

QB Energy

Sample Delivery Group: L1595630
Samples Received: 03/16/2023
Project Number:
Description: J14 496 Flowline Release
Site: J14 496
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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SAMPLE SUMMARY

20230314_J14-496_BOTTOM@4' L1595630-01 Solid

Collected by
Ahmed Shah

Collected date/time
03/14/23 09:45

Received date/time
03/16/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2025022	1	03/19/23 16:30	03/19/23 16:30	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2025789	1	03/18/23 12:31	03/21/23 05:39	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2025445	1	03/17/23 21:10	03/18/23 09:33	DB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2024847	1	03/17/23 17:00	03/18/23 15:26	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2025019	1	03/17/23 10:54	03/19/23 19:05	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2025439	20	03/17/23 17:01	03/20/23 12:25	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2025439	5	03/17/23 17:01	03/20/23 03:25	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2027553	25	03/17/23 14:08	03/22/23 12:45	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2025782	80	03/17/23 14:08	03/18/23 18:28	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2027277	5	03/21/23 20:34	03/22/23 11:46	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2026853	1	03/22/23 05:47	03/23/23 04:48	AMS	Mt. Juliet, TN



20230314_J14-496_EWALL@4' L1595630-02 Solid

Collected by
Ahmed Shah

Collected date/time
03/14/23 10:00

Received date/time
03/16/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2025022	1	03/19/23 16:33	03/19/23 16:33	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2025789	1	03/18/23 12:31	03/21/23 05:44	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2025445	1	03/17/23 21:10	03/18/23 09:33	DB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2024847	1	03/17/23 17:00	03/18/23 15:26	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2025019	1	03/17/23 10:54	03/19/23 19:08	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2025439	5	03/17/23 17:01	03/20/23 03:29	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2027553	25	03/17/23 14:08	03/22/23 13:08	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2026697	1	03/17/23 14:08	03/20/23 23:23	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2027277	1	03/21/23 20:34	03/22/23 10:51	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2027320	1	03/22/23 08:32	03/23/23 05:21	AMS	Mt. Juliet, TN

20230314_J14-496_WWALL@4' L1595630-03 Solid

Collected by
Ahmed Shah

Collected date/time
03/14/23 10:05

Received date/time
03/16/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2025022	1	03/19/23 16:35	03/19/23 16:35	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2025789	1	03/18/23 12:31	03/21/23 05:49	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2025445	1	03/17/23 21:10	03/18/23 09:33	DB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2025290	1	03/22/23 07:00	03/22/23 11:06	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2025019	1	03/17/23 10:54	03/19/23 19:16	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2025439	5	03/17/23 17:01	03/20/23 03:32	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2026123	1	03/17/23 14:08	03/19/23 15:28	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2025782	1	03/17/23 14:08	03/18/23 12:59	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2027277	1	03/21/23 20:34	03/22/23 10:31	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2027320	1	03/22/23 08:32	03/23/23 05:38	AMS	Mt. Juliet, TN

20230314_J14-496_SWALL@4' L1595630-04 Solid

Collected by
Ahmed Shah

Collected date/time
03/14/23 10:10

Received date/time
03/16/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2025022	1	03/19/23 16:38	03/19/23 16:38	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2025789	1	03/18/23 12:31	03/21/23 06:00	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2025445	1	03/17/23 21:10	03/18/23 09:33	DB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2025290	1	03/22/23 07:00	03/22/23 11:06	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2025019	1	03/17/23 10:54	03/19/23 19:18	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2025439	5	03/17/23 17:01	03/20/23 01:20	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2026123	1	03/17/23 14:08	03/19/23 15:48	NCD	Mt. Juliet, TN

SAMPLE SUMMARY

20230314_J14-496_SWALL@4' L1595630-04 Solid

Collected by
Ahmed Shah

Collected date/time
03/14/23 10:10

Received date/time
03/16/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2025782	1	03/17/23 14:08	03/18/23 13:18	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2027277	1	03/21/23 20:34	03/22/23 10:44	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2027320	1	03/22/23 08:32	03/23/23 06:30	AMS	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

20230314_J14-496_NWALL@4' L1595630-05 Solid

Collected by
Ahmed Shah

Collected date/time
03/14/23 10:15

Received date/time
03/16/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2025022	1	03/19/23 16:41	03/19/23 16:41	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2025789	1	03/18/23 12:31	03/21/23 06:05	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2025445	1	03/17/23 21:10	03/18/23 09:33	DB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2025290	1	03/22/23 07:00	03/22/23 11:06	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2025019	1	03/17/23 10:54	03/19/23 19:21	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2025439	20	03/17/23 17:01	03/20/23 12:28	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2025439	5	03/17/23 17:01	03/20/23 03:09	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2027553	100	03/17/23 14:08	03/22/23 13:31	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2025782	80	03/17/23 14:08	03/18/23 19:06	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2027277	25	03/21/23 20:34	03/22/23 11:25	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2027320	1	03/22/23 08:32	03/23/23 06:47	AMS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2027320	10	03/22/23 08:32	03/23/23 15:26	AED	Mt. Juliet, TN

⁵Sr

⁶Qc

⁷Gl

⁸Al

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



Report Revision History

Level II Report - Version 1: 03/24/23 15:56

Project Narrative

Report regenerated 11/14/24 for corrupted PDF

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	1.95		1	03/19/2023 16:30	WG2025022

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	03/21/2023 05:39	WG2025789

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.27	T8	1	03/18/2023 09:33	WG2025445

Sample Narrative:

L1595630-01 WG2025445: 8.27 at 20.8C

Wet Chemistry by Method 9050AMod

	Result	Units	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte							
Specific Conductance	205	umhos/cm		10.0	1	03/18/2023 15:26	WG2024847

Sample Narrative:

L1595630-01 WG2024847: at 25C

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

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.164	J	0.0167	0.200	1	03/19/2023 19:05	WG2025019

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	3.01		0.100	1.00	5	03/20/2023 03:25	WG2025439
Barium	2330		0.608	10.0	20	03/20/2023 12:25	WG2025439
Cadmium	0.174	J	0.0855	1.00	5	03/20/2023 03:25	WG2025439
Copper	15.3		0.132	5.00	5	03/20/2023 03:25	WG2025439
Lead	10.2		0.0990	2.00	5	03/20/2023 03:25	WG2025439
Nickel	6.59		0.197	2.50	5	03/20/2023 03:25	WG2025439
Selenium	0.331	J	0.180	2.50	5	03/20/2023 03:25	WG2025439
Silver	U		0.0865	0.500	5	03/20/2023 03:25	WG2025439
Zinc	47.2		0.740	25.0	5	03/20/2023 03:25	WG2025439

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

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	34.0		0.543	2.50	25	03/22/2023 12:45	WG2027553
(S) a,a,a-Trifluorotoluene(FID)	97.1			77.0-120		03/22/2023 12:45	WG2027553

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

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		0.0374	0.0800	80	03/18/2023 18:28	WG2025782
Toluene	U		0.104	0.400	80	03/18/2023 18:28	WG2025782
Ethylbenzene	U		0.0590	0.200	80	03/18/2023 18:28	WG2025782
Xylenes, Total	U		0.0704	0.520	80	03/18/2023 18:28	WG2025782
1,2,4-Trimethylbenzene	0.454		0.126	0.400	80	03/18/2023 18:28	WG2025782
1,3,5-Trimethylbenzene	0.502		0.160	0.400	80	03/18/2023 18:28	WG2025782
(S) Toluene-d8	99.3			75.0-131		03/18/2023 18:28	WG2025782
(S) 4-Bromofluorobenzene	93.1			67.0-138		03/18/2023 18:28	WG2025782
(S) 1,2-Dichloroethane-d4	104			70.0-130		03/18/2023 18:28	WG2025782

Sample Narrative:

L1595630-01 WG2025782: Non-target compounds too high to run at a lower dilution.

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	242		8.05	20.0	5	03/22/2023 11:46	WG2027277
C28-C36 Motor Oil Range	199		1.37	20.0	5	03/22/2023 11:46	WG2027277
(S) o-Terphenyl	44.3			18.0-148		03/22/2023 11:46	WG2027277

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
Acenaphthene	0.00527	J	0.00209	0.00600	1	03/23/2023 04:48	WG2026853
Anthracene	U		0.00230	0.00600	1	03/23/2023 04:48	WG2026853
Benzo(a)anthracene	U		0.00173	0.00600	1	03/23/2023 04:48	WG2026853
Benzo(b)fluoranthene	U		0.00153	0.00600	1	03/23/2023 04:48	WG2026853
Benzo(k)fluoranthene	U		0.00215	0.00600	1	03/23/2023 04:48	WG2026853
Benzo(a)pyrene	U		0.00179	0.00600	1	03/23/2023 04:48	WG2026853
Chrysene	U		0.00232	0.00600	1	03/23/2023 04:48	WG2026853
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	03/23/2023 04:48	WG2026853
Fluoranthene	U		0.00227	0.00600	1	03/23/2023 04:48	WG2026853
Fluorene	0.0103		0.00205	0.00600	1	03/23/2023 04:48	WG2026853
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	03/23/2023 04:48	WG2026853
1-Methylnaphthalene	0.284		0.00449	0.0200	1	03/23/2023 04:48	WG2026853
2-Methylnaphthalene	0.935		0.00427	0.0200	1	03/23/2023 04:48	WG2026853
Naphthalene	0.345		0.00408	0.0200	1	03/23/2023 04:48	WG2026853
Pyrene	0.00240	J	0.00200	0.00600	1	03/23/2023 04:48	WG2026853
(S) p-Terphenyl-d14	91.3			23.0-120		03/23/2023 04:48	WG2026853
(S) Nitrobenzene-d5	331	J1		14.0-149		03/23/2023 04:48	WG2026853
(S) 2-Fluorobiphenyl	87.3			34.0-125		03/23/2023 04:48	WG2026853

Sample Narrative:

L1595630-01 WG2026853: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	1.00		1	03/19/2023 16:33	WG2025022

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	03/21/2023 05:44	WG2025789

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.66	T8	1	03/18/2023 09:33	WG2025445

Sample Narrative:

L1595630-02 WG2025445: 8.66 at 20.4C

Wet Chemistry by Method 9050AMod

	Result	Units	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte							
Specific Conductance	112	umhos/cm		10.0	1	03/18/2023 15:26	WG2024847

Sample Narrative:

L1595630-02 WG2024847: at 25C

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

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.0959	J	0.0167	0.200	1	03/19/2023 19:08	WG2025019

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	4.15		0.100	1.00	5	03/20/2023 03:29	WG2025439
Barium	571		0.152	2.50	5	03/20/2023 03:29	WG2025439
Cadmium	0.304	J	0.0855	1.00	5	03/20/2023 03:29	WG2025439
Copper	12.9		0.132	5.00	5	03/20/2023 03:29	WG2025439
Lead	7.56		0.0990	2.00	5	03/20/2023 03:29	WG2025439
Nickel	8.61		0.197	2.50	5	03/20/2023 03:29	WG2025439
Selenium	0.391	J	0.180	2.50	5	03/20/2023 03:29	WG2025439
Silver	U		0.0865	0.500	5	03/20/2023 03:29	WG2025439
Zinc	31.1		0.740	25.0	5	03/20/2023 03:29	WG2025439

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

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	28.3		0.543	2.50	25	03/22/2023 13:08	WG2027553
(S) a,a,a-Trifluorotoluene(FID)	97.4			77.0-120		03/22/2023 13:08	WG2027553

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

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	0.365		0.000467	0.00100	1	03/20/2023 23:23	WG2026697
Toluene	2.08		0.00130	0.00500	1	03/20/2023 23:23	WG2026697
Ethylbenzene	0.197		0.000737	0.00250	1	03/20/2023 23:23	WG2026697
Xylenes, Total	3.80		0.000880	0.00650	1	03/20/2023 23:23	WG2026697
1,2,4-Trimethylbenzene	1.47		0.00158	0.00500	1	03/20/2023 23:23	WG2026697
1,3,5-Trimethylbenzene	1.37		0.00200	0.00500	1	03/20/2023 23:23	WG2026697
(S) Toluene-d8	99.7			75.0-131		03/20/2023 23:23	WG2026697
(S) 4-Bromofluorobenzene	97.4			67.0-138		03/20/2023 23:23	WG2026697
(S) 1,2-Dichloroethane-d4	94.8			70.0-130		03/20/2023 23:23	WG2026697

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	71.3		1.61	4.00	1	03/22/2023 10:51	WG2027277
C28-C36 Motor Oil Range	76.2		0.274	4.00	1	03/22/2023 10:51	WG2027277
(S) o-Terphenyl	50.9			18.0-148		03/22/2023 10:51	WG2027277

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
Acenaphthene	U		0.00209	0.00600	1	03/23/2023 05:21	WG2027320
Anthracene	U		0.00230	0.00600	1	03/23/2023 05:21	WG2027320
Benzo(a)anthracene	U		0.00173	0.00600	1	03/23/2023 05:21	WG2027320
Benzo(b)fluoranthene	U		0.00153	0.00600	1	03/23/2023 05:21	WG2027320
Benzo(k)fluoranthene	U		0.00215	0.00600	1	03/23/2023 05:21	WG2027320
Benzo(a)pyrene	U		0.00179	0.00600	1	03/23/2023 05:21	WG2027320
Chrysene	U		0.00232	0.00600	1	03/23/2023 05:21	WG2027320
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	03/23/2023 05:21	WG2027320
Fluoranthene	U		0.00227	0.00600	1	03/23/2023 05:21	WG2027320
Fluorene	U		0.00205	0.00600	1	03/23/2023 05:21	WG2027320
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	03/23/2023 05:21	WG2027320
1-Methylnaphthalene	0.0846		0.00449	0.0200	1	03/23/2023 05:21	WG2027320
2-Methylnaphthalene	0.368		0.00427	0.0200	1	03/23/2023 05:21	WG2027320
Naphthalene	0.589		0.00408	0.0200	1	03/23/2023 05:21	WG2027320
Pyrene	U	J4	0.00200	0.00600	1	03/23/2023 05:21	WG2027320
(S) p-Terphenyl-d14	135	J1		23.0-120		03/23/2023 05:21	WG2027320
(S) Nitrobenzene-d5	133			14.0-149		03/23/2023 05:21	WG2027320
(S) 2-Fluorobiphenyl	108			34.0-125		03/23/2023 05:21	WG2027320

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	4.51		1	03/19/2023 16:35	WG2025022

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	03/21/2023 05:49	WG2025789

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.60	T8	1	03/18/2023 09:33	WG2025445

Sample Narrative:

L1595630-03 WG2025445: 8.6 at 20.2C

Wet Chemistry by Method 9050AMod

	Result	Units	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte							
Specific Conductance	301	umhos/cm		10.0	1	03/22/2023 11:06	WG2025290

Sample Narrative:

L1595630-03 WG2025290: at 25C

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

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.320		0.0167	0.200	1	03/19/2023 19:16	WG2025019

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	4.91		0.100	1.00	5	03/20/2023 03:32	WG2025439
Barium	603		0.152	2.50	5	03/20/2023 03:32	WG2025439
Cadmium	0.138	J	0.0855	1.00	5	03/20/2023 03:32	WG2025439
Copper	9.40		0.132	5.00	5	03/20/2023 03:32	WG2025439
Lead	8.06		0.0990	2.00	5	03/20/2023 03:32	WG2025439
Nickel	15.4		0.197	2.50	5	03/20/2023 03:32	WG2025439
Selenium	0.310	J	0.180	2.50	5	03/20/2023 03:32	WG2025439
Silver	U		0.0865	0.500	5	03/20/2023 03:32	WG2025439
Zinc	37.6		0.740	25.0	5	03/20/2023 03:32	WG2025439

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

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	0.832		0.0217	0.100	1	03/19/2023 15:28	WG2026123
(S) a,a,a-Trifluorotoluene(FID)	95.1			77.0-120		03/19/2023 15:28	WG2026123

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

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	03/18/2023 12:59	WG2025782
Toluene	0.00288	U	0.00130	0.00500	1	03/18/2023 12:59	WG2025782
Ethylbenzene	0.00247	U	0.000737	0.00250	1	03/18/2023 12:59	WG2025782
Xylenes, Total	0.0230		0.000880	0.00650	1	03/18/2023 12:59	WG2025782
1,2,4-Trimethylbenzene	0.0180		0.00158	0.00500	1	03/18/2023 12:59	WG2025782
1,3,5-Trimethylbenzene	0.0136		0.00200	0.00500	1	03/18/2023 12:59	WG2025782
(S) Toluene-d8	99.0			75.0-131		03/18/2023 12:59	WG2025782
(S) 4-Bromofluorobenzene	88.7			67.0-138		03/18/2023 12:59	WG2025782
(S) 1,2-Dichloroethane-d4	94.8			70.0-130		03/18/2023 12:59	WG2025782

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	8.87		1.61	4.00	1	03/22/2023 10:31	WG2027277
C28-C36 Motor Oil Range	16.1		0.274	4.00	1	03/22/2023 10:31	WG2027277
(S) o-Terphenyl	48.6			18.0-148		03/22/2023 10:31	WG2027277

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
Acenaphthene	U		0.00209	0.00600	1	03/23/2023 05:38	WG2027320
Anthracene	U		0.00230	0.00600	1	03/23/2023 05:38	WG2027320
Benzo(a)anthracene	U		0.00173	0.00600	1	03/23/2023 05:38	WG2027320
Benzo(b)fluoranthene	U		0.00153	0.00600	1	03/23/2023 05:38	WG2027320
Benzo(k)fluoranthene	U		0.00215	0.00600	1	03/23/2023 05:38	WG2027320
Benzo(a)pyrene	U		0.00179	0.00600	1	03/23/2023 05:38	WG2027320
Chrysene	U		0.00232	0.00600	1	03/23/2023 05:38	WG2027320
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	03/23/2023 05:38	WG2027320
Fluoranthene	U		0.00227	0.00600	1	03/23/2023 05:38	WG2027320
Fluorene	U		0.00205	0.00600	1	03/23/2023 05:38	WG2027320
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	03/23/2023 05:38	WG2027320
1-Methylnaphthalene	0.00743	U	0.00449	0.0200	1	03/23/2023 05:38	WG2027320
2-Methylnaphthalene	0.0169	U	0.00427	0.0200	1	03/23/2023 05:38	WG2027320
Naphthalene	0.00840	U	0.00408	0.0200	1	03/23/2023 05:38	WG2027320
Pyrene	U	U4	0.00200	0.00600	1	03/23/2023 05:38	WG2027320
(S) p-Terphenyl-d14	102			23.0-120		03/23/2023 05:38	WG2027320
(S) Nitrobenzene-d5	87.8			14.0-149		03/23/2023 05:38	WG2027320
(S) 2-Fluorobiphenyl	91.0			34.0-125		03/23/2023 05:38	WG2027320



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.77		1	03/19/2023 16:38	WG2025022

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.401	J	0.255	1.00	1	03/21/2023 06:00	WG2025789

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.81	T8	1	03/18/2023 09:33	WG2025445

Sample Narrative:
L1595630-04 WG2025445: 8.81 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Units	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	379	umhos/cm		10.0	1	03/22/2023 11:06	WG2025290

Sample Narrative:
L1595630-04 WG2025290: at 25C

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	0.0877	J	0.0167	0.200	1	03/19/2023 19:18	WG2025019

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.71		0.100	1.00	5	03/20/2023 01:20	WG2025439
Barium	423		0.152	2.50	5	03/20/2023 01:20	WG2025439
Cadmium	0.337	J	0.0855	1.00	5	03/20/2023 01:20	WG2025439
Copper	10.7		0.132	5.00	5	03/20/2023 01:20	WG2025439
Lead	9.03		0.0990	2.00	5	03/20/2023 01:20	WG2025439
Nickel	15.2		0.197	2.50	5	03/20/2023 01:20	WG2025439
Selenium	0.433	J	0.180	2.50	5	03/20/2023 01:20	WG2025439
Silver	U		0.0865	0.500	5	03/20/2023 01:20	WG2025439
Zinc	38.4		0.740	25.0	5	03/20/2023 01:20	WG2025439

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	0.0500	J	0.0217	0.100	1	03/19/2023 15:48	WG2026123
(S) a,a,a-Trifluorotoluene(FID)	95.0			77.0-120		03/19/2023 15:48	WG2026123

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

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	03/18/2023 13:18	WG2025782
Toluene	U		0.00130	0.00500	1	03/18/2023 13:18	WG2025782
Ethylbenzene	U		0.000737	0.00250	1	03/18/2023 13:18	WG2025782
Xylenes, Total	U		0.000880	0.00650	1	03/18/2023 13:18	WG2025782
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	03/18/2023 13:18	WG2025782
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	03/18/2023 13:18	WG2025782
(S) Toluene-d8	95.5			75.0-131		03/18/2023 13:18	WG2025782
(S) 4-Bromofluorobenzene	89.9			67.0-138		03/18/2023 13:18	WG2025782
(S) 1,2-Dichloroethane-d4	94.9			70.0-130		03/18/2023 13:18	WG2025782

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	8.23		1.61	4.00	1	03/22/2023 10:44	WG2027277
C28-C36 Motor Oil Range	20.2		0.274	4.00	1	03/22/2023 10:44	WG2027277
(S) o-Terphenyl	48.3			18.0-148		03/22/2023 10:44	WG2027277

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
Acenaphthene	U		0.00209	0.00600	1	03/23/2023 06:30	WG2027320
Anthracene	U		0.00230	0.00600	1	03/23/2023 06:30	WG2027320
Benzo(a)anthracene	U		0.00173	0.00600	1	03/23/2023 06:30	WG2027320
Benzo(b)fluoranthene	U		0.00153	0.00600	1	03/23/2023 06:30	WG2027320
Benzo(k)fluoranthene	U		0.00215	0.00600	1	03/23/2023 06:30	WG2027320
Benzo(a)pyrene	U		0.00179	0.00600	1	03/23/2023 06:30	WG2027320
Chrysene	U		0.00232	0.00600	1	03/23/2023 06:30	WG2027320
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	03/23/2023 06:30	WG2027320
Fluoranthene	U		0.00227	0.00600	1	03/23/2023 06:30	WG2027320
Fluorene	U		0.00205	0.00600	1	03/23/2023 06:30	WG2027320
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	03/23/2023 06:30	WG2027320
1-Methylnaphthalene	U		0.00449	0.0200	1	03/23/2023 06:30	WG2027320
2-Methylnaphthalene	U		0.00427	0.0200	1	03/23/2023 06:30	WG2027320
Naphthalene	U		0.00408	0.0200	1	03/23/2023 06:30	WG2027320
Pyrene	U	J4	0.00200	0.00600	1	03/23/2023 06:30	WG2027320
(S) p-Terphenyl-d14	116			23.0-120		03/23/2023 06:30	WG2027320
(S) Nitrobenzene-d5	88.9			14.0-149		03/23/2023 06:30	WG2027320
(S) 2-Fluorobiphenyl	95.1			34.0-125		03/23/2023 06:30	WG2027320

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	21.8		1	03/19/2023 16:41	WG2025022

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	03/21/2023 06:05	WG2025789

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.65	T8	1	03/18/2023 09:33	WG2025445

Sample Narrative:
L1595630-05 WG2025445: 8.65 at 20.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Units	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1160	umhos/cm		10.0	1	03/22/2023 11:06	WG2025290

Sample Narrative:
L1595630-05 WG2025290: at 25C

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	0.308		0.0167	0.200	1	03/19/2023 19:21	WG2025019

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.25		0.100	1.00	5	03/20/2023 03:09	WG2025439
Barium	1490		0.608	10.0	20	03/20/2023 12:28	WG2025439
Cadmium	0.242	J	0.0855	1.00	5	03/20/2023 03:09	WG2025439
Copper	8.63		0.132	5.00	5	03/20/2023 03:09	WG2025439
Lead	6.79		0.0990	2.00	5	03/20/2023 03:09	WG2025439
Nickel	14.2		0.197	2.50	5	03/20/2023 03:09	WG2025439
Selenium	0.423	J	0.180	2.50	5	03/20/2023 03:09	WG2025439
Silver	U		0.0865	0.500	5	03/20/2023 03:09	WG2025439
Zinc	39.7		0.740	25.0	5	03/20/2023 03:09	WG2025439

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	201		2.17	10.0	100	03/22/2023 13:31	WG2027553
(S) a,a,a-Trifluorotoluene(FID)	93.0			77.0-120		03/22/2023 13:31	WG2027553

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

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	0.0380	<u>J</u>	0.0374	0.0800	80	03/18/2023 19:06	WG2025782
Toluene	1.08		0.104	0.400	80	03/18/2023 19:06	WG2025782
Ethylbenzene	0.396		0.0590	0.200	80	03/18/2023 19:06	WG2025782
Xylenes, Total	5.56		0.0704	0.520	80	03/18/2023 19:06	WG2025782
1,2,4-Trimethylbenzene	4.87		0.126	0.400	80	03/18/2023 19:06	WG2025782
1,3,5-Trimethylbenzene	5.75		0.160	0.400	80	03/18/2023 19:06	WG2025782
(S) Toluene-d8	90.6			75.0-131		03/18/2023 19:06	WG2025782
(S) 4-Bromofluorobenzene	93.1			67.0-138		03/18/2023 19:06	WG2025782
(S) 1,2-Dichloroethane-d4	102			70.0-130		03/18/2023 19:06	WG2025782

Sample Narrative:

L1595630-05 WG2025782: Non-target compounds too high to run at a lower dilution.

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	3910		40.3	100	25	03/22/2023 11:25	WG2027277
C28-C36 Motor Oil Range	169		6.85	100	25	03/22/2023 11:25	WG2027277
(S) o-Terphenyl	0.000	<u>J7</u>		18.0-148		03/22/2023 11:25	WG2027277

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
Acenaphthene	U		0.0209	0.0600	10	03/23/2023 15:26	WG2027320
Anthracene	U		0.00230	0.00600	1	03/23/2023 06:47	WG2027320
Benzo(a)anthracene	U		0.00173	0.00600	1	03/23/2023 06:47	WG2027320
Benzo(b)fluoranthene	0.00261	<u>J</u>	0.00153	0.00600	1	03/23/2023 06:47	WG2027320
Benzo(k)fluoranthene	U		0.00215	0.00600	1	03/23/2023 06:47	WG2027320
Benzo(a)pyrene	U		0.00179	0.00600	1	03/23/2023 06:47	WG2027320
Chrysene	0.00769		0.00232	0.00600	1	03/23/2023 06:47	WG2027320
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	03/23/2023 06:47	WG2027320
Fluoranthene	0.0230		0.00227	0.00600	1	03/23/2023 06:47	WG2027320
Fluorene	1.01		0.0205	0.0600	10	03/23/2023 15:26	WG2027320
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	03/23/2023 06:47	WG2027320
1-Methylnaphthalene	2.28		0.00449	0.0200	1	03/23/2023 06:47	WG2027320
2-Methylnaphthalene	9.54		0.0427	0.200	10	03/23/2023 15:26	WG2027320
Naphthalene	1.75		0.00408	0.0200	1	03/23/2023 06:47	WG2027320
Pyrene	0.0157	<u>J4</u>	0.00200	0.00600	1	03/23/2023 06:47	WG2027320
(S) p-Terphenyl-d14	116			23.0-120		03/23/2023 06:47	WG2027320
(S) p-Terphenyl-d14	106			23.0-120		03/23/2023 15:26	WG2027320
(S) Nitrobenzene-d5	1410	<u>J1</u>		14.0-149		03/23/2023 15:26	WG2027320
(S) Nitrobenzene-d5	1020	<u>J1</u>		14.0-149		03/23/2023 06:47	WG2027320
(S) 2-Fluorobiphenyl	40.8			34.0-125		03/23/2023 06:47	WG2027320
(S) 2-Fluorobiphenyl	130	<u>J1</u>		34.0-125		03/23/2023 15:26	WG2027320

Sample Narrative:

L1595630-05 WG2027320: Surrogate failure due to matrix interference



Method Blank (MB)

(MB) R3903307-1 03/21/23 03:27

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

L1591732-33 Original Sample (OS) • Duplicate (DUP)

(OS) L1591732-33 03/21/23 04:05 • (DUP) R3903307-3 03/21/23 04:11

	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

L1595630-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1595630-03 03/21/23 05:49 • (DUP) R3903307-8 03/21/23 05:55

	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) R3903307-2 03/21/23 03:34

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1591732-42 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1591732-42 03/21/23 04:42 • (MS) R3903307-4 03/21/23 04:47 • (MSD) R3903307-5 03/21/23 04:52

	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	19.2	20.0	95.9	99.8	1	75.0-125			3.95	20

L1591732-42 Original Sample (OS) • Matrix Spike (MS)

(OS) L1591732-42 03/21/23 04:42 • (MS) R3903307-6 03/21/23 04:57

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	643	U	703	109	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

L1595630-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1595630-05 03/18/23 09:33 • (DUP) R3902535-2 03/18/23 09:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.65	8.70	1	0.576		1

Sample Narrative:
OS: 8.65 at 20.6C
DUP: 8.7 at 20.5C

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

L1595676-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1595676-01 03/18/23 09:33 • (DUP) R3902535-3 03/18/23 09:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.69	8.74	1	0.574		1

Sample Narrative:
OS: 8.69 at 20.5C
DUP: 8.74 at 20.6C

Laboratory Control Sample (LCS)

(LCS) R3902535-1 03/18/23 09:33

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:
LCS: 10.01 at 20.6C

Method Blank (MB)

(MB) R3902594-1 03/18/23 15:26

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

L1591722-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1591722-03 03/18/23 15:26 • (DUP) R3902594-3 03/18/23 15:26

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	2540	2560	1	0.549		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1591728-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1591728-04 03/18/23 15:26 • (DUP) R3902594-4 03/18/23 15:26

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1250	1400	1	11.3		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3902594-2 03/18/23 15:26

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1060	94.7	85.0-115	

Sample Narrative:
LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3903943-1 03/22/23 11:06

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

L1595631-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1595631-01 03/22/23 11:06 • (DUP) R3903943-3 03/22/23 11:06

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	515	521	1	1.16		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1596104-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1596104-02 03/22/23 11:06 • (DUP) R3903943-4 03/22/23 11:06

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	706	717	1	1.55		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3903943-2 03/22/23 11:06

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1100	98.3	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3902781-1 03/19/23 18:44

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) R3902781-2 03/19/23 18:46 • (LCSD) R3902781-3 03/19/23 18:49

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	1.14	1.17	114	117	80.0-120			2.68	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Method Blank (MB)

(MB) R3902853-1 03/20/23 03:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3902853-2 03/20/23 03:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	104	104	80.0-120	
Barium	100	105	105	80.0-120	
Cadmium	100	108	108	80.0-120	
Copper	100	101	101	80.0-120	
Lead	100	105	105	80.0-120	
Nickel	100	105	105	80.0-120	
Selenium	100	116	116	80.0-120	
Silver	20.0	22.2	111	80.0-120	
Zinc	100	103	103	80.0-120	

L1595630-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1595630-05 03/20/23 03:09 • (MS) R3902853-5 03/20/23 03:19 • (MSD) R3902853-6 03/20/23 03:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	3.25	93.1	90.9	89.9	87.7	5	75.0-125			2.36	20
Barium	100	1520	1670	1880	149	362	5	75.0-125	E V	E V	12.0	20
Cadmium	100	0.242	94.4	93.4	94.2	93.1	5	75.0-125			1.11	20
Copper	100	8.63	100	95.9	91.4	87.2	5	75.0-125			4.25	20
Lead	100	6.79	97.0	96.1	90.2	89.3	5	75.0-125			0.915	20
Nickel	100	14.2	94.3	94.7	80.1	80.4	5	75.0-125			0.378	20
Selenium	100	0.423	100	100	99.6	100	5	75.0-125			0.444	20
Silver	20.0	U	18.9	19.0	94.6	94.8	5	75.0-125			0.235	20
Zinc	100	39.7	117	119	77.2	79.4	5	75.0-125			1.89	20

Method Blank (MB)

(MB) R3902810-2 03/19/23 14:58

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)	98.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3902810-1 03/19/23 13:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.75	105	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			108	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3904304-2 03/22/23 11:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.953	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	99.6			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3904304-1 03/22/23 09:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.50	118	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			119	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3903129-2 03/18/23 12:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	97.2			75.0-131
(S) 4-Bromofluorobenzene	89.6			67.0-138
(S) 1,2-Dichloroethane-d4	95.8			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3903129-1 03/18/23 10:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.118	94.4	70.0-123	
Toluene	0.125	0.114	91.2	75.0-121	
Ethylbenzene	0.125	0.109	87.2	74.0-126	
Xylenes, Total	0.375	0.337	89.9	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.114	91.2	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.107	85.6	73.0-127	
(S) Toluene-d8			92.4	75.0-131	
(S) 4-Bromofluorobenzene			93.6	67.0-138	
(S) 1,2-Dichloroethane-d4			97.8	70.0-130	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

Method Blank (MB)

(MB) R3903302-2 03/20/23 21:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	0.000975	U	0.000737	0.00250
Xylenes, Total	0.00268	U	0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	103			75.0-131
(S) 4-Bromofluorobenzene	85.4			67.0-138
(S) 1,2-Dichloroethane-d4	95.6			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3903302-1 03/20/23 19:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.137	110	70.0-123	
Toluene	0.125	0.123	98.4	75.0-121	
Ethylbenzene	0.125	0.112	89.6	74.0-126	
Xylenes, Total	0.375	0.351	93.6	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.135	108	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.140	112	73.0-127	
(S) Toluene-d8			94.3	75.0-131	
(S) 4-Bromofluorobenzene			87.8	67.0-138	
(S) 1,2-Dichloroethane-d4			107	70.0-130	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

Method Blank (MB)

(MB) R3904086-1 03/22/23 08:15

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	0.282	J	0.274	4.00
(S) o-Terphenyl	67.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3904086-2 03/22/23 08:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	34.8	69.6	50.0-150	
(S) o-Terphenyl			77.5	18.0-148	

L1595353-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1595353-01 03/22/23 11:11 • (MS) R3904090-1 03/22/23 13:58 • (MSD) R3904090-2 03/22/23 14:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	22.0	46.7	49.9	49.4	55.8	10	50.0-150	J6		6.63	20
(S) o-Terphenyl					91.0	93.2		18.0-148				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3904489-2 03/23/23 00:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	101			23.0-120
(S) Nitrobenzene-d5	114			14.0-149
(S) 2-Fluorobiphenyl	100			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3904489-1 03/23/23 00:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0760	95.0	50.0-120	
Anthracene	0.0800	0.0779	97.4	50.0-126	
Benzo(a)anthracene	0.0800	0.0845	106	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0717	89.6	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0684	85.5	49.0-125	
Benzo(a)pyrene	0.0800	0.0741	92.6	42.0-120	
Chrysene	0.0800	0.0764	95.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0766	95.8	47.0-125	
Fluoranthene	0.0800	0.0782	97.8	49.0-129	
Fluorene	0.0800	0.0790	98.8	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0863	108	46.0-125	
1-Methylnaphthalene	0.0800	0.0792	99.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0815	102	50.0-120	
Naphthalene	0.0800	0.0765	95.6	50.0-120	
Pyrene	0.0800	0.0713	89.1	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3904489-1 03/23/23 00:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			113	23.0-120	
(S) Nitrobenzene-d5			128	14.0-149	
(S) 2-Fluorobiphenyl			110	34.0-125	

L1595582-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1595582-01 03/23/23 05:27 • (MS) R3904489-3 03/23/23 05:47 • (MSD) R3904489-4 03/23/23 06:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0788	U	0.0667	0.0644	84.6	81.3	1	14.0-127			3.51	27
Anthracene	0.0788	U	0.0703	0.0663	89.2	83.7	1	10.0-145			5.86	30
Benzo(a)anthracene	0.0788	U	0.0719	0.0692	91.2	87.4	1	10.0-139			3.83	30
Benzo(b)fluoranthene	0.0788	U	0.0617	0.0586	78.3	74.0	1	10.0-140			5.15	36
Benzo(k)fluoranthene	0.0788	U	0.0588	0.0585	74.6	73.9	1	10.0-137			0.512	31
Benzo(a)pyrene	0.0788	U	0.0701	0.0678	89.0	85.6	1	10.0-141			3.34	31
Chrysene	0.0788	U	0.0667	0.0652	84.6	82.3	1	10.0-145			2.27	30
Dibenz(a,h)anthracene	0.0788	U	0.0624	0.0622	79.2	78.5	1	10.0-132			0.321	31
Fluoranthene	0.0788	U	0.0700	0.0668	88.8	84.3	1	10.0-153			4.68	33
Fluorene	0.0788	U	0.0690	0.0664	87.6	83.8	1	11.0-130			3.84	29
Indeno(1,2,3-cd)pyrene	0.0788	U	0.0699	0.0696	88.7	87.9	1	10.0-137			0.430	32
1-Methylnaphthalene	0.0788	U	0.0695	0.0662	88.0	83.4	1	10.0-142			4.86	28
2-Methylnaphthalene	0.0788	U	0.0726	0.0678	92.1	85.6	1	10.0-137			6.84	28
Naphthalene	0.0788	U	0.0679	0.0644	86.2	81.3	1	10.0-135			5.29	27
Pyrene	0.0788	U	0.0621	0.0611	78.8	77.1	1	10.0-148			1.62	35
(S) p-Terphenyl-d14					91.0	96.6		23.0-120				
(S) Nitrobenzene-d5					110	114		14.0-149				
(S) 2-Fluorobiphenyl					97.0	96.1		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3904496-2 03/22/23 23:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	127	J1		23.0-120
(S) Nitrobenzene-d5	106			14.0-149
(S) 2-Fluorobiphenyl	107			34.0-125

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Laboratory Control Sample (LCS)

(LCS) R3904496-1 03/22/23 23:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0858	107	50.0-120	
Anthracene	0.0800	0.0778	97.3	50.0-126	
Benzo(a)anthracene	0.0800	0.0810	101	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0902	113	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0915	114	49.0-125	
Benzo(a)pyrene	0.0800	0.0842	105	42.0-120	
Chrysene	0.0800	0.0880	110	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0808	101	47.0-125	
Fluoranthene	0.0800	0.0865	108	49.0-129	
Fluorene	0.0800	0.0864	108	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0865	108	46.0-125	
1-Methylnaphthalene	0.0800	0.0903	113	51.0-121	
2-Methylnaphthalene	0.0800	0.0891	111	50.0-120	
Naphthalene	0.0800	0.0858	107	50.0-120	
Pyrene	0.0800	0.110	138	43.0-123	J4

Laboratory Control Sample (LCS)

(LCS) R3904496-1 03/22/23 23:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			175	23.0-120	J1
(S) Nitrobenzene-d5			114	14.0-149	
(S) 2-Fluorobiphenyl			110	34.0-125	

L1595630-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1595630-03 03/23/23 05:38 • (MS) R3904496-3 03/23/23 05:56 • (MSD) R3904496-4 03/23/23 06:13

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 %
Acenaphthene	0.0800	U	0.0581	0.0640	72.6	80.4	1	14.0-127			9.66	27
Anthracene	0.0800	U	0.0537	0.0577	67.1	72.5	1	10.0-145			7.18	30
Benzo(a)anthracene	0.0800	U	0.0566	0.0606	70.8	76.1	1	10.0-139			6.83	30
Benzo(b)fluoranthene	0.0800	U	0.0623	0.0748	77.9	94.0	1	10.0-140			18.2	36
Benzo(k)fluoranthene	0.0800	U	0.0636	0.0731	79.5	91.8	1	10.0-137			13.9	31
Benzo(a)pyrene	0.0800	U	0.0702	0.0726	87.8	91.2	1	10.0-141			3.36	31
Chrysene	0.0800	U	0.0587	0.0664	73.4	83.4	1	10.0-145			12.3	30
Dibenz(a,h)anthracene	0.0800	U	0.0528	0.0701	66.0	88.1	1	10.0-132			28.2	31
Fluoranthene	0.0800	U	0.0607	0.0715	75.9	89.8	1	10.0-153			16.3	33
Fluorene	0.0800	U	0.0600	0.0664	75.0	83.4	1	11.0-130			10.1	29
Indeno(1,2,3-cd)pyrene	0.0800	U	0.0572	0.0676	71.5	84.9	1	10.0-137			16.7	32
1-Methylnaphthalene	0.0800	0.00743	0.0718	0.0757	80.5	85.8	1	10.0-142			5.29	28
2-Methylnaphthalene	0.0800	0.0169	0.0861	0.0828	86.5	82.8	1	10.0-137			3.91	28
Naphthalene	0.0800	0.00840	0.0738	0.0714	81.8	79.1	1	10.0-135			3.31	27
Pyrene	0.0800	U	0.0650	0.0720	81.3	90.5	1	10.0-148			10.2	35
(S) p-Terphenyl-d14					96.5	112		23.0-120				
(S) Nitrobenzene-d5					88.7	105		14.0-149				
(S) 2-Fluorobiphenyl					83.1	95.7		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

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
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.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
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.

