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: F-01 Landfarm Final Discrete Sampling Results

Dear Jon:

Nicholson GeoSolutions LLC conducted final discrete soil sampling of the landfarm on the F-01 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 and some portions were passed under the older Rules. The final remnant of the original landfarm contained an estimated 840 cubic yards of material and averaged about 6 inches deep at the time of sampling. Two discrete soil samples were collected. The locations of the samples are shown on Figure 1.

One sample was analyzed for PAHs only (the only remaining COCs in the landfarm soil) and one sample was analyzed for the entire Table 915-1 list of parameters to demonstrate compliance with the new Rules. The Table 915-1 list includes Total Volatile Petroleum Hydrocarbons (TVPH – gasoline range), Total Extractable Petroleum Hydrocarbons (TEPH – diesel and motor oil range), BTEX (benzene, toluene, ethylbenzene, and xylenes), sodium adsorption ratio (SAR), pH, conductivity, metals, PAHs, and selected VOCs (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene).

Table 1 provides a summary of the analytical results for the two samples. The laboratory report is contained in Appendix A. All results were below the Table 915-1 standards except for arsenic. Arsenic was reported at 5.73 mg/kg, within the range of natural background concentrations for the Garden Gulch area (Nicholson 2014).

Based on the sample results, remediation of the F-01 landfarm is now complete. Since SAR pH, and conductivity values are below the Table 915-1 standards, this material does not need to be buried and can be used for general site purposes pending COGCC approval.

Nicholson GeoSolutions LLC

David K. Nicholson, P.G.
Principal Geologist

Reference

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

Table 1 F-01 Landfarm Sample Results – May 14, 2021

Parameter		Sample ID	
	Table 915-1 Standards	F01-1	F01-2
Contaminants of Concern			
TVPH – gasoline range	500[1]	NA	0.113
TEPH – diesel/motor oil range		NA	153.1
Soil Suitability for Reclamation			
sp. conductance (mmhos/cm)	<4	NA	0.339
SAR (ratio)	<6	NA	1.70
pH (standard units)	6-8.3	NA	8.00
boron (hot water extract)	2.0	NA	0.285
Organic Compounds in Soils			
benzene	1.2	NA	<0.001
toluene	490	NA	<0.005
ethylbenzene	5.8	NA	<0.0025
xylenes	58	NA	0.00958
1,2,4-trimethylbenzene	30	NA	<0.005
1,3,5-trimethylbenzene	27	NA	<0.005
acenaphthene	360	<0.006	<0.006
anthracene	1800	<0.006	<0.006
benzo(a)anthracene	1.1	0.0177	0.0187
benzo(b)flouranthene	1.1	0.0488	0.0565
benzo(k)flouranthene	11	0.0124	0.0139
benzo(a)pyrene	0.11	0.0181	0.0204
chrysene	110	0.0238	0.0259
dibenz(a,h)anthracene	0.11	0.00712	0.00798
fluoranthene	240	0.0226	0.023
flourene	240	<0.006	<0.006
indeno(1,2,3-cd)pyrene	1.1	0.0283	0.0324
1-methylnaphthalene	18	0.096	0.0622
2-methylnaphthalene	24	0.154	0.103
naphthalene	2	0.0769	0.054
pyrene	180	0.022	0.0216
Metals in Soils			
arsenic	0.68	NA	**5.73**
barium	15,000	NA	290
cadmium	71	NA	<0.5
chromium VI	0.3	NA	<2
copper	3,100	NA	24.6
lead	400	NA	15.8
nickel	1,500	NA	21.5
selenium	390	NA	<2
silver	390	NA	<1
zinc	23,000	NA	59.1

[1]The standard is 500 for the combined total of TVPH and TEPH NA = not analyzed
Values in bold type exceed standards
All units and standards in mg/kg except where indicated

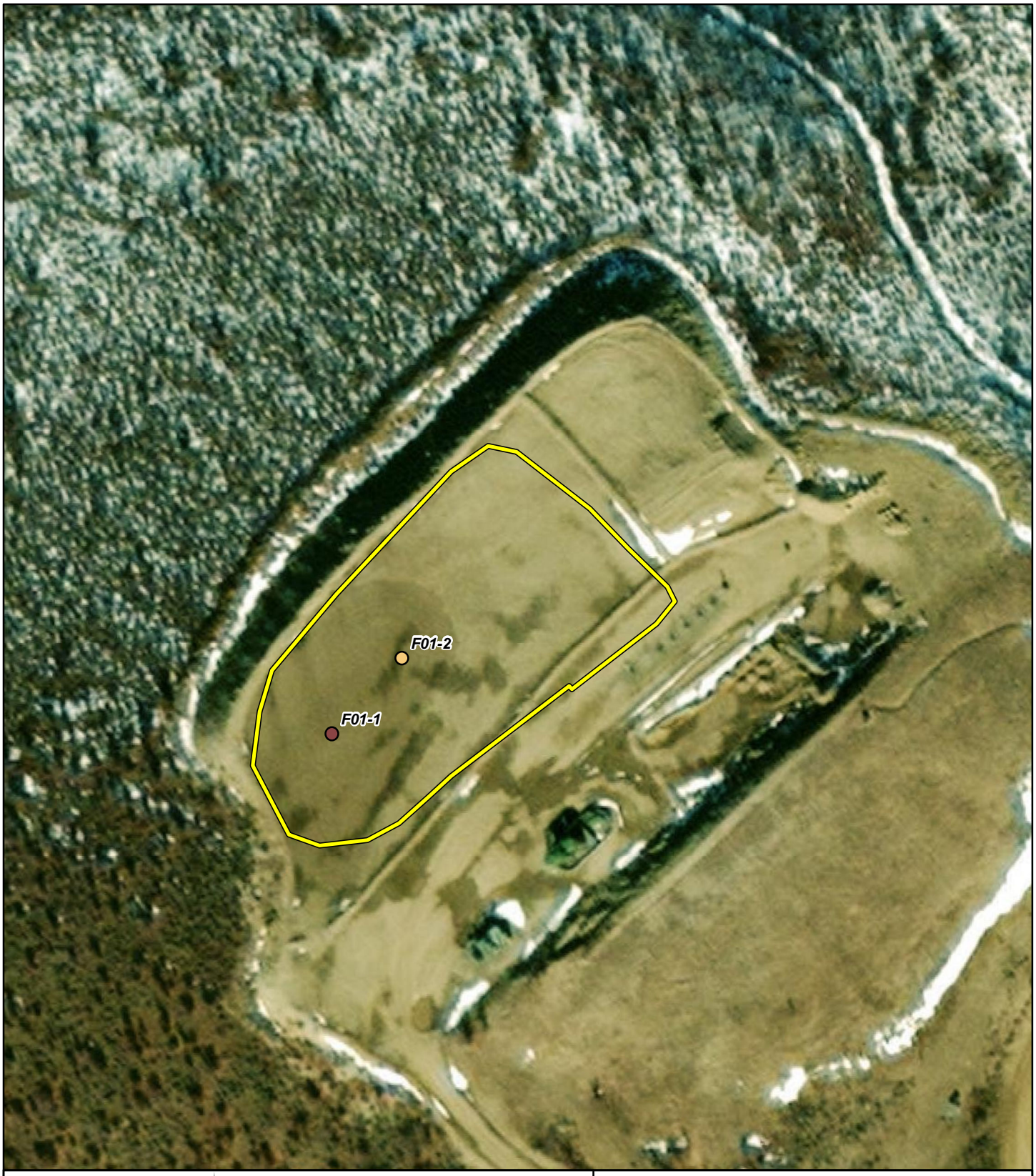


Figure 1

May
2021

GeoSolutions
NICHOLSON

Legend

Sub Sample

Landfarm Perimeter

0 25 50 100 150 200 250 Feet 1" = 115 '

Berry Petroleum Company

F-01
Landfarm Final
Composite Soil Samples

APPENDIX A
Laboratory Report

ANALYTICAL REPORT

May 28, 2021

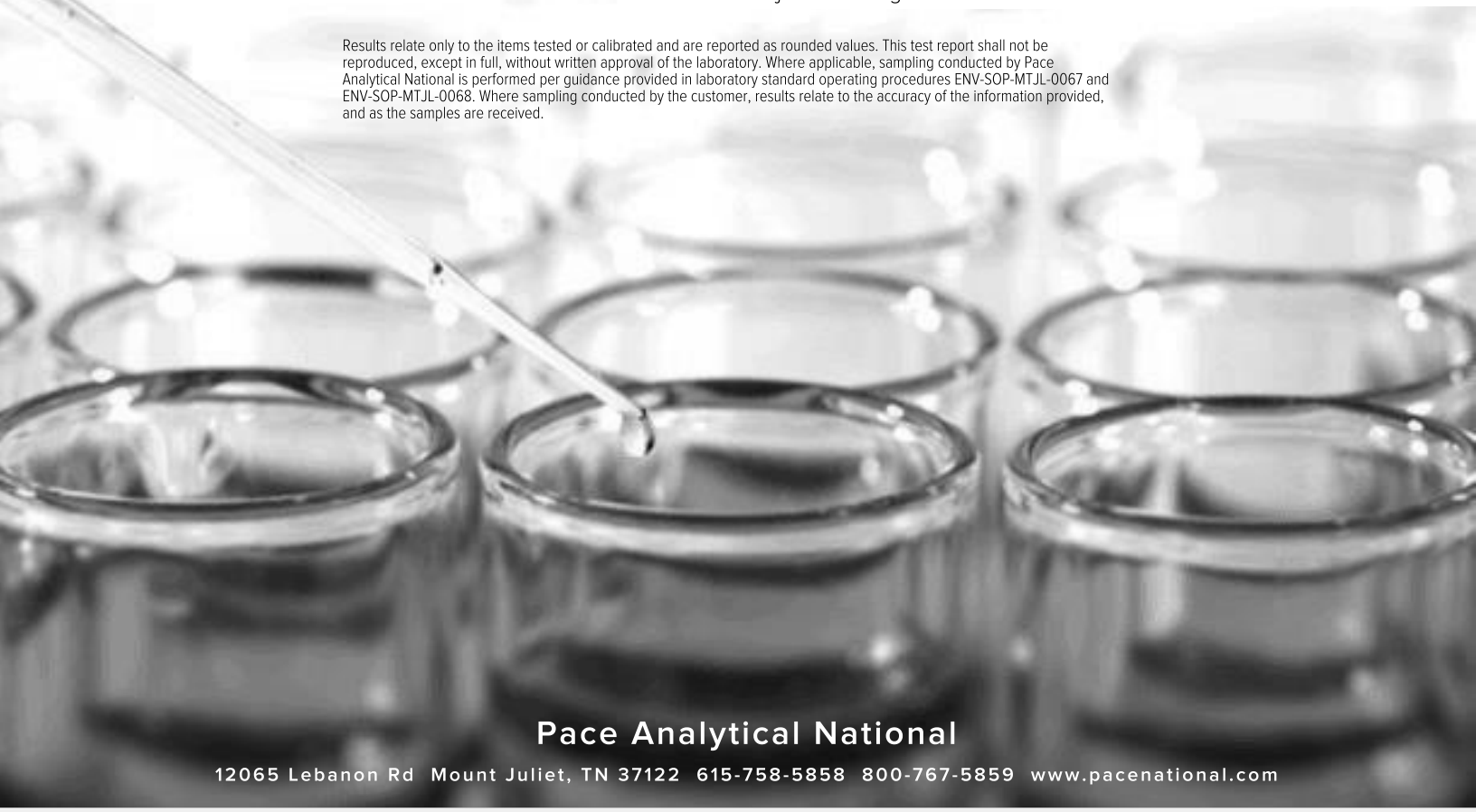
Berry Petroleum - Denver, CO

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



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

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006-1 L1353806-01 Solid

Collected by: DK Nichiolson | 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 Nichiolson | 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 Nichiolson | 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 Nichiolson | 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 Nichiolson | 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 Nichiolson | 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

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 Nichiolson
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

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	05/24/2021 04:58	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 04:58	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 04:58	WG1675862
Benzo(a)anthracene	0.0177		0.00600	1	05/24/2021 04:58	WG1675862
Benzo(a)pyrene	0.0181		0.00600	1	05/24/2021 04:58	WG1675862
Benzo(b)fluoranthene	0.0488		0.00600	1	05/24/2021 04:58	WG1675862
Benzo(g,h,i)perylene	0.0317		0.00600	1	05/24/2021 04:58	WG1675862
Benzo(k)fluoranthene	0.0124		0.00600	1	05/24/2021 04:58	WG1675862
Chrysene	0.0238		0.00600	1	05/24/2021 04:58	WG1675862
Dibenz(a,h)anthracene	0.00712		0.00600	1	05/24/2021 04:58	WG1675862
Fluoranthene	0.0226		0.00600	1	05/24/2021 04:58	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 04:58	WG1675862
Indeno(1,2,3-cd)pyrene	0.0283		0.00600	1	05/24/2021 04:58	WG1675862
Naphthalene	0.0769		0.0200	1	05/24/2021 04:58	WG1675862
Phenanthrene	0.0402		0.00600	1	05/24/2021 04:58	WG1675862
Pyrene	0.0220		0.00600	1	05/24/2021 04:58	WG1675862
1-Methylnaphthalene	0.0960		0.0200	1	05/24/2021 04:58	WG1675862
2-Methylnaphthalene	0.154		0.0200	1	05/24/2021 04:58	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 04:58	WG1675862
(S) p-Terphenyl-d14	*91.2*		*23.0-120*		*05/24/2021 04:58*	WG1675862
(S) Nitrobenzene-d5	*74.2*		*14.0-149*		*05/24/2021 04:58*	WG1675862
(S) 2-Fluorobiphenyl	*73.3*		*34.0-125*		*05/24/2021 04:58*	WG1675862

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.70		1	05/27/2021 17:07	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 20:36	WG1674004

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	05/24/2021 23:30	WG1676024

Sample Narrative:

L1353806-12 WG1676024: 8 at 23.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	339		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	5.73		2.00	1	05/25/2021 21:32	WG1675389
Barium	290		0.500	1	05/25/2021 21:32	WG1675389
Cadmium	ND		0.500	1	05/25/2021 21:32	WG1675389
Copper	24.6		2.00	1	05/25/2021 21:32	WG1675389
Lead	15.8		0.500	1	05/25/2021 21:32	WG1675389
Nickel	21.5		2.00	1	05/25/2021 21:32	WG1675389
Selenium	ND		2.00	1	05/25/2021 21:32	WG1675389
Silver	ND		1.00	1	05/25/2021 21:32	WG1675389
Zinc	59.1		5.00	1	05/25/2021 21:32	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	0.285		0.200	1	05/27/2021 17:50	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	0.113	B	0.100	1	05/21/2021 10:36	WG1674830
(S) a,a,a-Trifluorotoluene(FID)	*88.3*		*77.0-120*		*05/21/2021 10:36*	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 00:33	WG1676574
Acrylonitrile	ND		0.0125	1	05/25/2021 00:33	WG1676574
Benzene	ND		0.00100	1	05/25/2021 00:33	WG1676574
Bromobenzene	ND		0.0125	1	05/25/2021 00:33	WG1676574
Bromodichloromethane	ND		0.00250	1	05/25/2021 00:33	WG1676574

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 00:33	WG1676574
Bromomethane	ND		0.0125	1	05/25/2021 00:33	WG1676574
n-Butylbenzene	ND		0.0125	1	05/25/2021 00:33	WG1676574
sec-Butylbenzene	ND		0.0125	1	05/25/2021 00:33	WG1676574
tert-Butylbenzene	ND		0.00500	1	05/25/2021 00:33	WG1676574
Carbon tetrachloride	ND		0.00500	1	05/25/2021 00:33	WG1676574
Chlorobenzene	ND		0.00250	1	05/25/2021 00:33	WG1676574
Chlorodibromomethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
Chloroethane	ND		0.00500	1	05/25/2021 00:33	WG1676574
Chloroform	ND		0.00250	1	05/25/2021 00:33	WG1676574
Chloromethane	ND		0.0125	1	05/25/2021 00:33	WG1676574
2-Chlorotoluene	ND		0.00250	1	05/25/2021 00:33	WG1676574
4-Chlorotoluene	ND		0.00500	1	05/25/2021 00:33	WG1676574
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	05/25/2021 00:33	WG1676574
1,2-Dibromoethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
Dibromomethane	ND		0.00500	1	05/25/2021 00:33	WG1676574
1,2-Dichlorobenzene	ND		0.00500	1	05/25/2021 00:33	WG1676574
1,3-Dichlorobenzene	ND		0.00500	1	05/25/2021 00:33	WG1676574
1,4-Dichlorobenzene	ND		0.00500	1	05/25/2021 00:33	WG1676574
Dichlorodifluoromethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,1-Dichloroethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,2-Dichloroethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,1-Dichloroethene	ND		0.00250	1	05/25/2021 00:33	WG1676574
cis-1,2-Dichloroethene	ND		0.00250	1	05/25/2021 00:33	WG1676574
trans-1,2-Dichloroethene	ND		0.00500	1	05/25/2021 00:33	WG1676574
1,2-Dichloropropane	ND		0.00500	1	05/25/2021 00:33	WG1676574
1,1-Dichloropropene	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,3-Dichloropropane	ND		0.00500	1	05/25/2021 00:33	WG1676574
cis-1,3-Dichloropropene	ND		0.00250	1	05/25/2021 00:33	WG1676574
trans-1,3-Dichloropropene	ND		0.00500	1	05/25/2021 00:33	WG1676574
2,2-Dichloropropane	ND		0.00250	1	05/25/2021 00:33	WG1676574
Di-isopropyl ether	ND		0.00100	1	05/25/2021 00:33	WG1676574
Ethylbenzene	ND		0.00250	1	05/25/2021 00:33	WG1676574
Hexachloro-1,3-butadiene	ND		0.0250	1	05/25/2021 00:33	WG1676574
Isopropylbenzene	ND		0.00250	1	05/25/2021 00:33	WG1676574
p-Isopropyltoluene	ND		0.00500	1	05/25/2021 00:33	WG1676574
2-Butanone (MEK)	ND		0.100	1	05/25/2021 00:33	WG1676574
Methylene Chloride	ND		0.0250	1	05/25/2021 00:33	WG1676574
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	05/25/2021 00:33	WG1676574
Methyl tert-butyl ether	ND		0.00100	1	05/25/2021 00:33	WG1676574
Naphthalene	ND		0.0125	1	05/25/2021 00:33	WG1676574
n-Propylbenzene	ND		0.00500	1	05/25/2021 00:33	WG1676574
Styrene	ND		0.0125	1	05/25/2021 00:33	WG1676574
1,1,1,2-Tetrachloroethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,1,2,2-Tetrachloroethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
Tetrachloroethene	ND		0.00250	1	05/25/2021 00:33	WG1676574
Toluene	ND		0.00500	1	05/25/2021 00:33	WG1676574
1,2,3-Trichlorobenzene	ND		0.0125	1	05/25/2021 00:33	WG1676574
1,2,4-Trichlorobenzene	ND		0.0125	1	05/25/2021 00:33	WG1676574
1,1,1-Trichloroethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,1,2-Trichloroethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
Trichloroethene	ND		0.00100	1	05/25/2021 00:33	WG1676574
Trichlorofluoromethane	ND		0.00250	1	05/25/2021 00:33	WG1676574
1,2,3-Trichloropropane	ND		0.0125	1	05/25/2021 00:33	WG1676574
1,2,4-Trimethylbenzene	ND		0.00500	1	05/25/2021 00:33	WG1676574

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 00:33	WG1676574
1,3,5-Trimethylbenzene	ND		0.00500	1	05/25/2021 00:33	WG1676574
Vinyl chloride	ND		0.00250	1	05/25/2021 00:33	WG1676574
Xylenes, Total	0.00958		0.00650	1	05/25/2021 00:33	WG1676574
(S) Toluene-d8	*109*		*75.0-131*		*05/25/2021 00:33*	WG1676574
(S) 4-Bromofluorobenzene	*94.8*		*67.0-138*		*05/25/2021 00:33*	WG1676574
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*05/25/2021 00:33*	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	53.4		40.0	10	05/25/2021 16:24	WG1675859
C28-C36 Motor Oil Range	99.7		40.0	10	05/25/2021 16:24	WG1675859
(S) o-Terphenyl	*104*		*18.0-148*		*05/25/2021 16:24*	WG1675859

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 05:16	WG1675862
Acenaphthene	ND		0.00600	1	05/24/2021 05:16	WG1675862
Acenaphthylene	ND		0.00600	1	05/24/2021 05:16	WG1675862
Benzo(a)anthracene	0.0187		0.00600	1	05/24/2021 05:16	WG1675862
Benzo(a)pyrene	0.0204		0.00600	1	05/24/2021 05:16	WG1675862
Benzo(b)fluoranthene	0.0565		0.00600	1	05/24/2021 05:16	WG1675862
Benzo(g,h,i)perylene	0.0355		0.00600	1	05/24/2021 05:16	WG1675862
Benzo(k)fluoranthene	0.0139		0.00600	1	05/24/2021 05:16	WG1675862
Chrysene	0.0259		0.00600	1	05/24/2021 05:16	WG1675862
Dibenz(a,h)anthracene	0.00798		0.00600	1	05/24/2021 05:16	WG1675862
Fluoranthene	0.0230		0.00600	1	05/24/2021 05:16	WG1675862
Fluorene	ND		0.00600	1	05/24/2021 05:16	WG1675862
Indeno(1,2,3-cd)pyrene	0.0324		0.00600	1	05/24/2021 05:16	WG1675862
Naphthalene	0.0540		0.0200	1	05/24/2021 05:16	WG1675862
Phenanthrene	0.0351		0.00600	1	05/24/2021 05:16	WG1675862
Pyrene	0.0216		0.00600	1	05/24/2021 05:16	WG1675862
1-Methylnaphthalene	0.0622		0.0200	1	05/24/2021 05:16	WG1675862
2-Methylnaphthalene	0.103		0.0200	1	05/24/2021 05:16	WG1675862
2-Chloronaphthalene	ND		0.0200	1	05/24/2021 05:16	WG1675862
(S) p-Terphenyl-d14	*88.9*		*23.0-120*		*05/24/2021 05:16*	WG1675862
(S) Nitrobenzene-d5	*69.1*		*14.0-149*		*05/24/2021 05:16*	WG1675862
(S) 2-Fluorobiphenyl	*72.5*		*34.0-125*		*05/24/2021 05:16*	WG1675862

Method Blank (MB)

(MB) R3657077-1 05/20/21 13:07

Analyte	MB Result mg/kg	MB Qualifier	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	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
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	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
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 %	LCS Qualifier
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	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	20.0	ND	14.6	13.9	72.9	69.3	1	75.0-125	J6	J6	5.06	20

Sample Narrative:

OS: sample is a reducer

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

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 %	MS Qualifier
Chromium,Hexavalent	614	ND	502	81.7	50	75.0-125	

Sample Narrative:

OS: sample is a reducer

Method Blank (MB)

(MB) R3657264-1 05/20/21 20:33

Analyte	MB Result mg/kg	MB Qualifier	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	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
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	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
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. %	Rec. Limits %	LCS Qualifier
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 %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	20.0	ND	4.42	3.89	22.1	19.4	1	75.0-125	J6	J6	12.8	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	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	644	ND	303	47.0	50	75.0-125	J6

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	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.88	8.84	1	0.451		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	LCS Qualifier
	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 22.6C

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	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.68	7.72	1	0.519		1

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	LCS Qualifier
	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.03 at 21.8C

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	DUP Qualifier	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	LCS Qualifier
	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 24.5C

Method Blank (MB)

(MB) R3656911-1 05/20/21 10:50

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

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	220	222	1	1.04		20

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

(OS) L1354417-04 05/20/21 10:50 • (DUP) R3656911-4 05/20/21 10:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	110	112	1	1.63		20

Laboratory Control Sample (LCS)

(LCS) R3656911-2 05/20/21 10:50

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	270	101	85.0-115	

Method Blank (MB)

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

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

Laboratory Control Sample (LCS)

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

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
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 %	MS Qualifier	MSD Qualifier	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	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	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	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
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	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*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 %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.21	94.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*107*	*77.0-120*	

Method Blank (MB)

(MB) R3658912-2 05/21/21 09:14

Analyte	MB Result mg/kg	MB Qualifier	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 %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.44	80.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*107*	*77.0-120*	

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

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 %
Acetone	0.625	ND	0.299	0.506	47.8	81.0	1	10.0-160		J3	51.4	40
Acrylonitrile	0.625	ND	0.602	0.576	96.3	92.2	1	10.0-160			4.41	40
Benzene	0.125	ND	0.137	0.133	110	106	1	10.0-149			2.96	37
Bromobenzene	0.125	ND	0.142	0.136	114	109	1	10.0-156			4.32	38
Bromodichloromethane	0.125	ND	0.132	0.122	106	97.6	1	10.0-143			7.87	37
Bromoform	0.125	ND	0.116	0.106	92.8	84.8	1	10.0-146			9.01	36
Bromomethane	0.125	ND	0.0903	0.0838	72.2	67.0	1	10.0-149			7.47	38
n-Butylbenzene	0.125	ND	0.150	0.135	120	108	1	10.0-160			10.5	40
sec-Butylbenzene	0.125	ND	0.157	0.148	126	118	1	10.0-159			5.90	39
tert-Butylbenzene	0.125	ND	0.144	0.137	115	110	1	10.0-156			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	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*		*75.0-131*				
(S) 4-Bromofluorobenzene					*99.9*	*94.7*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*115*	*108*		*70.0-130*				

Method Blank (MB)

(MB) R3658064-1 05/22/21 14:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*51.7*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3658064-2 05/22/21 14:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.6	71.2	50.0-150	
(S) o-Terphenyl			*62.5*	*18.0-148*	

L1353741-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353741-01 05/22/21 15:04 • (MS) R3658064-3 05/22/21 15:17 • (MSD) R3658064-4 05/22/21 15:30

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*		*18.0-148*				

Method Blank (MB)

(MB) R3658054-1 05/22/21 15:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*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 %	LCS Qualifier
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	MB Qualifier	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 %	LCS Qualifier
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	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.8	2380	1240	1520	0.000	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	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	*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 %	LCS Qualifier
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 %	LCS Qualifier
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 %	MS Qualifier	MSD Qualifier	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.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

Company Name/Address:
Berry Petroleum - Denver, CO

3433 E. Lake Dr
Centennial, CO 80121

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

Pres Chk

Report to:
Dave Nicholson

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

Project Description:
Berry Landfarms

City/State Collected:

Please Circle: PT MT CT ET

Phone: **303-601-2023**

Client Project #

Lab Project #
BERPETDCO-NICHOLSON

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):
DK Nicholson

Immediately Packed on Ice N ___ Y ___

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

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 4ozClr-NoPres, CrVI, SAR	~~CR6 4ozClr-NoPres~~ HT water boron	DRO/ORO 4ozClr-NoPres	GRO 4ozClr-NoPres	PH 4ozClr-NoPres, SPCON	~~SAR 4ozClr-NoPres~~	~~SPCON 4ozClr-NoPres~~	SV8270PAHSIM 4ozClr-NoPres	V8260 4ozClr-NoPres Full screen		Remarks	Sample # (lab only)
006-1		SS			5/14 1235	6	X	X	X	X	X			X	X			-01
006-2		SS			1235	1								X				-02
006-3					1240	1								X				-03
006-4					1245	1								X				-04
006-5					1250	6	X	X	X	X	X			X	X			-05
006-6					1255	1								X				-06
006-7					1258	1								X				-07
006-8					1300	6	X	X	X	X	X			X	X			-08
006-9					1305	1								X				-09
006-10		"			"	1								X				-10

Chain of Custody Page 1 of 1

Pace Analytical®

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

SDG # L1357806

Table # F080

Acctnum: **BERPETDCO**

Template: **T186990**

Prelogin: **P845515**

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

PB:

Shipped Via:

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

Remarks:Metals = Ag, As, Ba, Cd, CR6, Cu, Hot Water B, Ni, Pb, Se, Zn

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 9159 5781 9677

Sample Receipt Checklist

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR
DK Nicholson	5/14/21	1400	FedEx	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.0+0.0=2.0 °C Bottles Received: 33
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Olivia Turner	Date: 5/15/21 Time: 930

If preservation required by Login: Date/Time

Hold:

Condition: (NCF) / OK

Company Name/Address:
Berry Petroleum - Denver, CO

3433 E. Lake Dr
Centennial, CO 80121

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

Report to: **Dave Nicholson**

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

Project Description: **Berry Landfarms**

City/State Collected:

Please Circle: PT MT CT ET

Phone: **303-601-2023**

Client Project #

Lab Project # **BERPETDCO-NICHOLSON**

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature): DK Nicholson

Immediately Packed on Ice N ___ Y ___

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

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 4ozClr-NoPres, CR6, SAR	~~CR6 4ozClr-NoPres~~ Hot water boron	DRO/ORO 4ozClr-NoPres	GRO 4ozClr-NoPres	PH 4ozClr-NoPres, SPCON	~~SAR 4ozClr-NoPres~~	~~SPCON 4ozClr-NoPres~~	SV8270PAHSIM 4ozClr-NoPres	V8260 4ozClr-NoPres Full screen		Remarks	Sample # (lab only)
FOI-1		SS		5/14	0840	2								X				-11
FOI-2		SS		11	0850	6	X	X	X	X	X			X	X			-12
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																

Chain of Custody Page 1 of 1

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SDG # L1353804

Table #

Acctnum: **BERPETDCO**

Template: **T186990**

Prelogin: **P845515**

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

PB:

Shipped Via:

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

Remarks:Metals = Ag, As, Ba, Cd, CR6, Cu, Hot Water B, Ni, Pb, Se, Zn

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
DK Nicholson	5/14/21	1400	FedEx		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.0 °C Bottles Received: 8	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/15/21 Time: 930	Hold: Condition: NCF / OK

L1353806 BERPETDCO NCF

R5

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

Members

Cole Medley (responsible) MB Mark Beasley

- [ ] Login Clarification needed
- [ ] Chain of custody is incomplete
- [ ] Please specify Metals requested
- [ ] Please specify TCLP requested
- [x] 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 *15 May 2021 6:34 PM*

ID: 029-1 05/14/21 1130 (1 4oz)

Mark Beasley *15 May 2021 6:38 PM*

Add to COC and run for SV8270PAHSIM

Cole Medley *15 May 2021 8:21 PM*

Done.