

Terra Energy Partners

Sample Delivery Group: L1412425
Samples Received: 10/02/2021
Project Number: CONF. SAMPLING
Description: Terra Energy Partners-PA
Site: PA 12-28-695
Report To: Mike Gardner
1058 County Road 215
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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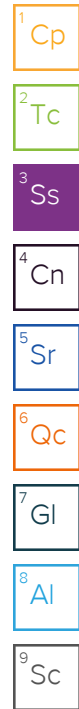
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SAMPLE SUMMARY

SL 1 L1412425-01 Solid

				Collected by Mike Gardner	Collected date/time 09/30/21 12:00	Received date/time 10/02/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1753640	1	10/10/21 21:25	10/10/21 21:25	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1753456	1	10/07/21 15:00	10/13/21 12:00	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1755374	1	10/12/21 14:00	10/12/21 16:00	AW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1754492	1	10/10/21 17:26	10/11/21 13:37	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1753588	1	10/08/21 08:25	10/09/21 20:02	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1753638	1	10/08/21 21:44	10/11/21 12:32	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1753590	5	10/08/21 08:34	10/08/21 19:12	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1753164	1	10/06/21 19:06	10/08/21 08:36	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1752862	1	10/06/21 19:06	10/07/21 07:26	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1754390	1	10/10/21 08:59	10/11/21 09:43	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1753616	1	10/08/21 08:43	10/11/21 13:57	LEA	Mt. Juliet, TN



SL 2 L1412425-02 Solid

				Collected by Mike Gardner	Collected date/time 09/30/21 12:30	Received date/time 10/02/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1753640	1	10/10/21 21:28	10/10/21 21:28	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1753456	1	10/07/21 15:00	10/13/21 11:39	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1755374	1	10/12/21 14:00	10/12/21 16:00	AW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1754492	1	10/10/21 17:26	10/11/21 13:37	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1753588	1	10/08/21 08:25	10/09/21 20:05	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1753638	1	10/08/21 21:44	10/11/21 12:35	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1753590	5	10/08/21 08:34	10/08/21 19:15	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1753164	1	10/06/21 19:06	10/08/21 09:00	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1752862	1	10/06/21 19:06	10/07/21 07:46	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1754390	1	10/10/21 08:59	10/10/21 16:56	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1753616	1	10/08/21 08:43	10/11/21 14:14	LEA	Mt. Juliet, TN

SL 3 L1412425-03 Solid

				Collected by Mike Gardner	Collected date/time 09/30/21 13:00	Received date/time 10/02/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1753640	1	10/10/21 21:31	10/10/21 21:31	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1753456	1	10/07/21 15:00	10/13/21 11:44	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1755374	1	10/12/21 14:00	10/12/21 16:00	AW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1754492	1	10/10/21 17:26	10/11/21 13:37	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1753588	1	10/08/21 08:25	10/09/21 20:08	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1753638	5	10/08/21 21:44	10/11/21 12:38	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1753590	5	10/08/21 08:34	10/08/21 19:18	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1753164	1	10/06/21 19:06	10/08/21 09:23	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1752862	1	10/06/21 19:06	10/07/21 08:05	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1754390	1	10/10/21 08:59	10/10/21 17:10	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1753616	1	10/08/21 08:43	10/11/21 14:32	LEA	Mt. Juliet, TN

SL 4 L1412425-04 Solid

				Collected by Mike Gardner	Collected date/time 09/30/21 13:30	Received date/time 10/02/21 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1753640	1	10/10/21 21:34	10/10/21 21:34	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1753456	1	10/07/21 15:00	10/13/21 12:26	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1755374	1	10/12/21 14:00	10/12/21 16:00	AW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1754492	1	10/10/21 17:26	10/11/21 13:37	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1753588	1	10/08/21 08:25	10/09/21 20:11	EL	Mt. Juliet, TN

SAMPLE SUMMARY

SL 4 L1412425-04 Solid

Collected by
Mike Gardner

Collected date/time
09/30/21 13:30

Received date/time
10/02/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1753638	1	10/08/21 21:44	10/11/21 12:47	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1753590	5	10/08/21 08:34	10/08/21 19:22	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1753164	1	10/06/21 19:06	10/08/21 09:46	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1752862	1	10/06/21 19:06	10/07/21 08:35	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1754390	1	10/10/21 08:59	10/11/21 10:10	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1753616	1	10/08/21 08:43	10/11/21 14:49	LEA	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

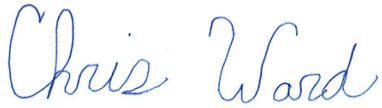
⁷Gl

⁸Al

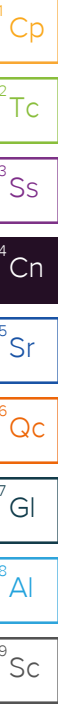
⁹Sc

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.



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	33.2		1	10/10/2021 21:25	WG1753640

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U	Q1	0.255	1.00	1	10/13/2021 12:00	WG1753456

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.18	T8	1	10/12/2021 16:00	WG1755374

Sample Narrative:

L1412425-01 WG1755374: 8.18 at 21.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	5080		10.0	1	10/11/2021 13:37	WG1754492

Sample Narrative:

L1412425-01 WG1754492: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	216		0.0852	0.500	1	10/09/2021 20:02	WG1753588
Cadmium	0.364	J	0.0471	0.500	1	10/09/2021 20:02	WG1753588
Copper	16.3		0.400	2.00	1	10/09/2021 20:02	WG1753588
Lead	10.1		0.208	0.500	1	10/09/2021 20:02	WG1753588
Nickel	15.4		0.132	2.00	1	10/09/2021 20:02	WG1753588
Selenium	U		0.764	2.00	1	10/09/2021 20:02	WG1753588
Silver	U		0.127	1.00	1	10/09/2021 20:02	WG1753588
Zinc	40.3		0.832	5.00	1	10/09/2021 20:02	WG1753588

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.401		0.0167	0.200	1	10/11/2021 12:32	WG1753638

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.4		0.100	1.00	5	10/08/2021 19:12	WG1753590

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0588	J	0.0217	0.100	1	10/08/2021 08:36	WG1753164
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	95.8			77.0-120		10/08/2021 08:36	WG1753164

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

SL 1

SAMPLE RESULTS - 01

Collected date/time: 09/30/21 12:00

L1412425

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0172		0.000467	0.00100	1	10/07/2021 07:26	WG1752862
Toluene	0.0104		0.00130	0.00500	1	10/07/2021 07:26	WG1752862
Ethylbenzene	U		0.000737	0.00250	1	10/07/2021 07:26	WG1752862
Xylenes, Total	U		0.000880	0.00650	1	10/07/2021 07:26	WG1752862
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/07/2021 07:26	WG1752862
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	10/07/2021 07:26	WG1752862
(S) Toluene-d8	108			75.0-131		10/07/2021 07:26	WG1752862
(S) 4-Bromofluorobenzene	87.4			67.0-138		10/07/2021 07:26	WG1752862
(S) 1,2-Dichloroethane-d4	92.4			70.0-130		10/07/2021 07:26	WG1752862

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	10.6		1.61	4.00	1	10/11/2021 09:43	WG1754390
C28-C36 Motor Oil Range	40.5		0.274	4.00	1	10/11/2021 09:43	WG1754390
(S) o-Terphenyl	46.7			18.0-148		10/11/2021 09:43	WG1754390

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	10/11/2021 13:57	WG1753616
Acenaphthene	U		0.00209	0.00600	1	10/11/2021 13:57	WG1753616
Acenaphthylene	U		0.00216	0.00600	1	10/11/2021 13:57	WG1753616
Benzo(a)anthracene	U		0.00173	0.00600	1	10/11/2021 13:57	WG1753616
Benzo(a)pyrene	U		0.00179	0.00600	1	10/11/2021 13:57	WG1753616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/11/2021 13:57	WG1753616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	10/11/2021 13:57	WG1753616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/11/2021 13:57	WG1753616
Chrysene	U		0.00232	0.00600	1	10/11/2021 13:57	WG1753616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/11/2021 13:57	WG1753616
Fluoranthene	U		0.00227	0.00600	1	10/11/2021 13:57	WG1753616
Fluorene	U		0.00205	0.00600	1	10/11/2021 13:57	WG1753616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/11/2021 13:57	WG1753616
Naphthalene	U		0.00408	0.0200	1	10/11/2021 13:57	WG1753616
Phenanthrene	U		0.00231	0.00600	1	10/11/2021 13:57	WG1753616
Pyrene	U		0.00200	0.00600	1	10/11/2021 13:57	WG1753616
1-Methylnaphthalene	U		0.00449	0.0200	1	10/11/2021 13:57	WG1753616
2-Methylnaphthalene	U		0.00427	0.0200	1	10/11/2021 13:57	WG1753616
2-Chloronaphthalene	U		0.00466	0.0200	1	10/11/2021 13:57	WG1753616
(S) p-Terphenyl-d14	80.2			23.0-120		10/11/2021 13:57	WG1753616
(S) Nitrobenzene-d5	79.1			14.0-149		10/11/2021 13:57	WG1753616
(S) 2-Fluorobiphenyl	65.6			34.0-125		10/11/2021 13:57	WG1753616

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	22.4		1	10/10/2021 21:28	WG1753640

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	10/13/2021 11:39	WG1753456

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.19	T8	1	10/12/2021 16:00	WG1755374

Sample Narrative:

L1412425-02 WG1755374: 8.19 at 21.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3170		10.0	1	10/11/2021 13:37	WG1754492

Sample Narrative:

L1412425-02 WG1754492: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	226		0.0852	0.500	1	10/09/2021 20:05	WG1753588
Cadmium	0.315	J	0.0471	0.500	1	10/09/2021 20:05	WG1753588
Copper	20.7		0.400	2.00	1	10/09/2021 20:05	WG1753588
Lead	13.3		0.208	0.500	1	10/09/2021 20:05	WG1753588
Nickel	16.1		0.132	2.00	1	10/09/2021 20:05	WG1753588
Selenium	U		0.764	2.00	1	10/09/2021 20:05	WG1753588
Silver	U		0.127	1.00	1	10/09/2021 20:05	WG1753588
Zinc	42.8		0.832	5.00	1	10/09/2021 20:05	WG1753588

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.438		0.0167	0.200	1	10/11/2021 12:35	WG1753638

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.5		0.100	1.00	5	10/08/2021 19:15	WG1753590

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.767		0.0217	0.100	1	10/08/2021 09:00	WG1753164
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	93.4			77.0-120		10/08/2021 09:00	WG1753164

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	10/07/2021 07:46	WG1752862
Toluene	U		0.00130	0.00500	1	10/07/2021 07:46	WG1752862
Ethylbenzene	U		0.000737	0.00250	1	10/07/2021 07:46	WG1752862
Xylenes, Total	0.0406		0.000880	0.00650	1	10/07/2021 07:46	WG1752862
1,2,4-Trimethylbenzene	0.00163	J	0.00158	0.00500	1	10/07/2021 07:46	WG1752862
1,3,5-Trimethylbenzene	0.0930		0.00200	0.00500	1	10/07/2021 07:46	WG1752862
(S) Toluene-d8	108			75.0-131		10/07/2021 07:46	WG1752862
(S) 4-Bromofluorobenzene	92.3			67.0-138		10/07/2021 07:46	WG1752862
(S) 1,2-Dichloroethane-d4	92.2			70.0-130		10/07/2021 07:46	WG1752862

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	19.5		1.61	4.00	1	10/10/2021 16:56	WG1754390
C28-C36 Motor Oil Range	39.0		0.274	4.00	1	10/10/2021 16:56	WG1754390
(S) o-Terphenyl	52.7			18.0-148		10/10/2021 16:56	WG1754390

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	10/11/2021 14:14	WG1753616
Acenaphthene	U		0.00209	0.00600	1	10/11/2021 14:14	WG1753616
Acenaphthylene	U		0.00216	0.00600	1	10/11/2021 14:14	WG1753616
Benzo(a)anthracene	U		0.00173	0.00600	1	10/11/2021 14:14	WG1753616
Benzo(a)pyrene	U		0.00179	0.00600	1	10/11/2021 14:14	WG1753616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/11/2021 14:14	WG1753616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	10/11/2021 14:14	WG1753616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/11/2021 14:14	WG1753616
Chrysene	U		0.00232	0.00600	1	10/11/2021 14:14	WG1753616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/11/2021 14:14	WG1753616
Fluoranthene	U		0.00227	0.00600	1	10/11/2021 14:14	WG1753616
Fluorene	U		0.00205	0.00600	1	10/11/2021 14:14	WG1753616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/11/2021 14:14	WG1753616
Naphthalene	U		0.00408	0.0200	1	10/11/2021 14:14	WG1753616
Phenanthrene	U		0.00231	0.00600	1	10/11/2021 14:14	WG1753616
Pyrene	U		0.00200	0.00600	1	10/11/2021 14:14	WG1753616
1-Methylnaphthalene	U		0.00449	0.0200	1	10/11/2021 14:14	WG1753616
2-Methylnaphthalene	U		0.00427	0.0200	1	10/11/2021 14:14	WG1753616
2-Chloronaphthalene	U		0.00466	0.0200	1	10/11/2021 14:14	WG1753616
(S) p-Terphenyl-d14	91.8			23.0-120		10/11/2021 14:14	WG1753616
(S) Nitrobenzene-d5	88.7			14.0-149		10/11/2021 14:14	WG1753616
(S) 2-Fluorobiphenyl	73.6			34.0-125		10/11/2021 14:14	WG1753616

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	69.4		1	10/10/2021 21:31	WG1753640

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	10/13/2021 11:44	WG1753456

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.65	T8	1	10/12/2021 16:00	WG1755374

Sample Narrative:

L1412425-03 WG1755374: 8.65 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	5390		10.0	1	10/11/2021 13:37	WG1754492

Sample Narrative:

L1412425-03 WG1754492: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	293		0.0852	0.500	1	10/09/2021 20:08	WG1753588
Cadmium	0.299	J	0.0471	0.500	1	10/09/2021 20:08	WG1753588
Copper	19.1		0.400	2.00	1	10/09/2021 20:08	WG1753588
Lead	14.0		0.208	0.500	1	10/09/2021 20:08	WG1753588
Nickel	15.9		0.132	2.00	1	10/09/2021 20:08	WG1753588
Selenium	U		0.764	2.00	1	10/09/2021 20:08	WG1753588
Silver	U		0.127	1.00	1	10/09/2021 20:08	WG1753588
Zinc	40.9		0.832	5.00	1	10/09/2021 20:08	WG1753588

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.50		0.0835	1.00	5	10/11/2021 12:38	WG1753638

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	19.0		0.100	1.00	5	10/08/2021 19:18	WG1753590

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.146		0.0217	0.100	1	10/08/2021 09:23	WG1753164
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	95.8			77.0-120		10/08/2021 09:23	WG1753164

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00327		0.000467	0.00100	1	10/07/2021 08:05	WG1752862
Toluene	0.0374		0.00130	0.00500	1	10/07/2021 08:05	WG1752862
Ethylbenzene	0.00463		0.000737	0.00250	1	10/07/2021 08:05	WG1752862
Xylenes, Total	0.0725		0.000880	0.00650	1	10/07/2021 08:05	WG1752862
1,2,4-Trimethylbenzene	0.00168	U	0.00158	0.00500	1	10/07/2021 08:05	WG1752862
1,3,5-Trimethylbenzene	0.00723		0.00200	0.00500	1	10/07/2021 08:05	WG1752862
(S) Toluene-d8	107			75.0-131		10/07/2021 08:05	WG1752862
(S) 4-Bromofluorobenzene	86.7			67.0-138		10/07/2021 08:05	WG1752862
(S) 1,2-Dichloroethane-d4	92.6			70.0-130		10/07/2021 08:05	WG1752862

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	23.6		1.61	4.00	1	10/10/2021 17:10	WG1754390
C28-C36 Motor Oil Range	65.6		0.274	4.00	1	10/10/2021 17:10	WG1754390
(S) o-Terphenyl	48.8			18.0-148		10/10/2021 17:10	WG1754390

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00724		0.00230	0.00600	1	10/11/2021 14:32	WG1753616
Acenaphthene	0.00554	U	0.00209	0.00600	1	10/11/2021 14:32	WG1753616
Acenaphthylene	U		0.00216	0.00600	1	10/11/2021 14:32	WG1753616
Benzo(a)anthracene	0.00196	U	0.00173	0.00600	1	10/11/2021 14:32	WG1753616
Benzo(a)pyrene	U		0.00179	0.00600	1	10/11/2021 14:32	WG1753616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/11/2021 14:32	WG1753616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	10/11/2021 14:32	WG1753616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/11/2021 14:32	WG1753616
Chrysene	U		0.00232	0.00600	1	10/11/2021 14:32	WG1753616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/11/2021 14:32	WG1753616
Fluoranthene	0.0163		0.00227	0.00600	1	10/11/2021 14:32	WG1753616
Fluorene	0.00597	U	0.00205	0.00600	1	10/11/2021 14:32	WG1753616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/11/2021 14:32	WG1753616
Naphthalene	0.0204		0.00408	0.0200	1	10/11/2021 14:32	WG1753616
Phenanthrene	0.0312		0.00231	0.00600	1	10/11/2021 14:32	WG1753616
Pyrene	0.0114		0.00200	0.00600	1	10/11/2021 14:32	WG1753616
1-Methylnaphthalene	U		0.00449	0.0200	1	10/11/2021 14:32	WG1753616
2-Methylnaphthalene	U		0.00427	0.0200	1	10/11/2021 14:32	WG1753616
2-Chloronaphthalene	U		0.00466	0.0200	1	10/11/2021 14:32	WG1753616
(S) p-Terphenyl-d14	98.7			23.0-120		10/11/2021 14:32	WG1753616
(S) Nitrobenzene-d5	102			14.0-149		10/11/2021 14:32	WG1753616
(S) 2-Fluorobiphenyl	82.3			34.0-125		10/11/2021 14:32	WG1753616

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.52		1	10/10/2021 21:34	WG1753640

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	10/13/2021 12:26	WG1753456

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.23	T8	1	10/12/2021 16:00	WG1755374

Sample Narrative:

L1412425-04 WG1755374: 8.23 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	473		10.0	1	10/11/2021 13:37	WG1754492

Sample Narrative:

L1412425-04 WG1754492: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	393		0.0852	0.500	1	10/09/2021 20:11	WG1753588
Cadmium	0.533		0.0471	0.500	1	10/09/2021 20:11	WG1753588
Copper	35.6		0.400	2.00	1	10/09/2021 20:11	WG1753588
Lead	15.5		0.208	0.500	1	10/09/2021 20:11	WG1753588
Nickel	20.9		0.132	2.00	1	10/09/2021 20:11	WG1753588
Selenium	U		0.764	2.00	1	10/09/2021 20:11	WG1753588
Silver	U		0.127	1.00	1	10/09/2021 20:11	WG1753588
Zinc	41.1		0.832	5.00	1	10/09/2021 20:11	WG1753588

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.394		0.0167	0.200	1	10/11/2021 12:47	WG1753638

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	22.7		0.100	1.00	5	10/08/2021 19:22	WG1753590

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0610	J	0.0217	0.100	1	10/08/2021 09:46	WG1753164
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	95.3			77.0-120		10/08/2021 09:46	WG1753164

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	10/07/2021 08:35	WG1752862
Toluene	U		0.00130	0.00500	1	10/07/2021 08:35	WG1752862
Ethylbenzene	U		0.000737	0.00250	1	10/07/2021 08:35	WG1752862
Xylenes, Total	0.00115	U	0.000880	0.00650	1	10/07/2021 08:35	WG1752862
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/07/2021 08:35	WG1752862
1,3,5-Trimethylbenzene	0.00255	U	0.00200	0.00500	1	10/07/2021 08:35	WG1752862
(S) Toluene-d8	112			75.0-131		10/07/2021 08:35	WG1752862
(S) 4-Bromofluorobenzene	83.0			67.0-138		10/07/2021 08:35	WG1752862
(S) 1,2-Dichloroethane-d4	91.4			70.0-130		10/07/2021 08:35	WG1752862

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	19.4		1.61	4.00	1	10/11/2021 10:10	WG1754390
C28-C36 Motor Oil Range	90.5		0.274	4.00	1	10/11/2021 10:10	WG1754390
(S) o-Terphenyl	58.5			18.0-148		10/11/2021 10:10	WG1754390

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	10/11/2021 14:49	WG1753616
Acenaphthene	U		0.00209	0.00600	1	10/11/2021 14:49	WG1753616
Acenaphthylene	U		0.00216	0.00600	1	10/11/2021 14:49	WG1753616
Benzo(a)anthracene	U		0.00173	0.00600	1	10/11/2021 14:49	WG1753616
Benzo(a)pyrene	U		0.00179	0.00600	1	10/11/2021 14:49	WG1753616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/11/2021 14:49	WG1753616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	10/11/2021 14:49	WG1753616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/11/2021 14:49	WG1753616
Chrysene	U		0.00232	0.00600	1	10/11/2021 14:49	WG1753616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/11/2021 14:49	WG1753616
Fluoranthene	U		0.00227	0.00600	1	10/11/2021 14:49	WG1753616
Fluorene	U		0.00205	0.00600	1	10/11/2021 14:49	WG1753616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/11/2021 14:49	WG1753616
Naphthalene	U		0.00408	0.0200	1	10/11/2021 14:49	WG1753616
Phenanthrene	U		0.00231	0.00600	1	10/11/2021 14:49	WG1753616
Pyrene	U		0.00200	0.00600	1	10/11/2021 14:49	WG1753616
1-Methylnaphthalene	U		0.00449	0.0200	1	10/11/2021 14:49	WG1753616
2-Methylnaphthalene	U		0.00427	0.0200	1	10/11/2021 14:49	WG1753616
2-Chloronaphthalene	U		0.00466	0.0200	1	10/11/2021 14:49	WG1753616
(S) p-Terphenyl-d14	89.9			23.0-120		10/11/2021 14:49	WG1753616
(S) Nitrobenzene-d5	92.1			14.0-149		10/11/2021 14:49	WG1753616
(S) 2-Fluorobiphenyl	76.0			34.0-125		10/11/2021 14:49	WG1753616

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3716532-1 10/13/21 11:28

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1412766-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1412766-05 10/13/21 13:12 • (DUP) R3716532-7 10/13/21 13:17

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

L1411915-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1411915-03 10/13/21 13:33 • (DUP) R3716532-8 10/13/21 13:38

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

Laboratory Control Sample (LCS)

(LCS) R3716532-2 10/13/21 11:34

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	11.0	110	80.0-120	

L1412425-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412425-01 10/13/21 12:00 • (MS) R3716532-3 10/13/21 12:05 • (MSD) R3716532-4 10/13/21 12:10

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	15.8	17.8	79.2	88.8	1	75.0-125			11.4	20

L1412425-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1412425-01 10/13/21 12:00 • (MS) R3716532-5 10/13/21 12:15

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	659	U	686	104	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1412431-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1412431-01 10/12/21 16:00 • (DUP) R3715445-2 10/12/21 16:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.65	8.60	1	0.580		1

Sample Narrative:

OS: 8.65 at 21.3C

DUP: 8.6 at 21.3C

Laboratory Control Sample (LCS)

(LCS) R3715445-1 10/12/21 16:00

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

Sample Narrative:

LCS: 10.05 at 20.1C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3714797-1 10/11/21 13:37

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

Sample Narrative:

BLANK: at 25C

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3714797-3 10/11/21 13:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
		umhos/cm		%		%
Specific Conductance		1080	1	2.74		20

Sample Narrative:

DUP: at 25C

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3714797-4 10/11/21 13:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
		umhos/cm		%		%
Specific Conductance		189	1	0.583		20

Sample Narrative:

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3714797-2 10/11/21 13:37

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	271	101	85.0-115	

Sample Narrative:

LCS: at 25C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3714491-1 10/09/21 19:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
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) R3714491-2 10/09/21 19:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	99.9	99.9	80.0-120	
Cadmium	100	95.5	95.5	80.0-120	
Copper	100	93.4	93.4	80.0-120	
Lead	100	95.1	95.1	80.0-120	
Nickel	100	97.4	97.4	80.0-120	
Selenium	100	96.7	96.7	80.0-120	
Silver	20.0	18.6	92.9	80.0-120	
Zinc	100	93.9	93.9	80.0-120	

L1412766-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412766-03 10/09/21 19:18 • (MS) R3714491-5 10/09/21 19:26 • (MSD) R3714491-6 10/09/21 19:29

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 %
Barium	100	896	619	547	0.000	0.000	1	75.0-125	V	V	12.4	20
Cadmium	100	0.208	105	102	105	102	1	75.0-125			2.81	20
Copper	100	12.6	120	114	107	101	1	75.0-125			5.26	20
Lead	100	19.4	127	120	107	101	1	75.0-125			5.15	20
Nickel	100	10.4	116	113	106	102	1	75.0-125			3.26	20
Selenium	100	U	105	101	105	101	1	75.0-125			3.96	20
Silver	20.0	U	20.9	20.4	105	102	1	75.0-125			2.79	20
Zinc	100	36.1	145	136	109	100	1	75.0-125			5.95	20

Method Blank (MB)

(MB) R3714834-1 10/11/21 12:13

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

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

(LCS) R3714834-2 10/11/21 12:16 • (LCSD) R3714834-3 10/11/21 12:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.979	0.993	97.9	99.3	80.0-120			1.39	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3714238-1 10/08/21 18:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3714238-2 10/08/21 18:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.5	97.5	80.0-120	

L1412766-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412766-03 10/08/21 18:20 • (MS) R3714238-5 10/08/21 18:30 • (MSD) R3714238-6 10/08/21 18:34

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.88	108	108	105	105	5	75.0-125			0.288	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3715416-2 10/08/21 03:55

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)	97.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3715416-1 10/08/21 03:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.77	86.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			94.3	77.0-120	

L1411653-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1411653-05 10/08/21 04:18 • (MS) R3715416-3 10/08/21 13:06 • (MSD) R3715416-4 10/08/21 13:30

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 %
TPH (GC/FID) Low Fraction	5.50	U	1.64	1.79	29.8	32.5	1	10.0-151			8.75	28
(S) a,a,a-Trifluorotoluene(FID)					96.1	97.3		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) R3715451-3 10/07/21 06:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	109			75.0-131
(S) 4-Bromofluorobenzene	88.9			67.0-138
(S) 1,2-Dichloroethane-d4	89.1			70.0-130

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

(LCS) R3715451-1 10/07/21 05:29 • (LCSD) R3715451-2 10/07/21 05:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.121	0.122	96.8	97.6	70.0-123			0.823	20
Ethylbenzene	0.125	0.114	0.115	91.2	92.0	74.0-126			0.873	20
Toluene	0.125	0.113	0.121	90.4	96.8	75.0-121			6.84	20
1,2,4-Trimethylbenzene	0.125	0.118	0.115	94.4	92.0	70.0-126			2.58	20
1,3,5-Trimethylbenzene	0.125	0.115	0.119	92.0	95.2	73.0-127			3.42	20
Xylenes, Total	0.375	0.323	0.324	86.1	86.4	72.0-127			0.309	20
(S) Toluene-d8				98.4	104	75.0-131				
(S) 4-Bromofluorobenzene				96.3	90.3	67.0-138				
(S) 1,2-Dichloroethane-d4				106	103	70.0-130				

L1412425-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412425-01 10/07/21 07:26 • (MS) R3715451-4 10/07/21 13:59 • (MSD) R3715451-5 10/07/21 14:19

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.0172	0.142	0.147	99.8	104	1	10.0-149			3.46	37
Ethylbenzene	0.125	U	0.116	0.116	92.8	92.8	1	10.0-160			0.000	38
1,2,4-Trimethylbenzene	0.125	U	0.114	0.118	91.2	94.4	1	10.0-160			3.45	36
1,3,5-Trimethylbenzene	0.125	U	0.114	0.120	91.2	96.0	1	10.0-160			5.13	38
Toluene	0.125	0.0104	0.133	0.135	98.1	99.7	1	10.0-156			1.49	38
Xylenes, Total	0.375	U	0.316	0.312	84.3	83.2	1	10.0-160			1.27	38
(S) Toluene-d8					105	105		75.0-131				
(S) 4-Bromofluorobenzene					85.6	85.9		67.0-138				
(S) 1,2-Dichloroethane-d4					93.2	94.8		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3714552-1 10/10/21 14:26

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	55.4			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3714552-2 10/10/21 14:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	34.7	69.4	50.0-150	
(S) o-Terphenyl			69.5	18.0-148	

L1412483-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412483-03 10/10/21 17:51 • (MS) R3714552-3 10/10/21 18:04 • (MSD) R3714552-4 10/10/21 18:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	6.06	30.5	34.9	48.9	57.7	1	50.0-150	J6		13.5	20
(S) o-Terphenyl					54.2	59.6		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3714750-2 10/11/21 08:44

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	109			14.0-149
(S) 2-Fluorobiphenyl	94.6			34.0-125
(S) p-Terphenyl-d14	126	J1		23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3714750-1 10/11/21 08:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0686	85.8	50.0-126	
Acenaphthene	0.0800	0.0739	92.4	50.0-120	
Acenaphthylene	0.0800	0.0710	88.8	50.0-120	
Benzo(a)anthracene	0.0800	0.0691	86.4	45.0-120	
Benzo(a)pyrene	0.0800	0.0614	76.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0827	103	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0765	95.6	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0824	103	49.0-125	
Chrysene	0.0800	0.0781	97.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0733	91.6	47.0-125	
Fluoranthene	0.0800	0.0758	94.8	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3714750-1 10/11/21 08:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0776	97.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0686	85.8	46.0-125	
Naphthalene	0.0800	0.0721	90.1	50.0-120	
Phenanthrene	0.0800	0.0773	96.6	47.0-120	
Pyrene	0.0800	0.0780	97.5	43.0-123	
1-Methylnaphthalene	0.0800	0.0732	91.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0707	88.4	50.0-120	
2-Chloronaphthalene	0.0800	0.0736	92.0	50.0-120	
(S) Nitrobenzene-d5			115	14.0-149	
(S) 2-Fluorobiphenyl			97.2	34.0-125	
(S) p-Terphenyl-d14			119	23.0-120	

L1412431-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412431-02 10/11/21 15:24 • (MS) R3714750-3 10/11/21 15:41 • (MSD) R3714750-4 10/11/21 15:59

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	0.0772	U	0.0577	0.0504	74.7	67.0	1	10.0-145			13.5	30
Acenaphthene	0.0772	U	0.0668	0.0590	86.5	78.5	1	14.0-127			12.4	27
Acenaphthylene	0.0772	U	0.0613	0.0540	79.4	71.8	1	21.0-124			12.7	25
Benzo(a)anthracene	0.0772	U	0.0587	0.0512	76.0	68.1	1	10.0-139			13.6	30
Benzo(a)pyrene	0.0772	U	0.0584	0.0523	75.6	69.5	1	10.0-141			11.0	31
Benzo(b)fluoranthene	0.0772	U	0.0656	0.0583	85.0	77.5	1	10.0-140			11.8	36
Benzo(g,h,i)perylene	0.0772	U	0.0410	0.0345	53.1	45.9	1	10.0-140			17.2	33
Benzo(k)fluoranthene	0.0772	U	0.0644	0.0606	83.4	80.6	1	10.0-137			6.08	31
Chrysene	0.0772	U	0.0634	0.0574	82.1	76.3	1	10.0-145			9.93	30
Dibenz(a,h)anthracene	0.0772	U	0.0412	0.0340	53.4	45.2	1	10.0-132			19.1	31
Fluoranthene	0.0772	U	0.0609	0.0540	78.9	71.8	1	10.0-153			12.0	33
Fluorene	0.0772	0.0182	0.0824	0.0696	83.2	68.4	1	11.0-130			16.8	29
Indeno(1,2,3-cd)pyrene	0.0772	U	0.0387	0.0321	50.1	42.7	1	10.0-137			18.6	32
Naphthalene	0.0772	0.566	0.703	0.552	177	0.000	1	10.0-135	V	V	24.1	27
Phenanthrene	0.0772	0.00872	0.0724	0.0632	82.5	72.4	1	10.0-144			13.6	31
Pyrene	0.0772	U	0.0653	0.0587	84.6	78.1	1	10.0-148			10.6	35
1-Methylnaphthalene	0.0772	0.374	0.469	0.380	123	7.98	1	10.0-142		V	21.0	28
2-Methylnaphthalene	0.0772	1.07	1.25	1.00	233	0.000	1	10.0-137	V	V	22.2	28
2-Chloronaphthalene	0.0772	U	0.0598	0.0534	77.5	71.0	1	29.0-120			11.3	24
(S) Nitrobenzene-d5					0.000	0.000		14.0-149	J2	J2		
(S) 2-Fluorobiphenyl					89.8	71.2		34.0-125				
(S) p-Terphenyl-d14					102	90.3		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1412431-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412431-02 10/11/21 15:24 • (MS) R3714750-3 10/11/21 15:41 • (MSD) R3714750-4 10/11/21 15:59

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%

Sample Narrative:
OS: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

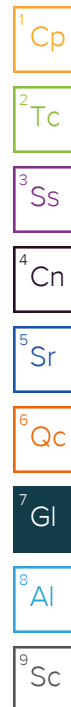
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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.
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
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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



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.



