

Anschutz Exploration Corporation

Sample Delivery Group: L1635893
Samples Received: 07/15/2023
Project Number:
Description: Pit Characterization

Report To: Schuyler Hamilton
555 17th Street Suite 2400
Denver, CO 80202

Entire Report Reviewed By:



Chris Ward
Project Manager

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

SAMPLE SUMMARY

230713-PR_C-1W-PIT_SE@5-7 L1635893-01 Solid

Collected by
Alex Slorby

Collected date/time
07/13/23 09:55

Received date/time
07/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2096651	1	07/25/23 18:21	07/25/23 18:21	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2097140	1	07/18/23 23:10	07/19/23 09:07	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2097597	1	07/19/23 10:09	07/19/23 13:08	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2097561	1	07/19/23 11:40	07/19/23 15:43	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2096657	1	07/21/23 16:43	07/25/23 11:14	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2097342	5	07/18/23 22:33	07/19/23 15:46	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2097676	1	07/19/23 09:15	07/19/23 17:08	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2097880	1	07/19/23 09:15	07/19/23 22:00	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2098204	1	07/21/23 10:16	07/22/23 11:26	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2098224	1	07/21/23 10:24	07/21/23 23:27	JCH	Mt. Juliet, TN



230713-PR_C-1W-PIT_S@5-7 L1635893-02 Solid

Collected by
Alex Slorby

Collected date/time
07/13/23 10:50

Received date/time
07/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2096651	1	07/25/23 18:24	07/25/23 18:24	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2097140	1	07/18/23 23:10	07/19/23 09:13	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2097597	1	07/19/23 10:09	07/19/23 13:08	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2097533	1	07/19/23 12:00	07/20/23 09:30	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2096657	1	07/21/23 16:43	07/25/23 11:17	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2097342	5	07/18/23 22:33	07/19/23 15:49	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2097676	1	07/19/23 09:15	07/19/23 17:32	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2098689	1	07/19/23 09:15	07/20/23 20:31	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2098204	1	07/21/23 10:16	07/22/23 12:18	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2098224	1	07/21/23 10:24	07/21/23 23:44	JCH	Mt. Juliet, TN

230713-PR_C-1W-PIT_SW@4-5 L1635893-03 Solid

Collected by
Alex Slorby

Collected date/time
07/13/23 11:20

Received date/time
07/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2096651	1	07/25/23 18:33	07/25/23 18:33	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2097140	1	07/18/23 23:10	07/19/23 09:23	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2097597	1	07/19/23 10:09	07/19/23 13:08	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2097533	1	07/19/23 12:00	07/20/23 09:30	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2096657	1	07/21/23 16:43	07/25/23 10:00	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2097342	5	07/18/23 22:33	07/19/23 15:53	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2097676	1	07/19/23 09:15	07/19/23 17:55	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2098439	1	07/19/23 09:15	07/20/23 11:38	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2098204	1	07/21/23 10:16	07/22/23 12:31	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2098224	1	07/21/23 10:24	07/22/23 00:02	JCH	Mt. Juliet, TN

230713-PR_C-1W-PIT_NW@5-7 L1635893-04 Solid

Collected by
Alex Slorby

Collected date/time
07/13/23 11:35

Received date/time
07/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2096655	1	07/27/23 01:16	07/27/23 01:16	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2097140	1	07/18/23 23:10	07/19/23 09:28	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2097597	1	07/19/23 10:09	07/19/23 13:08	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2097533	1	07/19/23 12:00	07/20/23 09:30	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2096658	1	07/21/23 16:46	07/26/23 16:10	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2097342	5	07/18/23 22:33	07/19/23 16:03	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2097676	1	07/19/23 09:15	07/19/23 18:18	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2098439	1	07/19/23 09:15	07/20/23 11:57	ACG	Mt. Juliet, TN

SAMPLE SUMMARY

230713-PR_C-1W-PIT_NW@5-7 L1635893-04 Solid

Collected by
Alex Slorby

Collected date/time
07/13/23 11:35

Received date/time
07/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2098204	1	07/21/23 10:16	07/22/23 10:33	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2098224	1	07/21/23 10:24	07/22/23 00:19	JCH	Mt. Juliet, TN



230713-PR_C-1W-PIT_N@5-7 L1635893-05 Solid

Collected by
Alex Slorby

Collected date/time
07/13/23 12:40

Received date/time
07/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2096655	1	07/27/23 01:19	07/27/23 01:19	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2097140	1	07/18/23 23:10	07/19/23 09:33	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2097597	1	07/19/23 10:09	07/19/23 13:08	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2097533	1	07/19/23 12:00	07/20/23 09:30	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2096658	2	07/21/23 16:46	07/26/23 16:13	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2097351	5	07/19/23 09:58	07/22/23 12:53	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2097676	1	07/19/23 09:15	07/19/23 18:41	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2098439	1	07/19/23 09:15	07/20/23 12:16	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2098204	1	07/21/23 10:16	07/22/23 10:20	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2098987	1	07/21/23 06:00	07/21/23 19:02	AMM	Mt. Juliet, TN

230713-PR_C-1W-PIT_NE@3-7 L1635893-06 Solid

Collected by
Alex Slorby

Collected date/time
07/13/23 12:45

Received date/time
07/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2096655	1	07/27/23 01:22	07/27/23 01:22	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2097140	1	07/18/23 23:10	07/19/23 09:39	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2097597	1	07/19/23 10:09	07/19/23 13:08	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2097561	1	07/19/23 11:40	07/19/23 15:43	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2096658	1	07/21/23 16:46	07/26/23 16:16	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2097342	5	07/18/23 22:33	07/19/23 16:06	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2097676	1	07/19/23 09:15	07/19/23 19:04	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2098439	1	07/19/23 09:15	07/20/23 12:35	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2098204	1	07/21/23 10:16	07/22/23 10:59	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2098987	1	07/21/23 06:00	07/21/23 19:22	AMM	Mt. Juliet, TN

CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	34.4		1	07/25/2023 18:21	WG2096651

Wet Chemistry by Method 7199

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Hexavalent Chromium	U		0.255	1.00	1	07/19/2023 09:07	WG2097140

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	6.89	T8	1	07/19/2023 13:08	WG2097597

Sample Narrative:

L1635893-01 WG2097597: 6.89 at 21.4C

Wet Chemistry by Method 9050AMod

	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Analyte						
Specific Conductance	1840		10.0	1	07/19/2023 15:43	WG2097561

Sample Narrative:

L1635893-01 WG2097561: at 25C

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

	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Analyte							
Hot Water Sol. Boron	0.184	J	0.0167	0.200	1	07/25/2023 11:14	WG2096657

Metals (ICPMS) by Method 6020

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Arsenic	4.00		0.100	1.00	5	07/19/2023 15:46	WG2097342
Barium	25.4		0.152	2.50	5	07/19/2023 15:46	WG2097342
Cadmium	U		0.0855	1.00	5	07/19/2023 15:46	WG2097342
Copper	9.14		0.132	5.00	5	07/19/2023 15:46	WG2097342
Lead	10.6		0.0990	2.00	5	07/19/2023 15:46	WG2097342
Nickel	2.81		0.197	2.50	5	07/19/2023 15:46	WG2097342
Selenium	0.827	J	0.180	2.50	5	07/19/2023 15:46	WG2097342
Silver	U		0.0865	0.500	5	07/19/2023 15:46	WG2097342
Zinc	42.5		0.740	25.0	5	07/19/2023 15:46	WG2097342

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

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
TPH (GC/FID) Low Fraction	0.247	B	0.0217	0.100	1	07/19/2023 17:08	WG2097676
(S) a,a,a-Trifluorotoluene(FID)	96.1			77.0-120		07/19/2023 17:08	WG2097676

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	07/19/2023 22:00	WG2097880
Toluene	0.00558		0.00130	0.00500	1	07/19/2023 22:00	WG2097880
Ethylbenzene	U		0.000737	0.00250	1	07/19/2023 22:00	WG2097880
Xylenes, Total	0.0172		0.000880	0.00650	1	07/19/2023 22:00	WG2097880
1,2,4-Trimethylbenzene	0.00738		0.00158	0.00500	1	07/19/2023 22:00	WG2097880
1,3,5-Trimethylbenzene	0.00648		0.00200	0.00500	1	07/19/2023 22:00	WG2097880
(S) Toluene-d8	113			75.0-131		07/19/2023 22:00	WG2097880
(S) 4-Bromofluorobenzene	93.1			67.0-138		07/19/2023 22:00	WG2097880
(S) 1,2-Dichloroethane-d4	116			70.0-130		07/19/2023 22:00	WG2097880

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	8.83		1.61	4.00	1	07/22/2023 11:26	WG2098204
C28-C36 Motor Oil Range	2.08	U	0.274	4.00	1	07/22/2023 11:26	WG2098204
(S) o-Terphenyl	37.7			18.0-148		07/22/2023 11:26	WG2098204

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	0.00317	U	0.00209	0.00600	1	07/21/2023 23:27	WG2098224
Anthracene	U		0.00230	0.00600	1	07/21/2023 23:27	WG2098224
Benzo(a)anthracene	U		0.00173	0.00600	1	07/21/2023 23:27	WG2098224
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/21/2023 23:27	WG2098224
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/21/2023 23:27	WG2098224
Benzo(a)pyrene	U		0.00179	0.00600	1	07/21/2023 23:27	WG2098224
Chrysene	U		0.00232	0.00600	1	07/21/2023 23:27	WG2098224
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/21/2023 23:27	WG2098224
Fluoranthene	U		0.00227	0.00600	1	07/21/2023 23:27	WG2098224
Fluorene	0.00520	U	0.00205	0.00600	1	07/21/2023 23:27	WG2098224
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/21/2023 23:27	WG2098224
1-Methylnaphthalene	0.0234		0.00449	0.0200	1	07/21/2023 23:27	WG2098224
2-Methylnaphthalene	0.0610		0.00427	0.0200	1	07/21/2023 23:27	WG2098224
Naphthalene	0.101		0.00408	0.0200	1	07/21/2023 23:27	WG2098224
Pyrene	U		0.00200	0.00600	1	07/21/2023 23:27	WG2098224
(S) p-Terphenyl-d14	72.5			23.0-120		07/21/2023 23:27	WG2098224
(S) Nitrobenzene-d5	66.0			14.0-149		07/21/2023 23:27	WG2098224
(S) 2-Fluorobiphenyl	59.3			34.0-125		07/21/2023 23:27	WG2098224



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	29.1		1	07/25/2023 18:24	WG2096651

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	07/19/2023 09:13	WG2097140

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.80	T8	1	07/19/2023 13:08	WG2097597

Sample Narrative:

L1635893-02 WG2097597: 8.8 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2270		10.0	1	07/20/2023 09:30	WG2097533

Sample Narrative:

L1635893-02 WG2097533: 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	0.558		0.0167	0.200	1	07/25/2023 11:17	WG2096657

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.07		0.100	1.00	5	07/19/2023 15:49	WG2097342
Barium	44.9		0.152	2.50	5	07/19/2023 15:49	WG2097342
Cadmium	1.06		0.0855	1.00	5	07/19/2023 15:49	WG2097342
Copper	22.1		0.132	5.00	5	07/19/2023 15:49	WG2097342
Lead	16.4		0.0990	2.00	5	07/19/2023 15:49	WG2097342
Nickel	24.7		0.197	2.50	5	07/19/2023 15:49	WG2097342
Selenium	0.796	J	0.180	2.50	5	07/19/2023 15:49	WG2097342
Silver	0.0912	J	0.0865	0.500	5	07/19/2023 15:49	WG2097342
Zinc	130		0.740	25.0	5	07/19/2023 15:49	WG2097342

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	0.172	B	0.0217	0.100	1	07/19/2023 17:32	WG2097676
(S) a,a,a-Trifluorotoluene(FID)	96.2			77.0-120		07/19/2023 17:32	WG2097676

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	07/20/2023 20:31	WG2098689
Toluene	0.00143	<u>J</u>	0.00130	0.00500	1	07/20/2023 20:31	WG2098689
Ethylbenzene	U		0.000737	0.00250	1	07/20/2023 20:31	WG2098689
Xylenes, Total	U		0.000880	0.00650	1	07/20/2023 20:31	WG2098689
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/20/2023 20:31	WG2098689
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/20/2023 20:31	WG2098689
(S) Toluene-d8	108			75.0-131		07/20/2023 20:31	WG2098689
(S) 4-Bromofluorobenzene	105			67.0-138		07/20/2023 20:31	WG2098689
(S) 1,2-Dichloroethane-d4	104			70.0-130		07/20/2023 20:31	WG2098689

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	9.59		1.61	4.00	1	07/22/2023 12:18	WG2098204
C28-C36 Motor Oil Range	5.85		0.274	4.00	1	07/22/2023 12:18	WG2098204
(S) o-Terphenyl	38.9			18.0-148		07/22/2023 12:18	WG2098204

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	07/21/2023 23:44	WG2098224
Anthracene	U		0.00230	0.00600	1	07/21/2023 23:44	WG2098224
Benzo(a)anthracene	U		0.00173	0.00600	1	07/21/2023 23:44	WG2098224
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/21/2023 23:44	WG2098224
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/21/2023 23:44	WG2098224
Benzo(a)pyrene	U		0.00179	0.00600	1	07/21/2023 23:44	WG2098224
Chrysene	U		0.00232	0.00600	1	07/21/2023 23:44	WG2098224
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/21/2023 23:44	WG2098224
Fluoranthene	U		0.00227	0.00600	1	07/21/2023 23:44	WG2098224
Fluorene	U		0.00205	0.00600	1	07/21/2023 23:44	WG2098224
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/21/2023 23:44	WG2098224
1-Methylnaphthalene	U		0.00449	0.0200	1	07/21/2023 23:44	WG2098224
2-Methylnaphthalene	U		0.00427	0.0200	1	07/21/2023 23:44	WG2098224
Naphthalene	U		0.00408	0.0200	1	07/21/2023 23:44	WG2098224
Pyrene	U		0.00200	0.00600	1	07/21/2023 23:44	WG2098224
(S) p-Terphenyl-d14	80.7			23.0-120		07/21/2023 23:44	WG2098224
(S) Nitrobenzene-d5	73.9			14.0-149		07/21/2023 23:44	WG2098224
(S) 2-Fluorobiphenyl	77.3			34.0-125		07/21/2023 23:44	WG2098224



Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	18.6		1	07/25/2023 18:33	WG2096651

Wet Chemistry by Method 7199

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Hexavalent Chromium	U		0.255	1.00	1	07/19/2023 09:23	WG2097140

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.46	T8	1	07/19/2023 13:08	WG2097597

Sample Narrative:

L1635893-03 WG2097597: 8.46 at 21.1C

Wet Chemistry by Method 9050AMod

	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Analyte						
Specific Conductance	2350		10.0	1	07/20/2023 09:30	WG2097533

Sample Narrative:

L1635893-03 WG2097533: at 25C

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

	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Analyte							
Hot Water Sol. Boron	0.401		0.0167	0.200	1	07/25/2023 10:00	WG2096657

Metals (ICPMS) by Method 6020

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Arsenic	6.10		0.100	1.00	5	07/19/2023 15:53	WG2097342
Barium	68.6		0.152	2.50	5	07/19/2023 15:53	WG2097342
Cadmium	0.248	J	0.0855	1.00	5	07/19/2023 15:53	WG2097342
Copper	19.7		0.132	5.00	5	07/19/2023 15:53	WG2097342
Lead	9.75		0.0990	2.00	5	07/19/2023 15:53	WG2097342
Nickel	16.5		0.197	2.50	5	07/19/2023 15:53	WG2097342
Selenium	0.646	J	0.180	2.50	5	07/19/2023 15:53	WG2097342
Silver	U		0.0865	0.500	5	07/19/2023 15:53	WG2097342
Zinc	57.4		0.740	25.0	5	07/19/2023 15:53	WG2097342

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

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
TPH (GC/FID) Low Fraction	0.0577	B J	0.0217	0.100	1	07/19/2023 17:55	WG2097676
(S) a,a,a-Trifluorotoluene(FID)	97.1			77.0-120		07/19/2023 17:55	WG2097676

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	07/20/2023 11:38	WG2098439
Toluene	0.00287	U	0.00130	0.00500	1	07/20/2023 11:38	WG2098439
Ethylbenzene	U		0.000737	0.00250	1	07/20/2023 11:38	WG2098439
Xylenes, Total	0.00270	U	0.000880	0.00650	1	07/20/2023 11:38	WG2098439
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/20/2023 11:38	WG2098439
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/20/2023 11:38	WG2098439
(S) Toluene-d8	108			75.0-131		07/20/2023 11:38	WG2098439
(S) 4-Bromofluorobenzene	102			67.0-138		07/20/2023 11:38	WG2098439
(S) 1,2-Dichloroethane-d4	115			70.0-130		07/20/2023 11:38	WG2098439

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	2.20	U	1.61	4.00	1	07/22/2023 12:31	WG2098204
C28-C36 Motor Oil Range	4.18		0.274	4.00	1	07/22/2023 12:31	WG2098204
(S) o-Terphenyl	45.5			18.0-148		07/22/2023 12:31	WG2098204

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	07/22/2023 00:02	WG2098224
Anthracene	U		0.00230	0.00600	1	07/22/2023 00:02	WG2098224
Benzo(a)anthracene	U		0.00173	0.00600	1	07/22/2023 00:02	WG2098224
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/22/2023 00:02	WG2098224
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/22/2023 00:02	WG2098224
Benzo(a)pyrene	U		0.00179	0.00600	1	07/22/2023 00:02	WG2098224
Chrysene	U		0.00232	0.00600	1	07/22/2023 00:02	WG2098224
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/22/2023 00:02	WG2098224
Fluoranthene	U		0.00227	0.00600	1	07/22/2023 00:02	WG2098224
Fluorene	U		0.00205	0.00600	1	07/22/2023 00:02	WG2098224
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/22/2023 00:02	WG2098224
1-Methylnaphthalene	U		0.00449	0.0200	1	07/22/2023 00:02	WG2098224
2-Methylnaphthalene	U		0.00427	0.0200	1	07/22/2023 00:02	WG2098224
Naphthalene	U		0.00408	0.0200	1	07/22/2023 00:02	WG2098224
Pyrene	U		0.00200	0.00600	1	07/22/2023 00:02	WG2098224
(S) p-Terphenyl-d14	76.0			23.0-120		07/22/2023 00:02	WG2098224
(S) Nitrobenzene-d5	57.6			14.0-149		07/22/2023 00:02	WG2098224
(S) 2-Fluorobiphenyl	60.9			34.0-125		07/22/2023 00:02	WG2098224



Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	32.5		1	07/27/2023 01:16	WG2096655

Wet Chemistry by Method 7199

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Hexavalent Chromium	U		0.255	1.00	1	07/19/2023 09:28	WG2097140

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.68	T8	1	07/19/2023 13:08	WG2097597

Sample Narrative:

L1635893-04 WG2097597: 8.68 at 21C

Wet Chemistry by Method 9050AMod

	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Analyte						
Specific Conductance	4720		10.0	1	07/20/2023 09:30	WG2097533

Sample Narrative:

L1635893-04 WG2097533: at 25C

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

	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Analyte							
Hot Water Sol. Boron	0.513		0.0167	0.200	1	07/26/2023 16:10	WG2096658

Metals (ICPMS) by Method 6020

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Arsenic	0.797	J	0.100	1.00	5	07/19/2023 16:03	WG2097342
Barium	34.7		0.152	2.50	5	07/19/2023 16:03	WG2097342
Cadmium	0.666	J	0.0855	1.00	5	07/19/2023 16:03	WG2097342
Copper	28.9		0.132	5.00	5	07/19/2023 16:03	WG2097342
Lead	27.4		0.0990	2.00	5	07/19/2023 16:03	WG2097342
Nickel	11.6		0.197	2.50	5	07/19/2023 16:03	WG2097342
Selenium	0.650	J	0.180	2.50	5	07/19/2023 16:03	WG2097342
Silver	0.189	J	0.0865	0.500	5	07/19/2023 16:03	WG2097342
Zinc	56.4		0.740	25.0	5	07/19/2023 16:03	WG2097342

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

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
TPH (GC/FID) Low Fraction	0.0332	B J	0.0217	0.100	1	07/19/2023 18:18	WG2097676
(S) a,a,a-Trifluorotoluene(FID)	97.1			77.0-120		07/19/2023 18:18	WG2097676

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	07/20/2023 11:57	WG2098439
Toluene	0.00290	U	0.00130	0.00500	1	07/20/2023 11:57	WG2098439
Ethylbenzene	U		0.000737	0.00250	1	07/20/2023 11:57	WG2098439
Xylenes, Total	0.00195	U	0.000880	0.00650	1	07/20/2023 11:57	WG2098439
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/20/2023 11:57	WG2098439
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/20/2023 11:57	WG2098439
(S) Toluene-d8	111			75.0-131		07/20/2023 11:57	WG2098439
(S) 4-Bromofluorobenzene	97.8			67.0-138		07/20/2023 11:57	WG2098439
(S) 1,2-Dichloroethane-d4	115			70.0-130		07/20/2023 11:57	WG2098439

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	U		1.61	4.00	1	07/22/2023 10:33	WG2098204
C28-C36 Motor Oil Range	0.459	U	0.274	4.00	1	07/22/2023 10:33	WG2098204
(S) o-Terphenyl	37.7			18.0-148		07/22/2023 10:33	WG2098204

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	0.00334	U	0.00209	0.00600	1	07/22/2023 00:19	WG2098224
Anthracene	0.00575	U	0.00230	0.00600	1	07/22/2023 00:19	WG2098224
Benzo(a)anthracene	U		0.00173	0.00600	1	07/22/2023 00:19	WG2098224
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/22/2023 00:19	WG2098224
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/22/2023 00:19	WG2098224
Benzo(a)pyrene	U		0.00179	0.00600	1	07/22/2023 00:19	WG2098224
Chrysene	U		0.00232	0.00600	1	07/22/2023 00:19	WG2098224
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/22/2023 00:19	WG2098224
Fluoranthene	0.00358	U	0.00227	0.00600	1	07/22/2023 00:19	WG2098224
Fluorene	0.00569	U	0.00205	0.00600	1	07/22/2023 00:19	WG2098224
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/22/2023 00:19	WG2098224
1-Methylnaphthalene	U		0.00449	0.0200	1	07/22/2023 00:19	WG2098224
2-Methylnaphthalene	U		0.00427	0.0200	1	07/22/2023 00:19	WG2098224
Naphthalene	U		0.00408	0.0200	1	07/22/2023 00:19	WG2098224
Pyrene	0.00228	U	0.00200	0.00600	1	07/22/2023 00:19	WG2098224
(S) p-Terphenyl-d14	84.7			23.0-120		07/22/2023 00:19	WG2098224
(S) Nitrobenzene-d5	67.6			14.0-149		07/22/2023 00:19	WG2098224
(S) 2-Fluorobiphenyl	67.4			34.0-125		07/22/2023 00:19	WG2098224



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	45.3		1	07/27/2023 01:19	WG2096655

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	07/19/2023 09:33	WG2097140

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.25	T8	1	07/19/2023 13:08	WG2097597

Sample Narrative:

L1635893-05 WG2097597: 8.25 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3730		10.0	1	07/20/2023 09:30	WG2097533

Sample Narrative:

L1635893-05 WG2097533: 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	0.354	J	0.0334	0.400	2	07/26/2023 16:13	WG2096658

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.44		0.100	1.00	5	07/22/2023 12:53	WG2097351
Barium	29.6		0.152	2.50	5	07/22/2023 12:53	WG2097351
Cadmium	0.621	J	0.0855	1.00	5	07/22/2023 12:53	WG2097351
Copper	15.8		0.132	5.00	5	07/22/2023 12:53	WG2097351
Lead	19.0		0.0990	2.00	5	07/22/2023 12:53	WG2097351
Nickel	25.6		0.197	2.50	5	07/22/2023 12:53	WG2097351
Selenium	1.25	J	0.180	2.50	5	07/22/2023 12:53	WG2097351
Silver	U		0.0865	0.500	5	07/22/2023 12:53	WG2097351
Zinc	133		0.740	25.0	5	07/22/2023 12:53	WG2097351

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	0.0230	B J	0.0217	0.100	1	07/19/2023 18:41	WG2097676
(S) a,a,a-Trifluorotoluene(FID)	97.9			77.0-120		07/19/2023 18:41	WG2097676

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	07/20/2023 12:16	WG2098439
Toluene	0.00258	J	0.00130	0.00500	1	07/20/2023 12:16	WG2098439
Ethylbenzene	U		0.000737	0.00250	1	07/20/2023 12:16	WG2098439
Xylenes, Total	U		0.000880	0.00650	1	07/20/2023 12:16	WG2098439
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/20/2023 12:16	WG2098439
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/20/2023 12:16	WG2098439
(S) Toluene-d8	109			75.0-131		07/20/2023 12:16	WG2098439
(S) 4-Bromofluorobenzene	97.3			67.0-138		07/20/2023 12:16	WG2098439
(S) 1,2-Dichloroethane-d4	118			70.0-130		07/20/2023 12:16	WG2098439

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	U		1.61	4.00	1	07/22/2023 10:20	WG2098204
C28-C36 Motor Oil Range	U		0.274	4.00	1	07/22/2023 10:20	WG2098204
(S) o-Terphenyl	50.6			18.0-148		07/22/2023 10:20	WG2098204

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	07/21/2023 19:02	WG2098987
Anthracene	U		0.00230	0.00600	1	07/21/2023 19:02	WG2098987
Benzo(a)anthracene	U		0.00173	0.00600	1	07/21/2023 19:02	WG2098987
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/21/2023 19:02	WG2098987
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/21/2023 19:02	WG2098987
Benzo(a)pyrene	U		0.00179	0.00600	1	07/21/2023 19:02	WG2098987
Chrysene	U		0.00232	0.00600	1	07/21/2023 19:02	WG2098987
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/21/2023 19:02	WG2098987
Fluoranthene	0.00250	J	0.00227	0.00600	1	07/21/2023 19:02	WG2098987
Fluorene	U		0.00205	0.00600	1	07/21/2023 19:02	WG2098987
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/21/2023 19:02	WG2098987
1-Methylnaphthalene	U		0.00449	0.0200	1	07/21/2023 19:02	WG2098987
2-Methylnaphthalene	U		0.00427	0.0200	1	07/21/2023 19:02	WG2098987
Naphthalene	U		0.00408	0.0200	1	07/21/2023 19:02	WG2098987
Pyrene	0.00282	J	0.00200	0.00600	1	07/21/2023 19:02	WG2098987
(S) p-Terphenyl-d14	96.3			23.0-120		07/21/2023 19:02	WG2098987
(S) Nitrobenzene-d5	138			14.0-149		07/21/2023 19:02	WG2098987
(S) 2-Fluorobiphenyl	90.3			34.0-125		07/21/2023 19:02	WG2098987



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	18.0		1	07/27/2023 01:22	WG2096655

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.429	J	0.255	1.00	1	07/19/2023 09:39	WG2097140

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	5.15	T8	1	07/19/2023 13:08	WG2097597

Sample Narrative:

L1635893-06 WG2097597: 5.15 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2040		10.0	1	07/19/2023 15:43	WG2097561

Sample Narrative:

L1635893-06 WG2097561: 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	0.728		0.0167	0.200	1	07/26/2023 16:16	WG2096658

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	18.8		0.100	1.00	5	07/19/2023 16:06	WG2097342
Barium	42.1		0.152	2.50	5	07/19/2023 16:06	WG2097342
Cadmium	U		0.0855	1.00	5	07/19/2023 16:06	WG2097342
Copper	29.7		0.132	5.00	5	07/19/2023 16:06	WG2097342
Lead	10.6		0.0990	2.00	5	07/19/2023 16:06	WG2097342
Nickel	2.77		0.197	2.50	5	07/19/2023 16:06	WG2097342
Selenium	1.59	J	0.180	2.50	5	07/19/2023 16:06	WG2097342
Silver	0.0994	J	0.0865	0.500	5	07/19/2023 16:06	WG2097342
Zinc	52.3		0.740	25.0	5	07/19/2023 16:06	WG2097342

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	0.0286	B J	0.0217	0.100	1	07/19/2023 19:04	WG2097676
(S) a,a,a-Trifluorotoluene(FID)	98.2			77.0-120		07/19/2023 19:04	WG2097676

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	07/20/2023 12:35	WG2098439
Toluene	0.00280	U	0.00130	0.00500	1	07/20/2023 12:35	WG2098439
Ethylbenzene	U		0.000737	0.00250	1	07/20/2023 12:35	WG2098439
Xylenes, Total	0.00109	U	0.000880	0.00650	1	07/20/2023 12:35	WG2098439
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/20/2023 12:35	WG2098439
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/20/2023 12:35	WG2098439
(S) Toluene-d8	109			75.0-131		07/20/2023 12:35	WG2098439
(S) 4-Bromofluorobenzene	100			67.0-138		07/20/2023 12:35	WG2098439
(S) 1,2-Dichloroethane-d4	116			70.0-130		07/20/2023 12:35	WG2098439

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	2.76	U	1.61	4.00	1	07/22/2023 10:59	WG2098204
C28-C36 Motor Oil Range	0.940	U	0.274	4.00	1	07/22/2023 10:59	WG2098204
(S) o-Terphenyl	36.1			18.0-148		07/22/2023 10:59	WG2098204

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	07/21/2023 19:22	WG2098987
Anthracene	U		0.00230	0.00600	1	07/21/2023 19:22	WG2098987
Benzo(a)anthracene	U		0.00173	0.00600	1	07/21/2023 19:22	WG2098987
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/21/2023 19:22	WG2098987
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/21/2023 19:22	WG2098987
Benzo(a)pyrene	U		0.00179	0.00600	1	07/21/2023 19:22	WG2098987
Chrysene	U		0.00232	0.00600	1	07/21/2023 19:22	WG2098987
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/21/2023 19:22	WG2098987
Fluoranthene	U		0.00227	0.00600	1	07/21/2023 19:22	WG2098987
Fluorene	U		0.00205	0.00600	1	07/21/2023 19:22	WG2098987
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/21/2023 19:22	WG2098987
1-Methylnaphthalene	U		0.00449	0.0200	1	07/21/2023 19:22	WG2098987
2-Methylnaphthalene	U		0.00427	0.0200	1	07/21/2023 19:22	WG2098987
Naphthalene	U		0.00408	0.0200	1	07/21/2023 19:22	WG2098987
Pyrene	U		0.00200	0.00600	1	07/21/2023 19:22	WG2098987
(S) p-Terphenyl-d14	71.6			23.0-120		07/21/2023 19:22	WG2098987
(S) Nitrobenzene-d5	124			14.0-149		07/21/2023 19:22	WG2098987
(S) 2-Fluorobiphenyl	75.9			34.0-125		07/21/2023 19:22	WG2098987



Method Blank (MB)

(MB) R3950312-1 07/19/23 08:55

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

L1635893-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1635893-02 07/19/23 09:13 • (DUP) R3950312-3 07/19/23 09:18

	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

L1635933-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1635933-05 07/19/23 11:17 • (DUP) R3950312-8 07/19/23 11:22

	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) R3950312-2 07/19/23 09:02

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1635908-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1635908-02 07/19/23 09:59 • (MS) R3950312-4 07/19/23 10:04 • (MSD) R3950312-5 07/19/23 10:10

	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	16.8	17.5	83.8	87.5	1	75.0-125			4.38	20

L1635908-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1635908-02 07/19/23 09:59 • (MS) R3950312-6 07/19/23 10:15

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	638	U	868	136	50	75.0-125	J5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

L1635907-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1635907-01 07/19/23 13:08 • (DUP) R3950271-2 07/19/23 13:08

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.54	7.54	1	0.000		1

Sample Narrative:

OS: 7.54 at 21.7C

DUP: 7.54 at 21.5C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

L1636257-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1636257-02 07/19/23 13:08 • (DUP) R3950271-3 07/19/23 13:08

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.34	8.39	1	0.598		1

Sample Narrative:

OS: 8.34 at 21.5C

DUP: 8.39 at 21.3C

Laboratory Control Sample (LCS)

(LCS) R3950271-1 07/19/23 13:08

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

Sample Narrative:

LCS: 10.01 at 21.3C

Method Blank (MB)

(MB) R3950612-1 07/20/23 09:30

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

L1635894-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1635894-01 07/20/23 09:30 • (DUP) R3950612-3 07/20/23 09:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	197	191	1	2.83		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1635943-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1635943-02 07/20/23 09:30 • (DUP) R3950612-4 07/20/23 09:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	204	200	1	1.88		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3950612-2 07/20/23 09:30

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	732	727	99.3	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3950375-1 07/19/23 15:43

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

L1635893-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1635893-01 07/19/23 15:43 • (DUP) R3950375-3 07/19/23 15:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1840	1810	1	1.37		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1636321-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1636321-02 07/19/23 15:43 • (DUP) R3950375-4 07/19/23 15:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	194	197	1	1.69		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3950375-2 07/19/23 15:43

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	732	727	99.3	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3952442-1 07/25/23 10:08

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) R3952442-2 07/25/23 10:11 • (LCSD) R3952442-3 07/25/23 10:14

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	0.991	0.984	99.1	98.4	80.0-120			0.718	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Method Blank (MB)

(MB) R3953306-1 07/26/23 16:02

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) R3953306-2 07/26/23 16:04 • (LCSD) R3953306-3 07/26/23 16:07

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	1.10	1.12	110	112	80.0-120			1.45	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Method Blank (MB)

(MB) R3950380-1 07/19/23 15:22

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

Laboratory Control Sample (LCS)

(LCS) R3950380-2 07/19/23 15:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.3	93.3	80.0-120	
Barium	100	89.6	89.6	80.0-120	
Cadmium	100	90.2	90.2	80.0-120	
Copper	100	86.2	86.2	80.0-120	
Lead	100	85.0	85.0	80.0-120	
Nickel	100	91.8	91.8	80.0-120	
Selenium	100	94.4	94.4	80.0-120	
Silver	20.0	17.6	88.1	80.0-120	
Zinc	100	88.7	88.7	80.0-120	

L1636296-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1636296-04 07/19/23 15:29 • (MS) R3950380-5 07/19/23 15:39 • (MSD) R3950380-6 07/19/23 15:43

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	3.24	103	96.1	99.6	92.8	5	75.0-125			6.81	20
Barium	100	21.3	116	105	94.7	83.3	5	75.0-125			10.4	20
Cadmium	100	U	98.3	91.0	98.3	91.0	5	75.0-125			7.77	20
Copper	100	21.1	116	108	95.2	87.1	5	75.0-125			7.24	20
Lead	100	14.0	111	99.2	96.7	85.2	5	75.0-125			11.0	20
Nickel	100	11.6	107	102	95.3	90.8	5	75.0-125			4.26	20
Selenium	100	0.289	102	93.9	102	93.6	5	75.0-125			8.15	20
Silver	20.0	U	19.1	17.7	95.5	88.6	5	75.0-125			7.45	20
Zinc	100	47.7	138	137	90.5	89.3	5	75.0-125			0.851	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3951578-1 07/22/23 12:46

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	0.526	U	0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	1.22	U	0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R3951578-2 07/22/23 12:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	103	103	80.0-120	
Barium	100	100	100	80.0-120	
Cadmium	100	103	103	80.0-120	
Copper	100	94.9	94.9	80.0-120	
Lead	100	97.6	97.6	80.0-120	
Nickel	100	103	103	80.0-120	
Selenium	100	120	120	80.0-120	
Silver	20.0	21.6	108	80.0-120	
Zinc	100	99.6	99.6	80.0-120	

L1635893-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1635893-05 07/22/23 12:53 • (MS) R3951578-5 07/22/23 13:03 • (MSD) R3951578-6 07/22/23 13:06

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	3.44	66.4	79.2	63.0	75.8	5	75.0-125	J6		17.6	20
Barium	100	29.6	111	121	81.3	91.6	5	75.0-125			8.90	20
Cadmium	100	0.621	84.3	101	83.7	101	5	75.0-125			18.3	20
Copper	100	15.8	92.6	107	76.8	91.0	5	75.0-125			14.3	20
Lead	100	19.0	102	111	82.7	92.0	5	75.0-125			8.73	20
Nickel	100	25.6	95.3	112	69.7	86.4	5	75.0-125	J6		16.2	20
Selenium	100	1.25	82.4	90.7	81.2	89.4	5	75.0-125			9.51	20
Silver	20.0	U	17.8	21.5	89.1	108	5	75.0-125			18.8	20
Zinc	100	133	196	209	63.0	76.0	5	75.0-125	J6		6.43	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3951152-2 07/19/23 10:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0261	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	99.4			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3951152-1 07/19/23 10:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.35	79.1	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			103	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Method Blank (MB)

(MB) R3950716-3 07/19/23 11:58

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	115			75.0-131
(S) 4-Bromofluorobenzene	90.6			67.0-138
(S) 1,2-Dichloroethane-d4	87.9			70.0-130

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

(LCS) R3950716-1 07/19/23 10:11 • (LCSD) R3950716-2 07/19/23 10:33

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	0.112	0.118	89.6	94.4	70.0-123			5.22	20
Toluene	0.125	0.127	0.139	102	111	75.0-121			9.02	20
Ethylbenzene	0.125	0.131	0.148	105	118	74.0-126			12.2	20
Xylenes, Total	0.375	0.385	0.399	103	106	72.0-127			3.57	20
1,2,4-Trimethylbenzene	0.125	0.112	0.115	89.6	92.0	70.0-126			2.64	20
1,3,5-Trimethylbenzene	0.125	0.114	0.120	91.2	96.0	73.0-127			5.13	20
(S) Toluene-d8				113	115	75.0-131				
(S) 4-Bromofluorobenzene				94.1	93.8	67.0-138				
(S) 1,2-Dichloroethane-d4				122	120	70.0-130				

L1635501-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1635501-01 07/19/23 15:55 • (MS) R3950716-4 07/19/23 22:43 • (MSD) R3950716-5 07/19/23 23:05

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	0.132	U	0.111	0.136	84.7	104	1.05	10.0-149			20.2	37
Toluene	0.132	U	0.124	0.150	94.7	115	1.05	10.0-156			19.0	38
Ethylbenzene	0.132	U	0.123	0.151	93.9	115	1.05	10.0-160			20.4	38
Xylenes, Total	0.399	U	0.341	0.426	86.5	108	1.05	10.0-160			22.2	38
1,2,4-Trimethylbenzene	0.132	U	0.0957	0.123	73.1	93.9	1.05	10.0-160			25.0	36
1,3,5-Trimethylbenzene	0.132	U	0.103	0.125	78.6	95.4	1.05	10.0-160			19.3	38
(S) Toluene-d8					112	110		75.0-131				
(S) 4-Bromofluorobenzene					89.9	89.4		67.0-138				
(S) 1,2-Dichloroethane-d4					119	121		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3951943-2 07/20/23 10:00

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	107			75.0-131
(S) 4-Bromofluorobenzene	93.2			67.0-138
(S) 1,2-Dichloroethane-d4	119			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3951943-1 07/20/23 08:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.113	90.4	70.0-123	
Toluene	0.125	0.113	90.4	75.0-121	
Ethylbenzene	0.125	0.110	88.0	74.0-126	
Xylenes, Total	0.375	0.311	82.9	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.0913	73.0	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.0934	74.7	73.0-127	
(S) Toluene-d8			106	75.0-131	
(S) 4-Bromofluorobenzene			96.5	67.0-138	
(S) 1,2-Dichloroethane-d4			117	70.0-130	

L1635891-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1635891-03 07/20/23 11:19 • (MS) R3951943-3 07/20/23 17:37 • (MSD) R3951943-4 07/20/23 17:56

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	0.140	0.000470	0.0788	0.0950	63.2	76.2	1	10.0-149			18.6	37
Toluene	0.140	0.00426	0.0840	0.101	64.3	78.0	1	10.0-156			18.4	38
Ethylbenzene	0.140	U	0.0783	0.0961	63.1	77.5	1	10.0-160			20.4	38
Xylenes, Total	0.418	U	0.220	0.266	59.1	71.5	1	10.0-160			18.9	38
1,2,4-Trimethylbenzene	0.140	U	0.0668	0.0801	53.9	64.6	1	10.0-160			18.1	36
1,3,5-Trimethylbenzene	0.140	U	0.0647	0.0829	52.2	66.9	1	10.0-160			24.7	38
(S) Toluene-d8					109	106		75.0-131				
(S) 4-Bromofluorobenzene					98.8	94.9		67.0-138				
(S) 1,2-Dichloroethane-d4					103	101		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3951933-2 07/20/23 19:50

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	109			75.0-131
(S) 4-Bromofluorobenzene	94.1			67.0-138
(S) 1,2-Dichloroethane-d4	101			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3951933-1 07/20/23 18:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.116	92.8	70.0-123	
Toluene	0.125	0.123	98.4	75.0-121	
Ethylbenzene	0.125	0.122	97.6	74.0-126	
Xylenes, Total	0.375	0.350	93.3	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.0995	79.6	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.101	80.8	73.0-127	
(S) Toluene-d8			109	75.0-131	
(S) 4-Bromofluorobenzene			98.2	67.0-138	
(S) 1,2-Dichloroethane-d4			107	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3951597-1 07/22/23 09:52

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	49.2			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3951597-2 07/22/23 10:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	32.6	65.2	50.0-150	
(S) o-Terphenyl			64.1	18.0-148	

L1635647-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1635647-06 07/22/23 14:43 • (MS) R3951597-3 07/22/23 14:56 • (MSD) R3951597-4 07/22/23 15:09

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	48.0	29600	13900	25100	0.000	0.000	500	50.0-150	V	J3 V	57.4	20
(S) o-Terphenyl					0.000	0.000		18.0-148	J7	J7		

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

Method Blank (MB)

(MB) R3951687-2 07/21/23 20:33

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	93.4			23.0-120
(S) Nitrobenzene-d5	66.2			14.0-149
(S) 2-Fluorobiphenyl	82.6			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3951687-1 07/21/23 20:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0757	94.6	50.0-120	
Anthracene	0.0800	0.0783	97.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0831	104	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0778	97.3	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0746	93.3	49.0-125	
Benzo(a)pyrene	0.0800	0.0763	95.4	42.0-120	
Chrysene	0.0800	0.0799	99.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0763	95.4	47.0-125	
Fluoranthene	0.0800	0.0823	103	49.0-129	
Fluorene	0.0800	0.0810	101	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0851	106	46.0-125	
1-Methylnaphthalene	0.0800	0.0776	97.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0819	102	50.0-120	
Naphthalene	0.0800	0.0747	93.4	50.0-120	
Pyrene	0.0800	0.0843	105	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3951687-1 07/21/23 20:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			98.8	23.0-120	
(S) Nitrobenzene-d5			80.2	14.0-149	
(S) 2-Fluorobiphenyl			92.1	34.0-125	

L1635695-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1635695-14 07/22/23 03:13 • (MS) R3951687-3 07/22/23 03:30 • (MSD) R3951687-4 07/22/23 03:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0788	9.46	2.71	0.900	0.000	0.000	1	14.0-127	V	J3 V	100	27
Anthracene	0.0788	6.38	1.31	0.431	0.000	0.000	1	10.0-145	V	J3 V	101	30
Benzo(a)anthracene	0.0788	13.6	2.39	0.741	0.000	0.000	1	10.0-139	V	J3 V	105	30
Benzo(b)fluoranthene	0.0788	15.8	2.64	0.791	0.000	0.000	1	10.0-140	V	J3 V	108	36
Benzo(k)fluoranthene	0.0788	4.16	0.596	0.187	0.000	0.000	1	10.0-137	V	J3 V	104	31
Benzo(a)pyrene	0.0788	10.6	1.73	0.497	0.000	0.000	1	10.0-141	V	J3 V	111	31
Chrysene	0.0788	11.4	2.18	0.706	0.000	0.000	1	10.0-145	V	J3 V	102	30
Dibenz(a,h)anthracene	0.0788	1.15	0.219	0.0747	0.000	0.000	1	10.0-132	V	J3 V	98.3	31
Fluoranthene	0.0788	27.9	11.6	3.75	0.000	0.000	1	10.0-153	E V	J3 V	102	33
Fluorene	0.0788	10.0	2.82	0.896	0.000	0.000	1	11.0-130	V	J3 V	104	29
Indeno(1,2,3-cd)pyrene	0.0788	5.44	0.855	0.251	0.000	0.000	1	10.0-137	V	J3 V	109	32
1-Methylnaphthalene	0.0788	2.92	0.664	0.258	0.000	0.000	1	10.0-142	V	J3 V	88.1	28
2-Methylnaphthalene	0.0788	7.27	1.49	0.508	0.000	0.000	1	10.0-137	V	J3 V	98.3	28
Naphthalene	0.0788	0.988	0.341	0.111	0.000	0.000	1	10.0-135	V	J3 V	102	27
Pyrene	0.0788	28.6	7.52	2.41	0.000	0.000	1	10.0-148	E V	J3 V	103	35
(S) p-Terphenyl-d14					86.5	46.1		23.0-120				
(S) Nitrobenzene-d5					60.9	29.4		14.0-149				
(S) 2-Fluorobiphenyl					60.0	37.1		34.0-125				

Sample Narrative:
OS: Surrogate failure due to matrix interference

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Method Blank (MB)

(MB) R3951650-2 07/21/23 14:42

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	92.9			23.0-120
(S) Nitrobenzene-d5	82.5			14.0-149
(S) 2-Fluorobiphenyl	90.2			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3951650-1 07/21/23 14:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0750	93.8	50.0-120	
Anthracene	0.0800	0.0737	92.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0775	96.9	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0798	99.8	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0768	96.0	49.0-125	
Benzo(a)pyrene	0.0800	0.0799	99.9	42.0-120	
Chrysene	0.0800	0.0792	99.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0752	94.0	47.0-125	
Fluoranthene	0.0800	0.0803	100	49.0-129	
Fluorene	0.0800	0.0781	97.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0829	104	46.0-125	
1-Methylnaphthalene	0.0800	0.0758	94.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0772	96.5	50.0-120	
Naphthalene	0.0800	0.0712	89.0	50.0-120	
Pyrene	0.0800	0.0798	99.8	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3951650-1 07/21/23 14:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			91.7	23.0-120	
(S) Nitrobenzene-d5			88.5	14.0-149	
(S) 2-Fluorobiphenyl			93.5	34.0-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

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
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
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.

