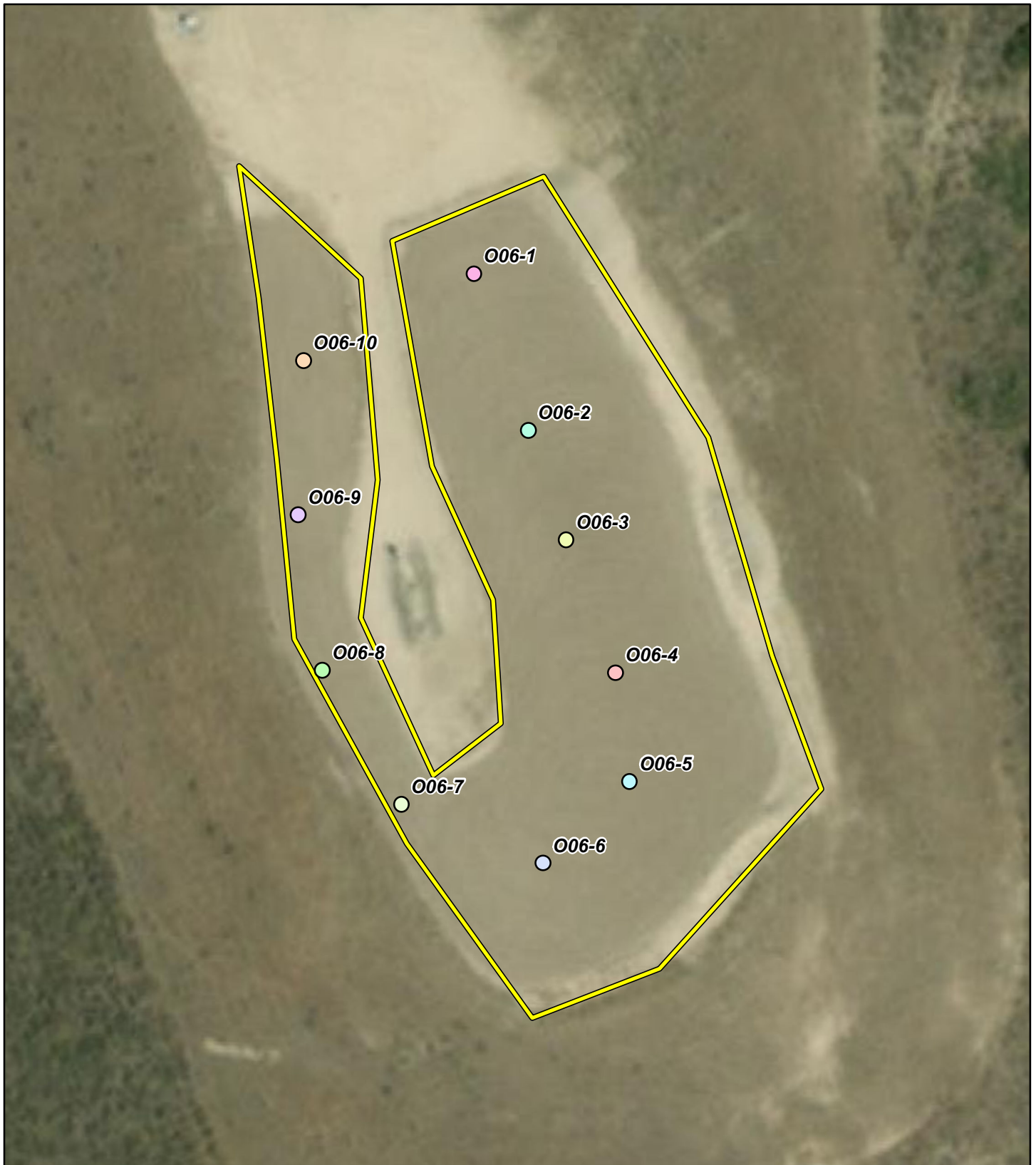


Figure 1

May
2021

GeoSolutions
NICHOLSON

Legend

- Sub Sample
- Landfarm Perimeter (1.35 Acres)

0 37.5 75 Feet

1" = 65'

Berry Petroleum Company

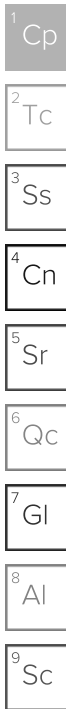
O-06
Landfarm Final

APPENDIX A
Laboratory Report



ANALYTICAL REPORT

May 28, 2021



Berry Petroleum - Denver, CO

Sample Delivery Group: L1353806

Samples Received: 05/15/2021

Project Number:

Description: Berry Landfarms

Report To:

Dave Nicholson

3433 E. Lake Dr

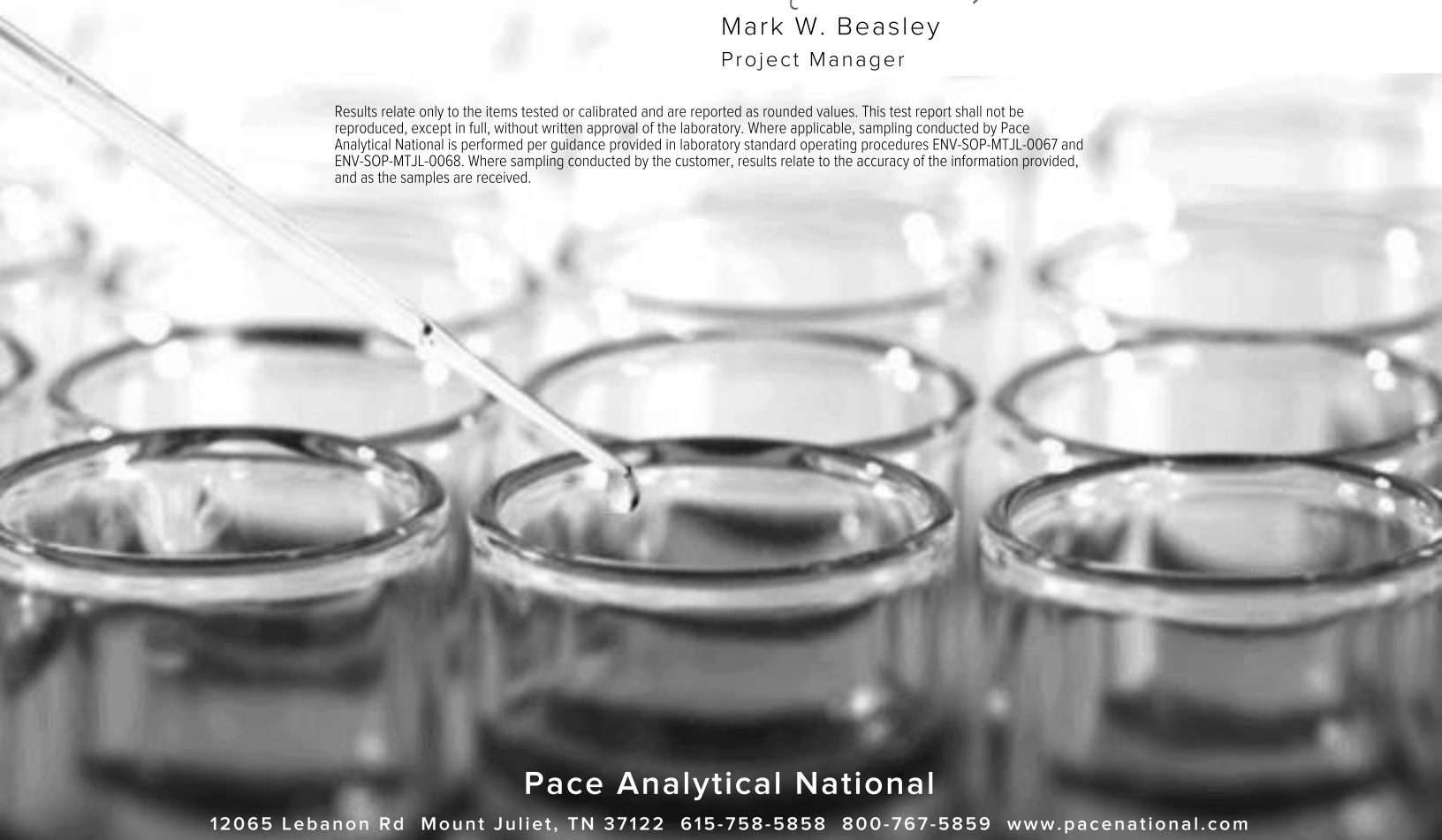
Centennial, CO 80121

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.



Pace Analytical National

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

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

SAMPLE SUMMARY

006-1 L1353806-01 Solid

Collected by
DK Nicholson

Collected date/time
05/14/21 12:30

Received date/time
05/15/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1676002	1	05/27/21 16:51	05/27/21 16:51	KMG	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1673444	1	05/19/21 16:30	05/20/21 14:07	ARM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1674735	1	05/23/21 19:11	05/23/21 22:41	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1673153	1	05/20/21 03:55	05/20/21 10:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1675389	1	05/25/21 10:03	05/25/21 21:23	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1676001	1	05/26/21 20:03	05/27/21 17:42	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1674766	1	05/20/21 12:31	05/21/21 05:51	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1676574	1	05/20/21 12:31	05/24/21 23:33	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1675483	1	05/22/21 05:01	05/23/21 17:50	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 03:11	AAT	Mt. Juliet, TN

006-2 L1353806-02 Solid

Collected by
DK Nicholson

Collected date/time
05/14/21 12:35

Received date/time
05/15/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 01:06	AAT	Mt. Juliet, TN

006-3 L1353806-03 Solid

Collected by
DK Nicholson

Collected date/time
05/14/21 12:40

Received date/time
05/15/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 03:29	AAT	Mt. Juliet, TN

006-4 L1353806-04 Solid

Collected by
DK Nicholson

Collected date/time
05/14/21 12:45

Received date/time
05/15/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 03:46	AAT	Mt. Juliet, TN

006-5 L1353806-05 Solid

Collected by
DK Nicholson

Collected date/time
05/14/21 12:50

Received date/time
05/15/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1676002	1	05/27/21 16:54	05/27/21 16:54	KMG	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1673444	1	05/19/21 16:30	05/20/21 14:08	ARM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1676341	1	05/25/21 00:48	05/25/21 22:35	WOS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1673153	1	05/20/21 03:55	05/20/21 10:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1675389	1	05/25/21 10:03	05/25/21 21:26	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1676001	1	05/26/21 20:03	05/27/21 17:45	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1674766	1	05/20/21 12:31	05/21/21 06:15	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1676574	1	05/20/21 12:31	05/24/21 23:53	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1675484	1	05/22/21 05:00	05/23/21 19:25	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 04:04	AAT	Mt. Juliet, TN

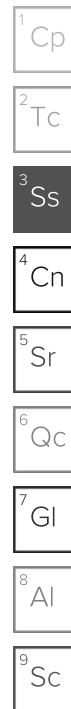
006-6 L1353806-06 Solid

Collected by
DK Nicholson

Collected date/time
05/14/21 12:55

Received date/time
05/15/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 04:22	AAT	Mt. Juliet, TN



SAMPLE SUMMARY

006-7 L1353806-07 Solid

				Collected by DK Nichiolson	Collected date/time 05/14/21 12:58	Received date/time 05/15/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 14:25	AAT	Mt. Juliet, TN

006-8 L1353806-08 Solid

				Collected by DK Nichiolson	Collected date/time 05/14/21 13:00	Received date/time 05/15/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1676002	1	05/27/21 16:56	05/27/21 16:56	KMG	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1674004	1	05/20/21 11:33	05/20/21 20:35	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1676024	1	05/24/21 12:00	05/24/21 23:30	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1673153	1	05/20/21 03:55	05/20/21 10:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1675389	1	05/25/21 10:03	05/25/21 21:29	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1676001	1	05/26/21 20:03	05/27/21 17:47	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1674830	1	05/20/21 12:31	05/21/21 10:12	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1676574	1	05/20/21 12:31	05/25/21 00:13	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1675484	1	05/22/21 05:00	05/23/21 18:58	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 01:41	AAT	Mt. Juliet, TN

006-9 L1353806-09 Solid

				Collected by DK Nichiolson	Collected date/time 05/14/21 13:05	Received date/time 05/15/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 05:33	AAT	Mt. Juliet, TN

006-10 L1353806-10 Solid

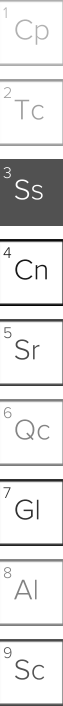
				Collected by DK Nichiolson	Collected date/time 05/14/21 13:10	Received date/time 05/15/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 01:23	AAT	Mt. Juliet, TN

FO1-1 L1353806-11 Solid

				Collected by DK Nichiolson	Collected date/time 05/14/21 08:40	Received date/time 05/15/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 04:58	AAT	Mt. Juliet, TN

FO1-2 L1353806-12 Solid

				Collected by DK Nichiolson	Collected date/time 05/14/21 08:50	Received date/time 05/15/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1676002	1	05/27/21 17:07	05/27/21 17:07	KMG	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1674004	1	05/20/21 11:33	05/20/21 20:36	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1676024	1	05/24/21 12:00	05/24/21 23:30	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1673153	1	05/20/21 03:55	05/20/21 10:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1675389	1	05/25/21 10:03	05/25/21 21:32	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1676001	1	05/26/21 20:03	05/27/21 17:50	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1674830	1	05/20/21 12:31	05/21/21 10:36	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1676574	1	05/20/21 12:31	05/25/21 00:33	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1675859	10	05/23/21 14:57	05/25/21 16:24	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 05:16	AAT	Mt. Juliet, TN



SAMPLE SUMMARY

029-1 L1353806-13 Solid

Collected by
DK Nicholson

Collected date/time
05/14/21 11:30

Received date/time
05/15/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1675862	1	05/23/21 14:58	05/24/21 05:51	AAT	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

006-1

Collected date/time: 05/14/21 12:30

SAMPLE RESULTS - 01

L1353806

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.65		1	05/27/2021 16:51	WG1676002

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	05/20/2021 14:07	WG1673444

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.99	T8	1	05/23/2021 22:41	WG1674735

Sample Narrative:

L1353806-01 WG1674735: 7.99 at 22.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	561		10.0	1	05/20/2021 10:50	WG1673153

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.22		2.00	1	05/25/2021 21:23	WG1675389
Barium	489		0.500	1	05/25/2021 21:23	WG1675389
Cadmium	ND		0.500	1	05/25/2021 21:23	WG1675389
Copper	23.1		2.00	1	05/25/2021 21:23	WG1675389
Lead	15.3		0.500	1	05/25/2021 21:23	WG1675389
Nickel	24.3		2.00	1	05/25/2021 21:23	WG1675389
Selenium	ND		2.00	1	05/25/2021 21:23	WG1675389
Silver	ND		1.00	1	05/25/2021 21:23	WG1675389
Zinc	62.6		5.00	1	05/25/2021 21:23	WG1675389

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	0.338		0.200	1	05/27/2021 17:42	WG1676001

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	0.136		0.100	1	05/21/2021 05:51	WG1674766
(S) a,a,a-Trifluorotoluene(FID)	84.2		77.0-120		05/21/2021 05:51	WG1674766

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	05/24/2021 23:33	WG1676574
Acrylonitrile	ND		0.0125	1	05/24/2021 23:33	WG1676574
Benzene	ND		0.00100	1	05/24/2021 23:33	WG1676574
Bromobenzene	ND		0.0125	1	05/24/2021 23:33	WG1676574
Bromodichloromethane	ND		0.00250	1	05/24/2021 23:33	WG1676574

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

006-1

SAMPLE RESULTS - 01

Collected date/time: 05/14/21 12:30

L1353806

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	05/24/2021 23:33	WG1676574
Bromomethane	ND		0.0125	1	05/24/2021 23:33	WG1676574
n-Butylbenzene	ND		0.0125	1	05/24/2021 23:33	WG1676574
sec-Butylbenzene	ND		0.0125	1	05/24/2021 23:33	WG1676574
tert-Butylbenzene	ND		0.00500	1	05/24/2021 23:33	WG1676574
Carbon tetrachloride	ND		0.00500	1	05/24/2021 23:33	WG1676574
Chlorobenzene	ND		0.00250	1	05/24/2021 23:33	WG1676574
Chlorodibromomethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
Chloroethane	ND		0.00500	1	05/24/2021 23:33	WG1676574
Chloroform	ND		0.00250	1	05/24/2021 23:33	WG1676574
Chloromethane	ND		0.0125	1	05/24/2021 23:33	WG1676574
2-Chlorotoluene	ND		0.00250	1	05/24/2021 23:33	WG1676574
4-Chlorotoluene	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	05/24/2021 23:33	WG1676574
1,2-Dibromoethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
Dibromomethane	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,2-Dichlorobenzene	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,3-Dichlorobenzene	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,4-Dichlorobenzene	ND		0.00500	1	05/24/2021 23:33	WG1676574
Dichlorodifluoromethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,1-Dichloroethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,2-Dichloroethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,1-Dichloroethene	ND		0.00250	1	05/24/2021 23:33	WG1676574
cis-1,2-Dichloroethene	ND		0.00250	1	05/24/2021 23:33	WG1676574
trans-1,2-Dichloroethene	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,2-Dichloropropane	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,1-Dichloropropene	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,3-Dichloropropane	ND		0.00500	1	05/24/2021 23:33	WG1676574
cis-1,3-Dichloropropene	ND		0.00250	1	05/24/2021 23:33	WG1676574
trans-1,3-Dichloropropene	ND		0.00500	1	05/24/2021 23:33	WG1676574
2,2-Dichloropropane	ND		0.00250	1	05/24/2021 23:33	WG1676574
Di-isopropyl ether	ND		0.00100	1	05/24/2021 23:33	WG1676574
Ethylbenzene	ND		0.00250	1	05/24/2021 23:33	WG1676574
Hexachloro-1,3-butadiene	ND		0.0250	1	05/24/2021 23:33	WG1676574
Isopropylbenzene	ND		0.00250	1	05/24/2021 23:33	WG1676574
p-Isopropyltoluene	ND		0.00500	1	05/24/2021 23:33	WG1676574
2-Butanone (MEK)	ND		0.100	1	05/24/2021 23:33	WG1676574
Methylene Chloride	ND		0.0250	1	05/24/2021 23:33	WG1676574
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	05/24/2021 23:33	WG1676574
Methyl tert-butyl ether	ND		0.00100	1	05/24/2021 23:33	WG1676574
Naphthalene	ND		0.0125	1	05/24/2021 23:33	WG1676574
n-Propylbenzene	ND		0.00500	1	05/24/2021 23:33	WG1676574
Styrene	ND		0.0125	1	05/24/2021 23:33	WG1676574
1,1,1,2-Tetrachloroethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,1,2,2-Tetrachloroethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
Tetrachloroethene	ND		0.00250	1	05/24/2021 23:33	WG1676574
Toluene	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,2,3-Trichlorobenzene	ND		0.0125	1	05/24/2021 23:33	WG1676574
1,2,4-Trichlorobenzene	ND		0.0125	1	05/24/2021 23:33	WG1676574
1,1,1-Trichloroethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,1,2-Trichloroethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
Trichloroethene	ND		0.00100	1	05/24/2021 23:33	WG1676574
Trichlorofluoromethane	ND		0.00250	1	05/24/2021 23:33	WG1676574
1,2,3-Trichloropropane	ND		0.0125	1	05/24/2021 23:33	WG1676574
1,2,4-Trimethylbenzene	0.00657		0.00500	1	05/24/2021 23:33	WG1676574

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

Berry Petroleum - Denver, CO

PROJECT:

SDG:

L1353806

DATE/TIME:

05/28/21 13:19

PAGE:

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Collected date/time: 05/14/21 12:30

SAMPLE RESULTS - 01

L1353806

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	ND		0.00500	1	05/24/2021 23:33	WG1676574
1,3,5-Trimethylbenzene	ND		0.00500	1	05/24/2021 23:33	WG1676574
Vinyl chloride	ND		0.00250	1	05/24/2021 23:33	WG1676574
Xylenes, Total	0.00731		0.00650	1	05/24/2021 23:33	WG1676574
(S) Toluene-d8	107		75.0-131		05/24/2021 23:33	WG1676574
(S) 4-Bromofluorobenzene	99.5		67.0-138		05/24/2021 23:33	WG1676574
(S) 1,2-Dichloroethane-d4	107		70.0-130		05/24/2021 23:33	WG1676574

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	99.1		4.00	1	05/23/2021 17:50	WG1675483
C28-C36 Motor Oil Range	111		4.00	1	05/23/2021 17:50	WG1675483
(S) o-Terphenyl	40.9		18.0-148		05/23/2021 17:50	WG1675483

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	05/24/2021 03:11	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 03:11	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 03:11	WG1675862
Benzo(a)anthracene	0.00653		0.00600	1	05/24/2021 03:11	WG1675862
Benzo(a)pyrene	0.0127		0.00600	1	05/24/2021 03:11	WG1675862
Benzo(b)fluoranthene	0.0271		0.00600	1	05/24/2021 03:11	WG1675862
Benzo(g,h,i)perylene	0.0274		0.00600	1	05/24/2021 03:11	WG1675862
Benzo(k)fluoranthene	0.00609		0.00600	1	05/24/2021 03:11	WG1675862
Chrysene	0.00863		0.00600	1	05/24/2021 03:11	WG1675862
Dibenz(a,h)anthracene	ND		0.00600	1	05/24/2021 03:11	WG1675862
Fluoranthene	0.00694		0.00600	1	05/24/2021 03:11	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 03:11	WG1675862
Indeno(1,2,3-cd)pyrene	0.0234		0.00600	1	05/24/2021 03:11	WG1675862
Naphthalene	0.0328		0.0200	1	05/24/2021 03:11	WG1675862
Phenanthrene	0.0116		0.00600	1	05/24/2021 03:11	WG1675862
Pyrene	0.0131		0.00600	1	05/24/2021 03:11	WG1675862
1-Methylnaphthalene	0.0305		0.0200	1	05/24/2021 03:11	WG1675862
2-Methylnaphthalene	0.0566		0.0200	1	05/24/2021 03:11	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 03:11	WG1675862
(S) p-Terphenyl-d14	72.5		23.0-120		05/24/2021 03:11	WG1675862
(S) Nitrobenzene-d5	61.3		14.0-149		05/24/2021 03:11	WG1675862
(S) 2-Fluorobiphenyl	53.4		34.0-125		05/24/2021 03:11	WG1675862

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

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	05/24/2021 01:06	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Benzo(a)anthracene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Benzo(a)pyrene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Benzo(b)fluoranthene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Benzo(g,h,i)perylene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Benzo(k)fluoranthene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Chrysene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Dibenz(a,h)anthracene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Fluoranthene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Naphthalene	ND		0.0200	1	05/24/2021 01:06	WG1675862
Phenanthrene	ND		0.00600	1	05/24/2021 01:06	WG1675862
Pyrene	ND		0.00600	1	05/24/2021 01:06	WG1675862
1-Methylnaphthalene	ND		0.0200	1	05/24/2021 01:06	WG1675862
2-Methylnaphthalene	0.0209		0.0200	1	05/24/2021 01:06	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 01:06	WG1675862
(S) p-Terphenyl-d14	66.2		23.0-120		05/24/2021 01:06	WG1675862
(S) Nitrobenzene-d5	52.4		14.0-149		05/24/2021 01:06	WG1675862
(S) 2-Fluorobiphenyl	51.0		34.0-125		05/24/2021 01:06	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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Collected date/time: 05/14/21 12:40

SAMPLE RESULTS - 03

L1353806

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	05/24/2021 03:29	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 03:29	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 03:29	WG1675862
Benzo(a)anthracene	0.0104		0.00600	1	05/24/2021 03:29	WG1675862
Benzo(a)pyrene	0.0182		0.00600	1	05/24/2021 03:29	WG1675862
Benzo(b)fluoranthene	0.0372		0.00600	1	05/24/2021 03:29	WG1675862
Benzo(g,h,i)perylene	0.0367		0.00600	1	05/24/2021 03:29	WG1675862
Benzo(k)fluoranthene	0.00949		0.00600	1	05/24/2021 03:29	WG1675862
Chrysene	0.0114		0.00600	1	05/24/2021 03:29	WG1675862
Dibenz(a,h)anthracene	ND		0.00600	1	05/24/2021 03:29	WG1675862
Fluoranthene	0.0115		0.00600	1	05/24/2021 03:29	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 03:29	WG1675862
Indeno(1,2,3-cd)pyrene	0.0319		0.00600	1	05/24/2021 03:29	WG1675862
Naphthalene	0.0525		0.0200	1	05/24/2021 03:29	WG1675862
Phenanthrene	0.0196		0.00600	1	05/24/2021 03:29	WG1675862
Pyrene	0.0204		0.00600	1	05/24/2021 03:29	WG1675862
1-Methylnaphthalene	0.0526		0.0200	1	05/24/2021 03:29	WG1675862
2-Methylnaphthalene	0.0959		0.0200	1	05/24/2021 03:29	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 03:29	WG1675862
(S) p-Terphenyl-d14	66.9		23.0-120		05/24/2021 03:29	WG1675862
(S) Nitrobenzene-d5	60.4		14.0-149		05/24/2021 03:29	WG1675862
(S) 2-Fluorobiphenyl	44.9		34.0-125		05/24/2021 03:29	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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	05/24/2021 03:46	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 03:46	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 03:46	WG1675862
Benzo(a)anthracene	0.0146		0.00600	1	05/24/2021 03:46	WG1675862
Benzo(a)pyrene	0.0242		0.00600	1	05/24/2021 03:46	WG1675862
Benzo(b)fluoranthene	0.0505		0.00600	1	05/24/2021 03:46	WG1675862
Benzo(g,h,i)perylene	0.0476		0.00600	1	05/24/2021 03:46	WG1675862
Benzo(k)fluoranthene	0.0114		0.00600	1	05/24/2021 03:46	WG1675862
Chrysene	0.0144		0.00600	1	05/24/2021 03:46	WG1675862
Dibenz(a,h)anthracene	0.00769		0.00600	1	05/24/2021 03:46	WG1675862
Fluoranthene	0.0154		0.00600	1	05/24/2021 03:46	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 03:46	WG1675862
Indeno(1,2,3-cd)pyrene	0.0413		0.00600	1	05/24/2021 03:46	WG1675862
Naphthalene	0.0693		0.0200	1	05/24/2021 03:46	WG1675862
Phenanthrene	0.0256		0.00600	1	05/24/2021 03:46	WG1675862
Pyrene	0.0256		0.00600	1	05/24/2021 03:46	WG1675862
1-Methylnaphthalene	0.0655		0.0200	1	05/24/2021 03:46	WG1675862
2-Methylnaphthalene	0.129		0.0200	1	05/24/2021 03:46	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 03:46	WG1675862
(S) p-Terphenyl-d14	76.8		23.0-120		05/24/2021 03:46	WG1675862
(S) Nitrobenzene-d5	61.9		14.0-149		05/24/2021 03:46	WG1675862
(S) 2-Fluorobiphenyl	61.2		34.0-125		05/24/2021 03:46	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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Collected date/time: 05/14/21 12:50

SAMPLE RESULTS - 05

L1353806

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.55		1	05/27/2021 16:54	WG1676002

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	05/20/2021 14:08	WG1673444

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90	T8	1	05/25/2021 22:35	WG1676341

Sample Narrative:

L1353806-05 WG1676341: 7.9 at 22.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	296		10.0	1	05/20/2021 10:50	WG1673153

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.49		2.00	1	05/25/2021 21:26	WG1675389
Barium	500		0.500	1	05/25/2021 21:26	WG1675389
Cadmium	ND		0.500	1	05/25/2021 21:26	WG1675389
Copper	20.7		2.00	1	05/25/2021 21:26	WG1675389
Lead	12.5		0.500	1	05/25/2021 21:26	WG1675389
Nickel	19.7		2.00	1	05/25/2021 21:26	WG1675389
Selenium	ND		2.00	1	05/25/2021 21:26	WG1675389
Silver	ND		1.00	1	05/25/2021 21:26	WG1675389
Zinc	47.7		5.00	1	05/25/2021 21:26	WG1675389

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	0.287		0.200	1	05/27/2021 17:45	WG1676001

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	0.164		0.100	1	05/21/2021 06:15	WG1674766
(S) a,a,a-Trifluorotoluene(FID)	83.9		77.0-120		05/21/2021 06:15	WG1674766

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	05/24/2021 23:53	WG1676574
Acrylonitrile	ND		0.0125	1	05/24/2021 23:53	WG1676574
Benzene	ND		0.00100	1	05/24/2021 23:53	WG1676574
Bromobenzene	ND		0.0125	1	05/24/2021 23:53	WG1676574
Bromodichloromethane	ND		0.00250	1	05/24/2021 23:53	WG1676574

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

006-5

Collected date/time: 05/14/21 12:50

SAMPLE RESULTS - 05

L1353806

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	05/24/2021 23:53	WG1676574
Bromomethane	ND		0.0125	1	05/24/2021 23:53	WG1676574
n-Butylbenzene	ND		0.0125	1	05/24/2021 23:53	WG1676574
sec-Butylbenzene	ND		0.0125	1	05/24/2021 23:53	WG1676574
tert-Butylbenzene	ND		0.00500	1	05/24/2021 23:53	WG1676574
Carbon tetrachloride	ND		0.00500	1	05/24/2021 23:53	WG1676574
Chlorobenzene	ND		0.00250	1	05/24/2021 23:53	WG1676574
Chlorodibromomethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
Chloroethane	ND		0.00500	1	05/24/2021 23:53	WG1676574
Chloroform	ND		0.00250	1	05/24/2021 23:53	WG1676574
Chloromethane	ND		0.0125	1	05/24/2021 23:53	WG1676574
2-Chlorotoluene	ND		0.00250	1	05/24/2021 23:53	WG1676574
4-Chlorotoluene	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	05/24/2021 23:53	WG1676574
1,2-Dibromoethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
Dibromomethane	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,2-Dichlorobenzene	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,3-Dichlorobenzene	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,4-Dichlorobenzene	ND		0.00500	1	05/24/2021 23:53	WG1676574
Dichlorodifluoromethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,1-Dichloroethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,2-Dichloroethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,1-Dichloroethene	ND		0.00250	1	05/24/2021 23:53	WG1676574
cis-1,2-Dichloroethene	ND		0.00250	1	05/24/2021 23:53	WG1676574
trans-1,2-Dichloroethene	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,2-Dichloropropane	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,1-Dichloropropene	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,3-Dichloropropane	ND		0.00500	1	05/24/2021 23:53	WG1676574
cis-1,3-Dichloropropene	ND		0.00250	1	05/24/2021 23:53	WG1676574
trans-1,3-Dichloropropene	ND		0.00500	1	05/24/2021 23:53	WG1676574
2,2-Dichloropropane	ND		0.00250	1	05/24/2021 23:53	WG1676574
Di-isopropyl ether	ND		0.00100	1	05/24/2021 23:53	WG1676574
Ethylbenzene	ND		0.00250	1	05/24/2021 23:53	WG1676574
Hexachloro-1,3-butadiene	ND		0.0250	1	05/24/2021 23:53	WG1676574
Isopropylbenzene	ND		0.00250	1	05/24/2021 23:53	WG1676574
p-Isopropyltoluene	ND		0.00500	1	05/24/2021 23:53	WG1676574
2-Butanone (MEK)	ND		0.100	1	05/24/2021 23:53	WG1676574
Methylene Chloride	ND		0.0250	1	05/24/2021 23:53	WG1676574
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	05/24/2021 23:53	WG1676574
Methyl tert-butyl ether	ND		0.00100	1	05/24/2021 23:53	WG1676574
Naphthalene	ND		0.0125	1	05/24/2021 23:53	WG1676574
n-Propylbenzene	ND		0.00500	1	05/24/2021 23:53	WG1676574
Styrene	ND		0.0125	1	05/24/2021 23:53	WG1676574
1,1,1,2-Tetrachloroethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,1,2,2-Tetrachloroethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
Tetrachloroethene	ND		0.00250	1	05/24/2021 23:53	WG1676574
Toluene	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,2,3-Trichlorobenzene	ND		0.0125	1	05/24/2021 23:53	WG1676574
1,2,4-Trichlorobenzene	ND		0.0125	1	05/24/2021 23:53	WG1676574
1,1,1-Trichloroethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,1,2-Trichloroethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
Trichloroethene	ND		0.00100	1	05/24/2021 23:53	WG1676574
Trichlorofluoromethane	ND		0.00250	1	05/24/2021 23:53	WG1676574
1,2,3-Trichloropropane	ND		0.0125	1	05/24/2021 23:53	WG1676574
1,2,4-Trimethylbenzene	0.00730		0.00500	1	05/24/2021 23:53	WG1676574

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

Berry Petroleum - Denver, CO

PROJECT:

SDG:

L1353806

DATE/TIME:

05/28/21 13:19

PAGE:

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Collected date/time: 05/14/21 12:50

SAMPLE RESULTS - 05

L1353806

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	ND		0.00500	1	05/24/2021 23:53	WG1676574
1,3,5-Trimethylbenzene	ND		0.00500	1	05/24/2021 23:53	WG1676574
Vinyl chloride	ND		0.00250	1	05/24/2021 23:53	WG1676574
Xylenes, Total	0.00738		0.00650	1	05/24/2021 23:53	WG1676574
(S) Toluene-d8	107		75.0-131		05/24/2021 23:53	WG1676574
(S) 4-Bromofluorobenzene	96.2		67.0-138		05/24/2021 23:53	WG1676574
(S) 1,2-Dichloroethane-d4	105		70.0-130		05/24/2021 23:53	WG1676574

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	119		4.00	1	05/23/2021 19:25	WG1675484
C28-C36 Motor Oil Range	126		4.00	1	05/23/2021 19:25	WG1675484
(S) o-Terphenyl	40.7		18.0-148		05/23/2021 19:25	WG1675484

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	05/24/2021 04:04	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 04:04	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 04:04	WG1675862
Benzo(a)anthracene	0.0116		0.00600	1	05/24/2021 04:04	WG1675862
Benzo(a)pyrene	0.0202		0.00600	1	05/24/2021 04:04	WG1675862
Benzo(b)fluoranthene	0.0404		0.00600	1	05/24/2021 04:04	WG1675862
Benzo(g,h,i)perylene	0.0381		0.00600	1	05/24/2021 04:04	WG1675862
Benzo(k)fluoranthene	0.00992		0.00600	1	05/24/2021 04:04	WG1675862
Chrysene	0.0135		0.00600	1	05/24/2021 04:04	WG1675862
Dibenz(a,h)anthracene	0.00612		0.00600	1	05/24/2021 04:04	WG1675862
Fluoranthene	0.0125		0.00600	1	05/24/2021 04:04	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 04:04	WG1675862
Indeno(1,2,3-cd)pyrene	0.0328		0.00600	1	05/24/2021 04:04	WG1675862
Naphthalene	0.0893		0.0200	1	05/24/2021 04:04	WG1675862
Phenanthrene	0.0260		0.00600	1	05/24/2021 04:04	WG1675862
Pyrene	0.0208		0.00600	1	05/24/2021 04:04	WG1675862
1-Methylnaphthalene	0.0733		0.0200	1	05/24/2021 04:04	WG1675862
2-Methylnaphthalene	0.152		0.0200	1	05/24/2021 04:04	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 04:04	WG1675862
(S) p-Terphenyl-d14	90.7		23.0-120		05/24/2021 04:04	WG1675862
(S) Nitrobenzene-d5	77.4		14.0-149		05/24/2021 04:04	WG1675862
(S) 2-Fluorobiphenyl	64.9		34.0-125		05/24/2021 04:04	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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	05/24/2021 04:22	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 04:22	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 04:22	WG1675862
Benzo(a)anthracene	0.0128		0.00600	1	05/24/2021 04:22	WG1675862
Benzo(a)pyrene	0.0215		0.00600	1	05/24/2021 04:22	WG1675862
Benzo(b)fluoranthene	0.0429		0.00600	1	05/24/2021 04:22	WG1675862
Benzo(g,h,i)perylene	0.0406		0.00600	1	05/24/2021 04:22	WG1675862
Benzo(k)fluoranthene	0.0104		0.00600	1	05/24/2021 04:22	WG1675862
Chrysene	0.0134		0.00600	1	05/24/2021 04:22	WG1675862
Dibenz(a,h)anthracene	0.00655		0.00600	1	05/24/2021 04:22	WG1675862
Fluoranthene	0.0131		0.00600	1	05/24/2021 04:22	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 04:22	WG1675862
Indeno(1,2,3-cd)pyrene	0.0355		0.00600	1	05/24/2021 04:22	WG1675862
Naphthalene	0.0558		0.0200	1	05/24/2021 04:22	WG1675862
Phenanthrene	0.0208		0.00600	1	05/24/2021 04:22	WG1675862
Pyrene	0.0232		0.00600	1	05/24/2021 04:22	WG1675862
1-Methylnaphthalene	0.0519		0.0200	1	05/24/2021 04:22	WG1675862
2-Methylnaphthalene	0.102		0.0200	1	05/24/2021 04:22	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 04:22	WG1675862
(S) p-Terphenyl-d14	88.8		23.0-120		05/24/2021 04:22	WG1675862
(S) Nitrobenzene-d5	67.7		14.0-149		05/24/2021 04:22	WG1675862
(S) 2-Fluorobiphenyl	61.7		34.0-125		05/24/2021 04:22	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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	05/24/2021 14:25	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 14:25	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 14:25	WG1675862
Benzo(a)anthracene	0.0106		0.00600	1	05/24/2021 14:25	WG1675862
Benzo(a)pyrene	0.0234		0.00600	1	05/24/2021 14:25	WG1675862
Benzo(b)fluoranthene	0.0530		0.00600	1	05/24/2021 14:25	WG1675862
Benzo(g,h,i)perylene	0.0387		0.00600	1	05/24/2021 14:25	WG1675862
Benzo(k)fluoranthene	0.0141		0.00600	1	05/24/2021 14:25	WG1675862
Chrysene	0.0125		0.00600	1	05/24/2021 14:25	WG1675862
Dibenz(a,h)anthracene	0.00832		0.00600	1	05/24/2021 14:25	WG1675862
Fluoranthene	0.0108		0.00600	1	05/24/2021 14:25	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 14:25	WG1675862
Indeno(1,2,3-cd)pyrene	0.0267		0.00600	1	05/24/2021 14:25	WG1675862
Naphthalene	0.0496		0.0200	1	05/24/2021 14:25	WG1675862
Phenanthrene	0.0193		0.00600	1	05/24/2021 14:25	WG1675862
Pyrene	0.0214		0.00600	1	05/24/2021 14:25	WG1675862
1-Methylnaphthalene	0.0472		0.0200	1	05/24/2021 14:25	WG1675862
2-Methylnaphthalene	0.0913		0.0200	1	05/24/2021 14:25	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 14:25	WG1675862
(S) p-Terphenyl-d14	67.4		23.0-120		05/24/2021 14:25	WG1675862
(S) Nitrobenzene-d5	61.0		14.0-149		05/24/2021 14:25	WG1675862
(S) 2-Fluorobiphenyl	51.3		34.0-125		05/24/2021 14:25	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

006-8

Collected date/time: 05/14/21 13:00

SAMPLE RESULTS - 08

L1353806

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.24		1	05/27/2021 16:56	WG1676002

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	J6	2.00	1	05/20/2021 20:35	WG1674004

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.43	T8	1	05/24/2021 23:30	WG1676024

Sample Narrative:

L1353806-08 WG1676024: 8.43 at 24.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	172		10.0	1	05/20/2021 10:50	WG1673153

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.30		2.00	1	05/25/2021 21:29	WG1675389
Barium	406		0.500	1	05/25/2021 21:29	WG1675389
Cadmium	ND		0.500	1	05/25/2021 21:29	WG1675389
Copper	22.8		2.00	1	05/25/2021 21:29	WG1675389
Lead	14.4		0.500	1	05/25/2021 21:29	WG1675389
Nickel	23.0		2.00	1	05/25/2021 21:29	WG1675389
Selenium	ND		2.00	1	05/25/2021 21:29	WG1675389
Silver	ND		1.00	1	05/25/2021 21:29	WG1675389
Zinc	46.2		5.00	1	05/25/2021 21:29	WG1675389

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	0.281		0.200	1	05/27/2021 17:47	WG1676001

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	05/21/2021 10:12	WG1674830
(S) a,a,a-Trifluorotoluene(FID)	76.4	J2	77.0-120		05/21/2021 10:12	WG1674830

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	05/25/2021 00:13	WG1676574
Acrylonitrile	ND		0.0125	1	05/25/2021 00:13	WG1676574
Benzene	ND		0.00100	1	05/25/2021 00:13	WG1676574
Bromobenzene	ND		0.0125	1	05/25/2021 00:13	WG1676574
Bromodichloromethane	ND		0.00250	1	05/25/2021 00:13	WG1676574

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

006-8

Collected date/time: 05/14/21 13:00

SAMPLE RESULTS - 08

L1353806

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	05/25/2021 00:13	WG1676574
Bromomethane	ND		0.0125	1	05/25/2021 00:13	WG1676574
n-Butylbenzene	ND		0.0125	1	05/25/2021 00:13	WG1676574
sec-Butylbenzene	ND		0.0125	1	05/25/2021 00:13	WG1676574
tert-Butylbenzene	ND		0.00500	1	05/25/2021 00:13	WG1676574
Carbon tetrachloride	ND		0.00500	1	05/25/2021 00:13	WG1676574
Chlorobenzene	ND		0.00250	1	05/25/2021 00:13	WG1676574
Chlorodibromomethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
Chloroethane	ND		0.00500	1	05/25/2021 00:13	WG1676574
Chloroform	ND		0.00250	1	05/25/2021 00:13	WG1676574
Chloromethane	ND		0.0125	1	05/25/2021 00:13	WG1676574
2-Chlorotoluene	ND		0.00250	1	05/25/2021 00:13	WG1676574
4-Chlorotoluene	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	05/25/2021 00:13	WG1676574
1,2-Dibromoethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
Dibromomethane	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,2-Dichlorobenzene	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,3-Dichlorobenzene	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,4-Dichlorobenzene	ND		0.00500	1	05/25/2021 00:13	WG1676574
Dichlorodifluoromethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,1-Dichloroethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,2-Dichloroethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,1-Dichloroethene	ND		0.00250	1	05/25/2021 00:13	WG1676574
cis-1,2-Dichloroethene	ND		0.00250	1	05/25/2021 00:13	WG1676574
trans-1,2-Dichloroethene	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,2-Dichloropropane	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,1-Dichloropropene	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,3-Dichloropropane	ND		0.00500	1	05/25/2021 00:13	WG1676574
cis-1,3-Dichloropropene	ND		0.00250	1	05/25/2021 00:13	WG1676574
trans-1,3-Dichloropropene	ND		0.00500	1	05/25/2021 00:13	WG1676574
2,2-Dichloropropane	ND		0.00250	1	05/25/2021 00:13	WG1676574
Di-isopropyl ether	ND		0.00100	1	05/25/2021 00:13	WG1676574
Ethylbenzene	ND		0.00250	1	05/25/2021 00:13	WG1676574
Hexachloro-1,3-butadiene	ND		0.0250	1	05/25/2021 00:13	WG1676574
Isopropylbenzene	ND		0.00250	1	05/25/2021 00:13	WG1676574
p-Isopropyltoluene	ND		0.00500	1	05/25/2021 00:13	WG1676574
2-Butanone (MEK)	ND		0.100	1	05/25/2021 00:13	WG1676574
Methylene Chloride	ND		0.0250	1	05/25/2021 00:13	WG1676574
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	05/25/2021 00:13	WG1676574
Methyl tert-butyl ether	ND		0.00100	1	05/25/2021 00:13	WG1676574
Naphthalene	ND		0.0125	1	05/25/2021 00:13	WG1676574
n-Propylbenzene	ND		0.00500	1	05/25/2021 00:13	WG1676574
Styrene	ND		0.0125	1	05/25/2021 00:13	WG1676574
1,1,1,2-Tetrachloroethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,1,2,2-Tetrachloroethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
Tetrachloroethene	ND		0.00250	1	05/25/2021 00:13	WG1676574
Toluene	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,2,3-Trichlorobenzene	ND		0.0125	1	05/25/2021 00:13	WG1676574
1,2,4-Trichlorobenzene	ND		0.0125	1	05/25/2021 00:13	WG1676574
1,1,1-Trichloroethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,1,2-Trichloroethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
Trichloroethene	0.00120		0.00100	1	05/25/2021 00:13	WG1676574
Trichlorofluoromethane	ND		0.00250	1	05/25/2021 00:13	WG1676574
1,2,3-Trichloropropane	ND		0.0125	1	05/25/2021 00:13	WG1676574
1,2,4-Trimethylbenzene	ND		0.00500	1	05/25/2021 00:13	WG1676574

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

Berry Petroleum - Denver, CO

PROJECT:

SDG:

L1353806

DATE/TIME:

05/28/21 13:19

PAGE:

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Collected date/time: 05/14/21 13:00

SAMPLE RESULTS - 08

L1353806

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	ND		0.00500	1	05/25/2021 00:13	WG1676574
1,3,5-Trimethylbenzene	ND		0.00500	1	05/25/2021 00:13	WG1676574
Vinyl chloride	ND		0.00250	1	05/25/2021 00:13	WG1676574
Xylenes, Total	ND		0.00650	1	05/25/2021 00:13	WG1676574
(S) Toluene-d8	110		75.0-131		05/25/2021 00:13	WG1676574
(S) 4-Bromofluorobenzene	101		67.0-138		05/25/2021 00:13	WG1676574
(S) 1,2-Dichloroethane-d4	104		70.0-130		05/25/2021 00:13	WG1676574

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	55.2		4.00	1	05/23/2021 18:58	WG1675484
C28-C36 Motor Oil Range	65.9		4.00	1	05/23/2021 18:58	WG1675484
(S) o-Terphenyl	31.8		18.0-148		05/23/2021 18:58	WG1675484

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	05/24/2021 01:41	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Benzo(a)anthracene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Benzo(a)pyrene	0.00764		0.00600	1	05/24/2021 01:41	WG1675862
Benzo(b)fluoranthene	0.0162		0.00600	1	05/24/2021 01:41	WG1675862
Benzo(g,h,i)perylene	0.0169		0.00600	1	05/24/2021 01:41	WG1675862
Benzo(k)fluoranthene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Chrysene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Dibenz(a,h)anthracene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Fluoranthene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 01:41	WG1675862
Indeno(1,2,3-cd)pyrene	0.0133		0.00600	1	05/24/2021 01:41	WG1675862
Naphthalene	0.0245		0.0200	1	05/24/2021 01:41	WG1675862
Phenanthrene	0.00914		0.00600	1	05/24/2021 01:41	WG1675862
Pyrene	0.00830		0.00600	1	05/24/2021 01:41	WG1675862
1-Methylnaphthalene	0.0239		0.0200	1	05/24/2021 01:41	WG1675862
2-Methylnaphthalene	0.0442		0.0200	1	05/24/2021 01:41	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 01:41	WG1675862
(S) p-Terphenyl-d14	59.4		23.0-120		05/24/2021 01:41	WG1675862
(S) Nitrobenzene-d5	47.3		14.0-149		05/24/2021 01:41	WG1675862
(S) 2-Fluorobiphenyl	49.8		34.0-125		05/24/2021 01:41	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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	05/24/2021 05:33	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 05:33	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 05:33	WG1675862
Benzo(a)anthracene	0.0149		0.00600	1	05/24/2021 05:33	WG1675862
Benzo(a)pyrene	0.0267		0.00600	1	05/24/2021 05:33	WG1675862
Benzo(b)fluoranthene	0.0525		0.00600	1	05/24/2021 05:33	WG1675862
Benzo(g,h,i)perylene	0.0510		0.00600	1	05/24/2021 05:33	WG1675862
Benzo(k)fluoranthene	0.0120		0.00600	1	05/24/2021 05:33	WG1675862
Chrysene	0.0162		0.00600	1	05/24/2021 05:33	WG1675862
Dibenz(a,h)anthracene	0.00835		0.00600	1	05/24/2021 05:33	WG1675862
Fluoranthene	0.0145		0.00600	1	05/24/2021 05:33	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 05:33	WG1675862
Indeno(1,2,3-cd)pyrene	0.0440		0.00600	1	05/24/2021 05:33	WG1675862
Naphthalene	0.0769		0.0200	1	05/24/2021 05:33	WG1675862
Phenanthrene	0.0254		0.00600	1	05/24/2021 05:33	WG1675862
Pyrene	0.0284		0.00600	1	05/24/2021 05:33	WG1675862
1-Methylnaphthalene	0.0714		0.0200	1	05/24/2021 05:33	WG1675862
2-Methylnaphthalene	0.139		0.0200	1	05/24/2021 05:33	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 05:33	WG1675862
(S) p-Terphenyl-d14	94.5		23.0-120		05/24/2021 05:33	WG1675862
(S) Nitrobenzene-d5	77.9		14.0-149		05/24/2021 05:33	WG1675862
(S) 2-Fluorobiphenyl	71.7		34.0-125		05/24/2021 05:33	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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	05/24/2021 01:23	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Benzo(a)anthracene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Benzo(a)pyrene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Benzo(b)fluoranthene	0.00600		0.00600	1	05/24/2021 01:23	WG1675862
Benzo(g,h,i)perylene	0.00618		0.00600	1	05/24/2021 01:23	WG1675862
Benzo(k)fluoranthene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Chrysene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Dibenz(a,h)anthracene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Fluoranthene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Naphthalene	ND		0.0200	1	05/24/2021 01:23	WG1675862
Phenanthrene	ND		0.00600	1	05/24/2021 01:23	WG1675862
Pyrene	ND		0.00600	1	05/24/2021 01:23	WG1675862
1-Methylnaphthalene	ND		0.0200	1	05/24/2021 01:23	WG1675862
2-Methylnaphthalene	ND		0.0200	1	05/24/2021 01:23	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 01:23	WG1675862
(S) p-Terphenyl-d14	76.4		23.0-120		05/24/2021 01:23	WG1675862
(S) Nitrobenzene-d5	65.2		14.0-149		05/24/2021 01:23	WG1675862
(S) 2-Fluorobiphenyl	59.2		34.0-125		05/24/2021 01:23	WG1675862

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

Method Blank (MB)

(MB) R3657077-1 05/20/21 13:07				
Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U	0.640	2.00	

L1353528-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1353528-04 05/20/21 13:47 • (DUP) R3657077-7 05/20/21 13:48				
Analyte	Original Result mg/kg	DUP Result mg/kg	DUP RPD %	<u>DUP Qualifier</u> %
Chromium,Hexavalent	ND	ND	1 0.000	20

L1353927-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1353927-02 05/20/21 14:11 • (DUP) R3657077-8 05/20/21 14:12				
Analyte	Original Result mg/kg	DUP Result mg/kg	DUP RPD %	<u>DUP Qualifier</u> %
Chromium,Hexavalent	ND	ND	1 0.000	20

Laboratory Control Sample (LCS)

(LCS) R3657077-2 05/20/21 13:07				
Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %
Chromium,Hexavalent	24.0	23.5	98.0	80.0-120

L1352996-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1352996-01 05/20/21 13:19 • (MS) R3657077-3 05/20/21 13:35 • (MSD) R3657077-4 05/20/21 13:42				
Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %
Chromium,Hexavalent	20.0	ND	14.6	72.9
		13.9	69.3	75.0-125
				1 75.0-125
				5.06
				20

Sample Narrative:

OS: sample is a reducer

L1352996-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1352996-01 05/20/21 13:19 • (MS) R3657077-5 05/20/21 13:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chromium, Hexavalent	614	ND	502	81.7	50	75.0-125	

Sample Narrative:

OS: sample is a reducer

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3657264-1 05/20/21 20:33				
Analyte	MB Result mg/kg	<u>MB Qualifier</u> mg/kg	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U	0.640	2.00	

L1351256-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1351256-08 05/20/21 20:35 • (DUP) R3657264-3 05/20/21 20:35				
Analyte	Original Result mg/kg	DUP Result mg/kg	DUP RPD %	<u>DUP Qualifier</u> %
Chromium,Hexavalent	ND	ND	1 0.000	20

L1354641-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1354641-04 05/20/21 20:40 • (DUP) R3657264-8 05/20/21 20:40				
Analyte	Original Result mg/kg	DUP Result mg/kg	DUP RPD %	<u>DUP Qualifier</u> %
Chromium,Hexavalent	ND	ND	1 0.000	20

Laboratory Control Sample (LCS)

(LCS) R3657264-2 05/20/21 20:33				
Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	<u>LCS Qualifier</u> %
Chromium,Hexavalent	24.0	21.6	89.8	80.0-120

L1353806-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353806-08 05/20/21 20:35 • (MS) R3657264-4 05/20/21 20:35 • (MSD) R3657264-5 05/20/21 20:35									
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> %
Chromium,Hexavalent	20.0	ND	4.42	3.89	22.1	19.4	1	75.0-125	<u>J6</u> 12.8 <u>J6</u> 20

L1353806-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1353806-08 05/20/21 20:35 • (MS) R3657264-6 05/20/21 20:36					
Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	Dilution	<u>MS Qualifier</u> %
Chromium,Hexavalent	644	ND	303	47.0 50	<u>J6</u> 75.0-125

L1353925-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1353925-01 05/23/21 22:41 • (DUP) R3658142-3 05/23/21 22:41

Analyte	Original Result		DUP Result		Dilution		DUP RPD		<u>DUP Qualifier</u>		DUP RPD Limits	
	su		su				%				%	
pH	8.88		8.84		1		0.45				1	

Sample Narrative:

OS: 8.88 at 22.8C
DUP: 8.84 at 22.3C

Laboratory Control Sample (LCS)

(LCS) R3658142-1 05/23/21 22:41

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

Sample Narrative:

LCS: 9.99 at 22.6C

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

L1353916-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1353916-01 05/24/21 23:30 • (DUP) R3658642-3 05/24/21 23:30

Analyte	Original Result		DUP Result		Dilution		DUP RPD		<u>DUP Qualifier</u>		DUP RPD Limits	
	su		su				%				%	

pH	7.68		7.72		1		0.519				1	
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Sample Narrative:

OS: 7.68 at 22.7C
DUP: 7.72 at 22.2C

Laboratory Control Sample (LCS)

(LCS) R3658642-1 05/24/21 23:30

Analyte	Spike Amount		LCS Result		LCS Rec.		Rec. Limits		<u>LCS Qualifier</u>	
	su		su		%		%			

pH	10.0		10.0		100		99.0-101			
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Sample Narrative:

LCS: 10.03 at 21.8C

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

L1354320-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1354320-01 05/25/21 22:35 • (DUP) R3659144-3 05/25/21 22:35

Analyte	Original Result		DUP Result		Dilution	DUP RPD %	<u>DUP Qualifier</u>		DUP RPD Limits %
	su		su						
pH	8.85		8.90		1	0.563			1

Sample Narrative:

OS: 8.85 at 23.2C
DUP: 8.9 at 23.1C

Laboratory Control Sample (LCS)

(LCS) R3659144-1 05/25/21 22:35

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

Sample Narrative:

LCS: 10.05 at 24.5C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3656911-1 05/20/21 10:50				
MB Result		MB Qualifier	MB MDL	MB RDL
umhos/cm			umhos/cm	umhos/cm
Analyte				
Specific Conductance	U	10.0	10.0	10.0

L1353782-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1353782-07 05/20/21 10:50 • (DUP) R3656911-3 05/20/21 10:50				
Original Result		DUP Result	Dilution	DUP RPD
umhos/cm		umhos/cm	%	%
Analyte				
Specific Conductance	220	222	1	1.04
				DUP RPD Limits
				%
				20

L1354417-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1354417-04 05/20/21 10:50 • (DUP) R3656911-4 05/20/21 10:50				
Original Result		DUP Result	Dilution	DUP RPD
umhos/cm		umhos/cm	%	%
Analyte				
Specific Conductance	110	112	1	1.63
				DUP RPD Limits
				%
				20

Laboratory Control Sample (LCS)

(LCS) R3656911-2 05/20/21 10:50				
Spike Amount		LCS Result	LCS Rec.	Rec. Limits
umhos/cm		umhos/cm	%	%
Analyte				
Specific Conductance	268	270	101	85.0-115
				LCS Qualifier

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3659197-1 05/25/21 20:39

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	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

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3659197-2 05/25/21 20:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Arsenic	100	96.1	96.1	80.0-120	
Barium	100	102	102	80.0-120	
Cadmium	100	98.1	98.1	80.0-120	
Copper	100	98.1	98.1	80.0-120	
Lead	100	99.2	99.2	80.0-120	
Nickel	100	99.7	99.7	80.0-120	
Selenium	100	97.6	97.6	80.0-120	
Silver	20.0	18.2	90.9	80.0-120	
Zinc	100	98.7	98.7	80.0-120	

L1353724-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353724-01 05/25/21 20:45 • (MS) R3659197-5 05/25/21 20:53 • (MSD) R3659197-6 05/25/21 20:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Arsenic	99.9	15.0	104	99.5	88.9	84.5	1	75.0-125			4.36	20
Barium	99.9	102	183	366	81.1	264	1	75.0-125		J3 J5	66.7	20
Cadmium	99.9	ND	91.4	94.1	91.1	93.8	1	75.0-125			2.90	20
Copper	99.9	27.6	122	121	94.1	93.5	1	75.0-125			0.514	20
Lead	99.9	84.9	110	111	25.2	26.0	1	75.0-125	J6	J6	0.720	20
Nickel	99.9	11.7	101	103	89.2	91.7	1	75.0-125			2.45	20
Selenium	99.9	ND	91.5	94.2	90.5	93.2	1	75.0-125			2.93	20
Silver	20.0	ND	17.2	17.7	85.9	88.5	1	75.0-125			2.93	20
Zinc	99.9	300	419	390	119	90.1	1	75.0-125			7.12	20

Method Blank (MB)

(MB) R3660170-1 05/27/21 17:26				
Analyte	MB Result mg/l	<u>MB Qualifier</u>	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) R3660170-2 05/27/21 17:28 • (LCSD) R3660170-3 05/27/21 17:31									
Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD Limits
Hot Water Sol. Boron	1.00	0.965	0.963	96.5	96.3	80.0-120		0.204	% 20

Method Blank (MB)

(MB) R3659842-2 05/20/21 19:53				
Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U	0.0217	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	99.5			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3659842-1 05/20/21 19:06				
Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %
TPH (GC/FID) Low Fraction	5.50	5.21	94.7	72.0-127
(S) a,a,a-Trifluorotoluene(FID)		107		77.0-120

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

Method Blank (MB)

(MB) R3658912-2 05/21/21 09:14				
Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0341	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	98.2			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3658912-1 05/21/21 08:26				
Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %
TPH (GC/FID) Low Fraction	5.50	4.44	80.7	72.0-127
(S) a,a,a-Trifluorotoluene(FID)		107		77.0-120

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3660083-2 05/24/21 17:22

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) R3660083-2 05/24/21 17:22

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00255	0.00500
2-Butanone (MEK)	0.0773	J	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	0.00355		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	109			75.0-131
(S) 4-Bromofluorobenzene	96.6			67.0-138
(S) 1,2-Dichloroethane-d4	109			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3660083-1 05/24/21 16:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Acetone	0.625	1.08	173	10.0-160	J4
Acrylonitrile	0.625	0.866	139	45.0-153	
Benzene	0.125	0.130	104	70.0-123	
Bromobenzene	0.125	0.142	114	73.0-121	
Bromodichloromethane	0.125	0.131	105	73.0-121	

Laboratory Control Sample (LCS)

(LCS) R3660083-1 05/24/21 16:22

Analyte	Spike Amount		LCS Result	LCS Rec.		Rec. Limits	LCS Qualifier	
	mg/kg	mg/kg	mg/kg	%	%	%		
Bromoform	0.125	0.119	0.119	95.2		64.0-132		
Bromomethane	0.125	0.128	0.128	102		56.0-147		
n-Butylbenzene	0.125	0.125	0.125	100		68.0-135		
sec-Butylbenzene	0.125	0.138	0.138	110		74.0-130		
tert-Butylbenzene	0.125	0.136	0.136	109		75.0-127		
Carbon tetrachloride	0.125	0.136	0.136	109		66.0-128		
Chlorobenzene	0.125	0.126	0.126	101		76.0-128		
Chlorodibromomethane	0.125	0.129	0.129	103		74.0-127		
Chloroethane	0.125	0.127	0.127	102		61.0-134		
Chloroform	0.125	0.125	0.125	100		72.0-123		
Chloromethane	0.125	0.145	0.145	116		51.0-138		
2-Chlorotoluene	0.125	0.141	0.141	113		75.0-124		
4-Chlorotoluene	0.125	0.108	0.108	86.4		75.0-124		
1,2-Dibromo-3-Chloropropane	0.125	0.123	0.123	98.4		59.0-130		
1,2-Dibromoethane	0.125	0.121	0.121	96.8		74.0-128		
Dibromomethane	0.125	0.131	0.131	105		75.0-122		
1,2-Dichlorobenzene	0.125	0.134	0.134	107		76.0-124		
1,3-Dichlorobenzene	0.125	0.129	0.129	103		76.0-125		
1,4-Dichlorobenzene	0.125	0.132	0.132	106		77.0-121		
Dichlorodifluoromethane	0.125	0.136	0.136	109		43.0-156		
1,1-Dichloroethane	0.125	0.130	0.130	104		70.0-127		
1,2-Dichloroethane	0.125	0.133	0.133	106		65.0-131		
1,1-Dichloroethene	0.125	0.134	0.134	107		65.0-131		
cis-1,2-Dichloroethene	0.125	0.125	0.125	100		73.0-125		
trans-1,2-Dichloroethene	0.125	0.109	0.109	87.2		71.0-125		
1,2-Dichloropropane	0.125	0.131	0.131	105		74.0-125		
1,1-Dichloropropene	0.125	0.119	0.119	95.2		73.0-125		
1,3-Dichloropropane	0.125	0.136	0.136	109		80.0-125		
cis-1,3-Dichloropropene	0.125	0.128	0.128	102		76.0-127		
trans-1,3-Dichloropropene	0.125	0.130	0.130	104		73.0-127		
2,2-Dichloropropane	0.125	0.130	0.130	104		59.0-135		
Di-isopropyl ether	0.125	0.136	0.136	109		60.0-136		
Ethylbenzene	0.125	0.112	0.112	89.6		74.0-126		
Hexachloro-1,3-butadiene	0.125	0.125	0.125	100		57.0-150		
Isopropylbenzene	0.125	0.121	0.121	96.8		72.0-127		
p-Isopropyltoluene	0.125	0.128	0.128	102		72.0-133		
2-Butanone (MEK)	0.625	0.892	0.892	143		30.0-160		
Methylene Chloride	0.125	0.0854	0.0854	68.3		68.0-123		
4-Methyl-2-pentanone (MIBK)	0.625	0.795	0.795	127		56.0-143		
Methyl tert-butyl ether	0.125	0.137	0.137	110		66.0-132		

Laboratory Control Sample (LCS)

(LCS) R3660083-1 05/24/21 16:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Naphthalene	0.125	0.134	107	59.0-130	
n-Propylbenzene	0.125	0.142	114	74.0-126	
Styrene	0.125	0.121	96.8	72.0-127	
1,1,1,2-Tetrachloroethane	0.125	0.125	100	74.0-129	
1,1,2,2-Tetrachloroethane	0.125	0.147	118	68.0-128	
Tetrachloroethene	0.125	0.130	104	70.0-136	
Toluene	0.125	0.128	102	75.0-121	
1,1,2-Trichlorotrifluoroethane	0.125	0.114	91.2	61.0-139	
1,2,3-Trichlorobenzene	0.125	0.119	95.2	59.0-139	
1,2,4-Trichlorobenzene	0.125	0.131	105	62.0-137	
1,1,1-Trichloroethane	0.125	0.137	110	69.0-126	
1,1,2-Trichloroethane	0.125	0.127	102	78.0-123	
Trichloroethene	0.125	0.120	96.0	76.0-126	
Trichlorofluoromethane	0.125	0.120	96.0	61.0-142	
1,2,3-Trichloropropane	0.125	0.150	120	67.0-129	
1,2,3-Trimethylbenzene	0.125	0.106	84.8	74.0-124	
1,2,4-Trimethylbenzene	0.125	0.133	106	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.135	108	73.0-127	
Vinyl chloride	0.125	0.141	113	63.0-134	
Xylenes, Total	0.375	0.354	94.4	72.0-127	
(S) Toluene-d8			106	75.0-131	
(S) 4-Bromofluorobenzene			95.4	67.0-138	
(S) 1,2-Dichloroethane-d4			114	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1353758-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353758-04 05/24/21 19:52 • (MS) R3660083-3 05/25/21 01:34 • (MSD) R3660083-4 05/25/21 01:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acetone	0.625	ND	0.299	0.506	47.8	81.0	1	10.0-160	J3	51.4	51.4	40
Acrylonitrile	0.625	ND	0.602	0.576	96.3	92.2	1	10.0-160		4.41	4.41	40
Benzene	0.125	ND	0.137	0.133	110	106	1	10.0-149		2.96	2.96	37
Bromobenzene	0.125	ND	0.142	0.136	114	109	1	10.0-156		4.32	4.32	38
Bromodichloromethane	0.125	ND	0.132	0.122	106	97.6	1	10.0-143		7.87	7.87	37
Bromoform	0.125	ND	0.116	0.106	92.8	84.8	1	10.0-146		9.01	9.01	36
Bromomethane	0.125	ND	0.0903	0.0838	72.2	67.0	1	10.0-149		7.47	7.47	38
n-Butylbenzene	0.125	ND	0.150	0.135	120	108	1	10.0-160		10.5	10.5	40
sec-Butylbenzene	0.125	ND	0.157	0.148	126	118	1	10.0-159		5.90	5.90	39
tert-Butylbenzene	0.125	ND	0.144	0.137	115	110	1	10.0-156		4.98	4.98	39

L1353758-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353758-04 05/24/21 19:52 • (MS) R3660083-3 05/25/21 01:34 • (MSD) R3660083-4 05/25/21 01:55

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		RPD	
									MS Qualifier	MSD Qualifier	RPD	RPD Limits
Carbon tetrachloride	0.125	ND	0.147	0.140	118	112	1	10.0-145		4.88	37	
Chlorobenzene	0.125	ND	0.130	0.120	104	96.0	1	10.0-152		8.00	39	
Chlorodibromomethane	0.125	ND	0.125	0.119	100	95.2	1	10.0-146		4.92	37	
Chloroethane	0.125	ND	0.0782	0.0856	62.6	68.5	1	10.0-146		9.04	40	
Chloroform	0.125	ND	0.134	0.126	107	101	1	10.0-146		6.15	37	
Chloromethane	0.125	ND	0.119	0.114	95.2	91.2	1	10.0-159		4.29	37	
2-Chlorotoluene	0.125	ND	0.137	0.134	110	107	1	10.0-159		2.21	38	
4-Chlorotoluene	0.125	ND	0.111	0.117	88.8	93.6	1	10.0-155		5.26	39	
1,2-Dibromo-3-Chloropropane	0.125	ND	0.130	0.115	104	92.0	1	10.0-151		12.2	39	
1,2-Dibromoethane	0.125	ND	0.128	0.116	102	92.8	1	10.0-148		9.84	34	
Dibromomethane	0.125	ND	0.125	0.119	100	95.2	1	10.0-147		4.92	35	
1,2-Dichlorobenzene	0.125	ND	0.145	0.135	116	108	1	10.0-155		7.14	37	
1,3-Dichlorobenzene	0.125	ND	0.141	0.133	113	106	1	10.0-153		5.84	38	
1,4-Dichlorobenzene	0.125	ND	0.141	0.131	113	105	1	10.0-151		7.35	38	
Dichlorodifluoromethane	0.125	ND	0.128	0.120	102	96.0	1	10.0-160		6.45	35	
1,1-Dichloroethane	0.125	ND	0.142	0.139	114	111	1	10.0-147		2.14	37	
1,2-Dichloroethane	0.125	ND	0.131	0.0255	105	20.4	1	10.0-148	J3	135	35	
1,1-Dichloroethene	0.125	ND	0.143	0.131	114	105	1	10.0-155		8.76	37	
cis-1,2-Dichloroethene	0.125	ND	0.132	0.126	106	101	1	10.0-149		4.65	37	
trans-1,2-Dichloroethene	0.125	ND	0.102	0.105	81.6	84.0	1	10.0-150		2.90	37	
1,2-Dichloropropane	0.125	ND	0.140	0.135	112	108	1	10.0-148		3.64	37	
1,1-Dichloropropene	0.125	ND	0.129	0.115	103	92.0	1	10.0-153		11.5	35	
1,3-Dichloropropane	0.125	ND	0.136	0.131	109	105	1	10.0-154		3.75	35	
cis-1,3-Dichloropropene	0.125	ND	0.131	0.121	105	96.8	1	10.0-151		7.94	37	
trans-1,3-Dichloropropene	0.125	ND	0.133	0.129	106	103	1	10.0-148		3.05	37	
2,2-Dichloropropane	0.125	ND	0.0995	0.0984	79.6	78.7	1	10.0-138		1.11	36	
Di-isopropyl ether	0.125	ND	0.137	0.132	110	106	1	10.0-147		3.72	36	
Ethylbenzene	0.125	ND	0.130	0.122	104	97.6	1	10.0-160		6.35	38	
Hexachloro-1,3-butadiene	0.125	ND	0.135	0.132	108	106	1	10.0-160		2.25	40	
Isopropylbenzene	0.125	ND	0.136	0.128	108	102	1	10.0-155		6.06	38	
p-Isopropyltoluene	0.125	ND	0.151	0.135	121	108	1	10.0-160		11.2	40	
2-Butanone (MEK)	0.625	ND	0.728	0.716	103	101	1	10.0-160		1.66	40	
Methylene Chloride	0.125	ND	0.0895	0.0879	71.6	70.3	1	10.0-141		1.80	37	
4-Methyl-2-pentanone (MIBK)	0.625	ND	0.750	0.681	120	109	1	10.0-160		9.64	35	
Methyl tert-butyl ether	0.125	ND	0.125	0.115	100	92.0	1	11.0-147		8.33	35	
Naphthalene	0.125	ND	0.165	0.150	132	120	1	10.0-160		9.52	36	
n-Propylbenzene	0.125	ND	0.154	0.146	123	117	1	10.0-158		5.33	38	
Styrene	0.125	ND	0.132	0.123	106	98.4	1	10.0-160		7.06	40	
1,1,1,2-Tetrachloroethane	0.125	ND	0.135	0.119	108	95.2	1	10.0-149		12.6	39	
1,1,2,2-Tetrachloroethane	0.125	ND	0.150	0.138	120	110	1	10.0-160		8.33	35	

L1353758-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353758-04 05/24/21 19:52 • (MS) R3660083-3 05/25/21 01:34 • (MSD) R3660083-4 05/25/21 01:55

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 %
Tetrachloroethene	0.125	0.00745	0.163	0.146	124	111	1	10.0-156			11.0	39
Toluene	0.125	ND	0.136	0.127	109	102	1	10.0-156			6.84	38
1,1,2-Trichlorotrifluoroethane	0.125	ND	0.126	0.115	101	92.0	1	10.0-160			9.13	36
1,2,3-Trichlorobenzene	0.125	ND	0.156	0.134	125	107	1	10.0-160			15.2	40
1,2,4-Trichlorobenzene	0.125	ND	0.161	0.145	129	116	1	10.0-160			10.5	40
1,1,1-Trichloroethane	0.125	ND	0.148	0.141	118	113	1	10.0-144			4.84	35
1,1,2-Trichloroethane	0.125	ND	0.129	0.121	103	96.8	1	10.0-160			6.40	35
Trichloroethene	0.125	ND	0.128	0.128	102	102	1	10.0-156			0.000	38
Trichlorofluoromethane	0.125	ND	0.102	0.0815	81.6	65.2	1	10.0-160			22.3	40
1,2,3-Trichloropropane	0.125	ND	0.159	0.140	127	112	1	10.0-156			12.7	35
1,2,3-Trimethylbenzene	0.125	ND	0.112	0.104	89.6	83.2	1	10.0-160			7.41	36
1,2,4-Trimethylbenzene	0.125	ND	0.145	0.136	116	109	1	10.0-160			6.41	36
1,3,5-Trimethylbenzene	0.125	ND	0.150	0.137	120	110	1	10.0-160			9.06	38
Vinyl chloride	0.125	ND	0.108	0.111	86.4	88.8	1	10.0-160			2.74	37
Xylenes, Total	0.375	ND	0.386	0.361	103	96.3	1	10.0-160			6.69	38
(S) Toluene-d8				104	104	104		75.0-131				
(S) 4-Bromofluorobenzene				99.9	99.9	94.7		67.0-138				
(S) 1,2-Dichloroethane-d4				115	115	108		70.0-130				

Method Blank (MB)

Method Blank (MB)										1 Cp
(MB) R3658064-1 05/22/21 14:25										
Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg						2 Tc
C10-C28 Diesel Range	U		1.61	4.00						
C28-C36 Motor Oil Range	U		0.274	4.00						3 Ss
(S) o-Terphenyl	51.7			18.0-148						4 Cn
Laboratory Control Sample (LCS)										
(LCS) R3658064-2 05/22/21 14:38										5 Sr
Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier					6 Qc
C10-C28 Diesel Range	50.0	35.6	71.2	50.0-150						
(S) o-Terphenyl			62.5	18.0-148						7 Gl
L1353741-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)										8 Al
(OS) L1353741-01 05/22/21 15:04 • (MS) R3658064-3 05/22/21 15:17 • (MSD) R3658064-4 05/22/21 15:30										9 Sc
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	49.7	ND	26.4	27.2	47.2	48.7	1	50.0-150	J6 J6 2.99	20
(S) o-Terphenyl				37.5	41.1	41.1		18.0-148		

Method Blank (MB)

(MB) R3658054-1 05/22/21 15:47				
Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U	1.61	4.00	4.00
C28-C36 Motor Oil Range	U	0.274	4.00	4.00
(S) o-Terphenyl	78.8		18.0-148	

Laboratory Control Sample (LCS)

(LCS) R3658054-2 05/22/21 16:00				
Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %
C10-C28 Diesel Range	50.0	37.3	74.6	50.0-150
(S) o-Terphenyl		87.2	18.0-148	

Method Blank (MB)

(MB) R3658148-1 05/23/21 21:32

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.345	J	0.274	4.00
(S) o-Terphenyl	74.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3658148-2 05/23/21 21:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
C10-C28 Diesel Range	50.0	41.0	82.0	50.0-150	
(S) o-Terphenyl			96.7	18.0-148	

L1353865-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353865-01 05/24/21 00:45 • (MS) R3658148-3 05/24/21 00:59 • (MSD) R3658148-4 05/24/21 01:12

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	MSD Result mg/kg	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
C10-C28 Diesel Range	49.8	2380	1240		1520	0.000	1	50.0-150	E V	E J3 V	20.3	20
(S) o-Terphenyl				122		188		18.0-148		J1		

Sample Narrative:

OS: Surrogate failure due to matrix interference

Method Blank (MB)

(MB) R3658450-2 05/24/21 00:48

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	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	64.9			14.0-149
(S) 2-Fluorobiphenyl	58.3			34.0-125
(S) p-Terphenyl-d14	93.2			23.0-120

Laboratory Control Sample (LCS)

(LCS) R3658450-1 05/24/21 00:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Anthracene	0.0800	0.0519	64.9	50.0-126	
Acenaphthene	0.0800	0.0484	60.5	50.0-120	
Acenaphthylene	0.0800	0.0447	55.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0564	70.5	45.0-120	
Benzo(a)pyrene	0.0800	0.0443	55.4	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0544	68.0	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0519	64.9	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0537	67.1	49.0-125	
Chrysene	0.0800	0.0584	73.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0498	62.3	47.0-125	
Fluoranthene	0.0800	0.0603	75.4	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3658450-1 05/24/21 00:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0560	70.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0502	62.8	46.0-125	
Naphthalene	0.0800	0.0403	50.4	50.0-120	
Phenanthrene	0.0800	0.0533	66.6	47.0-120	
Pyrene	0.0800	0.0644	80.5	43.0-123	
1-Methylnaphthalene	0.0800	0.0460	57.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0440	55.0	50.0-120	
2-Chloronaphthalene	0.0800	0.0417	52.1	50.0-120	
(S) Nitrobenzene-d5		53.5		14.0-149	
(S) 2-Fluorobiphenyl		60.1		34.0-125	
(S) p-Terphenyl-d14		93.3		23.0-120	

L1353782-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353782-03 05/24/21 02:17 • (MS) R3658450-3 05/24/21 02:35 • (MSD) R3658450-4 05/24/21 02:53

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	0.0788	ND	0.0436	0.0433	55.3	54.9	1	10.0-145			0.690	30
Acenaphthene	0.0788	ND	0.0447	0.0360	56.7	45.7	1	14.0-127			21.6	27
Acenaphthylene	0.0788	ND	0.0417	0.0342	52.9	43.4	1	21.0-124			19.8	25
Benzo(a)anthracene	0.0788	ND	0.0497	0.0520	63.1	66.0	1	10.0-139			4.52	30
Benzo(a)pyrene	0.0788	ND	0.0427	0.0453	54.2	57.5	1	10.0-141			5.91	31
Benzo(b)fluoranthene	0.0788	ND	0.0447	0.0468	52.6	55.3	1	10.0-140			4.59	36
Benzo(g,h,i)perylene	0.0788	ND	0.0455	0.0476	57.7	60.4	1	10.0-140			4.51	33
Benzo(k)fluoranthene	0.0788	ND	0.0421	0.0459	53.4	58.2	1	10.0-137			8.64	31
Chrysene	0.0788	ND	0.0527	0.0547	66.9	69.4	1	10.0-145			3.72	30
Dibenz(a,h)anthracene	0.0788	ND	0.0414	0.0446	52.5	56.6	1	10.0-132			7.44	31
Fluoranthene	0.0788	ND	0.0525	0.0529	66.6	67.1	1	10.0-153			0.759	33
Fluorene	0.0788	ND	0.0486	0.0436	61.7	55.3	1	11.0-130			10.8	29
Indeno(1,2,3-cd)pyrene	0.0788	ND	0.0442	0.0464	56.1	58.9	1	10.0-137			4.86	32
Naphthalene	0.0788	ND	0.0391	0.0289	49.6	36.7	1	10.0-135	J3		30.0	27
Phenanthrene	0.0788	ND	0.0469	0.0456	55.8	54.1	1	10.0-144			2.81	31
Pyrene	0.0788	ND	0.0545	0.0549	66.3	66.8	1	10.0-148			0.731	35
1-Methylnaphthalene	0.0788	ND	0.0446	0.0304	56.6	38.6	1	10.0-142	J3		37.9	28
2-Methylnaphthalene	0.0788	ND	0.0451	0.0323	51.1	34.9	1	10.0-137	J3		33.1	28
2-Chloronaphthalene	0.0788	ND	0.0410	0.0330	52.0	41.9	1	29.0-120			21.6	24
(S) Nitrobenzene-d5					61.4	55.5		14.0-149				
(S) 2-Fluorobiphenyl					61.9	55.4		34.0-125				
(S) p-Terphenyl-d14					78.1	78.0		23.0-120				

GLOSSARY OF TERMS

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
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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.
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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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

ACCREDITATIONS & LOCATIONS

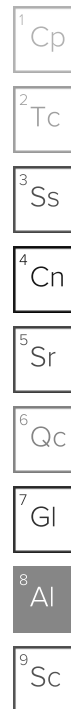
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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	LA000356
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 235 Callahan Ave Parachute, CO 81635 Berry Roosevelt, UT Email To: dknicholson@q.com		Chain of Custody Page 1 of 1	
Report to: Dave Nicholson Berry Landfarms		City/State Collected:		Analysis / Container / Preservative	
Project Description: Berry Landfarms		Client Project # 303-601-2023		Pres Chk	
Collected by (print): D. Nicholson		Site/Facility ID #		SDG # 13553808	
Collected by (signature): D. Nicholson		Quote #		Table F080	
Rush? (Lab MUST Be Notified) Same Day _____ Five Day _____ Next Day _____ 5 Day (Rad Only) _____ Two Day _____ 10 Day (Rad Only) _____ Three Day _____		Date Results Needed		Actnum: BERPETDCO Template: T186990 Prelogin: P845515 PM: 134 - Mark W. Beasley PB:	
Packed on Ice N <input checked="" type="checkbox"/> Y <input type="checkbox"/>		Date		Shipped Via:	
Sample ID		Comp/Grab		Remarks	
Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - Waste Water DW - Drinking Water OT - Other		Depth		Sample # (lab only)	
006-1 006-2 006-3 006-4 006-5 006-6 006-7 006-8 006-9 006-10		SS SS 		21 22 23 24 25 26 27 28 29 30	
Remarks: Metals = Ag, As, Ba, Cd, CR6, Cu, Hot Water B, Ni, Pb, Se, Zn		Tracking # 9159 8781 9677		Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mkr/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Samples returned via: UPS _____ FedEx _____ Courier _____		Date: 5/14/21 Time: 1400		Temp _____ pH _____ Flow _____ Other _____	
Relinquished by: (Signature) D. Nicholson		Received by: (Signature) Sedex		Temp _____ pH _____ Flow _____ Other _____	
Relinquished by: (Signature)		Received by: (Signature)		Temp _____ pH _____ Flow _____ Other _____	
Relinquished by: (Signature)		Received by: (Signature)		Temp _____ pH _____ Flow _____ Other _____	

Company Name/Address: Berry Petroleum - Denver, CO 3433 E. Lake Dr Centennial, CO 80121		Billing Information: Don Wilburn 235 Calhoun Ave Parachute, CO 81635 Roosvelt, UT Email To: dknicholson@q.com		Chain of Custody Page 1 of 1	
Report to: Dave Nicholson Project Description: Berry Landfarms Phone: 303-601-2023		City/State Collected: Client Project # Lab Project # BERPETDCO-NICHOLSON		Please Circle: PT MT CT ET	
Collected by (print): Site/Facility ID #		P.O. #		Quote #	
Collected by (signature): Immediately Packed on Ice N <u> </u>		Rush? (Lab MUST Be Notified) Same Day <u> </u> Five Day <u> </u> Next Day <u> </u> 5 Day (Rad Only) <u> </u> Two Day <u> </u> 10 Day (Rad Only) <u> </u> Three Day <u> </u>		Date Results Needed No. of Cntrs	
Sample ID F01-1 F01-2		Comp/Grab Matrix * SS SS SS SS SS SS SS SS SS SS		Date Time 5/14 0840 11 0850	
Shipped Via: Remarks: Sample # (lab only)		SV8270PAHSIM 4ozClr-NoPres PH 4ozClr-NoPres GRO 4ozClr-NoPres DRO/ORO 4ozClr-NoPres CR6 4ozClr-NoPres *Metals 4ozClr-NoPres, C, S, SAR, H, water, boron		SAR 4ozClr-NoPres SPCN 4ozClr-NoPres V8260 4ozClr-NoPres Full Screen	
SDG # 11753806 Table # Acctnum: BERPETDCO Template: T186990 Prelogin: P845515 PM: 134 - Mark W. Beasley PB:		SDG # 11753806 Table # Acctnum: BERPETDCO Template: T186990 Prelogin: P845515 PM: 134 - Mark W. Beasley PB:		Shipped Via: Remarks: Sample # (lab only)	
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - Waste Water DW - Drinking Water OT - Other		Remarks: Metals = Ag, As, Ba, Cd, CR6, Cu, Hot Water B, Ni, Pb, Se, Zn		Sample Receipt Checklist COC Seal Present/Intact: <u> </u> COC Signed/Accurate: <u> </u> Bottles arrive intact: <u> </u> Correct bottles used: <u> </u> Sufficient volume sent: <u> </u> If Applicable VOA Zero Headspace: <u> </u> Preservation Correct/Checked: <u> </u> RAD Screen <0.5 ml/hr: <u> </u>	
Relinquished by: (Signature) Relinquished by: (Signature) Relinquished by: (Signature)		Samples returned via: UPS FedEx Courier Date: 5/14/21 Time: 1400 Date: Time: Date: Time:		Trip Blank Received: Yes (No) HCL / Meoh TBR Temp: 20.0 °C Bottles Received: 83 Date: 5/15/21 Time: 930	
Relinquished by: (Signature) Relinquished by: (Signature) Relinquished by: (Signature)		Tracking # Received by: (Signature) Received by: (Signature) Received for lab by: (Signature)		If preservation required by Login: Date/Time Hold: Condition: NCF X OK	

L1353806 BERPETDCO NCF R5

Time estimate: oh Time spent: oh Grouping date: 15 May 2021

Members

 Cole Medley (responsible)  Mark Beasley

- ☐ Login Clarification needed
- ☐ Chain of custody is incomplete
- ☐ Please specify Metals requested
- ☐ Please specify TCLP requested
- ☒ Received additional samples not listed on COC
- ☐ Sample IDs on containers do not match IDs on COC
- ☐ Client did not "X" analysis
- ☐ Chain of Custody is missing
- ☐ If no COC: Received by: _____
- ☐ If no COC: Date/Time: _____
- ☐ If no COC: Temp./Cont.Rec./pH: _____
- ☐ If no COC: Carrier: _____
- ☐ If no COC: Tracking #: _____
- ☐ Client informed by call
- ☐ Client informed by Email
- ☐ Client informed by Voicemail
- ☐ Date/Time: 5/15/21
- ☐ PM initials: _____ MB
- ☐ Client Contact: _____

Comments

Cole Medley	ID: 029-1 05/14/21 1130 (1 40z)
Mark Beasley	Add to COC and run for SV8270PAHSIM
Cole Medley	Done.