



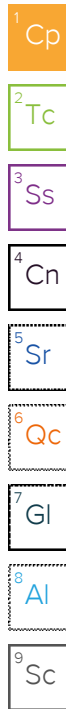
ANALYTICAL REPORT

May 09, 2022

Revised Report

Caerus Oil and Gas

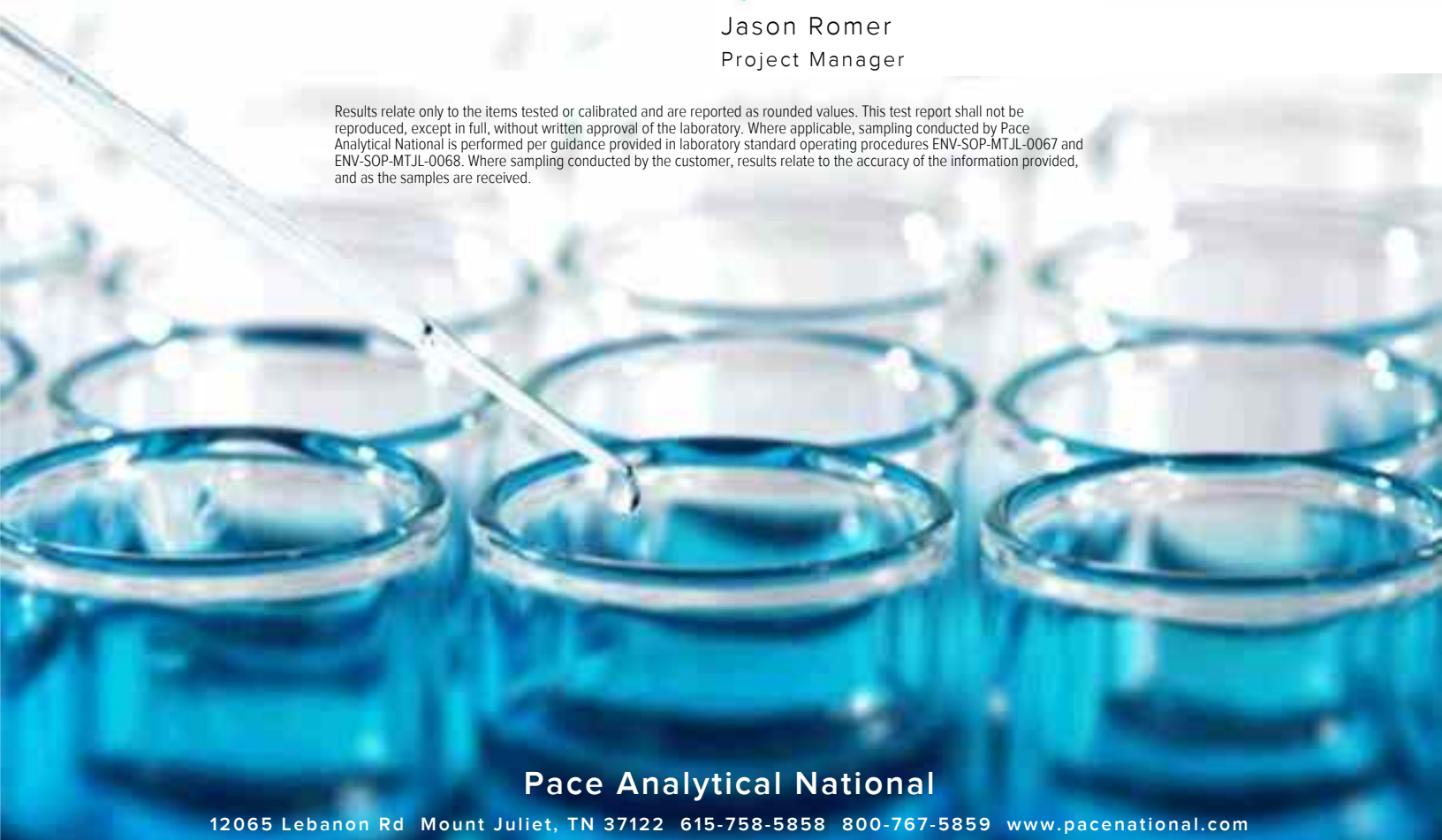
Sample Delivery Group: L1487528
Samples Received: 04/28/2022
Project Number:
Description: P27-595
Site: P27-595
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635



Entire Report Reviewed By:

Jason Romer
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

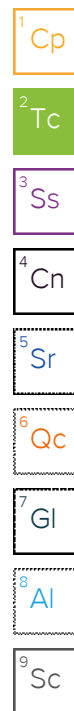


Pace Analytical National

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TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
20220426-P27-595 (POR01) @ 6 L1487528-01	5
20220426-P27-595 (POR02) @ 6 L1487528-02	7
20220426-P27-595 (BG-N) @ 2 L1487528-03	9
20220426-P27-595 (BG-S) @ 3 L1487528-04	10
Qc: Quality Control Summary	11
Wet Chemistry by Method 7199	11
Wet Chemistry by Method 9045D	13
Wet Chemistry by Method 9050AMod	15
Metals (ICP) by Method 6010B	16
Metals (ICP) by Method 6010B-NE493 Ch 2	17
Metals (ICPMS) by Method 6020	18
Volatile Organic Compounds (GC) by Method 8015D/GRO	20
Volatile Organic Compounds (GC/MS) by Method 8260B	21
Semi-Volatile Organic Compounds (GC) by Method 8015M	23
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	25
Gl: Glossary of Terms	27
Al: Accreditations & Locations	28
Sc: Sample Chain of Custody	29



SAMPLE SUMMARY

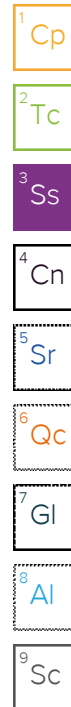
20220426-P27-595 (POR01) @ 6 L1487528-01 Solid

Collected by
Evan Mason

Collected date/time
04/26/22 12:15

Received date/time
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:44	05/04/22 18:44	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1858774	1	05/04/22 18:36	05/05/22 21:12	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1857403	1	05/02/22 10:00	05/02/22 14:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1856805	1	05/02/22 16:08	05/03/22 21:52	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:47	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856807	5	05/02/22 16:39	05/02/22 20:59	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1857004	1000	04/30/22 13:26	05/02/22 20:59	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1858719	10	04/30/22 13:26	05/05/22 01:02	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859325	25	05/05/22 17:00	05/06/22 10:53	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859325	5	05/05/22 17:00	05/06/22 05:38	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	1	05/04/22 14:56	05/05/22 06:15	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	10	05/04/22 14:56	05/05/22 16:36	AMM	Mt. Juliet, TN



20220426-P27-595 (POR02) @ 6 L1487528-02 Solid

Collected by
Evan Mason

Collected date/time
04/26/22 12:30

Received date/time
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:53	05/04/22 18:53	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1858774	1	05/04/22 18:36	05/05/22 21:19	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1856872	1	04/30/22 13:00	04/30/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1856805	1	05/02/22 16:08	05/03/22 21:55	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:49	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856807	5	05/02/22 16:39	05/02/22 21:02	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1857004	1000	04/30/22 13:26	05/02/22 21:21	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1857210	80	04/30/22 13:26	05/02/22 21:36	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1860016	25	05/08/22 11:55	05/09/22 06:31	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1860016	5	05/08/22 11:55	05/09/22 05:10	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	1	05/04/22 14:56	05/05/22 06:35	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	10	05/04/22 14:56	05/05/22 16:56	AMM	Mt. Juliet, TN

20220426-P27-595 (BG-N) @ 2 L1487528-03 Solid

Collected by
Evan Mason

Collected date/time
04/26/22 13:00

Received date/time
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:55	05/04/22 18:55	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1856872	1	04/30/22 13:00	04/30/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:52	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856809	5	05/02/22 08:05	05/02/22 19:27	LD	Mt. Juliet, TN

20220426-P27-595 (BG-S) @ 3 L1487528-04 Solid

Collected by
Evan Mason

Collected date/time
04/26/22 13:45

Received date/time
04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:58	05/04/22 18:58	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1856872	1	04/30/22 13:00	04/30/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:55	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856809	5	05/02/22 08:05	05/02/22 19:30	LD	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.



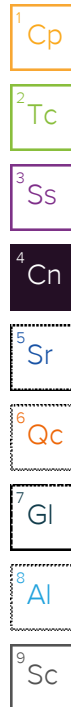
Jason Romer
Project Manager

Report Revision History

Level II Report - Version 1: 05/09/22 12:14

Project Narrative

Sample ID correction



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.88		1	05/04/2022 18:44	WG1857118

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/05/2022 21:12	WG1858774

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	T8	1	05/02/2022 14:00	WG1857403

Sample Narrative:

L1487528-01 WG1857403: 8.42 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1190		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:

L1487528-01 WG1857068: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	1390		0.500	1	05/03/2022 21:52	WG1856805
Cadmium	ND		0.500	1	05/03/2022 21:52	WG1856805
Copper	28.4		2.00	1	05/03/2022 21:52	WG1856805
Lead	14.5		0.500	1	05/03/2022 21:52	WG1856805
Nickel	15.1		2.00	1	05/03/2022 21:52	WG1856805
Selenium	ND		2.00	1	05/03/2022 21:52	WG1856805
Silver	ND		1.00	1	05/03/2022 21:52	WG1856805
Zinc	50.0		5.00	1	05/03/2022 21:52	WG1856805

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

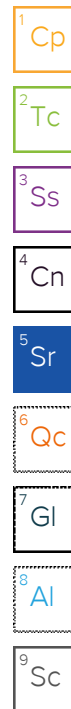
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.664		0.200	1	05/05/2022 10:47	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.2		1.00	5	05/02/2022 20:59	WG1856807

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	291		100	1000	05/02/2022 20:59	WG1857004
(S) a,a,a-Trifluorotoluene(FID)	110		77.0-120		05/02/2022 20:59	WG1857004



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.617		0.0100	10	05/05/2022 01:02	WG1858719
Toluene	2.70		0.0500	10	05/05/2022 01:02	WG1858719
Ethylbenzene	0.213		0.0250	10	05/05/2022 01:02	WG1858719
Xylenes, Total	8.61		0.0650	10	05/05/2022 01:02	WG1858719
1,2,4-Trimethylbenzene	3.20		0.0500	10	05/05/2022 01:02	WG1858719
1,3,5-Trimethylbenzene	5.61		0.0500	10	05/05/2022 01:02	WG1858719
(S) Toluene-d8	98.4		75.0-131		05/05/2022 01:02	WG1858719
(S) 4-Bromofluorobenzene	116		67.0-138		05/05/2022 01:02	WG1858719
(S) 1,2-Dichloroethane-d4	91.1		70.0-130		05/05/2022 01:02	WG1858719

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2460		100	25	05/06/2022 10:53	WG1859325
C28-C36 Motor Oil Range	323		20.0	5	05/06/2022 05:38	WG1859325
(S) o-Terphenyl	0.000	J7	18.0-148		05/06/2022 10:53	WG1859325
(S) o-Terphenyl	96.5		18.0-148		05/06/2022 05:38	WG1859325

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.185		0.00600	1	05/05/2022 06:15	WG1858627
Anthracene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(a)anthracene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(b)fluoranthene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(k)fluoranthene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(a)pyrene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Chrysene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Dibenz(a,h)anthracene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Fluoranthene	0.00840		0.00600	1	05/05/2022 06:15	WG1858627
Fluorene	0.610		0.00600	1	05/05/2022 06:15	WG1858627
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/05/2022 06:15	WG1858627
1-Methylnaphthalene	2.19		0.0200	1	05/05/2022 06:15	WG1858627
2-Methylnaphthalene	6.30		0.200	10	05/05/2022 16:36	WG1858627
Naphthalene	1.90		0.0200	1	05/05/2022 06:15	WG1858627
Pyrene	0.0110		0.00600	1	05/05/2022 06:15	WG1858627
(S) p-Terphenyl-d14	86.5		23.0-120		05/05/2022 16:36	WG1858627
(S) p-Terphenyl-d14	105		23.0-120		05/05/2022 06:15	WG1858627
(S) Nitrobenzene-d5	0.000	J2	14.0-149		05/05/2022 16:36	WG1858627
(S) Nitrobenzene-d5	1130	J1	14.0-149		05/05/2022 06:15	WG1858627
(S) 2-Fluorobiphenyl	101		34.0-125		05/05/2022 16:36	WG1858627
(S) 2-Fluorobiphenyl	128	J1	34.0-125		05/05/2022 06:15	WG1858627

Sample Narrative:

L1487528-01 WG1858627: Surrogate failure due to matrix interference

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	34.5		1	05/04/2022 18:53	WG1857118

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/05/2022 21:19	WG1858774

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.03	T8	1	04/30/2022 15:00	WG1856872

Sample Narrative:

L1487528-02 WG1856872: 8.03 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	4180		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:

L1487528-02 WG1857068: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	1350		0.500	1	05/03/2022 21:55	WG1856805
Cadmium	0.504		0.500	1	05/03/2022 21:55	WG1856805
Copper	16.6		2.00	1	05/03/2022 21:55	WG1856805
Lead	11.0		0.500	1	05/03/2022 21:55	WG1856805
Nickel	12.3		2.00	1	05/03/2022 21:55	WG1856805
Selenium	ND		2.00	1	05/03/2022 21:55	WG1856805
Silver	ND		1.00	1	05/03/2022 21:55	WG1856805
Zinc	38.5		5.00	1	05/03/2022 21:55	WG1856805

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	7.39		0.200	1	05/05/2022 10:49	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.3		1.00	5	05/02/2022 21:02	WG1856807

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1220		100	1000	05/02/2022 21:21	WG1857004
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		05/02/2022 21:21	WG1857004

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.480		0.0800	80	05/02/2022 21:36	WG1857210
Toluene	6.47		0.400	80	05/02/2022 21:36	WG1857210
Ethylbenzene	1.29		0.200	80	05/02/2022 21:36	WG1857210
Xylenes, Total	15.2		0.520	80	05/02/2022 21:36	WG1857210
1,2,4-Trimethylbenzene	7.08		0.400	80	05/02/2022 21:36	WG1857210
1,3,5-Trimethylbenzene	9.58		0.400	80	05/02/2022 21:36	WG1857210
(S) Toluene-d8	94.7		75.0-131		05/02/2022 21:36	WG1857210
(S) 4-Bromofluorobenzene	104		67.0-138		05/02/2022 21:36	WG1857210
(S) 1,2-Dichloroethane-d4	118		70.0-130		05/02/2022 21:36	WG1857210

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	5190		100	25	05/09/2022 06:31	WG1860016
C28-C36 Motor Oil Range	276		20.0	5	05/09/2022 05:10	WG1860016
(S) o-Terphenyl	0.000	J7	18.0-148		05/09/2022 06:31	WG1860016
(S) o-Terphenyl	0.000	J2	18.0-148		05/09/2022 05:10	WG1860016

Sample Narrative:

L1487528-02 WG1860016: Surrogate failure due to matrix interference

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.256		0.00600	1	05/05/2022 06:35	WG1858627
Anthracene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(a)anthracene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(b)fluoranthene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(k)fluoranthene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(a)pyrene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Chrysene	0.00955		0.00600	1	05/05/2022 06:35	WG1858627
Dibenz(a,h)anthracene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Fluoranthene	0.0179		0.00600	1	05/05/2022 06:35	WG1858627
Fluorene	1.03		0.00600	1	05/05/2022 06:35	WG1858627
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/05/2022 06:35	WG1858627
1-Methylnaphthalene	2.87		0.0200	1	05/05/2022 06:35	WG1858627
2-Methylnaphthalene	7.40		0.200	10	05/05/2022 16:56	WG1858627
Naphthalene	2.77		0.0200	1	05/05/2022 06:35	WG1858627
Pyrene	0.0181		0.00600	1	05/05/2022 06:35	WG1858627
(S) p-Terphenyl-d14	88.5		23.0-120		05/05/2022 16:56	WG1858627
(S) p-Terphenyl-d14	105		23.0-120		05/05/2022 06:35	WG1858627
(S) Nitrobenzene-d5	2070	J1	14.0-149		05/05/2022 06:35	WG1858627
(S) Nitrobenzene-d5	0.000	J2	14.0-149		05/05/2022 16:56	WG1858627
(S) 2-Fluorobiphenyl	120		34.0-125		05/05/2022 06:35	WG1858627
(S) 2-Fluorobiphenyl	101		34.0-125		05/05/2022 16:56	WG1858627

Sample Narrative:

L1487528-02 WG1858627: Surrogate failure due to matrix interference

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.145		1	05/04/2022 18:55	WG1857118

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.54	T8	1	04/30/2022 15:00	WG1856872

Sample Narrative:
L1487528-03 WG1856872: 7.54 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	452		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:
L1487528-03 WG1857068: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.03		0.200	1	05/05/2022 10:52	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	16.0		1.00	5	05/02/2022 19:27	WG1856809
Barium	300		2.50	5	05/02/2022 19:27	WG1856809

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.110		1	05/04/2022 18:58	WG1857118

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.97	T8	1	04/30/2022 15:00	WG1856872

Sample Narrative:

L1487528-04 WG1856872: 7.97 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	217		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:

L1487528-04 WG1857068: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.557		0.200	1	05/05/2022 10:55	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.5		1.00	5	05/02/2022 19:30	WG1856809
Barium	232		2.50	5	05/02/2022 19:30	WG1856809

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3788931-1 05/05/22 17:21

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

L1486366-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1486366-09 05/05/22 18:29 • (DUP) R3788931-7 05/05/22 18:37

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	1.72	1.35	1	24.0	P1	20

L1487429-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1487429-02 05/05/22 19:34 • (DUP) R3788931-8 05/05/22 19:39

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	20.2	P1	20

Laboratory Control Sample (LCS)

(LCS) R3788931-2 05/05/22 17:29

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.4	104	80.0-120	

L1486366-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1486366-07 05/05/22 17:44 • (MS) R3788931-3 05/05/22 17:49 • (MSD) R3788931-4 05/05/22 17:55

	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	ND	ND	ND	0.000	0.000	1	75.0-125	J6	J6	0.000	20

Sample Narrative:

OS: Sample is a reducer.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1486366-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1486366-07 05/05/22 17:44 • (MS) R3788931-5 05/05/22 18:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	636	ND	500	78.6	50	75.0-125	

Sample Narrative:

OS: Sample is a reducer.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1487523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1487523-01 04/30/22 15:00 • (DUP) R3786757-2 04/30/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	9.18	9.19	1	0.109		1

Sample Narrative:

OS: 9.18 at 21.3C

DUP: 9.19 at 21.3C

L1487533-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1487533-04 04/30/22 15:00 • (DUP) R3786757-3 04/30/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.75	8.74	1	0.114		1

Sample Narrative:

OS: 8.75 at 21C

DUP: 8.74 at 21C

Laboratory Control Sample (LCS)

(LCS) R3786757-1 04/30/22 15:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.91	99.1	99.0-101	

Sample Narrative:

LCS: 9.91 at 20.1C



L1487959-45 Original Sample (OS) • Duplicate (DUP)

(OS) L1487959-45 05/02/22 14:00 • (DUP) R3787224-2 05/02/22 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.65	7.60	1	0.656		1

Sample Narrative:

OS: 7.65 at 19.9C

DUP: 7.6 at 20.2C

L1487959-59 Original Sample (OS) • Duplicate (DUP)

(OS) L1487959-59 05/02/22 14:00 • (DUP) R3787224-3 05/02/22 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.42	7.42	1	0.000		1

Sample Narrative:

OS: 7.42 at 19.6C

DUP: 7.42 at 19.9C

Laboratory Control Sample (LCS)

(LCS) R3787224-1 05/02/22 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.98	99.8	99.0-101	

Sample Narrative:

LCS: 9.98 at 20.3C



Method Blank (MB)

(MB) R3787862-1 05/04/22 10:10

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

L1487528-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1487528-04 05/04/22 10:10 • (DUP) R3787862-3 05/04/22 10:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	217	220	1	1.37		20

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

L1487939-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1487939-03 05/04/22 10:10 • (DUP) R3787862-4 05/04/22 10:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	137	127	1	7.87		20

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

Laboratory Control Sample (LCS)

(LCS) R3787862-2 05/04/22 10:10

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	287	107	85.0-115	

Sample Narrative:
LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3787767-1 05/03/22 20:57

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3787767-2 05/03/22 20:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	94.2	94.2	80.0-120	
Cadmium	100	93.3	93.3	80.0-120	
Copper	100	95.9	95.9	80.0-120	
Lead	100	94.0	94.0	80.0-120	
Nickel	100	96.6	96.6	80.0-120	
Selenium	100	90.6	90.6	80.0-120	
Silver	20.0	16.7	83.5	80.0-120	
Zinc	100	90.0	90.0	80.0-120	

L1487523-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487523-08 05/03/22 21:02 • (MS) R3787767-5 05/03/22 21:10 • (MSD) R3787767-6 05/03/22 21:13

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 %
Barium	100	188	274	262	85.6	74.0	1	75.0-125		J6	4.35	20
Cadmium	100	ND	91.5	97.2	91.2	97.0	1	75.0-125			6.08	20
Copper	100	16.6	109	116	92.4	99.3	1	75.0-125			6.12	20
Lead	100	8.29	105	110	96.3	102	1	75.0-125			5.13	20
Nickel	100	26.2	124	131	98.0	105	1	75.0-125			5.16	20
Selenium	100	ND	84.9	91.4	84.9	91.4	1	75.0-125			7.36	20
Silver	20.0	ND	16.7	17.8	83.4	89.0	1	75.0-125			6.54	20
Zinc	100	35.5	114	120	78.9	84.5	1	75.0-125			4.80	20

Method Blank (MB)

(MB) R3788518-1 05/05/22 10:36

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) R3788518-2 05/05/22 10:39 • (LCSD) R3788518-3 05/05/22 10:41

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	0.994	1.01	99.4	101	80.0-120			2.03	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3787293-1 05/02/22 19:52

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

Laboratory Control Sample (LCS)

(LCS) R3787293-2 05/02/22 19:55

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	89.1	89.1	80.0-120	

L1487523-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487523-08 05/02/22 19:58 • (MS) R3787293-5 05/02/22 20:08 • (MSD) R3787293-6 05/02/22 20:12

	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	%	%		%			%	%
Arsenic	100	10.5	91.2	101	80.7	90.8	5	75.0-125			10.5	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3787289-1 05/02/22 19:04

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50

Laboratory Control Sample (LCS)

(LCS) R3787289-2 05/02/22 19:08

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	92.0	92.0	80.0-120	
Barium	100	92.3	92.3	80.0-120	

L1487120-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487120-10 05/02/22 19:11 • (MS) R3787289-5 05/02/22 19:21 • (MSD) R3787289-6 05/02/22 19:24

	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	%	%		%			%	%
Arsenic	99.8	ND	96.8	86.6	96.2	86.1	5	75.0-125			11.1	20
Barium	99.8	68.8	166	159	97.5	90.2	5	75.0-125			4.49	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3787263-3 05/02/22 11:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	112			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3787263-2 05/02/22 10:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.17	94.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			98.6	77.0-120	

L1487515-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487515-01 05/02/22 17:25 • (MS) R3787263-4 05/02/22 21:42 • (MSD) R3787263-5 05/02/22 22:14

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	92.4	ND	91.8	93.8	99.4	102	25	10.0-151			2.16	28
(S) a,a,a-Trifluorotoluene(FID)					101	101		77.0-120				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3788014-3 05/02/22 13:34

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	96.6			75.0-131
(S) 4-Bromofluorobenzene	102			67.0-138
(S) 1,2-Dichloroethane-d4	113			70.0-130

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

(LCS) R3788014-1 05/02/22 12:17 • (LCSD) R3788014-2 05/02/22 12:36

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	0.125	0.131	100	105	70.0-123			4.69	20
Toluene	0.125	0.123	0.128	98.4	102	75.0-121			3.98	20
Ethylbenzene	0.125	0.117	0.124	93.6	99.2	74.0-126			5.81	20
Xylenes, Total	0.375	0.352	0.365	93.9	97.3	72.0-127			3.63	20
1,2,4-Trimethylbenzene	0.125	0.128	0.135	102	108	70.0-126			5.32	20
1,3,5-Trimethylbenzene	0.125	0.126	0.133	101	106	73.0-127			5.41	20
(S) Toluene-d8				96.3	95.3	75.0-131				
(S) 4-Bromofluorobenzene				101	101	67.0-138				
(S) 1,2-Dichloroethane-d4				115	116	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3788469-3 05/04/22 23:44

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	95.1			75.0-131
(S) 4-Bromofluorobenzene	101			67.0-138
(S) 1,2-Dichloroethane-d4	87.8			70.0-130

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

(LCS) R3788469-1 05/04/22 21:44 • (LCSD) R3788469-2 05/04/22 23:05

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	0.126	0.129	101	103	70.0-123			2.35	20
Toluene	0.125	0.108	0.114	86.4	91.2	75.0-121			5.41	20
Ethylbenzene	0.125	0.105	0.110	84.0	88.0	74.0-126			4.65	20
Xylenes, Total	0.375	0.301	0.308	80.3	82.1	72.0-127			2.30	20
1,2,4-Trimethylbenzene	0.125	0.103	0.102	82.4	81.6	70.0-126			0.976	20
1,3,5-Trimethylbenzene	0.125	0.102	0.101	81.6	80.8	73.0-127			0.985	20
(S) Toluene-d8				93.0	93.4	75.0-131				
(S) 4-Bromofluorobenzene				100	99.9	67.0-138				
(S) 1,2-Dichloroethane-d4				91.6	91.4	70.0-130				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3788810-1 05/06/22 04:03

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	56.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3788810-2 05/06/22 04:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	28.1	56.2	50.0-150	
(S) o-Terphenyl			74.3	18.0-148	

L1487528-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487528-01 05/06/22 05:38 • (MS) R3788810-3 05/06/22 05:52 • (MSD) R3788810-4 05/06/22 06:06

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 %
C10-C28 Diesel Range	50.0	2550	1930	3410	0.000	1720	5	50.0-150	E V	E J3 V	55.4	20
(S) o-Terphenyl					77.6	133		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3789456-1 05/08/22 22:05

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	53.6			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3789456-2 05/08/22 22:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	31.5	63.0	50.0-150	
(S) o-Terphenyl			71.5	18.0-148	

L1489846-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1489846-05 05/08/22 22:59 • (MS) R3789456-3 05/08/22 23:13 • (MSD) R3789456-4 05/08/22 23:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.2	10.2	38.3	35.1	57.1	50.6	1	50.0-150			8.72	20
(S) o-Terphenyl					48.3	44.1		18.0-148				



Method Blank (MB)

(MB) R3788620-2 05/05/22 00:02

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	120			23.0-120
(S) Nitrobenzene-d5	84.8			14.0-149
(S) 2-Fluorobiphenyl	94.5			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3788620-1 05/04/22 23:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0720	90.0	50.0-120	
Anthracene	0.0800	0.0711	88.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0730	91.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0693	86.6	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0703	87.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0605	75.6	42.0-120	
Chrysene	0.0800	0.0747	93.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0678	84.8	47.0-125	
Fluoranthene	0.0800	0.0742	92.8	49.0-129	
Fluorene	0.0800	0.0755	94.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0703	87.9	46.0-125	
1-Methylnaphthalene	0.0800	0.0734	91.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0706	88.3	50.0-120	
Naphthalene	0.0800	0.0695	86.9	50.0-120	
Pyrene	0.0800	0.0771	96.4	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3788620-1 05/04/22 23:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			114	23.0-120	
(S) Nitrobenzene-d5			90.8	14.0-149	
(S) 2-Fluorobiphenyl			96.2	34.0-125	

L1487523-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487523-07 05/05/22 00:42 • (MS) R3788620-3 05/05/22 01:01 • (MSD) R3788620-4 05/05/22 01:21

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	ND	0.0640	0.0619	80.0	77.4	1	14.0-127			3.34	27
Anthracene	0.0800	ND	0.0634	0.0596	79.3	74.5	1	10.0-145			6.18	30
Benzo(a)anthracene	0.0800	ND	0.0644	0.0613	80.5	76.6	1	10.0-139			4.93	30
Benzo(b)fluoranthene	0.0800	ND	0.0620	0.0609	77.5	76.1	1	10.0-140			1.79	36
Benzo(k)fluoranthene	0.0800	ND	0.0630	0.0613	78.8	76.6	1	10.0-137			2.74	31
Benzo(a)pyrene	0.0800	ND	0.0607	0.0597	75.9	74.6	1	10.0-141			1.66	31
Chrysene	0.0800	ND	0.0662	0.0649	82.8	81.1	1	10.0-145			1.98	30
Dibenz(a,h)anthracene	0.0800	ND	0.0593	0.0573	74.1	71.6	1	10.0-132			3.43	31
Fluoranthene	0.0800	ND	0.0661	0.0638	82.6	79.8	1	10.0-153			3.54	33
Fluorene	0.0800	ND	0.0689	0.0656	86.1	82.0	1	11.0-130			4.91	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0603	0.0578	75.4	72.3	1	10.0-137			4.23	32
1-Methylnaphthalene	0.0800	ND	0.0684	0.0660	85.5	82.5	1	10.0-142			3.57	28
2-Methylnaphthalene	0.0800	ND	0.0648	0.0623	81.0	77.9	1	10.0-137			3.93	28
Naphthalene	0.0800	ND	0.0642	0.0625	80.3	78.1	1	10.0-135			2.68	27
Pyrene	0.0800	ND	0.0690	0.0667	86.3	83.4	1	10.0-148			3.39	35
(S) p-Terphenyl-d14					100	99.2		23.0-120				
(S) Nitrobenzene-d5					79.9	76.9		14.0-149				
(S) 2-Fluorobiphenyl					86.1	85.5		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

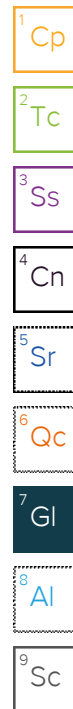
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
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.

