

**2RF-141 - COTTON DRAW
RECYCLING FACILITY ID
[fVV2325636574]**

**[6137] Devon Energy
Production Company, L.P. –
Produced Water Treatment
Research Pilot Project
06.19.2024. Devon Desal
Analytical Reports**

September 06, 2024



ANALYTICAL REPORT

July 15, 2024

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Gl
- ⁶Al
- ⁷Sc

Devon Energy - Oklahoma City, OK

Sample Delivery Group: L1748051
Samples Received: 06/19/2024
Project Number: 212C-NH-02831
Description: Desalination Pilot

Report To: Paul Barbour
333 W Sheridan Avenue
Oklahoma City, OK 73102-5015

Entire Report Reviewed By:

Jennifer Gambill
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

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Gl: Glossary of Terms	5	³ Ss
Al: Accreditations & Locations	6	⁴ Cn
Sc: Sample Chain of Custody	7	⁵ Gl
		⁶ Al
		⁷ Sc

POST CARBON FILTER PFAS L1748051-01 GW

Collected by
Collected date/time
Received date/time

06/18/24 08:00
06/19/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2308157	1	07/09/24 00:00	07/09/24 00:00	-	East Longmeadow, MA 01028

¹Cp

²Tc

³Ss

⁴Cn

⁵Gl

⁶Al

⁷Sc

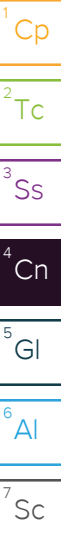
All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples 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.



Jennifer Gambill
Project Manager

Project Narrative

L1748051 -01 contains subout data that is included after the chain of custody.



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

SDG	Sample Delivery Group.
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

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

1

Cp

2

Tc

3

Ss

4

Cn

5

Gl

6

Al

7

Sc

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.

¹Cp

²Tc

³Ss

⁴Cn

⁵Gl

⁶Al

⁷Sc

Released to Imaging: 9/6/2024 10:20:04 AM

Released to Imaging: 9/6/2024 10:20:04 AM



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

July 3, 2024

Subout Team
Pace National - TN
12065 Lebanon Road
Mt. Juliet, TN 37122

Project Location: NM
Client Job Number:
Project Number: WG2308157
Laboratory Work Order Number: 24F2881

Enclosed are results of analyses for samples as received by the laboratory on June 20, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Kaitlyn A. Feliciano". The signature is fluid and cursive, with a large initial "K" and a long, sweeping underline.

Kaitlyn A. Feliciano
Project Manager

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Pace National - TN
12065 Lebanon Road
Mt. Juliet, TN 37122
ATTN: Subout Team

REPORT DATE: 7/3/2024

PURCHASE ORDER NUMBER: L1748051

PROJECT NUMBER: WG2308157

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24F2881

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: NM

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
POST CARBON FILTER PFAS	24F2881-01	Ground Water		Draft Method 1633	



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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

Draft Method 1633

Qualifications:

H-01

Recommended sample holding time was exceeded, but analysis was performed before 2X the allowable holding time.

Analyte & Samples(s) Qualified:

Total Suspended Solids

24F2881-01[POST CARBON FILTER PFAS]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa A. Worthington", written over a light gray rectangular background.

Lisa A. Worthington
Technical Representative



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: NM

Sample Description:

Work Order: 24F2881

Date Received: 6/20/2024

Field Sample #: POST CARBON FILTER PFAS

Sampled: 6/18/2024 08:00

Sample ID: 24F2881-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorohexanoic acid (PFHxA)	4.2	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorooctanoic acid (PFOA)	2.5	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorononanoic acid (PFNA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorodecanoic acid (PFDA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorooctanesulfonic acid (PFOS)	7.6	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.94	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.4	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.4	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.8	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.4	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)(5:3FTCA)	ND	47	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
3-Perfluoroheptyl propanoic acid (FHPrPA) (7:3FTCA)	ND	47	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: NM

Sample Description:

Work Order: 24F2881

Date Received: 6/20/2024

Field Sample #: POST CARBON FILTER PFAS

Sampled: 6/18/2024 08:00

Sample ID: 24F2881-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:28	AMS
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
13C4-PFBA	83.3	10-130						7/2/24 2:28	
13C5-PFPeA	80.7	35-150						7/2/24 2:28	
13C5-PFHxA	82.2	55-150						7/2/24 2:28	
13C4-PFHpA	77.3	55-150						7/2/24 2:28	
13C8-PFOA	86.3	60-140						7/2/24 2:28	
13C9-PFNA	76.3	55-140						7/2/24 2:28	
13C6-PFDA	75.2	50-140						7/2/24 2:28	
13C7-PFUnA	66.6	30-140						7/2/24 2:28	
13C2-PFDoA	61.1	10-150						7/2/24 2:28	
13C2-PFTeDA	59.6	10-130						7/2/24 2:28	
13C3-PFBS	85.6	55-150						7/2/24 2:28	
13C3-PFHxS	84.2	55-150						7/2/24 2:28	
13C8-PFOS	75.2	45-140						7/2/24 2:28	
13C2-4:2FTS	71.8	60-200						7/2/24 2:28	
13C2-6:2FTS	73.3	60-200						7/2/24 2:28	
13C2-8:2FTS	67.2	50-200						7/2/24 2:28	
13C8-PFOSA	69.3	30-130						7/2/24 2:28	
D3-NMeFOSA	51.2	15-130						7/2/24 2:28	
D5-NEtFOSA	49.4	10-130						7/2/24 2:28	
D3-NMeFOSAA	74.9	45-200						7/2/24 2:28	
D5-NEtFOSAA	64.9	10-200						7/2/24 2:28	
D7-NMeFOSE	54.3	10-150						7/2/24 2:28	
D9-NEtFOSE	49.4	10-150						7/2/24 2:28	
13C3-HFPO-DA	79.5	25-160						7/2/24 2:28	



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Project Location: NM

Date Received: 6/20/2024

Field Sample #: POST CARBON FILTER PFAS

Sample ID: 24F2881-01

Sample Matrix: Ground Water

Sample Description:

Work Order: 24F2881

Sampled: 6/18/2024 08:00

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)									
Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	26	10	mg/L	1	H-01	Draft Method 1633	6/25/24	6/25/24 13:00	LL



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method:**Draft Method 1633 **Analytical Method:**Draft Method 1633 **Leachates were extracted on 6/25/2024 per NO PREP in Batch B378179**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24F2881-01 [POST CARBON FILTER PFAS]	B378029	532	5.00	06/28/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24F2881-01 [POST CARBON FILTER PFAS]	B378179	50.0	06/25/24



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

Blank (B378029-BLK1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L
Perfluorohexanoic acid (PFHxA)	ND	0.97	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	0.97	ng/L
Perfluorooctanoic acid (PFOA)	ND	0.97	ng/L
Perfluorononanoic acid (PFNA)	ND	0.97	ng/L
Perfluorodecanoic acid (PFDA)	ND	0.97	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	0.97	ng/L
Perfluorododecanoic acid (PFDoA)	ND	0.97	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	0.97	ng/L
Perfluorotetradecanoic acid (PFTeDA)	ND	0.97	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	0.97	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	0.97	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	0.97	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.97	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	0.97	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	0.97	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	0.97	ng/L
Perfluorododecanesulfonic acid (PFDoS)	ND	0.97	ng/L
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L
Perfluorooctanesulfonamide (PFOSA)	ND	0.97	ng/L
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.97	ng/L
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.97	ng/L
N-MeFOSAA (NMeFOSAA)	ND	0.97	ng/L
N-EtFOSAA (NEtFOSAA)	ND	0.97	ng/L
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.7	ng/L
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.7	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.7	ng/L
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Surrogate: 13C4-PFBA	81.2		ng/L

97.5

83.3

10-130



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

Blank (B378029-BLK1)

Prepared: 06/28/24 Analyzed: 07/01/24

Surrogate: 13C5-PFPeA	39.9		ng/L	48.7		81.8	35-150			
Surrogate: 13C5-PFHxA	19.7		ng/L	24.4		81.0	55-150			
Surrogate: 13C4-PFHpA	18.8		ng/L	24.4		77.3	55-150			
Surrogate: 13C8-PFOA	20.2		ng/L	24.4		83.0	60-140			
Surrogate: 13C9-PFNA	10.2		ng/L	12.2		83.4	55-140			
Surrogate: 13C6-PFDA	9.71		ng/L	12.2		79.7	50-140			
Surrogate: 13C7-PFUnA	9.55		ng/L	12.2		78.4	30-140			
Surrogate: 13C2-PFDoA	9.16		ng/L	12.2		75.1	10-150			
Surrogate: 13C2-PFTeDA	9.27		ng/L	12.2		76.1	10-130			
Surrogate: 13C3-PFBS	20.3		ng/L	24.4		83.5	55-150			
Surrogate: 13C3-PFHxS	19.8		ng/L	24.4		81.4	55-150			
Surrogate: 13C8-PFOS	20.3		ng/L	24.4		83.2	45-140			
Surrogate: 13C2-4:2FTS	35.9		ng/L	48.7		73.6	60-200			
Surrogate: 13C2-6:2FTS	35.7		ng/L	48.7		73.3	60-200			
Surrogate: 13C2-8:2FTS	32.8		ng/L	48.7		67.2	50-200			
Surrogate: 13C8-PFOA	18.5		ng/L	24.4		76.1	30-130			
Surrogate: D3-NMeFOSA	14.1		ng/L	24.4		58.0	15-130			
Surrogate: D5-NEtFOSA	14.4		ng/L	24.4		59.3	10-130			
Surrogate: D3-NMeFOSAA	37.9		ng/L	48.7		77.8	45-200			
Surrogate: D5-NEtFOSAA	35.5		ng/L	48.7		72.9	10-200			
Surrogate: D7-NMeFOSE	166		ng/L	244		68.0	10-150			
Surrogate: D9-NEtFOSE	146		ng/L	244		60.0	10-150			
Surrogate: 13C3-HFPO-DA	86.4		ng/L	97.5		88.6	25-160			

LCS (B378029-BS1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorobutanoic acid (PFBA)	93.2	3.9	ng/L	94.5		98.6	58-148			
Perfluoropentanoic acid (PFPeA)	46.6	2.0	ng/L	47.2		98.6	54-152			
Perfluorohexanoic acid (PFHxA)	23.5	0.98	ng/L	23.6		99.6	55-152			
Perfluoroheptanoic acid (PFHpA)	23.3	0.98	ng/L	23.6		98.5	54-154			
Perfluorooctanoic acid (PFOA)	22.7	0.98	ng/L	23.6		96.0	52-161			
Perfluorononanoic acid (PFNA)	22.9	0.98	ng/L	23.6		96.8	59-149			
Perfluorodecanoic acid (PFDA)	22.4	0.98	ng/L	23.6		94.7	52-147			
Perfluoroundecanoic acid (PFUnA)	24.4	0.98	ng/L	23.6		103	48-159			
Perfluorododecanoic acid (PFDoA)	23.4	0.98	ng/L	23.6		99.0	64-142			
Perfluorotridecanoic acid (PFTTrDA)	21.7	0.98	ng/L	23.6		91.9	49-148			
Perfluorotetradecanoic acid (PFTeDA)	23.0	0.98	ng/L	23.6		97.4	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.0	0.98	ng/L	21.0		100	62-144			
Perfluoropentanesulfonic acid (PFPeS)	21.8	0.98	ng/L	22.2		98.1	59-151			
Perfluorohexanesulfonic acid (PFHxS)	19.7	0.98	ng/L	21.6		91.0	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	22.1	0.98	ng/L	22.5		98.4	55-152			
Perfluorooctanesulfonic acid (PFOS)	20.8	0.98	ng/L	21.9		94.8	58-149			
Perfluorononanesulfonic acid (PFNS)	22.7	0.98	ng/L	22.7		99.6	52-148			
Perfluorodecanesulfonic acid (PFDS)	20.9	0.98	ng/L	22.8		91.7	51-147			
Perfluorododecanesulfonic acid (PFDoS)	18.7	0.98	ng/L	22.9		81.6	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	91.2	3.9	ng/L	88.6		103	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	95.6	3.9	ng/L	89.8		107	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	85.9	3.9	ng/L	90.9		94.5	63-152			
Perfluorooctanesulfonamide (PFOSA)	23.1	0.98	ng/L	23.6		97.8	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	23.0	0.98	ng/L	23.6		97.5	63-145			



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

LCS (B378029-BS1)

Prepared: 06/28/24 Analyzed: 07/01/24

N-ethyl perfluorooctanesulfonamide (NEtFOSA)	23.3	0.98	ng/L	23.6		98.6	65-139			
N-MeFOSAA (NMeFOSAA)	22.0	0.98	ng/L	23.6		93.0	58-144			
N-EtFOSAA (NEtFOSAA)	21.6	0.98	ng/L	23.6		91.3	59-146			
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	245	9.8	ng/L	236		104	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	246	9.8	ng/L	236		104	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	101	3.9	ng/L	94.5		107	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	95.9	3.9	ng/L	89.2		108	68-146			
9Cl-PF3ONS (F53B Minor)	93.6	3.9	ng/L	88.6		106	56-156			
11Cl-PF3OUdS (F53B Major)	89.4	3.9	ng/L	89.2		100	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	230	9.8	ng/L	236		97.2	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1150	49	ng/L	1180		97.5	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1040	49	ng/L	1180		87.7	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	40.0	2.0	ng/L	42.0		95.1	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	44.6	2.0	ng/L	47.2		94.4	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	42.6	2.0	ng/L	47.2		90.2	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	44.2	2.0	ng/L	47.2		93.5	48-161			
Surrogate: 13C4-PFBA	80.7		ng/L	98.4		82.0	10-130			
Surrogate: 13C5-PFPeA	39.9		ng/L	49.2		81.2	35-150			
Surrogate: 13C5-PFHxA	19.7		ng/L	24.6		80.2	55-150			
Surrogate: 13C4-PFHpA	18.0		ng/L	24.6		73.3	55-150			
Surrogate: 13C8-PFOA	21.0		ng/L	24.6		85.3	60-140			
Surrogate: 13C9-PFNA	9.90		ng/L	12.3		80.5	55-140			
Surrogate: 13C6-PFDA	9.91		ng/L	12.3		80.6	50-140			
Surrogate: 13C7-PFUnA	9.20		ng/L	12.3		74.7	30-140			
Surrogate: 13C2-PFDoA	8.86		ng/L	12.3		72.0	10-150			
Surrogate: 13C2-PFTeDA	8.38		ng/L	12.3		68.1	10-130			
Surrogate: 13C3-PFBS	20.2		ng/L	24.6		81.9	55-150			
Surrogate: 13C3-PFHxS	19.8		ng/L	24.6		80.3	55-150			
Surrogate: 13C8-PFOS	19.1		ng/L	24.6		77.8	45-140			
Surrogate: 13C2-4:2FTS	36.5		ng/L	49.2		74.3	60-200			
Surrogate: 13C2-6:2FTS	36.9		ng/L	49.2		74.9	60-200			
Surrogate: 13C2-8:2FTS	35.3		ng/L	49.2		71.7	50-200			
Surrogate: 13C8-PFOSA	17.7		ng/L	24.6		72.1	30-130			
Surrogate: D3-NMeFOSA	14.5		ng/L	24.6		58.9	15-130			
Surrogate: D5-NEtFOSA	14.5		ng/L	24.6		58.9	10-130			
Surrogate: D3-NMeFOSAA	36.8		ng/L	49.2		74.7	45-200			
Surrogate: D5-NEtFOSAA	33.4		ng/L	49.2		67.8	10-200			
Surrogate: D7-NMeFOSE	157		ng/L	246		63.7	10-150			
Surrogate: D9-NEtFOSE	142		ng/L	246		57.9	10-150			
Surrogate: 13C3-HFPO-DA	77.4		ng/L	98.4		78.6	25-160			

MRL Check (B378029-MRL1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorobutanoic acid (PFBA)	7.17	3.9	ng/L	7.80		92.0	44-157			
Perfluoropentanoic acid (PFPeA)	3.52	1.9	ng/L	3.90		90.2	57-148			



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

MRL Check (B378029-MRL1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorohexanoic acid (PFHxA)	1.79	0.97	ng/L	1.95		91.8	62-149			
Perfluoroheptanoic acid (PFHpA)	1.69	0.97	ng/L	1.95		87.0	56-150			
Perfluorooctanoic acid (PFOA)	1.91	0.97	ng/L	1.95		98.2	57-161			
Perfluorononanoic acid (PFNA)	1.62	0.97	ng/L	1.95		83.3	53-157			
Perfluorodecanoic acid (PFDA)	1.68	0.97	ng/L	1.95		86.3	43-158			
Perfluoroundecanoic acid (PFUnA)	1.44	0.97	ng/L	1.95		73.7	50-155			
Perfluorododecanoic acid (PFDoA)	1.69	0.97	ng/L	1.95		86.5	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.62	0.97	ng/L	1.95		83.3	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.63	0.97	ng/L	1.95		83.8	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.43	0.97	ng/L	1.73		82.7	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.51	0.97	ng/L	1.83		82.6	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.53	0.97	ng/L	1.78		85.6	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.51	0.97	ng/L	1.86		81.3	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.64	0.97	ng/L	1.81		90.5	43-162			
Perfluorononanesulfonic acid (PFNS)	1.57	0.97	ng/L	1.88		83.9	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.45	0.97	ng/L	1.88		76.9	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.27	0.97	ng/L	1.89		67.4	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.50	3.9	ng/L	7.31		88.9	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.78	3.9	ng/L	7.41		91.5	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.21	3.9	ng/L	7.50		82.8	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.64	0.97	ng/L	1.95		84.4	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.77	0.97	ng/L	1.95		90.6	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.70	0.97	ng/L	1.95		87.2	49-156			
N-MeFOSAA (NMeFOSAA)	1.60	0.97	ng/L	1.95		82.3	32-160			
N-EtFOSAA (NEtFOSAA)	1.73	0.97	ng/L	1.95		88.6	51-154			
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	17.6	9.7	ng/L	19.5		90.5	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	17.5	9.7	ng/L	19.5		89.6	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.11	3.9	ng/L	7.80		91.2	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.23	3.9	ng/L	7.36		84.7	61-148			
9Cl-PF3ONS (F53B Minor)	6.11	3.9	ng/L	7.31		83.5	44-167			
11Cl-PF3OUDS (F53B Major)	5.66	3.9	ng/L	7.36		77.0	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	15.6	9.7	ng/L	19.5		80.2	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)(5:3FTCA)	80.2	49	ng/L	97.5		82.3	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	73.1	49	ng/L	97.5		75.0	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	2.73	1.9	ng/L	3.47		78.7	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.20	1.9	ng/L	3.90		82.1	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.07	1.9	ng/L	3.90		78.6	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.38	1.9	ng/L	3.90		86.7	47-160			
Surrogate: 13C4-PFBA	80.9		ng/L	97.5		83.0	10-130			
Surrogate: 13C5-PFPeA	40.0		ng/L	48.7		82.1	35-150			
Surrogate: 13C5-PFHxA	19.7		ng/L	24.4		80.9	55-150			



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

MRL Check (B378029-MRL1)

Prepared: 06/28/24 Analyzed: 07/01/24

Surrogate: 13C4-PFHpA	18.5		ng/L	24.4		76.0	55-150			
Surrogate: 13C8-PFOA	20.6		ng/L	24.4		84.7	60-140			
Surrogate: 13C9-PFNA	9.90		ng/L	12.2		81.3	55-140			
Surrogate: 13C6-PFDA	9.72		ng/L	12.2		79.8	50-140			
Surrogate: 13C7-PFUnA	9.68		ng/L	12.2		79.4	30-140			
Surrogate: 13C2-PFDoA	8.45		ng/L	12.2		69.4	10-150			
Surrogate: 13C2-PFTeDA	8.60		ng/L	12.2		70.6	10-130			
Surrogate: 13C3-PFBS	21.3		ng/L	24.4		87.2	55-150			
Surrogate: 13C3-PFHxS	20.3		ng/L	24.4		83.2	55-150			
Surrogate: 13C8-PFOS	20.3		ng/L	24.4		83.2	45-140			
Surrogate: 13C2-4:2FTS	37.1		ng/L	48.7		76.2	60-200			
Surrogate: 13C2-6:2FTS	35.8		ng/L	48.7		73.5	60-200			
Surrogate: 13C2-8:2FTS	36.8		ng/L	48.7		75.6	50-200			
Surrogate: 13C8-PFOSA	17.4		ng/L	24.4		71.6	30-130			
Surrogate: D3-NMeFOSA	13.9		ng/L	24.4		57.2	15-130			
Surrogate: D5-NEtFOSA	14.6		ng/L	24.4		59.8	10-130			
Surrogate: D3-NMeFOSAA	39.0		ng/L	48.7		80.0	45-200			
Surrogate: D5-NEtFOSAA	32.5		ng/L	48.7		66.6	10-200			
Surrogate: D7-NMeFOSE	154		ng/L	244		63.1	10-150			
Surrogate: D9-NEtFOSE	142		ng/L	244		58.3	10-150			
Surrogate: 13C3-HFPO-DA	78.7		ng/L	97.5		80.7	25-160			



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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378179 - Draft Method 1633

Blank (B378179-BLK1)				Prepared & Analyzed: 06/25/24						
Total Suspended Solids	ND	5.0	mg/L							
LCS (B378179-BS1)				Prepared & Analyzed: 06/25/24						
Total Suspended Solids	207	5.0	mg/L	200		104	51.5-130			



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-01	Recommended sample holding time was exceeded, but analysis was performed before 2X the allowable holding time.



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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2025
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

Sub-Contract Chain of Custody

Batch Date/Time: 06/19/24 13:25
Sub-Contract Lab: PACEELMA
Address: 39 Spruce St
City/State: East Longmeadow, MA
01028

Contact:
elonprojectmanagers@pacelabs.com

Owner Lab: PACEMTJL

Address: 12065 Lebanon Rd.

City/State: Mt. Juliet; TN 37122

Phone: (615) 773-9756

Fax: (615) 758-5859

WO: WG2308157

Email: MTJLSuboutTeam@pacelabs.com

Results Due Date: 07/18/24

ESC Purchase Order #: L1748051

Send Reports to: James C Huckaba



12065 Lebanon Rd.
Mt. Juliet, TN 37122
Phone:(615) 773-9756
Fax:(615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
POST CARBON FILTER PFAS	GW	NM	06/18/24 08:00	SUBPFAS1633	2. L1748051-01	

Relinquished by: [Signature] Date 6-19-24

Received by: AB 7-3 Date: 6-10-79

Relinquished by: _____ Date: _____

Received by: _____ Date _____



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DELIVERED

Thursday

6/20/24 at 10:01 AM

Signed for by: A.MULINARE

 Obtain proof of delivery

How was your delivery?



DELIVERY STATUS

Delivered 

 Report missing package

TRACKING ID

731532056490  

FROM

MOUNT JULIET, TN US

Label Created

6/19/24 4:17 PM

ON THE WAY

WINDSOR LOCKS, CT

6/20/24 7:30 AM

OUT FOR DELIVERY

WINDSOR LOCKS, CT

6/20/24 7:38 AM

DELIVERED

East Longmeadow, MA US

Delivered

6/20/24 at 10:01 AM

 [View travel history](#)

Want updates on this shipment? Enter your email and we will do the rest!

	DC#_ Title: ENV-FRM-ELON-0001 v08_Sample Receiving Checklist
	Effective Date: 06/11/2024

Log In Back-Sheet

Login Sample Receipt Checklist – (Rejection Criteria Listing
– Using Acceptance Policy) Any False statement will be
brought to the attention of the Client – True or False

Client Pace
 Project NA
 MCP/RCP Required NA
 Deliverable Package Requirement NA
 Location 12065 Lebanon Rd NAAAB
 PWSID# (When Applicable) NA
 Arrival Method:
 Courier ☐ Fed Ex ☒ Walk In ☐ Other ☐
 Received By / Date / Time AB 6/20/24
 Back-Sheet By / Date / Time AB 6/20/24 12:10
 Temperature Method Tempgun # 4
 WV samples: Yes (see note*) / No (follow normal procedure)
 Temp < 6° C Actual Temperature 23
 Rush Samples: Yes / ☒ No Notify
 Short Hold: Yes / ☒ No Notify

Notes regarding Samples/COC outside of SOP:

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☒	☐
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☐	☒
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH: <u>N/A</u> ☐ ☐		

Additional Container Notes

***Note: West Virginia requires all samples to have their temperature taken. Note any outliers.**



DC#_Title: ENV-FRM-ELON-0001 v08_Sample Receiving Checklist

Effective Date: 06/11/2024

Sample	Soils Jars				Ambers				Plastics								VOA Vials						Other / Fill in			
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	1 Liter	250mL	100mL	1 Liter	500mL	250mL						Unpreserved	HCl	MeOH	BiSulfate	Col/Bact						
1																										
2																										
3																										
4																										
5																										
6																										
7																										
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17																										
18																										
19																										
20																										



ANALYTICAL REPORT

July 18, 2024

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

Devon Energy - Oklahoma City, OK

Sample Delivery Group: L1748056
Samples Received: 06/19/2024
Project Number: 212C-HN-02831
Description: Desalination Pilot

Report To: Paul Barbour
333 W Sheridan Avenue
Oklahoma City, OK 73102-5015

Entire Report Reviewed By:

Jennifer Gambill
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

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
POST CARBON FILTER RAD L1748056-01	5	
Qc: Quality Control Summary	6	⁴ Cn
Radiochemistry by Method 900	6	⁵ Sr
Radiochemistry by Method 904/9320	7	
Radiochemistry by Method D3972 U-02	8	⁶ Qc
Radiochemistry by Method SM7500Ra B M	9	
Gl: Glossary of Terms	10	⁷ Gl
Al: Accreditations & Locations	11	⁸ Al
Sc: Sample Chain of Custody	12	⁹ Sc

POST CARBON FILTER RAD L1748056-01 Non-Potable Water

Collected by
Collected date/time
Received date/time

06/18/24 08:0006/19/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2310835	1	06/24/24 09:04	06/27/24 16:03	ALG	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2309149	1	06/21/24 21:36	07/05/24 17:29	DDD	Mt. Juliet, TN
Radiochemistry by Method D3972 U-02	WG2315459	1	07/06/24 11:43	07/08/24 23:25	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2309111	1	06/21/24 15:54	06/25/24 17:42	ZRG	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

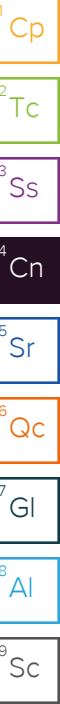
8Al

9Sc

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.



Jennifer Gambill
Project Manager



Radiochemistry by Method 900

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
GROSS ALPHA	0.160	U	0.453	0.481	0.676	0.276	06/27/2024 16:03	WG2310835
GROSS BETA	0.995	J	0.979	1.01	1.27	0.602	06/27/2024 16:03	WG2310835

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.391	J	0.275	0.385	0.476	0.250	07/05/2024 17:29	WG2309149
(T) Barium	85.5					30.0-143	07/05/2024 17:29	WG2309149
(T) Yttrium	95.0					30.0-136	07/05/2024 17:29	WG2309149

Radiochemistry by Method D3972 U-02

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
URANIUM-234	0.242	J	0.277	0.464	0.355	0.279	07/08/2024 23:25	WG2315459
URANIUM-235	-0.0234	U	0.0590	0.246	0.311	0.256	07/08/2024 23:25	WG2315459
URANIUM-238	0.0269	U	0.167	0.354	0.390	0.296	07/08/2024 23:25	WG2315459
(T) URANIUM-232	58.5					30.0-110	07/08/2024 23:25	WG2315459

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.677		0.346	0.474	0.294	0.206	06/25/2024 17:42	WG2309111
(T) Barium-133	167	C1				30.0-143	06/25/2024 17:42	WG2309111

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 900

L1748056-01

Method Blank (MB)

(MB) R4087325-1 06/27/24 12:35

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	0.148	U	0.445	0.666	0.272
GROSS BETA	-0.125	U	1.24	1.68	0.804

¹Cp

²Tc

³Ss

⁴Cn

L1747966-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747966-01 06/27/24 12:35 • (DUP) R4087325-5 06/27/24 12:35

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	185	56.7	49.2	19.8	131	52.3	52.8	21.5	34.5	0.707		20	3
GROSS BETA	160	48.3	54.7	25.8	247	51.7	54.8	25.9	42.8	1.23		20	3

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R4087325-2 06/27/24 12:35

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	14.0	93.3	80.0-120	
GROSS BETA	40.2	43.0	107	80.0-120	

⁷Gl

⁸Al

L1749017-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1749017-01 06/27/24 12:35 • (MS) R4087325-3 06/27/24 12:35 • (MSD) R4087325-4 06/27/24 12:35

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	18.2	6.89	25.1	25.9	100	104	1	70.0-130			2.90		20
GROSS BETA	48.8	9.75	56.4	57.3	95.6	97.5	1	70.0-130			1.67		20

⁹Sc

Radiochemistry by Method 904/9320

L1748056-01

Method Blank (MB)

(MB) R4091735-1 07/05/24 17:29

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.466		0.216	0.368	0.192
(T) Barium	90.3		90.3		
(T) Yttrium	106		106		

L1748044-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748044-01 07/05/24 17:29 • (DUP) R4091735-5 07/05/24 17:29

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.604	0.409	0.708	0.373	0.215	0.297	0.522	0.276	94.9	0.769	U	20	3
(T) Barium	105				98.0	98.0							
(T) Yttrium	73.3				108	108							

Laboratory Control Sample (LCS)

(LCS) R4091735-2 07/05/24 17:29

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.91	98.2	80.0-120	
(T) Barium			97.1		
(T) Yttrium			87.5		

L1748527-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748527-01 07/05/24 17:29 • (MS) R4091735-3 07/05/24 17:29 • (MSD) R4091735-4 07/05/24 17:29

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.432	17.7	16.3	106	97.4	1	70.0-130			8.59		20
(T) Barium		116			106	107							
(T) Yttrium		96.0			104	103							

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4093343-3 07/11/24 22:38

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
URANIUM-234	0.0827		0.0420	0.0375	0.0259
URANIUM-235	0.00933	U	0.0173	0.0277	0.0209
URANIUM-238	0.0260	U	0.0236	0.0277	0.0209
(T) URANIUM-232	75.9		75.9		

L1750499-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1750499-01 07/08/24 23:25 • (DUP) R4093343-2 07/08/24 23:25

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
URANIUM-234	0.386	0.359	0.371	0.306	0.545	0.517	0.644	0.450	34.2	0.253	U	20	3
URANIUM-235	0.0543	0.173	0.371	0.306	0.0411	0.198	0.450	0.353	27.6	0.0502	U	20	3
URANIUM-238	0.305	0.323	0.371	0.306	0.273	0.366	0.530	0.393	11.3	0.0672	U	20	3
(T) URANIUM-232	47.1				45.8	45.8							

Laboratory Control Sample (LCS)

(LCS) R4093343-1 07/08/24 23:25

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
URANIUM-234	5.03	5.52	110	80.0-120	
URANIUM-238	4.90	5.23	107	80.0-120	
(T) URANIUM-232			58.0		

L1748503-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748503-01 07/12/24 15:29 • (MS) R4093343-4 07/12/24 15:29 • (MSD) R4093343-5 07/12/24 15:29

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
URANIUM-234	20.1	1.36	20.7	21.5	96.1	100	1	75.0-125			4.03		20
URANIUM-238	19.6	0.839	20.6	23.1	101	114	1	75.0-125			11.8		20
(T) URANIUM-232		82.8			85.0	82.4							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4087337-1 06/25/24 17:41

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	-0.0166	<u>U</u>	0.0386	0.0915	0.0614
(T) Barium-133	83.6		83.6		

1
Cp

2
Tc

3
Ss

4
Cn

L1748511-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1748511-03 06/25/24 17:42 • (DUP) R4087337-5 06/25/24 17:41

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	-0.0726	0.154	0.364	0.243	-0.0164	0.233	0.433	0.278	0.000	0.201	<u>U</u>	20	3
(T) Barium-133	84.3				82.8	82.8							

5
Sr

6
Qc

7
Gl

Laboratory Control Sample (LCS)

(LCS) R4087337-2 06/25/24 17:41

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.11	102	75.0-125	
(T) Barium-133			82.2		

8
Al

9
Sc

L1747363-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747363-03 06/25/24 17:41 • (MS) R4087337-3 06/25/24 17:41 • (MSD) R4087337-4 06/25/24 17:41

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	1.06	19.7	20.2	93.4	95.4	1	75.0-125			2.06		20
(T) Barium-133		86.2			81.4	81.8							

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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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
C1	Tracer recovery limits have been exceeded; values are outside upper control limits.
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Company Name/Address: Devon Energy - Oklahoma City, OK 333 W Sheridan Avenue Oklahoma City, OK 73102-5015		Billing Information: Paul Barbour 333 W Sheridan Avenue Oklahoma City, OK 73102-5015		Pres Chk	Analysis / Container / Preservative										Chain of Custody Page 4 of 2	
Report to: Paul Barbour		Email To: paul.barbour@dmn.com;asharma@cchr2o.com														
Project Description: Desalination Pilot		City/State Collected: July, NM	Please Circle: PT MT CT ET													
Phone: 405-228-4308		Client Project # 212C-HN-02831	Lab Project # DEVENEOCOK-EFFLUENT													
Collected by (print): Rammy Davis		Site/Facility ID # SCR	P.O. #													
Collected by (signature): Rammy Davis		Rush? (Lab MUST Be Notified) ☐ Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 10 Day (Rad Only) ☐ Three Day		Quote #												
Immediately Packed on Ice N ☐ Y ☒		Date Results Needed		No. of Cntrs												
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	625.1 100ml Amb-NaTio	CHLORR,SPCON,NORG 250mlHDPE-NoPres	CN 250mlHDPEAmb-NaOH	Custom Metals,HARD 250mlHDPE-HNO3	DO,NORG,CR6,CR3 125mlHDPE-NoPres	DOC 250mlAmb-No Pres	GROSS ALPHA/BETA 1L-HDPE-Add HNO3	GROSS ALPHA/BETA 500mlHDPE-Add HNO3	NH3 250mlHDPENaThioH2SO4	OGHEX 1L-CI-WT-HQ	
POST CARBON FILTER	G	GW		6-18-24	0800	25	X	X	X	X	X			X	X	
POST CARBON FILTER PFAS		GW				2										
POST CARBON FILTER RAD	G	NPW		6-18-24	0800	4						X	X			01
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks:		Samples returned via: ☐ UPS ☐ FedEx ☐ Courier		Tracking #		pH _____ Temp _____ Flow _____ Other _____		Sample Receipt Checklist COC Seal Present/Intact: ☒ NP Y N COC Signed/Accurate: ☒ Y N Bottles arrive intact: ☒ Y N Correct bottles used: ☒ Y N Sufficient volume sent: ☒ Y N If Applicable VOA Zero Headspace: ☒ Y N Preservation Correct/Checked: ☒ Y N RAD Screen <0.5 mR/hr: ☒ Y N						
Relinquished by: (Signature) Grace Richards	Date: 6-18-24	Time: 1600	Received by: (Signature) Grace Richards		Trip Blank Received: ☒ No HCL / MeOH TBR 1		Temp: 26.40 °C 3.9		Bottles Received: 39		If preservation required by Login: Date/Time					
Relinquished by: (Signature) Grace Richards	Date: 6/19/24	Time: 1630	Received for lab by: (Signature) Esther Ogun		Date: 6/19/24		Time: 0800		Hold:		Condition: NCF / OK					



ANALYTICAL REPORT

August 07, 2024

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

Devon Energy - Oklahoma City, OK

Sample Delivery Group: L1748057
Samples Received: 06/19/2024
Project Number: 212C-HN-02831
Description: Desalination Pilot
Site: CCR
Report To: Paul Barbour
333 W Sheridan Avenue
Oklahoma City, OK 73102-5015

Entire Report Reviewed By:

Cassandra Foster

Cassandra Foster
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

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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POST CARBON FILTER L1748057-01 WW

Collected by
Danny Daniels

Collected date/time
06/18/24 08:00

Received date/time
06/19/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2311717	1	06/28/24 08:29	06/28/24 08:29	JTM	Mt. Juliet, TN
Calculated Results	WG2311974	1	06/27/24 15:53	06/27/24 15:53	JAS	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG2310328	1	06/22/24 15:57	06/23/24 12:59	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2015	WG2309483	1	06/21/24 15:42	06/21/24 16:39	DLS	Mt. Juliet, TN
Wet Chemistry by Method 120.1	WG2308089	1	06/21/24 14:30	06/21/24 14:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 130.1	WG2311658	1	06/25/24 19:00	06/27/24 13:50	CAT	Mt. Juliet, TN
Wet Chemistry by Method 1664A	WG2311324	1	06/25/24 02:02	06/25/24 09:59	MAB	Mt. Juliet, TN
Wet Chemistry by Method 2120 B-2011	WG2308465	1	06/20/24 08:37	06/20/24 08:37	ARV	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2308182	1	06/20/24 12:12	06/20/24 12:12	KA	Mt. Juliet, TN
Wet Chemistry by Method 2580	WG2310018	1	06/22/24 22:00	06/22/24 22:00	KRB	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2307978	1	06/20/24 00:18	06/20/24 00:18	JDG	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2309479	1	06/23/24 01:12	06/23/24 01:12	JDG	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG2311974	50	06/26/24 15:55	06/26/24 15:55	LAS	Mt. Juliet, TN
Wet Chemistry by Method 3500Cr B-2011	WG2308449	1	06/20/24 09:52	06/20/24 09:52	ARV	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG2311378	10	06/25/24 08:35	06/27/24 15:53	JAS	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2307824	1	06/19/24 20:27	06/19/24 20:27	JAS	Mt. Juliet, TN
Wet Chemistry by Method 4500CI G-2011	WG2308884	1	06/20/24 11:42	06/20/24 11:42	ARV	Mt. Juliet, TN
Wet Chemistry by Method 4500CN E-2016	WG2310563	1	06/25/24 10:00	06/25/24 22:10	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2307966	1	06/19/24 18:00	06/19/24 18:00	KRB	Mt. Juliet, TN
Wet Chemistry by Method 45000 G-2016	WG2311507	1	06/20/24 08:25	06/20/24 08:25	DYA	Mt. Juliet, TN
Wet Chemistry by Method 4500P E-2011	WG2308068	1	06/19/24 15:36	06/19/24 15:36	SJA	Mt. Juliet, TN
Wet Chemistry by Method 5310 B-2014	WG2308789	1	06/20/24 13:04	06/20/24 23:59	SJF	Mt. Juliet, TN
Wet Chemistry by Method 5310 B-2014	WG2314468	1	06/29/24 21:12	06/29/24 21:12	ASH	Mt. Juliet, TN
Mercury by Method 245.1	WG2307893	1	06/19/24 13:14	06/20/24 16:42	NDL	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2311717	1	06/27/24 23:20	06/28/24 08:29	JTM	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2311717	1	06/27/24 23:20	06/29/24 13:22	JTM	Mt. Juliet, TN
Metals (ICPMS) by Method 200.8	WG2312649	1	06/27/24 09:24	08/02/24 00:35	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 624.1	WG2311331	1	06/25/24 03:17	06/25/24 03:17	GLN	Mt. Juliet, TN
TPH by TCEQ Method 1005	WG2312205	1	06/26/24 22:41	06/27/24 18:04	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG2310759	1	06/24/24 15:11	06/25/24 03:51	AGW	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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.

Cassandra Foster

Cassandra Foster
Project Manager

Sample Delivery Group (SDG) Narrative

The following analysis were performed from an unpreserved, insufficiently or inadequately preserved sample.

Lab Sample ID	Project Sample ID	Method
L1748057-01	POST CARBON FILTER	1664A, 4500O G-2016

The Laboratory is not accredited for specific analytes on the associated Sample/Method. These analytes are flagged in the Sample Results section of the report with an asterisk (*).

Lab Sample ID	Project Sample ID	Method
L1748057-01	POST CARBON FILTER	300.0

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium, Trivalent	ND		0.0100	1	06/28/2024 08:29	WG2311717
Organic Nitrogen	ND		2.50	1	06/27/2024 15:53	WG2311974

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	52.0		10.0	1	06/23/2024 12:59	WG2310328

Gravimetric Analysis by Method 2540 D-2015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Suspended Solids	ND		2.50	1	06/21/2024 16:39	WG2309483

Wet Chemistry by Method 120.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	792		10.0	1	06/21/2024 14:30	WG2308089

Sample Narrative:
L1748057-01 WG2308089: at 25C

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hardness (colorimetric) as CaCO3	ND		30.0	1	06/27/2024 13:50	WG2311658

Wet Chemistry by Method 1664A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Oil & Grease (Hexane Extr)	ND		5.62	1	06/25/2024 09:59	WG2311324

Wet Chemistry by Method 2120 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Color, Apparent	1.00	T8	1.00	1	06/20/2024 08:37	WG2308465

Sample Narrative:
L1748057-01 WG2308465: 8.72

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	376		20.0	1	06/20/2024 12:12	WG2308182
Alkalinity, Bicarbonate	248		20.0	1	06/20/2024 12:12	WG2308182
Alkalinity, Carbonate	128		20.0	1	06/20/2024 12:12	WG2308182

Sample Narrative:
L1748057-01 WG2308182: Endpoint pH 4.5 HEADSPACE

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				

Collected date/time: 06/18/24 08:00

L1748057

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
ORP	81.4	T8	1	06/22/2024 22:00	WG2310018

1
Cp

2
Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
*Bromide	1.52	B	1.00	1	06/23/2024 01:12	WG2309479
Chloride	34.0		1.00	1	06/20/2024 00:18	WG2307978
Fluoride	ND		0.150	1	06/20/2024 00:18	WG2307978
Nitrate as (N)	ND	Q	0.100	1	06/23/2024 01:12	WG2309479
Sulfate	ND		5.00	1	06/20/2024 00:18	WG2307978

3
Ss

4
Cn

5
Sr

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	118		12.5	50	06/26/2024 15:55	WG2311974

6
Qc

7
Gl

8
Al

Wet Chemistry by Method 3500Cr B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	Q	0.0100	1	06/20/2024 09:52	WG2308449

9
Sc

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Kjeldahl Nitrogen, TKN	110		2.50	10	06/27/2024 15:53	WG2311378

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND	J6	0.100	1	06/19/2024 20:27	WG2307824

Wet Chemistry by Method 4500Cl G-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chlorine,residual	ND	T8	0.100	1	06/20/2024 11:42	WG2308884

Wet Chemistry by Method 4500CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Cyanide	ND		0.00500	1	06/25/2024 22:10	WG2310563

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.52	T8	1	06/19/2024 18:00	WG2307966

Sample Narrative:

L1748057-01 WG2307966: 8.52 at 20.7C

Wet Chemistry by Method 4500O G-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l		date / time	

Collected date/time: 06/18/24 08:00

L1748057

Wet Chemistry by Method 45000 G-2016

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Oxygen	8.9 at 7.8c	T8	3	1	06/20/2024 08:25	WG2311507

Wet Chemistry by Method 4500P E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Phosphate,Ortho	0.185		0.0300	1	06/19/2024 15:36	WG2308068

Wet Chemistry by Method 5310 B-2014

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
DOC	6.15	Q	1.00	1	06/20/2024 23:59	WG2308789

Wet Chemistry by Method 5310 B-2014

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	7.24		1.00	1	06/29/2024 21:12	WG2314468

Mercury by Method 245.1

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2024 16:42	WG2307893

Metals (ICP) by Method 200.7

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	ND		0.200	1	06/28/2024 08:29	WG2311717
Antimony	ND		0.0100	1	06/28/2024 08:29	WG2311717
Arsenic	ND		0.0100	1	06/28/2024 08:29	WG2311717
Barium	ND		0.00500	1	06/28/2024 08:29	WG2311717
Beryllium	ND		0.00200	1	06/28/2024 08:29	WG2311717
Cadmium	ND		0.00200	1	06/28/2024 08:29	WG2311717
Chromium	ND		0.0100	1	06/28/2024 08:29	WG2311717
Copper	ND		0.0100	1	06/28/2024 08:29	WG2311717
Lead	ND		0.00500	1	06/28/2024 08:29	WG2311717
Lithium	ND		0.0150	1	06/28/2024 08:29	WG2311717
Nickel	ND		0.0100	1	06/28/2024 08:29	WG2311717
Selenium	ND		0.0100	1	06/28/2024 08:29	WG2311717
Silicon	2.12		0.200	1	06/28/2024 08:29	WG2311717
Silver	ND		0.00500	1	06/29/2024 13:22	WG2311717
Strontium	0.0294		0.0100	1	06/28/2024 08:29	WG2311717
Thallium	ND		0.0100	1	06/28/2024 08:29	WG2311717
Vanadium	ND		0.0200	1	06/28/2024 08:29	WG2311717
Zinc	ND		0.0500	1	06/28/2024 08:29	WG2311717
Phosphorus	0.415		0.100	1	06/28/2024 08:29	WG2311717

Metals (ICPMS) by Method 200.8

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	0.327		0.0400	1	08/02/2024 00:35	WG2312649
Calcium	ND		1.00	1	08/02/2024 00:35	WG2312649
Cobalt	ND		0.00200	1	08/02/2024 00:35	WG2312649
Iron	ND		0.100	1	08/02/2024 00:35	WG2312649
Magnesium	ND		1.00	1	08/02/2024 00:35	WG2312649

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/18/24 08:00

L1748057

Metals (ICPMS) by Method 200.8

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Manganese	ND		0.00500	1	08/02/2024 00:35	WG2312649
Molybdenum	ND		0.00500	1	08/02/2024 00:35	WG2312649
Potassium	ND		1.00	1	08/02/2024 00:35	WG2312649
Sodium	15.4		2.00	1	08/02/2024 00:35	WG2312649
Tin	ND		0.00400	1	08/02/2024 00:35	WG2312649
Titanium	ND		0.0100	1	08/02/2024 00:35	WG2312649

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Volatile Organic Compounds (GC/MS) by Method 624.1

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/25/2024 03:17	WG2311331
Bromodichloromethane	ND		0.00100	1	06/25/2024 03:17	WG2311331
Bromoform	ND		0.00100	1	06/25/2024 03:17	WG2311331
Bromomethane	ND	J3	0.00500	1	06/25/2024 03:17	WG2311331
Carbon tetrachloride	ND		0.00100	1	06/25/2024 03:17	WG2311331
Chlorobenzene	ND		0.00100	1	06/25/2024 03:17	WG2311331
Chlorodibromomethane	ND		0.00100	1	06/25/2024 03:17	WG2311331
Chloroethane	ND		0.00500	1	06/25/2024 03:17	WG2311331
2-Chloroethyl vinyl ether	ND		0.0500	1	06/25/2024 03:17	WG2311331
Chloroform	ND		0.00500	1	06/25/2024 03:17	WG2311331
Chloromethane	ND		0.00250	1	06/25/2024 03:17	WG2311331
1,2-Dichlorobenzene	ND		0.00100	1	06/25/2024 03:17	WG2311331
1,3-Dichlorobenzene	ND		0.00100	1	06/25/2024 03:17	WG2311331
1,4-Dichlorobenzene	ND		0.00100	1	06/25/2024 03:17	WG2311331
Dichlorodifluoromethane	ND		0.00500	1	06/25/2024 03:17	WG2311331
1,1-Dichloroethane	ND		0.00100	1	06/25/2024 03:17	WG2311331
1,2-Dichloroethane	ND		0.00100	1	06/25/2024 03:17	WG2311331
1,1-Dichloroethene	ND		0.00100	1	06/25/2024 03:17	WG2311331
trans-1,2-Dichloroethene	ND		0.00100	1	06/25/2024 03:17	WG2311331
1,2-Dichloropropane	ND		0.00100	1	06/25/2024 03:17	WG2311331
cis-1,3-Dichloropropene	ND		0.00100	1	06/25/2024 03:17	WG2311331
trans-1,3-Dichloropropene	ND		0.00100	1	06/25/2024 03:17	WG2311331
Ethylbenzene	ND		0.00100	1	06/25/2024 03:17	WG2311331
Methylene Chloride	ND		0.00500	1	06/25/2024 03:17	WG2311331
Methyl tert-butyl ether	ND		0.00100	1	06/25/2024 03:17	WG2311331
Naphthalene	ND		0.00500	1	06/25/2024 03:17	WG2311331
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/25/2024 03:17	WG2311331
Tetrachloroethene	ND		0.00100	1	06/25/2024 03:17	WG2311331
Toluene	ND		0.00100	1	06/25/2024 03:17	WG2311331
1,1,1-Trichloroethane	ND		0.00100	1	06/25/2024 03:17	WG2311331
1,1,2-Trichloroethane	ND		0.00100	1	06/25/2024 03:17	WG2311331
Trichloroethene	ND		0.00100	1	06/25/2024 03:17	WG2311331
Trichlorofluoromethane	ND		0.00500	1	06/25/2024 03:17	WG2311331
Vinyl chloride	ND		0.00100	1	06/25/2024 03:17	WG2311331
o-Xylene	ND		0.00100	1	06/25/2024 03:17	WG2311331
m&p-Xylene	ND		0.00200	1	06/25/2024 03:17	WG2311331
Xylenes, Total	ND		0.00300	1	06/25/2024 03:17	WG2311331
(S) Toluene-d8	105		80.0-120		06/25/2024 03:17	WG2311331
(S) 4-Bromofluorobenzene	98.4		80.0-120		06/25/2024 03:17	WG2311331
(S) 1,2-Dichloroethane-d4	103		70.0-130		06/25/2024 03:17	WG2311331

Collected date/time: 06/18/24 08:00

L1748057

TPH by TCEQ Method 1005

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH C6 - C12	ND		0.900	1	06/27/2024 18:04	WG2312205
TPH C12 - C28	ND		0.900	1	06/27/2024 18:04	WG2312205
TPH C28 - C35	ND		0.900	1	06/27/2024 18:04	WG2312205
TPH C6 - C35	ND		0.900	1	06/27/2024 18:04	WG2312205
(S) o-Terphenyl	101		70.0-130		06/27/2024 18:04	WG2312205
(S) 1-chlorooctane	96.8		70.0-130		06/27/2024 18:04	WG2312205

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Acenaphthylene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Anthracene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Benzidine	ND		0.0100	1	06/25/2024 03:51	WG2310759
Benzo(a)anthracene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Benzo(b)fluoranthene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Benzo(k)fluoranthene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Benzo(g,h,i)perylene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Benzo(a)pyrene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Bis(2-chlorethoxy)methane	ND		0.0100	1	06/25/2024 03:51	WG2310759
Bis(2-chloroethyl)ether	ND		0.0100	1	06/25/2024 03:51	WG2310759
2,2-Oxybis(1-Chloropropane)	ND		0.0100	1	06/25/2024 03:51	WG2310759
4-Bromophenyl-phenylether	ND		0.0100	1	06/25/2024 03:51	WG2310759
2-Chloronaphthalene	ND		0.00100	1	06/25/2024 03:51	WG2310759
4-Chlorophenyl-phenylether	ND		0.0100	1	06/25/2024 03:51	WG2310759
Chrysene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Dibenz(a,h)anthracene	ND		0.00100	1	06/25/2024 03:51	WG2310759
3,3-Dichlorobenzidine	ND		0.0100	1	06/25/2024 03:51	WG2310759
2,4-Dinitrotoluene	ND		0.0100	1	06/25/2024 03:51	WG2310759
2,6-Dinitrotoluene	ND		0.0100	1	06/25/2024 03:51	WG2310759
1,2-Diphenylhydrazine	ND	N2	0.0100	1	06/25/2024 03:51	WG2310759
Fluoranthene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Fluorene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Hexachlorobenzene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Hexachloro-1,3-butadiene	ND		0.0100	1	06/25/2024 03:51	WG2310759
Hexachlorocyclopentadiene	ND		0.0100	1	06/25/2024 03:51	WG2310759
Hexachloroethane	ND		0.0100	1	06/25/2024 03:51	WG2310759
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Isophorone	ND		0.0100	1	06/25/2024 03:51	WG2310759
Naphthalene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Nitrobenzene	ND		0.0100	1	06/25/2024 03:51	WG2310759
n-Nitrosodimethylamine	ND		0.0100	1	06/25/2024 03:51	WG2310759
n-Nitrosodiphenylamine	ND		0.0100	1	06/25/2024 03:51	WG2310759
n-Nitrosodi-n-propylamine	ND		0.0100	1	06/25/2024 03:51	WG2310759
Phenanthrene	ND		0.00100	1	06/25/2024 03:51	WG2310759
Benzylbutyl phthalate	ND		0.00300	1	06/25/2024 03:51	WG2310759
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	06/25/2024 03:51	WG2310759
Di-n-butyl phthalate	ND		0.00300	1	06/25/2024 03:51	WG2310759
Diethyl phthalate	ND		0.00300	1	06/25/2024 03:51	WG2310759
Dimethyl phthalate	ND		0.00300	1	06/25/2024 03:51	WG2310759
Di-n-octyl phthalate	ND		0.00300	1	06/25/2024 03:51	WG2310759
Pyrene	ND		0.00100	1	06/25/2024 03:51	WG2310759
1,2,4-Trichlorobenzene	ND		0.0100	1	06/25/2024 03:51	WG2310759
4-Chloro-3-methylphenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
2-Chlorophenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
2,4-Dichlorophenol	ND		0.0100	1	06/25/2024 03:51	WG2310759

Collected date/time: 06/18/24 08:00

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Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2,4-Dimethylphenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
4,6-Dinitro-2-methylphenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
2,4-Dinitrophenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
2-Nitrophenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
4-Nitrophenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
Pentachlorophenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
Phenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
2,4,6-Trichlorophenol	ND		0.0100	1	06/25/2024 03:51	WG2310759
(S) Nitrobenzene-d5	80.1		15.0-314		06/25/2024 03:51	WG2310759
(S) 2-Fluorobiphenyl	75.5		22.0-127		06/25/2024 03:51	WG2310759
(S) p-Terphenyl-d14	80.1		29.0-141		06/25/2024 03:51	WG2310759
(S) Phenol-d5	24.0		8.00-424		06/25/2024 03:51	WG2310759
(S) 2-Fluorophenol	32.0		10.0-120		06/25/2024 03:51	WG2310759
(S) 2,4,6-Tribromophenol	69.8		10.0-153		06/25/2024 03:51	WG2310759

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4086574-1 06/23/24 12:59

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1748038-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748038-01 06/23/24 12:59 • (DUP) R4086574-3 06/23/24 12:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	348	363	1	4.22		10

L1748057-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748057-01 06/23/24 12:59 • (DUP) R4086574-4 06/23/24 12:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	52.0	50.0	1	3.92		10

Laboratory Control Sample (LCS)

(LCS) R4086574-2 06/23/24 12:59

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8500	96.6	85.0-115	

Method Blank (MB)

(MB) R4085122-1 06/21/24 16:39

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Suspended Solids	U		2.50	2.50

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1747759-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747759-01 06/21/24 16:39 • (DUP) R4085122-3 06/21/24 16:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Suspended Solids	30.0	32.0	1	6.45		10

L1748035-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748035-01 06/21/24 16:39 • (DUP) R4085122-4 06/21/24 16:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Suspended Solids	91.0	93.0	1	2.17		10

Laboratory Control Sample (LCS)

(LCS) R4085122-2 06/21/24 16:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Suspended Solids	773	840	109	85.0-115	

Method Blank (MB)

(MB) R4084886-1 06/21/24 14:30

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

L1747965-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747965-01 06/21/24 14:30 • (DUP) R4084886-3 06/21/24 14:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3340	3290	1	1.51		20

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

L1748140-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748140-01 06/21/24 14:30 • (DUP) R4084886-4 06/21/24 14:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	ND	ND	1	0.000		20

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

Laboratory Control Sample (LCS)

(LCS) R4084886-2 06/21/24 14:30

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	733	726	99.0	85.0-115	

Sample Narrative:
LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4087367-1 06/27/24 13:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hardness (colorimetric) as CaCO3	U		15.0	30.0

L1748327-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748327-01 06/27/24 13:53 • (DUP) R4087367-3 06/27/24 13:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	135	127	1	6.11		20

Laboratory Control Sample (LCS)

(LCS) R4087367-2 06/27/24 13:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hardness (colorimetric) as CaCO3	100	104	104	85.0-115	

L1748711-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748711-01 06/27/24 13:58 • (MS) R4087367-4 06/27/24 13:59 • (MSD) R4087367-5 06/27/24 14:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hardness (colorimetric) as CaCO3	500	505	975	980	94.0	95.0	5	80.0-120			0.512	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4086062-1 06/25/24 09:59

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Oil & Grease (Hexane Extr)	U		1.16	5.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R4086062-2 06/25/24 09:59 • (LCSD) R4086062-3 06/25/24 09:59

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Oil & Grease (Hexane Extr)	40.0	32.6	36.7	81.5	91.8	78.0-114			11.8	20

L1748017-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1748017-01 06/25/24 09:59 • (MS) R4086062-4 06/25/24 09:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Oil & Grease (Hexane Extr)	40.0	5.84	43.7	94.8	1	78.0-114	

Wet Chemistry by Method 2120 B-2011

[L1748057-01](#)

L1748057-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748057-01 06/20/24 08:37 • (DUP) R4084088-1 06/20/24 08:37

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pcu	pcu		%		%
Color, Apparent	1.00	1.00	1	0.000		20

Sample Narrative:

OS: 8.72

DUP: 8.72

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 2320 B-2011

L1748057-01

Method Blank (MB)

(MB) R4084372-2 06/20/24 10:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	U		8.45	20.0
Alkalinity,Bicarbonate	U		8.45	20.0
Alkalinity,Carbonate	U		8.45	20.0

Sample Narrative:

BLANK: Endpoint pH 4.5

L1747293-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747293-01 06/20/24 11:11 • (DUP) R4084372-3 06/20/24 11:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP RPD Limits %
Alkalinity	349	346	1	0.998	20
Alkalinity,Bicarbonate	349	346	1	0.998	20
Alkalinity,Carbonate	ND	ND	1	0.000	20

Sample Narrative:

OS: Endpoint pH 4.5 HEADSPACE

DUP: Endpoint pH 4.5

L1748087-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1748087-04 06/20/24 12:45 • (DUP) R4084372-4 06/20/24 12:49

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP RPD Limits %
Alkalinity	135	145	1	6.65	20
Alkalinity,Bicarbonate	135	145	1	6.65	20
Alkalinity,Carbonate	ND	ND	1	0.000	20

Sample Narrative:

OS: Endpoint pH 4.5 HEADSPACE

DUP: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 2320 B-2011

Laboratory Control Sample (LCS)

(LCS) R4084372-1 06/20/24 10:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Alkalinity	100	101	101	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 2580

L1748057-01

L1748017-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748017-01 06/22/24 22:00 • (DUP) R4085267-3 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	109	107	1	1.60		20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1748035-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748035-01 06/22/24 22:00 • (DUP) R4085267-4 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	179	177	1	1.50		20

L1748038-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748038-01 06/22/24 22:00 • (DUP) R4085267-5 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	-2.20	1.50	1	1.50	P1	20

L1748057-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748057-01 06/22/24 22:00 • (DUP) R4085267-6 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	81.4	86.8	1	5.40		20

L1748734-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-01 06/22/24 22:00 • (DUP) R4085267-7 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	61.9	64.4	1	2.50		20

L1748734-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-02 06/22/24 22:00 • (DUP) R4085267-8 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	64.8	64.0	1	0.800		20

Wet Chemistry by Method 2580

L1748057-01

L1748734-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-03 06/22/24 22:00 • (DUP) R4085267-9 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	72.7	74.5	1	1.80		20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1748734-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-04 06/22/24 22:00 • (DUP) R4085267-10 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	57.7	61.9	1	4.20		20

L1748734-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-05 06/22/24 22:00 • (DUP) R4085267-11 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	77.0	75.4	1	1.60		20

L1748734-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-06 06/22/24 22:00 • (DUP) R4085267-12 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	88.5	88.1	1	0.400		20

L1748734-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-07 06/22/24 22:00 • (DUP) R4085267-13 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	56.5	60.5	1	4.00		20

L1748734-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-08 06/22/24 22:00 • (DUP) R4085267-14 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	74.1	74.2	1	0.100		20

L1748734-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-09 06/22/24 22:00 • (DUP) R4085267-15 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	75.7	79.2	1	3.50		20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L1748734-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-10 06/22/24 22:00 • (DUP) R4085267-16 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	98.9	98.1	1	0.800		20

⁷Gl

⁸Al

⁹Sc

L1748734-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-11 06/22/24 22:00 • (DUP) R4085267-17 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	95.8	96.1	1	0.300		20

L1748734-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1748734-12 06/22/24 22:00 • (DUP) R4085267-18 06/22/24 22:00

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	95.8	95.3	1	0.500		20

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

(LCS) R4085267-1 06/22/24 22:00 • (LCSD) R4085267-2 06/22/24 22:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	Diff	Diff Limits
	mV	mV	mV	%	%	%			mV	mV
ORP	238	224	223	93.9	93.7	90.0-110			0.500	20

Wet Chemistry by Method 300.0

L1748057-01

Method Blank (MB)

(MB) R4084492-1 06/19/24 20:16

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.379	1.00
Fluoride	U		0.0640	0.150
Sulfate	U		0.594	5.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1748033-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1748033-02 06/19/24 22:04 • (DUP) R4084492-3 06/19/24 22:17

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	44.0	45.2	1	2.73		15
Fluoride	0.269	0.259	1	3.60		15
Sulfate	22.9	23.7	1	3.12		15

L1748114-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748114-01 06/20/24 01:12 • (DUP) R4084492-6 06/20/24 01:26

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4.93	4.97	1	0.663		15
Fluoride	0.213	0.229	1	7.02		15
Sulfate	178	184	1	3.20		15

Laboratory Control Sample (LCS)

(LCS) R4084492-2 06/19/24 20:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	36.3	90.7	90.0-110	
Fluoride	8.00	7.39	92.4	90.0-110	
Sulfate	40.0	36.2	90.6	90.0-110	

Wet Chemistry by Method 300.0 [L1748057-01](#)

L1748033-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748033-02 06/19/24 22:04 • (MS) R4084492-4 06/19/24 22:31 • (MSD) R4084492-5 06/19/24 22:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	44.0	74.3	75.5	75.9	78.9	1	80.0-120	J6	J6	1.65	15
Fluoride	8.00	0.269	8.29	8.45	100	102	1	80.0-120			1.81	15
Sulfate	40.0	22.9	58.5	59.3	88.8	90.8	1	80.0-120			1.35	15

L1748114-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1748114-01 06/20/24 01:12 • (MS) R4084492-7 06/20/24 01:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40.0	4.93	42.3	93.4	1	80.0-120	
Fluoride	8.00	0.213	7.96	96.8	1	80.0-120	
Sulfate	40.0	178	181	7.93	1	80.0-120	V

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4085884-1 06/22/24 12:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Bromide	0.409	⌵	0.353	1.00
Nitrate as (N)	U		0.0480	0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1748033-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1748033-03 06/22/24 22:57 • (DUP) R4085884-3 06/22/24 23:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Bromide	ND	ND	1	0.000		15
Nitrate as (N)	0.619	0.574	1	7.49		15

L1748254-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1748254-04 06/23/24 04:07 • (DUP) R4085884-6 06/23/24 04:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Bromide	1.45	1.43	1	1.68		15
Nitrate as (N)	1.29	1.27	1	1.58		15

Laboratory Control Sample (LCS)

(LCS) R4085884-2 06/22/24 13:09

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Bromide	40.0	36.9	92.2	90.0-110	
Nitrate as (N)	8.00	7.39	92.4	90.0-110	

L1748033-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748033-03 06/22/24 22:57 • (MS) R4085884-4 06/22/24 23:24 • (MSD) R4085884-5 06/22/24 23:38

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Bromide	40.0	ND	39.3	37.4	98.3	93.4	1	80.0-120			5.08	15
Nitrate as (N)	8.00	0.619	8.51	8.07	98.7	93.1	1	80.0-120			5.40	15

Wet Chemistry by Method 300.0

[L1748057-01](#)

L1748254-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1748254-04 06/23/24 04:07 • (MS) R4085884-7 06/23/24 04:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Bromide	40.0	1.45	38.0	91.3	1	80.0-120	
Nitrate as (N)	8.00	1.29	8.82	94.2	1	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 350.1

L1748057-01

Method Blank (MB)

(MB) R4086842-1 06/26/24 14:44

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Ammonia Nitrogen	U		0.117	0.250

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1747788-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1747788-02 06/26/24 14:56 • (DUP) R4086842-5 06/26/24 14:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Ammonia Nitrogen	ND	ND	1	0.000		10

L1747788-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1747788-04 06/26/24 15:07 • (DUP) R4086842-8 06/26/24 15:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Ammonia Nitrogen	ND	ND	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R4086842-2 06/26/24 14:46

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Ammonia Nitrogen	7.50	8.02	107	90.0-110	

L1747788-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747788-01 06/26/24 14:52 • (MS) R4086842-3 06/26/24 14:53 • (MSD) R4086842-4 06/26/24 14:55

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Ammonia Nitrogen	5.00	ND	5.59	5.53	108	107	1	90.0-110			0.953	10

L1747788-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1747788-03 06/26/24 15:04 • (MS) R4086842-7 06/26/24 15:05

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Ammonia Nitrogen	5.00	ND	5.57	111	1	90.0-110	J5

Wet Chemistry by Method 3500Cr B-2011

[L1748057-01](#)

Method Blank (MB)

(MB) R4084136-1 06/20/24 09:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chromium,Hexavalent	U		0.00300	0.0100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1748035-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748035-01 06/20/24 09:51 • (DUP) R4084136-5 06/20/24 09:51

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP RPD Limits
Chromium,Hexavalent	ND	ND	1	0.000	20

Laboratory Control Sample (LCS)

(LCS) R4084136-2 06/20/24 09:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	0.500	0.517	103	80.0-120	

L1748017-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748017-01 06/20/24 09:50 • (MS) R4084136-3 06/20/24 09:50 • (MSD) R4084136-4 06/20/24 09:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	0.500	ND	0.543	0.521	109	104	1	75.0-125			4.14	20

Method Blank (MB)

(MB) R4087452-1 06/27/24 15:32

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Kjeldahl Nitrogen, TKN	U		0.140	0.250

L1748128-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748128-01 06/27/24 16:31 • (DUP) R4087452-8 06/27/24 16:32

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	644	770	100	17.8		20

L1748128-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1748128-02 06/27/24 16:33 • (DUP) R4087452-9 06/27/24 16:35

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	245	245	25	0.204		20

Laboratory Control Sample (LCS)

(LCS) R4087452-2 06/27/24 15:33

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Kjeldahl Nitrogen, TKN	12.3	14.1	115	80.0-120	

L1746546-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746546-02 06/27/24 15:35 • (MS) R4087452-3 06/27/24 15:36 • (MSD) R4087452-4 06/27/24 15:37

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	ND	ND	ND	0.000	0.000	1	90.0-110	J6	J6	0.000	20

Sample Narrative:

OS: dilution due to sample matrix(no2no3 interference)

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 351.2 [L1748057-01](#)

L1748030-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1748030-02 06/27/24 15:40 • (MS) R4087452-5 06/27/24 15:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Kjeldahl Nitrogen, TKN	5.00	ND	7.04	138	1	90.0-110	<u>J5</u>

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 353.2

L1748057-01

Method Blank (MB)

(MB) R4083991-1 06/19/24 19:49

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	U		0.0500	0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1747985-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747985-01 06/19/24 20:07 • (DUP) R4083991-3 06/19/24 20:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate-Nitrite	1.81	1.84	1	1.64		20

L1747989-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1747989-03 06/19/24 20:12 • (DUP) R4083991-4 06/19/24 20:13

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate-Nitrite	0.772	0.787	1	1.92		20

Laboratory Control Sample (LCS)

(LCS) R4083991-2 06/19/24 19:50

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	2.50	2.38	95.2	90.0-110	

L1748019-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748019-01 06/19/24 20:21 • (MS) R4083991-5 06/19/24 20:22 • (MSD) R4083991-6 06/19/24 20:23

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	1.22	1.19	48.8	47.6	1	90.0-110	J6	J6	2.49	20

L1748057-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1748057-01 06/19/24 20:27 • (MS) R4083991-7 06/19/24 20:28

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate-Nitrite	2.50	ND	1.86	74.4	1	90.0-110	J6

Wet Chemistry by Method 4500Cl G-2011

L1748057-01

Method Blank (MB)

(MB) R4084217-1 06/20/24 11:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chlorine,residual	U		0.0260	0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L1748057-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748057-01 06/20/24 11:42 • (DUP) R4084217-4 06/20/24 11:42

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chlorine,residual	ND	ND	1	0.000		20

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

(LCS) R4084217-2 06/20/24 11:39 • (LCSD) R4084217-3 06/20/24 11:40

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 %
Chlorine,residual	1.00	0.921	0.915	92.1	91.5	85.0-115			0.654	20

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4086420-1 06/25/24 21:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1747678-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1747678-02 06/25/24 21:46 • (DUP) R4086420-5 06/25/24 21:47

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	ND	1	200	P1	20

L1747717-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747717-01 06/25/24 21:50 • (DUP) R4086420-6 06/25/24 21:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	ND	1	5.41		20

Laboratory Control Sample (LCS)

(LCS) R4086420-2 06/25/24 21:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	0.100	0.0967	96.7	87.1-120	

L1747529-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747529-02 06/25/24 21:36 • (MS) R4086420-3 06/25/24 21:37 • (MSD) R4086420-4 06/25/24 21:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	0.100	ND	0.0751	0.0840	71.9	80.8	1	90.0-110	J6	J6	11.2	20

L1747960-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747960-01 06/19/24 18:00 • (DUP) R4083988-2 06/19/24 18:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.82	7.80	1	0.256		1

Sample Narrative:

OS: 7.82 at 21.4C
DUP: 7.8 at 21.4C

L1748128-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748128-01 06/19/24 18:00 • (DUP) R4083988-3 06/19/24 18:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.37	8.38	1	0.119		1

Sample Narrative:

OS: 8.37 at 20.8C
DUP: 8.38 at 20.8C

Laboratory Control Sample (LCS)

(LCS) R4083988-1 06/19/24 18:00

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

Sample Narrative:

LCS: 10.03 at 21.7C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 4500P E-2011

[L1748057-01](#)

Method Blank (MB)

(MB) R4083842-1 06/19/24 15:33

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Phosphate,Ortho	U		0.0140	0.0300

L1748038-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748038-01 06/19/24 15:36 • (DUP) R4083842-3 06/19/24 15:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Phosphate,Ortho	1.02	1.02	5	0.785		20

Laboratory Control Sample (LCS)

(LCS) R4083842-6 06/19/24 15:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Phosphate,Ortho	0.245	0.237	96.9	85.0-115	

L1748129-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748129-01 06/19/24 15:37 • (MS) R4083842-4 06/19/24 15:37 • (MSD) R4083842-5 06/19/24 15:37

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Phosphate,Ortho	0.500	ND	0.490	0.496	98.0	99.2	1	80.0-120			1.22	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4084753-2 06/20/24 13:40

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
DOC	0.137	⬇	0.106	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1745594-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1745594-01 06/20/24 20:12 • (DUP) R4084753-5 06/20/24 21:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
DOC	65.0	65.2	2	0.353		20

L1748638-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748638-01 06/21/24 00:40 • (DUP) R4084753-6 06/21/24 00:55

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
DOC	2.44	3.05	1	22.3	P1	20

Laboratory Control Sample (LCS)

(LCS) R4084753-1 06/20/24 13:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
DOC	25.0	23.5	94.2	85.0-115	

L1745743-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1745743-01 06/20/24 17:09 • (MS) R4084753-3 06/20/24 17:29 • (MSD) R4084753-4 06/20/24 17:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
DOC	25.0	2.26	25.8	25.4	94.3	92.6	1	80.0-120			1.68	20

L1748638-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748638-02 06/21/24 01:17 • (MS) R4084753-7 06/21/24 01:34 • (MSD) R4084753-8 06/21/24 01:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
DOC	25.0	2.17	25.8	25.5	94.5	93.3	1	80.0-120			1.17	20

Wet Chemistry by Method 5310 B-2014

L1748057-01

Method Blank (MB)

(MB) R4088290-2 06/29/24 14:14

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
TOC (Total Organic Carbon)	0.112	⬇	0.102	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1747841-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1747841-07 06/29/24 15:50 • (DUP) R4088290-3 06/29/24 16:04

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC (Total Organic Carbon)	7.68	7.69	1	0.156		20

L1747903-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1747903-09 06/29/24 19:05 • (DUP) R4088290-6 06/29/24 19:18

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC (Total Organic Carbon)	ND	ND	1	3.53		20

Laboratory Control Sample (LCS)

(LCS) R4088290-1 06/29/24 14:02

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
TOC (Total Organic Carbon)	25.0	25.2	101	85.0-115	

L1747903-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747903-08 06/29/24 17:50 • (MS) R4088290-4 06/29/24 18:07 • (MSD) R4088290-5 06/29/24 18:24

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC (Total Organic Carbon)	25.0	6.35	30.7	30.8	97.5	97.6	1	85.0-115			0.130	20

L1747903-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747903-10 06/29/24 19:31 • (MS) R4088290-7 06/29/24 19:46 • (MSD) R4088290-8 06/29/24 20:02

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC (Total Organic Carbon)	25.0	1.21	26.3	26.1	100	99.7	1	85.0-115			0.458	20

Mercury by Method 245.1 [L1748057-01](#)

Method Blank (MB)

(MB) R4084453-1 06/20/24 16:13

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R4084453-2 06/20/24 16:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Mercury	0.00300	0.00340	113	85.0-115	

⁴Cn

⁵Sr

L1748014-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748014-01 06/20/24 16:23 • (MS) R4084453-4 06/20/24 16:28 • (MSD) R4084453-5 06/20/24 16:31

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00353	0.00356	118	119	1	70.0-130			1.00	20

⁶Qc

⁷Gl

⁸Al

⁹Sc

Metals (ICP) by Method 200.7 [L1748057-01](#)

Method Blank (MB)

(MB) R4087844-1 06/28/24 07:35

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0592	0.200
Antimony	U		0.00398	0.0100
Arsenic	U		0.00645	0.0100
Barium	U		0.000795	0.00500
Beryllium	U		0.000401	0.00200
Cadmium	U		0.000552	0.00200
Chromium	U		0.00163	0.0100
Copper	U		0.00226	0.0100
Lead	0.00229	U	0.00227	0.00500
Lithium	U		0.00689	0.0150
Nickel	U		0.00182	0.0100
Selenium	U		0.00616	0.0100
Silicon	U		0.0771	0.200
Strontium	U		0.000683	0.0100
Thallium	U		0.00460	0.0100
Vanadium	U		0.00662	0.0200
Zinc	U		0.00578	0.0500
Phosphorus	U		0.00760	0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4088164-1 06/29/24 12:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Silver	U		0.00131	0.00500

Laboratory Control Sample (LCS)

(LCS) R4087844-2 06/28/24 07:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	10.0	10.2	102	85.0-115	
Antimony	1.00	1.00	100	85.0-115	
Arsenic	1.00	1.03	103	85.0-115	
Barium	1.00	1.03	103	85.0-115	
Beryllium	1.00	1.02	102	85.0-115	
Cadmium	1.00	1.04	104	85.0-115	
Chromium	1.00	1.01	101	85.0-115	
Copper	1.00	1.08	108	85.0-115	

Laboratory Control Sample (LCS)

(LCS) R4087844-2 06/28/24 07:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Lead	1.00	1.02	102	85.0-115	
Lithium	1.00	1.02	102	85.0-115	
Nickel	1.00	1.02	102	85.0-115	
Selenium	1.00	1.02	102	85.0-115	
Silicon	1.00	0.959	95.9	85.0-115	
Strontium	1.00	0.997	99.7	85.0-115	
Thallium	1.00	1.05	105	85.0-115	
Vanadium	1.00	1.01	101	85.0-115	
Zinc	1.00	1.02	102	85.0-115	
Phosphorus	1.00	1.09	109	85.0-115	

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Laboratory Control Sample (LCS)

(LCS) R4088164-2 06/29/24 12:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Silver	0.200	0.189	94.7	85.0-115	

L1746145-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746145-01 06/28/24 07:38 • (MS) R4087844-4 06/28/24 07:42 • (MSD) R4087844-5 06/28/24 07:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Aluminum	10.0	2.41	12.8	13.0	104	106	1	70.0-130			1.50	20
Antimony	1.00	ND	1.04	1.06	104	106	1	70.0-130			1.83	20
Arsenic	1.00	ND	1.06	1.09	106	109	1	70.0-130			3.13	20
Barium	1.00	0.0254	1.07	1.09	105	107	1	70.0-130			2.14	20
Beryllium	1.00	ND	1.03	1.06	103	106	1	70.0-130			1.99	20
Cadmium	1.00	ND	1.06	1.09	106	109	1	70.0-130			2.43	20
Chromium	1.00	ND	1.03	1.04	103	104	1	70.0-130			1.73	20
Copper	1.00	ND	1.10	1.12	110	112	1	70.0-130			2.24	20
Lead	1.00	ND	1.05	1.07	105	107	1	70.0-130			1.91	20
Lithium	1.00	ND	1.04	1.05	104	105	1	70.0-130			1.21	20
Nickel	1.00	ND	1.05	1.07	105	107	1	70.0-130			2.04	20
Selenium	1.00	ND	1.05	1.10	105	110	1	70.0-130			4.63	20
Silicon	1.00	1.76	2.76	2.82	100	107	1	70.0-130			2.37	20
Strontium	1.00	0.106	1.11	1.13	100	103	1	70.0-130			1.84	20
Thallium	1.00	ND	1.06	1.10	106	110	1	70.0-130			3.35	20
Vanadium	1.00	ND	1.03	1.05	103	105	1	70.0-130			1.77	20

Metals (ICP) by Method 200.7 [L1748057-01](#)

L1746145-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746145-01 06/28/24 07:38 • (MS) R4087844-4 06/28/24 07:42 • (MSD) R4087844-5 06/28/24 07:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Zinc	1.00	ND	1.04	1.07	104	107	1	70.0-130			2.43	20
Phosphorus	1.00	0.121	1.20	1.27	108	115	1	70.0-130			6.05	20

L1747866-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747866-01 06/28/24 07:45 • (MS) R4087844-6 06/28/24 07:47 • (MSD) R4087844-7 06/28/24 07:49

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Aluminum	10.0	ND	10.7	10.7	106	106	1	70.0-130			0.252	20
Antimony	1.00	ND	1.11	1.11	111	111	1	70.0-130			0.157	20
Arsenic	1.00	ND	1.18	1.17	118	117	1	70.0-130			0.774	20
Barium	1.00	0.0301	1.07	1.07	104	104	1	70.0-130			0.223	20
Beryllium	1.00	ND	1.03	1.02	103	102	1	70.0-130			0.360	20
Cadmium	1.00	ND	1.15	1.14	115	114	1	70.0-130			0.735	20
Chromium	1.00	ND	1.02	1.01	102	101	1	70.0-130			1.39	20
Copper	1.00	ND	1.14	1.14	113	113	1	70.0-130			0.158	20
Lead	1.00	ND	1.07	1.06	107	106	1	70.0-130			0.889	20
Lithium	1.00	0.875	1.97	1.93	110	105	1	70.0-130			2.25	20
Nickel	1.00	ND	1.10	1.10	110	110	1	70.0-130			0.343	20
Selenium	1.00	ND	1.27	1.25	127	125	1	70.0-130			1.67	20
Silicon	1.00	ND	1.05	1.07	105	107	1	70.0-130			1.60	20
Strontium	1.00	16.6	17.5	16.8	88.7	16.1	1	70.0-130		V	4.24	20
Thallium	1.00	ND	1.04	1.04	104	104	1	70.0-130			0.361	20
Vanadium	1.00	ND	1.05	1.05	105	105	1	70.0-130			0.0418	20
Zinc	1.00	0.209	1.23	1.22	102	101	1	70.0-130			1.07	20
Phosphorus	1.00	ND	1.20	1.22	119	121	1	70.0-130			1.35	20

L1746145-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746145-01 06/29/24 12:49 • (MS) R4088164-4 06/29/24 12:53 • (MSD) R4088164-5 06/29/24 12:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Silver	0.200	ND	0.191	0.197	95.3	98.3	1	70.0-130			3.13	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Metals (ICPMS) by Method 200.8

L1748057-01

Method Blank (MB)

(MB) R4101798-1 08/01/24 23:32

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron	U		0.0177	0.0400
Calcium	U		0.112	1.00
Cobalt	U		0.000142	0.00200
Iron	U		0.0447	0.100
Magnesium	U		0.0690	1.00
Manganese	U		0.000982	0.00500
Molybdenum	U		0.000841	0.00500
Potassium	U		0.151	1.00
Sodium	U		0.513	2.00
Tin	U		0.00106	0.00400
Titanium	U		0.00172	0.0100

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R4101798-2 08/01/24 23:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	0.0500	0.0524	105	85.0-115	
Calcium	5.00	5.18	104	85.0-115	
Cobalt	0.0500	0.0501	100	85.0-115	
Iron	1.00	1.00	100	85.0-115	
Magnesium	5.00	5.10	102	85.0-115	
Manganese	0.0500	0.0497	99.4	85.0-115	
Molybdenum	0.0500	0.0499	99.8	85.0-115	
Potassium	5.00	5.10	102	85.0-115	
Sodium	5.00	5.05	101	85.0-115	
Tin	0.0500	0.0525	105	85.0-115	
Titanium	0.0500	0.0493	98.6	85.0-115	

L1746788-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746788-01 08/01/24 23:39 • (MS) R4101798-4 08/01/24 23:45 • (MSD) R4101798-5 08/01/24 23:49

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	0.0500	ND	0.0671	0.0670	134	134	1	70.0-130	J5	J5	0.108	20
Calcium	5.00	51.7	60.5	56.0	177	85.7	1	70.0-130	V		7.84	20
Cobalt	0.0500	ND	0.0531	0.0524	105	104	1	70.0-130			1.33	20
Iron	1.00	0.329	1.51	1.58	118	125	1	70.0-130			4.76	20
Magnesium	5.00	8.47	14.1	13.2	112	95.3	1	70.0-130			6.02	20

Metals (ICPMS) by Method 200.8

L1748057-01

L1746788-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746788-01 08/01/24 23:39 • (MS) R4101798-4 08/01/24 23:45 • (MSD) R4101798-5 08/01/24 23:49

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Manganese	0.0500	0.0455	0.101	0.0981	112	105	1	70.0-130			3.19	20
Molybdenum	0.0500	ND	0.0530	0.0530	106	106	1	70.0-130			0.0509	20
Potassium	5.00	1.86	7.22	7.01	107	103	1	70.0-130			2.95	20
Sodium	5.00	4.91	10.3	9.91	108	100	1	70.0-130			3.95	20
Tin	0.0500	ND	0.0560	0.0548	112	110	1	70.0-130			2.14	20
Titanium	0.0500	ND	0.0583	0.0574	111	109	1	70.0-130			1.64	20

Sample Narrative:

MS: Matrix spike failure due to matrix interference.

MSD: Matrix spike failure due to matrix interference.

L1746788-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746788-02 08/01/24 23:52 • (MS) R4101798-6 08/01/24 23:55 • (MSD) R4101798-7 08/01/24 23:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	0.0500	ND	0.0630	0.0636	126	127	1	70.0-130			1.01	20
Calcium	5.00	41.2	46.7	49.5	110	166	1	70.0-130		V	5.84	20
Cobalt	0.0500	0.00296	0.0525	0.0542	99.1	103	1	70.0-130			3.27	20
Iron	1.00	1.69	2.72	3.04	103	134	1	70.0-130		J5	10.8	20
Magnesium	5.00	7.33	12.3	13.1	99.2	115	1	70.0-130			6.31	20
Manganese	0.0500	0.467	0.515	0.531	95.8	129	1	70.0-130			3.16	20
Molybdenum	0.0500	ND	0.0513	0.0551	103	110	1	70.0-130			7.25	20
Potassium	5.00	2.10	7.05	7.60	98.9	110	1	70.0-130			7.53	20
Sodium	5.00	3.87	8.82	9.33	99.0	109	1	70.0-130			5.62	20
Tin	0.0500	ND	0.0533	0.0575	107	115	1	70.0-130			7.51	20
Titanium	0.0500	ND	0.0501	0.0610	96.1	118	1	70.0-130			19.7	20

Sample Narrative:

MSD: Matrix spike failure due to matrix interference.

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R4086110-3 06/25/24 01:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Bromodichloromethane	U		0.000136	0.00100
Bromoform	U		0.000129	0.00100
Bromomethane	U		0.000605	0.00500
Carbon tetrachloride	U		0.000128	0.00100
Chlorobenzene	U		0.000116	0.00100
Chlorodibromomethane	U		0.000140	0.00100
Chloroethane	U		0.000192	0.00500
2-Chloroethyl vinyl ether	U		0.000575	0.0500
Chloroform	U		0.000111	0.00500
Chloromethane	U		0.000960	0.00250
1,2-Dichlorobenzene	U		0.000107	0.00100
1,3-Dichlorobenzene	U		0.000110	0.00100
1,4-Dichlorobenzene	U		0.000120	0.00100
Dichlorodifluoromethane	U		0.000374	0.00500
1,1-Dichloroethane	U		0.000100	0.00100
1,2-Dichloroethane	U		0.0000819	0.00100
1,1-Dichloroethene	U		0.000188	0.00100
trans-1,2-Dichloroethene	U		0.000149	0.00100
1,2-Dichloropropane	U		0.000149	0.00100
cis-1,3-Dichloropropene	U		0.000111	0.00100
trans-1,3-Dichloropropene	U		0.000118	0.00100
Ethylbenzene	U		0.000137	0.00100
Methylene Chloride	U		0.000430	0.00500
Methyl tert-butyl ether	U		0.000101	0.00100
Naphthalene	U		0.00100	0.00500
1,1,2,2-Tetrachloroethane	U		0.000133	0.00100
Tetrachloroethene	U		0.000300	0.00100
Toluene	U		0.000278	0.00100
1,1,1-Trichloroethane	U		0.000149	0.00100
1,1,2-Trichloroethane	U		0.000158	0.00100
Trichloroethene	U		0.000190	0.00100
Trichlorofluoromethane	U		0.000160	0.00500
Vinyl chloride	U		0.000234	0.00100
o-Xylene	U		0.000174	0.00100
m&p-Xylene	U		0.000430	0.00200
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	106			80.0-120
(S) 4-Bromofluorobenzene	96.7			80.0-120
(S) 1,2-Dichloroethane-d4	105			70.0-130

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R4086110-1 06/25/24 00:15 • (LCSD) R4086110-2 06/25/24 00:35

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 %
Benzene	0.00500	0.00510	0.00509	102	102	65.0-135			0.196	20
Bromodichloromethane	0.00500	0.00524	0.00508	105	102	65.0-135			3.10	20
Bromoform	0.00500	0.00433	0.00438	86.6	87.6	70.0-130			1.15	20
Bromomethane	0.00500	0.00208	0.00259	41.6	51.8	15.0-185		J3	21.8	20
Carbon tetrachloride	0.00500	0.00518	0.00526	104	105	70.0-130			1.53	20
Chlorobenzene	0.00500	0.00499	0.00486	99.8	97.2	65.0-135			2.64	20
Chlorodibromomethane	0.00500	0.00461	0.00449	92.2	89.8	70.0-135			2.64	20
Chloroethane	0.00500	0.00439	0.00428	87.8	85.6	40.0-160			2.54	20
2-Chloroethyl vinyl ether	0.0250	0.0267	0.0271	107	108	0.100-225			1.49	20
Chloroform	0.00500	0.00513	0.00511	103	102	70.0-135			0.391	20
Chloromethane	0.00500	0.00404	0.00393	80.8	78.6	0.100-205			2.76	20
1,2-Dichlorobenzene	0.00500	0.00520	0.00514	104	103	65.0-135			1.16	20
1,3-Dichlorobenzene	0.00500	0.00528	0.00512	106	102	70.0-130			3.08	20
1,4-Dichlorobenzene	0.00500	0.00511	0.00522	102	104	65.0-135			2.13	20
Dichlorodifluoromethane	0.00500	0.00554	0.00519	111	104	49.0-155			6.52	20
1,1-Dichloroethane	0.00500	0.00535	0.00533	107	107	70.0-130			0.375	20
1,2-Dichloroethane	0.00500	0.00543	0.00539	109	108	70.0-130			0.739	20
1,1-Dichloroethene	0.00500	0.00505	0.00484	101	96.8	50.0-150			4.25	20
trans-1,2-Dichloroethene	0.00500	0.00495	0.00466	99.0	93.2	70.0-130			6.04	20
1,2-Dichloropropane	0.00500	0.00537	0.00519	107	104	35.0-165			3.41	20
cis-1,3-Dichloropropene	0.00500	0.00491	0.00493	98.2	98.6	25.0-175			0.406	20
trans-1,3-Dichloropropene	0.00500	0.00489	0.00468	97.8	93.6	50.0-150			4.39	20
Ethylbenzene	0.00500	0.00485	0.00490	97.0	98.0	60.0-140			1.03	20
Methylene Chloride	0.00500	0.00550	0.00529	110	106	60.0-140			3.89	20
Methyl tert-butyl ether	0.00500	0.00550	0.00550	110	110	64.0-123			0.000	20
Naphthalene	0.00500	0.00540	0.00515	108	103	62.0-128			4.74	20
1,1,2,2-Tetrachloroethane	0.00500	0.00453	0.00412	90.6	82.4	60.0-140			9.48	20
Tetrachloroethene	0.00500	0.00529	0.00486	106	97.2	70.0-130			8.47	20
Toluene	0.00500	0.00483	0.00487	96.6	97.4	70.0-130			0.825	20
1,1,1-Trichloroethane	0.00500	0.00511	0.00508	102	102	70.0-130			0.589	20
1,1,2-Trichloroethane	0.00500	0.00468	0.00458	93.6	91.6	70.0-130			2.16	20
Trichloroethene	0.00500	0.00570	0.00589	114	118	65.0-135			3.28	20
Trichlorofluoromethane	0.00500	0.00439	0.00462	87.8	92.4	50.0-150			5.11	20
Vinyl chloride	0.00500	0.00263	0.00293	52.6	58.6	5.00-195			10.8	20
o-Xylene	0.00500	0.00510	0.00489	102	97.8	78.0-120			4.20	20
m&p-Xylene	0.0100	0.00952	0.00979	95.2	97.9	77.0-120			2.80	20
Xylenes, Total	0.0150	0.0146	0.0147	97.3	98.0	77.0-120			0.683	20
(S) Toluene-d8				104	105	80.0-120				
(S) 4-Bromofluorobenzene				98.4	98.8	80.0-120				
(S) 1,2-Dichloroethane-d4				107	108	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1748234-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748234-04 06/25/24 03:56 • (MS) R4086110-4 06/25/24 08:45 • (MSD) R4086110-5 06/25/24 09:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.0420	0.0480	0.0471	120	102	1	37.0-151			1.89	61
Bromodichloromethane	0.00500		0.00503	0.00463	90.4	82.4	1	35.0-155			8.28	56
Bromoform	0.00500		0.00482	0.00481	96.4	96.2	1	45.0-169			0.208	42
Bromomethane	0.00500		ND	ND	40.0	46.0	1	0.100-206			14.0	61
Carbon tetrachloride	0.00500		0.00553	0.00528	111	106	1	70.0-140			4.63	41
Chlorobenzene	0.00500		0.00494	0.00499	98.8	99.8	1	37.0-160			1.01	53
Chlorodibromomethane	0.00500		0.00486	0.00498	97.2	99.6	1	53.0-149			2.44	50
Chloroethane	0.00500		ND	ND	78.6	75.0	1	14.0-230			4.69	78
2-Chloroethyl vinyl ether	0.0250		ND	ND	0.000	0.000	1	0.100-305	J6	J6	0.000	71
Chloroform	0.00500		0.00646	0.00622	102	97.4	1	51.0-138			3.79	54
Chloromethane	0.00500		0.00377	0.00386	75.4	77.2	1	0.100-273			2.36	60
1,2-Dichlorobenzene	0.00500		0.00588	0.00577	118	115	1	18.0-190			1.89	57
1,3-Dichlorobenzene	0.00500		0.00617	0.00566	123	113	1	59.0-156			8.62	43
1,4-Dichlorobenzene	0.00500		0.00586	0.00574	117	115	1	18.0-190			2.07	57
Dichlorodifluoromethane	0.00500		ND	ND	87.0	87.0	1	20.0-160			0.000	20
1,1-Dichloroethane	0.00500		0.00568	0.00541	111	106	1	59.0-155			4.87	40
1,2-Dichloroethane	0.00500		0.00579	0.00532	114	105	1	49.0-155			8.46	49
1,1-Dichloroethene	0.00500		0.00442	0.00429	88.4	85.8	1	0.100-234			2.99	32
trans-1,2-Dichloroethene	0.00500		0.00450	0.00434	90.0	86.8	1	54.0-156			3.62	45
1,2-Dichloropropane	0.00500		0.00605	0.00568	121	114	1	0.100-210			6.31	55
cis-1,3-Dichloropropene	0.00500		0.00485	0.00477	97.0	95.4	1	0.100-227			1.66	58
trans-1,3-Dichloropropene	0.00500		0.00499	0.00506	99.8	101	1	17.0-183			1.39	86
Ethylbenzene	0.00500	0.138	0.141	0.143	60.0	100	1	37.0-162			1.41	63
Methylene Chloride	0.00500		ND	ND	93.4	90.6	1	0.100-221			3.04	28
Methyl tert-butyl ether	0.00500	ND	0.00569	0.00558	114	112	1	42.0-142			1.95	20
Naphthalene	0.00500	0.0120	0.0182	0.0178	124	116	1	42.0-146			2.22	20
1,1,2,2-Tetrachloroethane	0.00500		0.00632	0.00584	126	117	1	46.0-157			7.89	61
Tetrachloroethene	0.00500		0.00508	0.00506	102	101	1	64.0-148			0.394	39
Toluene	0.00500	0.00631	0.0113	0.0114	99.8	102	1	47.0-150			0.881	41
1,1,1-Trichloroethane	0.00500		0.00530	0.00505	106	101	1	56.0-162			4.83	36
1,1,2-Trichloroethane	0.00500		0.00571	0.00599	114	120	1	52.0-150			4.79	45
Trichloroethene	0.00500		0.00513	0.00513	103	103	1	70.0-157			0.000	48
Trichlorofluoromethane	0.00500		0.00530	0.00522	106	104	1	17.0-181			1.52	84
Vinyl chloride	0.00500		0.00290	0.00313	58.0	62.6	1	0.100-251			7.63	66
o-Xylene	0.00500		0.0841	0.0867	56.0	108	1	44.0-146			3.04	20
m&p-Xylene	0.0100		0.243	0.249	50.0	110	1	41.0-147			2.44	20
Xylenes, Total	0.0150	0.319	0.327	0.336	53.3	113	1	41.0-148			2.71	20
(S) Toluene-d8					97.7	101		80.0-120				
(S) 4-Bromofluorobenzene					92.6	95.8		80.0-120				
(S) 1,2-Dichloroethane-d4					109	105		70.0-130				

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

W02312203

TPH by TCEQ Method 1005

L1748057-01

Method Blank (MB)

(MB) R4087785-1 06/27/24 16:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH C6 - C12	U		0.600	0.900
TPH C12 - C28	U		0.600	0.900
TPH C28 - C35	U		0.600	0.900
TPH C6 - C35	U		0.600	0.900
(S) o-Terphenyl	92.0			70.0-130
(S) 1-chlorooctane	87.0			70.0-130

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

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

(LCS) R4087785-2 06/27/24 16:57 • (LCSD) R4087785-3 06/27/24 17:14

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 %
TPH C6 - C12	41.7	34.6	35.4	83.0	84.9	75.0-125			2.29	20
TPH C12 - C28	41.7	39.2	40.2	94.0	96.4	75.0-125			2.52	20
TPH C6 - C35	83.4	73.8	75.6	88.5	90.6	75.0-125			2.41	20
(S) o-Terphenyl				92.3	89.3	70.0-130				
(S) 1-chlorooctane				96.1	93.7	70.0-130				

⁶Qc

⁷Gl

⁸Al

⁹Sc

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

L1748057-01

Method Blank (MB)

(MB) R4086423-3 06/25/24 01:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.0000886	0.00100
Acenaphthylene	U		0.0000921	0.00100
Anthracene	U		0.0000804	0.00100
Benzidine	U		0.00374	0.0100
Benzo(a)anthracene	U		0.000199	0.00100
Benzo(b)fluoranthene	U		0.000130	0.00100
Benzo(k)fluoranthene	U		0.000120	0.00100
Benzo(g,h,i)perylene	U		0.000121	0.00100
Benzo(a)pyrene	U		0.0000381	0.00100
Bis(2-chlorethoxy)methane	U		0.000116	0.0100
Bis(2-chloroethyl)ether	U		0.000137	0.0100
2,2-Oxybis(1-Chloropropane)	U		0.000210	0.0100
4-Bromophenyl-phenylether	U		0.0000877	0.0100
2-Chloronaphthalene	U		0.0000648	0.00100
4-Chlorophenyl-phenylether	U		0.0000926	0.0100
Chrysene	U		0.000130	0.00100
Dibenz(a,h)anthracene	U		0.0000644	0.00100
3,3-Dichlorobenzidine	U		0.000212	0.0100
2,4-Dinitrotoluene	U		0.0000983	0.0100
2,6-Dinitrotoluene	U		0.000250	0.0100
1,2-Diphenylhydrazine	U	N2	0.000105	0.0100
Fluoranthene	U		0.000102	0.00100
Fluorene	U		0.0000844	0.00100
Hexachlorobenzene	U		0.0000755	0.00100
Hexachloro-1,3-butadiene	U		0.0000968	0.0100
Hexachlorocyclopentadiene	U		0.0000598	0.0100
Hexachloroethane	U		0.000127	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000143	0.0100
Naphthalene	U		0.000159	0.00100
Nitrobenzene	U		0.000297	0.0100
n-Nitrosodimethylamine	U		0.000998	0.0100
n-Nitrosodiphenylamine	U		0.00237	0.0100
n-Nitrosodi-n-propylamine	U		0.000261	0.0100
Phenanthrene	U		0.000112	0.00100
Benzylbutyl phthalate	U		0.000765	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000895	0.00300
Di-n-butyl phthalate	U		0.000453	0.00300
Diethyl phthalate	U		0.000287	0.00300
Dimethyl phthalate	U		0.000260	0.00300

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

L1748057-01

Method Blank (MB)

(MB) R4086423-3 06/25/24 01:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Di-n-octyl phthalate	U		0.000932	0.00300
Pyrene	U		0.000107	0.00100
1,2,4-Trichlorobenzene	U		0.0000698	0.0100
4-Chloro-3-methylphenol	U		0.000131	0.0100
2-Chlorophenol	U		0.000133	0.0100
2,4-Dichlorophenol	U		0.000102	0.0100
2,4-Dimethylphenol	U		0.0000636	0.0100
4,6-Dinitro-2-methylphenol	U		0.00112	0.0100
2,4-Dinitrophenol	U		0.00593	0.0100
2-Nitrophenol	U		0.000117	0.0100
4-Nitrophenol	U		0.000143	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.00433	0.0100
2,4,6-Trichlorophenol	U		0.000100	0.0100
(S) Nitrobenzene-d5	125			15.0-314
(S) 2-Fluorobiphenyl	117			22.0-127
(S) p-Terphenyl-d14	132			29.0-141
(S) Phenol-d5	44.5			8.00-424
(S) 2-Fluorophenol	70.0			10.0-120
(S) 2,4,6-Tribromophenol	107			10.0-153

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4086423-1 06/25/24 00:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0500	0.0381	76.2	47.0-145	
Acenaphthylene	0.0500	0.0424	84.8	33.0-145	
Anthracene	0.0500	0.0416	83.2	27.0-133	
Benzidine	0.100	0.0152	15.2	1.00-120	
Benzo(a)anthracene	0.0500	0.0458	91.6	33.0-143	
Benzo(b)fluoranthene	0.0500	0.0483	96.6	24.0-159	
Benzo(k)fluoranthene	0.0500	0.0493	98.6	11.0-162	
Benzo(g,h,i)perylene	0.0500	0.0356	71.2	1.00-219	
Benzo(a)pyrene	0.0500	0.0455	91.0	17.0-163	
Bis(2-chlorethoxy)methane	0.0500	0.0389	77.8	1.00-219	
Bis(2-chloroethyl)ether	0.0500	0.0416	83.2	33.0-185	
2,2-Oxybis(1-Chloropropane)	0.0500	0.0385	77.0	36.0-166	
4-Bromophenyl-phenylether	0.0500	0.0456	91.2	53.0-127	

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

L1748057-01

Laboratory Control Sample (LCS)

(LCS) R4086423-1 06/25/24 00:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2-Chloronaphthalene	0.0500	0.0387	77.4	60.0-120	
4-Chlorophenyl-phenylether	0.0500	0.0453	90.6	25.0-158	
Chrysene	0.0500	0.0434	86.8	17.0-168	
Dibenz(a,h)anthracene	0.0500	0.0358	71.6	1.00-227	
3,3-Dichlorobenzidine	0.100	0.0827	82.7	1.00-262	
2,4-Dinitrotoluene	0.0500	0.0471	94.2	39.0-139	
2,6-Dinitrotoluene	0.0500	0.0459	91.8	50.0-158	
1,2-Diphenylhydrazine	0.0500	0.0411	82.2	37.0-125	N2
Fluoranthene	0.0500	0.0427	85.4	26.0-137	
Fluorene	0.0500	0.0405	81.0	59.0-121	
Hexachlorobenzene	0.0500	0.0426	85.2	1.00-152	
Hexachloro-1,3-butadiene	0.0500	0.0426	85.2	24.0-120	
Hexachlorocyclopentadiene	0.0500	0.0406	81.2	10.0-120	
Hexachloroethane	0.0500	0.0382	76.4	40.0-120	
Indeno(1,2,3-cd)pyrene	0.0500	0.0365	73.0	1.00-171	
Isophorone	0.0500	0.0393	78.6	21.0-196	
Naphthalene	0.0500	0.0349	69.8	21.0-133	
Nitrobenzene	0.0500	0.0395	79.0	35.0-180	
n-Nitrosodimethylamine	0.0500	0.0372	74.4	10.0-120	
n-Nitrosodiphenylamine	0.0500	0.0414	82.8	44.0-120	
n-Nitrosodi-n-propylamine	0.0500	0.0432	86.4	1.00-230	
Phenanthrene	0.0500	0.0415	83.0	54.0-120	
Benzylbutyl phthalate	0.0500	0.0513	103	1.00-152	
Bis(2-ethylhexyl)phthalate	0.0500	0.0470	94.0	8.00-158	
Di-n-butyl phthalate	0.0500	0.0430	86.0	1.00-120	
Diethyl phthalate	0.0500	0.0422	84.4	1.00-120	
Dimethyl phthalate	0.0500	0.0427	85.4	1.00-120	
Di-n-octyl phthalate	0.0500	0.0431	86.2	4.00-146	
Pyrene	0.0500	0.0513	103	52.0-120	
1,2,4-Trichlorobenzene	0.0500	0.0394	78.8	44.0-142	
4-Chloro-3-methylphenol	0.0500	0.0365	73.0	22.0-147	
2-Chlorophenol	0.0500	0.0338	67.6	23.0-134	
2,4-Dichlorophenol	0.0500	0.0381	76.2	39.0-135	
2,4-Dimethylphenol	0.0500	0.0441	88.2	32.0-120	
4,6-Dinitro-2-methylphenol	0.0500	0.0596	119	1.00-181	
2,4-Dinitrophenol	0.0500	0.0592	118	1.00-191	
2-Nitrophenol	0.0500	0.0421	84.2	29.0-182	
4-Nitrophenol	0.0500	0.0179	35.8	1.00-132	
Pentachlorophenol	0.0500	0.0366	73.2	14.0-176	
Phenol	0.0500	0.0185	37.0	5.00-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4086423-1 06/25/24 00:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,6-Trichlorophenol	0.0500	0.0472	94.4	37.0-144	
(S) Nitrobenzene-d5			76.5	15.0-314	
(S) 2-Fluorobiphenyl			86.2	22.0-127	
(S) p-Terphenyl-d14			95.8	29.0-141	
(S) Phenol-d5			30.9	8.00-424	
(S) 2-Fluorophenol			44.6	10.0-120	
(S) 2,4,6-Tribromophenol			83.5	10.0-153	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1748378-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748378-01 06/25/24 02:27 • (MS) R4086423-4 06/25/24 02:48 • (MSD) R4086423-5 06/25/24 03:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	ND	0.0416	0.0404	83.2	80.8	1	47.0-145			2.93	48
Acenaphthylene	0.0500	ND	0.0460	0.0447	92.0	89.4	1	33.0-145			2.87	74
Anthracene	0.0500	ND	0.0449	0.0445	89.8	89.0	1	27.0-133			0.895	66
Benzydine	0.100	ND	0.0465	0.0166	46.5	16.6	1	1.00-120		J3	94.8	40
Benzo(a)anthracene	0.0500	ND	0.0471	0.0456	94.2	91.2	1	33.0-143			3.24	53
Benzo(b)fluoranthene	0.0500	ND	0.0457	0.0450	91.4	90.0	1	24.0-159			1.54	71
Benzo(k)fluoranthene	0.0500	ND	0.0462	0.0457	92.4	91.4	1	11.0-162			1.09	63
Benzo(g,h,i)perylene	0.0500	ND	0.0440	0.0397	88.0	79.4	1	1.00-219			10.3	97
Benzo(a)pyrene	0.0500	ND	0.0454	0.0445	90.8	89.0	1	17.0-163			2.00	72
Bis(2-chlorethoxy)methane	0.0500	ND	0.0412	0.0408	82.4	81.6	1	33.0-184			0.976	54
Bis(2-chloroethyl)ether	0.0500	ND	0.0439	0.0464	87.8	92.8	1	12.0-158			5.54	108
2,2-Oxybis(1-Chloropropane)	0.0500	ND	0.0430	0.0405	86.0	81.0	1	36.0-166			5.99	76
4-Bromophenyl-phenylether	0.0500	ND	0.0463	0.0472	92.6	94.4	1	53.0-127			1.93	43
2-Chloronaphthalene	0.0500	ND	0.0406	0.0401	81.2	80.2	1	60.0-120			1.24	24
4-Chlorophenyl-phenylether	0.0500	ND	0.0496	0.0485	99.2	97.0	1	25.0-158			2.24	61
Chrysene	0.0500	ND	0.0458	0.0438	91.6	87.6	1	17.0-168			4.46	87
Dibenz(a,h)anthracene	0.0500	ND	0.0438	0.0405	87.6	81.0	1	1.00-227			7.83	126
3,3-Dichlorobenzidine	0.100	ND	0.100	0.0954	100	95.4	1	1.00-262			4.71	108
2,4-Dinitrotoluene	0.0500	ND	0.0562	0.0538	112	108	1	39.0-139			4.36	42
2,6-Dinitrotoluene	0.0500	ND	0.0516	0.0499	103	99.8	1	50.0-158			3.35	48
1,2-Diphenylhydrazine	0.0500	ND	0.0469	0.0451	93.8	90.2	1	18.0-156	N2	N2	3.91	34
Fluoranthene	0.0500	ND	0.0492	0.0476	98.4	95.2	1	26.0-137			3.31	66
Fluorene	0.0500	ND	0.0457	0.0439	91.4	87.8	1	59.0-121			4.02	38
Hexachlorobenzene	0.0500	ND	0.0431	0.0436	86.2	87.2	1	1.00-152			1.15	55
Hexachloro-1,3-butadiene	0.0500	ND	0.0435	0.0446	87.0	89.2	1	24.0-120			2.50	62
Hexachlorocyclopentadiene	0.0500	ND	0.0384	0.0393	76.8	78.6	1	10.0-146			2.32	34

Semi Volatile Organic Compounds (GC/MS) by Method 625.1 [L1748057-01](#)

L1748378-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748378-01 06/25/24 02:27 • (MS) R4086423-4 06/25/24 02:48 • (MSD) R4086423-5 06/25/24 03:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexachloroethane	0.0500	ND	0.0421	0.0408	84.2	81.6	1	40.0-120			3.14	52
Indeno(1,2,3-cd)pyrene	0.0500	ND	0.0430	0.0395	86.0	79.0	1	1.00-171			8.48	99
Isophorone	0.0500	ND	0.0423	0.0414	84.6	82.8	1	21.0-196			2.15	93
Naphthalene	0.0500	ND	0.0365	0.0363	73.0	72.6	1	21.0-133			0.549	65
Nitrobenzene	0.0500	ND	0.0409	0.0409	81.8	81.8	1	35.0-180			0.000	62
n-Nitrosodimethylamine	0.0500	ND	0.0446	0.0399	89.2	79.8	1	10.0-120			11.1	40
n-Nitrosodiphenylamine	0.0500	ND	0.0434	0.0437	86.8	87.4	1	16.0-160			0.689	28
n-Nitrosodi-n-propylamine	0.0500	ND	0.0490	0.0460	98.0	92.0	1	1.00-230			6.32	87
Phenanthrene	0.0500	ND	0.0446	0.0440	89.2	88.0	1	54.0-120			1.35	39
Benzylbutyl phthalate	0.0500	ND	0.0490	0.0500	98.0	100	1	1.00-152			2.02	60
Bis(2-ethylhexyl)phthalate	0.0500	ND	0.0446	0.0443	89.2	88.6	1	8.00-158			0.675	82
Di-n-butyl phthalate	0.0500	ND	0.0465	0.0468	93.0	93.6	1	1.00-120			0.643	47
Diethyl phthalate	0.0500	ND	0.0485	0.0470	97.0	94.0	1	1.00-120			3.14	100
Dimethyl phthalate	0.0500	ND	0.0481	0.0471	96.2	94.2	1	1.00-120			2.10	183
Di-n-octyl phthalate	0.0500	ND	0.0469	0.0449	93.8	89.8	1	4.00-146			4.36	69
Pyrene	0.0500	ND	0.0470	0.0480	94.0	96.0	1	52.0-120			2.11	49
1,2,4-Trichlorobenzene	0.0500	ND	0.0401	0.0409	80.2	81.8	1	44.0-142			1.98	50
4-Chloro-3-methylphenol	0.0500	ND	0.0432	0.0385	86.4	77.0	1	22.0-147			11.5	73
2-Chlorophenol	0.0500	ND	0.0388	0.0346	77.6	69.2	1	23.0-134			11.4	61
2,4-Dichlorophenol	0.0500	ND	0.0419	0.0400	83.8	80.0	1	39.0-135			4.64	50
2,4-Dimethylphenol	0.0500	ND	0.0493	0.0463	98.6	92.6	1	32.0-120			6.28	58
4,6-Dinitro-2-methylphenol	0.0500	ND	0.0619	0.0617	124	123	1	1.00-181			0.324	203
2,4-Dinitrophenol	0.0500	ND	0.0621	0.0572	124	114	1	1.00-191			8.21	132
2-Nitrophenol	0.0500	ND	0.0446	0.0443	89.2	88.6	1	29.0-182			0.675	55
4-Nitrophenol	0.0500	ND	0.0221	0.0186	44.2	37.2	1	1.00-132			17.2	131
Pentachlorophenol	0.0500	ND	0.0357	0.0354	71.4	70.8	1	14.0-176			0.844	86
Phenol	0.0500	ND	0.0226	0.0214	45.2	42.8	1	5.00-120			5.45	64
2,4,6-Trichlorophenol	0.0500	ND	0.0504	0.0493	101	98.6	1	37.0-144			2.21	58
(S) Nitrobenzene-d5					79.1	78.0		15.0-314				
(S) 2-Fluorobiphenyl					86.3	85.9		22.0-127				
(S) p-Terphenyl-d14					82.5	84.3		29.0-141				
(S) Phenol-d5					36.0	33.7		8.00-424				
(S) 2-Fluorophenol					51.5	48.0		10.0-120				
(S) 2,4,6-Tribromophenol					83.5	87.0		10.0-153				

1

Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

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Sc

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
B	The same analyte is found in the associated blank.
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.
N2	Analyte reported using a calibration and validation based on Azobenzene (CAS 103-33-3). 1,2-Diphenylhydrazine decomposes into Azobenzene during the analysis.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Devon Energy - Oklahoma City, OK

333 W Sheridan Avenue
Oklahoma City, OK 73102-5015

Billing Information:

Paul Barbour
333 W Sheridan Avenue
Oklahoma City, OK 73102-5015Pres
ChkReport to:
Paul BarbourEmail To:
paul.barbour@devn.com;asharma@cch2o.com

Project Description:

Desalination Pilot

City/State
Collected:

Jal, NM

Please Circle:
PT MT CT ET

Phone: 405-228-4308

Client Project #

212C-HW-02831

Lab Project #

DEVENOCOK-EFFLUENT

Collected by (print):

Kenny Davis

Site/Facility ID #

CCR

P.O. #

Collected by (signature):

Immediately
Packed on Ice N ☒ Y ☐

Rush? (Lab MUST Be Notified)

☐ Same Day ☐ Five Day
☐ Next Day ☐ 5 Day (Rad Only)
☐ Two Day ☐ 10 Day (Rad Only)
☐ Three Day

Quote #

Date Results Needed

No.
of
Cntrs

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

POST CARBON FILTER

G

GW

6-18-24 0800

25

POST CARBON FILTER PFAS

G

GW

6-18-24 0800

2

POST CARBON FILTER RAD

G

NPW

6-18-24 0800

4

* Matrix:

SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

Samples returned via:

☐ UPS ☐ FedEx ☐ Courier

Tracking #

pH Temp

Flow Other

Sample Receipt Checklist

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

Relinquished by: (Signature)

Date:

6-18-24

Time:

1600

Received by: (Signature)

Trace Richards

Trip Blank Received:

Yes / No
HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

6/18/24

Time:

1600

Received by: (Signature)

Trace Richards

Temp: 60.0 °C

Bottles Received:

39

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

6/19/24

Time:

0800

Received for lab by: (Signature)

Esther Ogun

Date:

6/19/24

Time:

0800

Hold:

Condition:

NCF Y OK

Analysis / Container / Preservative

Chain of Custody



MT JULIET, TN

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

SDG #

Table #

Acctnum: DEVENOCOK

Template: T253879

Pregoin: P1083341

PM: 3500 - Jennifer Gambill

PB:

Shipped Via: FedEx Ground

Remarks

Sample # (lab only)

-01

Devon Energy - Oklahoma City, OK

333 W Sheridan Avenue
Oklahoma City, OK 73102-5015

Billing Information:

Paul Barbour
333 W Sheridan Avenue
Oklahoma City, OK 73102-5015Pres
Chk

Analysis / Container / Preservative

Chain of Custody



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>Report to:
Paul BarbourEmail To:
paul.barbour@dv.com;asharma@cch2o.com

Project Description:

City/State
Collected:Please Circle:
PT MT CT ET

Phone: 405-228-4308

Client Project #

Lab Project #

DEVENEOCOK-EFFLUENT

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Immediately
Packed on Ice N Y☐ Same Day ☐ Five Day
☐ Next Day ☐ 5 Day (Rad Only)
☐ Two Day ☐ 10 Day (Rad Only)
☐ Three Day

Date Results Needed

No.
of
Cntrs

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

POST CARBON FILTER

GW

POST CARBON FILTER PFAS

GW

POST CARBON FILTER RAD

NPW

ORP,ALK,ALKCA,ALKBI 500mlHDPE-NoPres

PFAS 1633 500mlHDPE-NoPres

PORTHO 100ml Amb NoPres

RA-228 1L-HDPE-Add-HNO3

TDS,COLOR 1L-HDPE-NoPres

TKN,NO2NO3 250mlHDPE-H2SO4

TOC 250mlAmb-HCl

TPHTX 40mlAmbHCl-BT-trwtd

TSS 1L-HDPE NoPres

V624.1 40mlAmb-HCl

Shipped Via: FedEX Ground
Remarks Sample # (lab only)* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH Temp

Flow Other

Samples returned via:

☐ UPS ☐ FedEx ☐ Courier

Tracking #

Relinquished By: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No

Relinquished By: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 60.7 °C Bottles Received: 71

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 6/19/24 Time: 0800

Hold:

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

6/19 NCF-L1748057 DEVENEOCOK

Shortholds

Time estimate: 0h

Time spent: 0h

Members

 Nicole Faulk (responsible)  Jennifer Gambill

Due on 26 June 2024 5:00 PM for target Done

- ☒ Login Clarification needed
- ☐ Chain of custody is incomplete
- ☐ Please specify Metals requested
- ☐ Please specify TCLP requested
- ☐ Received additional samples not listed on COC
- ☐ Sample IDs on containers do not match IDs on COC
- ☐ Client did not "X" analysis
- ☐ Chain of Custody is missing
- ☐ If no COC: Received by: _____
- ☐ If no COC: Date/Time: _____
- ☐ If no COC: Temp./Cont.Rec./pH: _____
- ☐ If no COC: Carrier: _____
- ☐ If no COC: Tracking #: _____
- ☐ Client informed by call
- ☐ Client informed by Email
- ☐ Client informed by Voicemail
- ☐ Date/Time: _____
- ☐ PM initials: _____
- ☐ Client Contact: _____

Comments

Nicole Faulk	19 June 2024 9:25 AM
did not receive a CN container. logged without.	
Jennifer Gambill	19 June 2024 9:32 AM
Please pour up and run.	
Nicole Faulk	19 June 2024 9:38 AM
done	



ANALYTICAL REPORT

August 07, 2024

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

Devon Energy - Oklahoma City, OK

Sample Delivery Group: L1748067

Samples Received: 06/19/2024

Project Number: 212C-HN-02831

Description: Desalination Pilot

Site: CCR

Report To: Paul Barbour

333 W Sheridan Avenue

Oklahoma City, OK 73102-5015

Entire Report Reviewed By:

Cassandra Foster

Cassandra Foster
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

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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CONCENTRATED BRINE L1748067-01 WW

Collected by
Danny Daniels

Collected date/time
06/18/24 10:30

Received date/time
06/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2310335	1	06/22/24 16:12	06/23/24 09:09	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2015	WG2309483	1	06/21/24 15:42	06/21/24 16:39	DLS	Mt. Juliet, TN
Wet Chemistry by Method 120.1	WG2308089	1	06/21/24 14:30	06/21/24 14:30	KA	Mt. Juliet, TN
Wet Chemistry by Method 130.1	WG2311658	250	06/25/24 19:00	06/27/24 13:51	CAT	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2308175	1	06/20/24 11:11	06/20/24 11:11	KA	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2319463	100	07/10/24 04:07	07/10/24 04:07	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2319463	1000	07/10/24 04:20	07/10/24 04:20	DLH	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG2312728	200	06/27/24 10:43	06/27/24 10:43	LAS	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2307966	1	06/19/24 18:00	06/19/24 18:00	KRB	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG2307315	10	06/20/24 10:13	06/20/24 10:13	SDE	Mt. Juliet, TN
Wet Chemistry by Method 4500SO3 B-2011	WG2306540	1	06/20/24 14:00	06/20/24 14:00	SJA	Mt. Juliet, TN
Wet Chemistry by Method 5310 B-2014	WG2314912	5	07/01/24 13:54	07/01/24 13:54	ASH	Mt. Juliet, TN
Wet Chemistry by Method 5310 B-2014	WG2308789	20	06/20/24 13:04	06/21/24 00:13	SJF	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2311721	300	06/30/24 07:08	07/01/24 16:02	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2311721	50	06/30/24 07:08	07/01/24 11:06	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 200.8	WG2312649	500	06/27/24 09:24	08/02/24 02:38	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 200.8	WG2312649	500	06/27/24 09:24	08/02/24 13:32	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 624.1	WG2311331	1	06/25/24 03:36	06/25/24 03:36	GLN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG2310759	1	06/24/24 15:11	06/25/24 04:12	AGW	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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.

Cassandra Foster

Cassandra Foster
Project Manager

Sample Delivery Group (SDG) Narrative

The Laboratory is not accredited for specific analytes on the associated Sample/Method. These analytes are flagged in the Sample Results section of the report with an asterisk (*).

Lab Sample ID	Project Sample ID	Method
L1748067-01	CONCENTRATED BRINE	300.0

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	299000		1000	1	06/23/2024 09:09	WG2310335

¹ Cp

² Tc

Gravimetric Analysis by Method 2540 D-2015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Suspended Solids	547		17.9	1	06/21/2024 16:39	WG2309483

³ Ss

⁴ Cn

Wet Chemistry by Method 120.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	239000		10.0	1	06/21/2024 14:30	WG2308089

⁵ Sr

⁶ Qc

Sample Narrative:
L1748067-01 WG2308089: at 25C

⁷ Gl

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hardness (colorimetric) as CaCO3	30800		7500	250	06/27/2024 13:51	WG2311658

⁸ Al

⁹ Sc

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	149		20.0	1	06/20/2024 11:11	WG2308175
Alkalinity,Bicarbonate	149		20.0	1	06/20/2024 11:11	WG2308175
Alkalinity,Carbonate	ND		20.0	1	06/20/2024 11:11	WG2308175

Sample Narrative:
L1748067-01 WG2308175: Endpoint pH 4.5 headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
*Bromide	1590		100	100	07/10/2024 04:07	WG2319463
Chloride	177000		1000	1000	07/10/2024 04:20	WG2319463
Sulfate	1160		500	100	07/10/2024 04:07	WG2319463

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	997		50.0	200	06/27/2024 10:43	WG2312728

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.41	T8	1	06/19/2024 18:00	WG2307966

Sample Narrative:
L1748067-01 WG2307966: 6.41 at 20.9C

Collected date/time: 06/18/24 10:30

L1748067

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		0.500	10	06/20/2024 10:13	WG2307315

Wet Chemistry by Method 4500SO3 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfite	ND	T8	3.00	1	06/20/2024 14:00	WG2306540

Wet Chemistry by Method 5310 B-2014

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	146		5.00	5	07/01/2024 13:54	WG2314912

Wet Chemistry by Method 5310 B-2014

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
DOC	141	T8	20.0	20	06/21/2024 00:13	WG2308789

Metals (ICP) by Method 200.7

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lithium	70.3		0.750	50	07/01/2024 11:06	WG2311721
Strontium	1930		3.00	300	07/01/2024 16:02	WG2311721

Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	146		20.0	500	08/02/2024 13:32	WG2312649
Calcium	10500		500	500	08/02/2024 02:38	WG2312649
Iron	ND		50.0	500	08/02/2024 02:38	WG2312649
Magnesium	1110		500	500	08/02/2024 02:38	WG2312649
Potassium	1360		500	500	08/02/2024 02:38	WG2312649
Sodium	70000		1000	500	08/02/2024 02:38	WG2312649

Volatile Organic Compounds (GC/MS) by Method 624.1

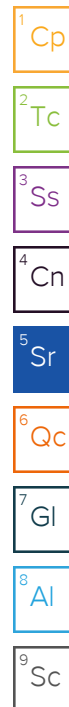
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/25/2024 03:36	WG2311331
Bromodichloromethane	ND		0.00100	1	06/25/2024 03:36	WG2311331
Bromoform	ND		0.00100	1	06/25/2024 03:36	WG2311331
Bromomethane	ND	J3	0.00500	1	06/25/2024 03:36	WG2311331
Carbon tetrachloride	ND		0.00100	1	06/25/2024 03:36	WG2311331
Chlorobenzene	ND		0.00100	1	06/25/2024 03:36	WG2311331
Chlorodibromomethane	ND		0.00100	1	06/25/2024 03:36	WG2311331
Chloroethane	ND		0.00500	1	06/25/2024 03:36	WG2311331
2-Chloroethyl vinyl ether	ND		0.0500	1	06/25/2024 03:36	WG2311331
Chloroform	ND		0.00500	1	06/25/2024 03:36	WG2311331
Chloromethane	ND		0.00250	1	06/25/2024 03:36	WG2311331
1,2-Dichlorobenzene	ND		0.00100	1	06/25/2024 03:36	WG2311331
1,3-Dichlorobenzene	ND		0.00100	1	06/25/2024 03:36	WG2311331
1,4-Dichlorobenzene	ND		0.00100	1	06/25/2024 03:36	WG2311331
Dichlorodifluoromethane	ND		0.00500	1	06/25/2024 03:36	WG2311331
1,1-Dichloroethane	ND		0.00100	1	06/25/2024 03:36	WG2311331
1,2-Dichloroethane	ND		0.00100	1	06/25/2024 03:36	WG2311331

Collected date/time: 06/18/24 10:30

L1748067

Volatile Organic Compounds (GC/MS) by Method 624.1

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1-Dichloroethene	ND		0.00100	1	06/25/2024 03:36	WG2311331
trans-1,2-Dichloroethene	ND		0.00100	1	06/25/2024 03:36	WG2311331
1,2-Dichloropropane	ND		0.00100	1	06/25/2024 03:36	WG2311331
cis-1,3-Dichloropropene	ND		0.00100	1	06/25/2024 03:36	WG2311331
trans-1,3-Dichloropropene	ND		0.00100	1	06/25/2024 03:36	WG2311331
Ethylbenzene	ND		0.00100	1	06/25/2024 03:36	WG2311331
Methylene Chloride	ND		0.00500	1	06/25/2024 03:36	WG2311331
Methyl tert-butyl ether	ND		0.00100	1	06/25/2024 03:36	WG2311331
Naphthalene	ND		0.00500	1	06/25/2024 03:36	WG2311331
1,1,2,2-Tetrachloroethane	ND		0.00100	1	06/25/2024 03:36	WG2311331
Tetrachloroethene	ND		0.00100	1	06/25/2024 03:36	WG2311331
Toluene	ND		0.00100	1	06/25/2024 03:36	WG2311331
1,1,1-Trichloroethane	ND		0.00100	1	06/25/2024 03:36	WG2311331
1,1,2-Trichloroethane	ND		0.00100	1	06/25/2024 03:36	WG2311331
Trichloroethene	ND		0.00100	1	06/25/2024 03:36	WG2311331
Trichlorofluoromethane	ND		0.00500	1	06/25/2024 03:36	WG2311331
Vinyl chloride	ND		0.00100	1	06/25/2024 03:36	WG2311331
o-Xylene	ND		0.00100	1	06/25/2024 03:36	WG2311331
m&p-Xylene	ND		0.00200	1	06/25/2024 03:36	WG2311331
Xylenes, Total	ND		0.00300	1	06/25/2024 03:36	WG2311331
(S) Toluene-d8	108		80.0-120		06/25/2024 03:36	WG2311331
(S) 4-Bromofluorobenzene	90.9		80.0-120		06/25/2024 03:36	WG2311331
(S) 1,2-Dichloroethane-d4	104		70.0-130		06/25/2024 03:36	WG2311331



Semi Volatile Organic Compounds (GC/MS) by Method 625.1

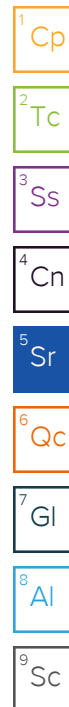
Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Acenaphthylene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Anthracene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Benzidine	ND		0.0100	1	06/25/2024 04:12	WG2310759
Benzo(a)anthracene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Benzo(b)fluoranthene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Benzo(k)fluoranthene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Benzo(g,h,i)perylene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Benzo(a)pyrene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Bis(2-chlorethoxy)methane	ND		0.0100	1	06/25/2024 04:12	WG2310759
Bis(2-chloroethyl)ether	ND		0.0100	1	06/25/2024 04:12	WG2310759
2,2-Oxybis(1-Chloropropane)	ND		0.0100	1	06/25/2024 04:12	WG2310759
4-Bromophenyl-phenylether	ND		0.0100	1	06/25/2024 04:12	WG2310759
2-Chloronaphthalene	ND		0.00100	1	06/25/2024 04:12	WG2310759
4-Chlorophenyl-phenylether	ND		0.0100	1	06/25/2024 04:12	WG2310759
Chrysene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Dibenz(a,h)anthracene	ND		0.00100	1	06/25/2024 04:12	WG2310759
3,3-Dichlorobenzidine	ND		0.0100	1	06/25/2024 04:12	WG2310759
2,4-Dinitrotoluene	ND		0.0100	1	06/25/2024 04:12	WG2310759
2,6-Dinitrotoluene	ND		0.0100	1	06/25/2024 04:12	WG2310759
1,2-Diphenylhydrazine	ND	N2	0.0100	1	06/25/2024 04:12	WG2310759
Fluoranthene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Fluorene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Hexachlorobenzene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Hexachloro-1,3-butadiene	ND		0.0100	1	06/25/2024 04:12	WG2310759
Hexachlorocyclopentadiene	ND		0.0100	1	06/25/2024 04:12	WG2310759
Hexachloroethane	ND		0.0100	1	06/25/2024 04:12	WG2310759
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Isophorone	ND		0.0100	1	06/25/2024 04:12	WG2310759

Collected date/time: 06/18/24 10:30

L1748067

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Nitrobenzene	ND		0.0100	1	06/25/2024 04:12	WG2310759
n-Nitrosodimethylamine	ND		0.0100	1	06/25/2024 04:12	WG2310759
n-Nitrosodiphenylamine	ND		0.0100	1	06/25/2024 04:12	WG2310759
n-Nitrosodi-n-propylamine	ND		0.0100	1	06/25/2024 04:12	WG2310759
Phenanthrene	ND		0.00100	1	06/25/2024 04:12	WG2310759
Benzylbutyl phthalate	ND		0.00300	1	06/25/2024 04:12	WG2310759
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	06/25/2024 04:12	WG2310759
Di-n-butyl phthalate	ND		0.00300	1	06/25/2024 04:12	WG2310759
Diethyl phthalate	ND		0.00300	1	06/25/2024 04:12	WG2310759
Dimethyl phthalate	ND		0.00300	1	06/25/2024 04:12	WG2310759
Di-n-octyl phthalate	ND		0.00300	1	06/25/2024 04:12	WG2310759
Pyrene	ND		0.00100	1	06/25/2024 04:12	WG2310759
1,2,4-Trichlorobenzene	ND		0.0100	1	06/25/2024 04:12	WG2310759
4-Chloro-3-methylphenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
2-Chlorophenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
2,4-Dichlorophenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
2,4-Dimethylphenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
4,6-Dinitro-2-methylphenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
2,4-Dinitrophenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
2-Nitrophenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
4-Nitrophenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
Pentachlorophenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
Phenol	0.0334		0.0100	1	06/25/2024 04:12	WG2310759
2,4,6-Trichlorophenol	ND		0.0100	1	06/25/2024 04:12	WG2310759
(S) Nitrobenzene-d5	50.9		15.0-314		06/25/2024 04:12	WG2310759
(S) 2-Fluorobiphenyl	45.3		22.0-127		06/25/2024 04:12	WG2310759
(S) p-Terphenyl-d14	49.3		29.0-141		06/25/2024 04:12	WG2310759
(S) Phenol-d5	42.9		8.00-424		06/25/2024 04:12	WG2310759
(S) 2-Fluorophenol	41.7		10.0-120		06/25/2024 04:12	WG2310759
(S) 2,4,6-Tribromophenol	49.8		10.0-153		06/25/2024 04:12	WG2310759



Method Blank (MB)

(MB) R4086530-1 06/23/24 09:09

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1748183-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1748183-04 06/23/24 09:09 • (DUP) R4086530-3 06/23/24 09:09

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	479	490	1	2.27		10

L1748183-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1748183-06 06/23/24 09:09 • (DUP) R4086530-4 06/23/24 09:09

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	490	493	1	0.610		10

Laboratory Control Sample (LCS)

(LCS) R4086530-2 06/23/24 09:09

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8580	97.5	85.0-115	

Method Blank (MB)

(MB) R4085122-1 06/21/24 16:39

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Suspended Solids	U		2.50	2.50

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1747759-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747759-01 06/21/24 16:39 • (DUP) R4085122-3 06/21/24 16:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Suspended Solids	30.0	32.0	1	6.45		10

L1748035-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748035-01 06/21/24 16:39 • (DUP) R4085122-4 06/21/24 16:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Suspended Solids	91.0	93.0	1	2.17		10

Laboratory Control Sample (LCS)

(LCS) R4085122-2 06/21/24 16:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Suspended Solids	773	840	109	85.0-115	

Method Blank (MB)

(MB) R4084886-1 06/21/24 14:30

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

L1747965-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747965-01 06/21/24 14:30 • (DUP) R4084886-3 06/21/24 14:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3340	3290	1	1.51		20

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

L1748140-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748140-01 06/21/24 14:30 • (DUP) R4084886-4 06/21/24 14:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	ND	ND	1	0.000		20

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

Laboratory Control Sample (LCS)

(LCS) R4084886-2 06/21/24 14:30

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	733	726	99.0	85.0-115	

Sample Narrative:
LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4087367-1 06/27/24 13:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hardness (colorimetric) as CaCO3	U		15.0	30.0

L1748327-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748327-01 06/27/24 13:53 • (DUP) R4087367-3 06/27/24 13:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	135	127	1	6.11		20

Laboratory Control Sample (LCS)

(LCS) R4087367-2 06/27/24 13:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hardness (colorimetric) as CaCO3	100	104	104	85.0-115	

L1748711-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748711-01 06/27/24 13:58 • (MS) R4087367-4 06/27/24 13:59 • (MSD) R4087367-5 06/27/24 14:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hardness (colorimetric) as CaCO3	500	505	975	980	94.0	95.0	5	80.0-120			0.512	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 2320 B-2011

[L1748067-01](#)

Method Blank (MB)

(MB) R4084365-2 06/20/24 09:17

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	U		8.45	20.0
Alkalinity,Bicarbonate	U		8.45	20.0
Alkalinity,Carbonate	U		8.45	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1747656-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747656-01 06/20/24 09:25 • (DUP) R4084365-3 06/20/24 09:28

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	21.7	21.9	1	0.950		20
Alkalinity,Bicarbonate	21.7	21.9	1	0.950		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:
OS: Endpoint pH 4.5 headspace
DUP: Endpoint pH 4.5

L1748067-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748067-01 06/20/24 11:11 • (DUP) R4084365-4 06/20/24 11:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	149	150	1	0.799		20
Alkalinity,Bicarbonate	149	150	1	0.799		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:
OS: Endpoint pH 4.5 headspace
DUP: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4084365-1 06/20/24 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Alkalinity	100	103	103	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4092590-1 07/09/24 22:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1747989-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1747989-05 07/10/24 01:47 • (DUP) R4092590-3 07/10/24 02:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP RPD Limits %
Bromide	ND	ND	1	0.000	15
Chloride	28.3	27.3	1	3.58	15
Sulfate	12.9	12.8	1	0.747	15

L1749762-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1749762-08 07/10/24 09:13 • (DUP) R4092590-6 07/10/24 09:26

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP RPD Limits %
Bromide	1.09	1.10	1	0.823	15
Chloride	7.39	7.35	1	0.563	15
Sulfate	187	185	1	0.806	15

Laboratory Control Sample (LCS)

(LCS) R4092590-2 07/09/24 22:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	39.9	99.8	90.0-110	
Chloride	40.0	40.5	101	90.0-110	
Sulfate	40.0	39.1	97.6	90.0-110	

L1747989-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747989-05 07/10/24 01:47 • (MS) R4092590-4 07/10/24 02:13 • (MSD) R4092590-5 07/10/24 02:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Bromide	40.0	ND	39.7	39.3	99.2	98.3	1	80.0-120			0.914	15
Chloride	40.0	28.3	60.4	60.5	80.2	80.4	1	80.0-120			0.134	15
Sulfate	40.0	12.9	49.0	49.0	90.2	90.1	1	80.0-120			0.139	15

L1749762-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1749762-08 07/10/24 09:13 • (MS) R4092590-7 07/10/24 09:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Bromide	40.0	1.09	38.2	92.9	1	80.0-120	
Chloride	40.0	7.39	45.6	95.5	1	80.0-120	
Sulfate	40.0	187	190	8.56	1	80.0-120	<u>V</u>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4087381-1 06/27/24 10:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ammonia Nitrogen	U		0.117	0.250

L1748176-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1748176-06 06/27/24 11:12 • (DUP) R4087381-3 06/27/24 11:13

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	2.56	2.56	1	0.156		10

L1748176-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1748176-08 06/27/24 11:49 • (DUP) R4087381-7 06/27/24 11:50

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	131	131	20	0.278		10

Laboratory Control Sample (LCS)

(LCS) R4087381-2 06/27/24 10:37

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	7.50	7.46	99.4	90.0-110	

L1748176-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1748176-07 06/27/24 11:19 • (MS) R4087381-4 06/27/24 11:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ammonia Nitrogen	5.00	4.48	9.36	97.7	1	90.0-110	

L1748176-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748176-05 06/27/24 11:44 • (MS) R4087381-5 06/27/24 11:46 • (MSD) R4087381-6 06/27/24 11:47

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	9.95	14.8	14.8	97.7	96.2	5	90.0-110			0.527	10

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1747960-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747960-01 06/19/24 18:00 • (DUP) R4083988-2 06/19/24 18:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.82	7.80	1	0.256		1

Sample Narrative:

OS: 7.82 at 21.4C

DUP: 7.8 at 21.4C

L1748128-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748128-01 06/19/24 18:00 • (DUP) R4083988-3 06/19/24 18:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.37	8.38	1	0.119		1

Sample Narrative:

OS: 8.37 at 20.8C

DUP: 8.38 at 20.8C

Laboratory Control Sample (LCS)

(LCS) R4083988-1 06/19/24 18:00

	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: 10.03 at 21.7C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4084142-1 06/20/24 10:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfide	U		0.0250	0.0500

L1747989-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747989-01 06/20/24 10:09 • (DUP) R4084142-3 06/20/24 10:09

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	ND	1	0.000		20

L1748238-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1748238-02 06/20/24 10:15 • (DUP) R4084142-6 06/20/24 10:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4084142-2 06/20/24 10:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfide	0.500	0.498	99.6	85.0-115	

L1748128-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748128-02 06/20/24 10:13 • (MS) R4084142-4 06/20/24 10:14 • (MSD) R4084142-5 06/20/24 10:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfide	0.500	ND	0.154	0.163	30.8	32.6	1	80.0-120	J6	J6	5.68	20

Sample Narrative:

- MS: Spike failure due to matrix interference
- MSD: Spike failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 4500SO3 B-2011

L1748067-01

Method Blank (MB)

(MB) R4084347-1 06/20/24 14:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfite	U		1.19	3.00

L1747261-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1747261-02 06/20/24 14:00 • (DUP) R4084347-6 06/20/24 14:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP RPD Limits %
Sulfite	ND	ND	1	0.000	20

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

(LCS) R4084347-2 06/20/24 14:00 • (LCSD) R4084347-3 06/20/24 14:00

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 %
Sulfite	20.0	17.0	17.0	85.0	85.0	85.0-115			0.000	20

L1747261-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747261-01 06/20/24 14:00 • (MS) R4084347-4 06/20/24 14:00 • (MSD) R4084347-5 06/20/24 14:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfite	20.0	ND	19.0	19.0	85.0	85.0	1	85.0-115			0.000	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 5310 B-2014

L1748067-01

Method Blank (MB)

(MB) R4084753-2 06/20/24 13:40

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
DOC	0.137	⬇	0.106	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1745594-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1745594-01 06/20/24 20:12 • (DUP) R4084753-5 06/20/24 21:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
DOC	65.0	65.2	2	0.353		20

L1748638-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748638-01 06/21/24 00:40 • (DUP) R4084753-6 06/21/24 00:55

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
DOC	2.44	3.05	1	22.3	P1	20

Laboratory Control Sample (LCS)

(LCS) R4084753-1 06/20/24 13:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
DOC	25.0	23.5	94.2	85.0-115	

L1745743-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1745743-01 06/20/24 17:09 • (MS) R4084753-3 06/20/24 17:29 • (MSD) R4084753-4 06/20/24 17:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
DOC	25.0	2.26	25.8	25.4	94.3	92.6	1	80.0-120			1.68	20

L1748638-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748638-02 06/21/24 01:17 • (MS) R4084753-7 06/21/24 01:34 • (MSD) R4084753-8 06/21/24 01:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
DOC	25.0	2.17	25.8	25.5	94.5	93.3	1	80.0-120			1.17	20

Wet Chemistry by Method 5310 B-2014

L1748067-01

Method Blank (MB)

(MB) R4089097-2 07/01/24 11:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	U		0.102	1.00

L1748341-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748341-01 07/01/24 14:36 • (DUP) R4089097-3 07/01/24 14:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	ND	ND	1	13.6		20

L1751667-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1751667-03 07/01/24 19:16 • (DUP) R4089097-8 07/01/24 19:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	12.9	13.0	1	0.928		20

Laboratory Control Sample (LCS)

(LCS) R4089097-1 07/01/24 11:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	25.0	24.6	98.2	85.0-115	

L1748341-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748341-02 07/01/24 15:14 • (MS) R4089097-4 07/01/24 15:35 • (MSD) R4089097-5 07/01/24 15:56

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25.0	ND	25.0	24.5	97.8	96.0	1	85.0-115			1.78	20

L1751667-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1751667-02 07/01/24 18:10 • (MS) R4089097-6 07/01/24 18:34 • (MSD) R4089097-7 07/01/24 18:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25.0	6.95	32.5	32.4	102	102	1	85.0-115			0.123	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Metals (ICP) by Method 200.7 [L1748067-01](#)

Method Blank (MB)

(MB) R4088706-1 07/01/24 10:51

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lithium	U		0.00689	0.0150
Strontium	U		0.000683	0.0100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4088706-2 07/01/24 10:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lithium	1.00	0.952	95.2	85.0-115	
Strontium	1.00	1.04	104	85.0-115	

L1748422-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748422-01 07/01/24 10:54 • (MS) R4088706-4 07/01/24 10:58 • (MSD) R4088706-5 07/01/24 10:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lithium	1.00	0.0183	0.990	0.989	97.2	97.0	1	70.0-130			0.145	20
Strontium	1.00	0.476	1.53	1.54	105	106	1	70.0-130			0.571	20

L1748478-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748478-01 07/01/24 11:01 • (MS) R4088706-6 07/01/24 11:03 • (MSD) R4088706-7 07/01/24 11:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lithium	1.00	ND	0.980	0.978	98.0	97.8	1	70.0-130			0.246	20
Strontium	1.00	ND	1.06	1.05	106	105	1	70.0-130			0.844	20

Metals (ICPMS) by Method 200.8 [L1748067-01](#)

Method Blank (MB)

(MB) R4101798-1 08/01/24 23:32

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron	U		0.0177	0.0400
Calcium	U		0.112	1.00
Iron	U		0.0447	0.100
Magnesium	U		0.0690	1.00
Potassium	U		0.151	1.00
Sodium	U		0.513	2.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4101798-2 08/01/24 23:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	0.0500	0.0524	105	85.0-115	
Calcium	5.00	5.18	104	85.0-115	
Iron	1.00	1.00	100	85.0-115	
Magnesium	5.00	5.10	102	85.0-115	
Potassium	5.00	5.10	102	85.0-115	
Sodium	5.00	5.05	101	85.0-115	

L1746788-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746788-01 08/01/24 23:39 • (MS) R4101798-4 08/01/24 23:45 • (MSD) R4101798-5 08/01/24 23:49

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	0.0500	ND	0.0671	0.0670	134	134	1	70.0-130	J5	J5	0.108	20
Calcium	5.00	51.7	60.5	56.0	177	85.7	1	70.0-130	V		7.84	20
Iron	1.00	0.329	1.51	1.58	118	125	1	70.0-130			4.76	20
Magnesium	5.00	8.47	14.1	13.2	112	95.3	1	70.0-130			6.02	20
Potassium	5.00	1.86	7.22	7.01	107	103	1	70.0-130			2.95	20
Sodium	5.00	4.91	10.3	9.91	108	100	1	70.0-130			3.95	20

Sample Narrative:

- MS: Matrix spike failure due to matrix interference.
- MSD: Matrix spike failure due to matrix interference.

Metals (ICPMS) by Method 200.8 [L1748067-01](#)

L1746788-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1746788-02 08/01/24 23:52 • (MS) R4101798-6 08/01/24 23:55 • (MSD) R4101798-7 08/01/24 23:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Boron	0.0500	ND	0.0630	0.0636	126	127	1	70.0-130			1.01	20
Calcium	5.00	41.2	46.7	49.5	110	166	1	70.0-130		V	5.84	20
Iron	1.00	1.69	2.72	3.04	103	134	1	70.0-130		J5	10.8	20
Magnesium	5.00	7.33	12.3	13.1	99.2	115	1	70.0-130			6.31	20
Potassium	5.00	2.10	7.05	7.60	98.9	110	1	70.0-130			7.53	20
Sodium	5.00	3.87	8.82	9.33	99.0	109	1	70.0-130			5.62	20

Sample Narrative:

MSD: Matrix spike failure due to matrix interference.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4086110-3 06/25/24 01:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Bromodichloromethane	U		0.000136	0.00100
Bromoform	U		0.000129	0.00100
Bromomethane	U		0.000605	0.00500
Carbon tetrachloride	U		0.000128	0.00100
Chlorobenzene	U		0.000116	0.00100
Chlorodibromomethane	U		0.000140	0.00100
Chloroethane	U		0.000192	0.00500
2-Chloroethyl vinyl ether	U		0.000575	0.0500
Chloroform	U		0.000111	0.00500
Chloromethane	U		0.000960	0.00250
1,2-Dichlorobenzene	U		0.000107	0.00100
1,3-Dichlorobenzene	U		0.000110	0.00100
1,4-Dichlorobenzene	U		0.000120	0.00100
Dichlorodifluoromethane	U		0.000374	0.00500
1,1-Dichloroethane	U		0.000100	0.00100
1,2-Dichloroethane	U		0.0000819	0.00100
1,1-Dichloroethene	U		0.000188	0.00100
trans-1,2-Dichloroethene	U		0.000149	0.00100
1,2-Dichloropropane	U		0.000149	0.00100
cis-1,3-Dichloropropene	U		0.000111	0.00100
trans-1,3-Dichloropropene	U		0.000118	0.00100
Ethylbenzene	U		0.000137	0.00100
Methylene Chloride	U		0.000430	0.00500
Methyl tert-butyl ether	U		0.000101	0.00100
Naphthalene	U		0.00100	0.00500
1,1,2,2-Tetrachloroethane	U		0.000133	0.00100
Tetrachloroethene	U		0.000300	0.00100
Toluene	U		0.000278	0.00100
1,1,1-Trichloroethane	U		0.000149	0.00100
1,1,2-Trichloroethane	U		0.000158	0.00100
Trichloroethene	U		0.000190	0.00100
Trichlorofluoromethane	U		0.000160	0.00500
Vinyl chloride	U		0.000234	0.00100
o-Xylene	U		0.000174	0.00100
m&p-Xylene	U		0.000430	0.00200
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	106			80.0-120
(S) 4-Bromofluorobenzene	96.7			80.0-120
(S) 1,2-Dichloroethane-d4	105			70.0-130

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R4086110-1 06/25/24 00:15 • (LCSD) R4086110-2 06/25/24 00:35

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 %
Benzene	0.00500	0.00510	0.00509	102	102	65.0-135			0.196	20
Bromodichloromethane	0.00500	0.00524	0.00508	105	102	65.0-135			3.10	20
Bromoform	0.00500	0.00433	0.00438	86.6	87.6	70.0-130			1.15	20
Bromomethane	0.00500	0.00208	0.00259	41.6	51.8	15.0-185		J3	21.8	20
Carbon tetrachloride	0.00500	0.00518	0.00526	104	105	70.0-130			1.53	20
Chlorobenzene	0.00500	0.00499	0.00486	99.8	97.2	65.0-135			2.64	20
Chlorodibromomethane	0.00500	0.00461	0.00449	92.2	89.8	70.0-135			2.64	20
Chloroethane	0.00500	0.00439	0.00428	87.8	85.6	40.0-160			2.54	20
2-Chloroethyl vinyl ether	0.0250	0.0267	0.0271	107	108	0.100-225			1.49	20
Chloroform	0.00500	0.00513	0.00511	103	102	70.0-135			0.391	20
Chloromethane	0.00500	0.00404	0.00393	80.8	78.6	0.100-205			2.76	20
1,2-Dichlorobenzene	0.00500	0.00520	0.00514	104	103	65.0-135			1.16	20
1,3-Dichlorobenzene	0.00500	0.00528	0.00512	106	102	70.0-130			3.08	20
1,4-Dichlorobenzene	0.00500	0.00511	0.00522	102	104	65.0-135			2.13	20
Dichlorodifluoromethane	0.00500	0.00554	0.00519	111	104	49.0-155			6.52	20
1,1-Dichloroethane	0.00500	0.00535	0.00533	107	107	70.0-130			0.375	20
1,2-Dichloroethane	0.00500	0.00543	0.00539	109	108	70.0-130			0.739	20
1,1-Dichloroethene	0.00500	0.00505	0.00484	101	96.8	50.0-150			4.25	20
trans-1,2-Dichloroethene	0.00500	0.00495	0.00466	99.0	93.2	70.0-130			6.04	20
1,2-Dichloropropane	0.00500	0.00537	0.00519	107	104	35.0-165			3.41	20
cis-1,3-Dichloropropene	0.00500	0.00491	0.00493	98.2	98.6	25.0-175			0.406	20
trans-1,3-Dichloropropene	0.00500	0.00489	0.00468	97.8	93.6	50.0-150			4.39	20
Ethylbenzene	0.00500	0.00485	0.00490	97.0	98.0	60.0-140			1.03	20
Methylene Chloride	0.00500	0.00550	0.00529	110	106	60.0-140			3.89	20
Methyl tert-butyl ether	0.00500	0.00550	0.00550	110	110	64.0-123			0.000	20
Naphthalene	0.00500	0.00540	0.00515	108	103	62.0-128			4.74	20
1,1,2,2-Tetrachloroethane	0.00500	0.00453	0.00412	90.6	82.4	60.0-140			9.48	20
Tetrachloroethene	0.00500	0.00529	0.00486	106	97.2	70.0-130			8.47	20
Toluene	0.00500	0.00483	0.00487	96.6	97.4	70.0-130			0.825	20
1,1,1-Trichloroethane	0.00500	0.00511	0.00508	102	102	70.0-130			0.589	20
1,1,2-Trichloroethane	0.00500	0.00468	0.00458	93.6	91.6	70.0-130			2.16	20
Trichloroethene	0.00500	0.00570	0.00589	114	118	65.0-135			3.28	20
Trichlorofluoromethane	0.00500	0.00439	0.00462	87.8	92.4	50.0-150			5.11	20
Vinyl chloride	0.00500	0.00263	0.00293	52.6	58.6	5.00-195			10.8	20
o-Xylene	0.00500	0.00510	0.00489	102	97.8	78.0-120			4.20	20
m&p-Xylene	0.0100	0.00952	0.00979	95.2	97.9	77.0-120			2.80	20
Xylenes, Total	0.0150	0.0146	0.0147	97.3	98.0	77.0-120			0.683	20
(S) Toluene-d8				104	105	80.0-120				
(S) 4-Bromofluorobenzene				98.4	98.8	80.0-120				
(S) 1,2-Dichloroethane-d4				107	108	70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

QUALITY CONTROL SUMMARY

Volatile Organic Compounds (GC/MS) by Method 624.1 L1748067-01

L1748234-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748234-04 06/25/24 03:56 • (MS) R4086110-4 06/25/24 08:45 • (MSD) R4086110-5 06/25/24 09:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.0420	0.0480	0.0471	120	102	1	37.0-151			1.89	61
Bromodichloromethane	0.00500		0.00503	0.00463	90.4	82.4	1	35.0-155			8.28	56
Bromoform	0.00500		0.00482	0.00481	96.4	96.2	1	45.0-169			0.208	42
Bromomethane	0.00500		ND	ND	40.0	46.0	1	0.100-206			14.0	61
Carbon tetrachloride	0.00500		0.00553	0.00528	111	106	1	70.0-140			4.63	41
Chlorobenzene	0.00500		0.00494	0.00499	98.8	99.8	1	37.0-160			1.01	53
Chlorodibromomethane	0.00500		0.00486	0.00498	97.2	99.6	1	53.0-149			2.44	50
Chloroethane	0.00500		ND	ND	78.6	75.0	1	14.0-230			4.69	78
2-Chloroethyl vinyl ether	0.0250		ND	ND	0.000	0.000	1	0.100-305	J6	J6	0.000	71
Chloroform	0.00500		0.00646	0.00622	102	97.4	1	51.0-138			3.79	54
Chloromethane	0.00500		0.00377	0.00386	75.4	77.2	1	0.100-273			2.36	60
1,2-Dichlorobenzene	0.00500		0.00588	0.00577	118	115	1	18.0-190			1.89	57
1,3-Dichlorobenzene	0.00500		0.00617	0.00566	123	113	1	59.0-156			8.62	43
1,4-Dichlorobenzene	0.00500		0.00586	0.00574	117	115	1	18.0-190			2.07	57
Dichlorodifluoromethane	0.00500		ND	ND	87.0	87.0	1	20.0-160			0.000	20
1,1-Dichloroethane	0.00500		0.00568	0.00541	111	106	1	59.0-155			4.87	40
1,2-Dichloroethane	0.00500		0.00579	0.00532	114	105	1	49.0-155			8.46	49
1,1-Dichloroethene	0.00500		0.00442	0.00429	88.4	85.8	1	0.100-234			2.99	32
trans-1,2-Dichloroethene	0.00500		0.00450	0.00434	90.0	86.8	1	54.0-156			3.62	45
1,2-Dichloropropane	0.00500		0.00605	0.00568	121	114	1	0.100-210			6.31	55
cis-1,3-Dichloropropene	0.00500		0.00485	0.00477	97.0	95.4	1	0.100-227			1.66	58
trans-1,3-Dichloropropene	0.00500		0.00499	0.00506	99.8	101	1	17.0-183			1.39	86
Ethylbenzene	0.00500	0.138	0.141	0.143	60.0	100	1	37.0-162			1.41	63
Methylene Chloride	0.00500		ND	ND	93.4	90.6	1	0.100-221			3.04	28
Methyl tert-butyl ether	0.00500	ND	0.00569	0.00558	114	112	1	42.0-142			1.95	20
Naphthalene	0.00500	0.0120	0.0182	0.0178	124	116	1	42.0-146			2.22	20
1,1,2,2-Tetrachloroethane	0.00500		0.00632	0.00584	126	117	1	46.0-157			7.89	61
Tetrachloroethene	0.00500		0.00508	0.00506	102	101	1	64.0-148			0.394	39
Toluene	0.00500	0.00631	0.0113	0.0114	99.8	102	1	47.0-150			0.881	41
1,1,1-Trichloroethane	0.00500		0.00530	0.00505	106	101	1	56.0-162			4.83	36
1,1,2-Trichloroethane	0.00500		0.00571	0.00599	114	120	1	52.0-150			4.79	45
Trichloroethene	0.00500		0.00513	0.00513	103	103	1	70.0-157			0.000	48
Trichlorofluoromethane	0.00500		0.00530	0.00522	106	104	1	17.0-181			1.52	84
Vinyl chloride	0.00500		0.00290	0.00313	58.0	62.6	1	0.100-251			7.63	66
o-Xylene	0.00500		0.0841	0.0867	56.0	108	1	44.0-146			3.04	20
m&p-Xylene	0.0100		0.243	0.249	50.0	110	1	41.0-147			2.44	20
Xylenes, Total	0.0150	0.319	0.327	0.336	53.3	113	1	41.0-148			2.71	20
(S) Toluene-d8					97.7	101		80.0-120				
(S) 4-Bromofluorobenzene					92.6	95.8		80.0-120				
(S) 1,2-Dichloroethane-d4					109	105		70.0-130				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

L1748067-01

Method Blank (MB)

(MB) R4086423-3 06/25/24 01:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.0000886	0.00100
Acenaphthylene	U		0.0000921	0.00100
Anthracene	U		0.0000804	0.00100
Benzidine	U		0.00374	0.0100
Benzo(a)anthracene	U		0.000199	0.00100
Benzo(b)fluoranthene	U		0.000130	0.00100
Benzo(k)fluoranthene	U		0.000120	0.00100
Benzo(g,h,i)perylene	U		0.000121	0.00100
Benzo(a)pyrene	U		0.0000381	0.00100
Bis(2-chlorethoxy)methane	U		0.000116	0.0100
Bis(2-chloroethyl)ether	U		0.000137	0.0100
2,2-Oxybis(1-Chloropropane)	U		0.000210	0.0100
4-Bromophenyl-phenylether	U		0.0000877	0.0100
2-Chloronaphthalene	U		0.0000648	0.00100
4-Chlorophenyl-phenylether	U		0.0000926	0.0100
Chrysene	U		0.000130	0.00100
Dibenz(a,h)anthracene	U		0.0000644	0.00100
3,3-Dichlorobenzidine	U		0.000212	0.0100
2,4-Dinitrotoluene	U		0.0000983	0.0100
2,6-Dinitrotoluene	U		0.000250	0.0100
1,2-Diphenylhydrazine	U	N2	0.000105	0.0100
Fluoranthene	U		0.000102	0.00100
Fluorene	U		0.0000844	0.00100
Hexachlorobenzene	U		0.0000755	0.00100
Hexachloro-1,3-butadiene	U		0.0000968	0.0100
Hexachlorocyclopentadiene	U		0.0000598	0.0100
Hexachloroethane	U		0.000127	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000143	0.0100
Naphthalene	U		0.000159	0.00100
Nitrobenzene	U		0.000297	0.0100
n-Nitrosodimethylamine	U		0.000998	0.0100
n-Nitrosodiphenylamine	U		0.00237	0.0100
n-Nitrosodi-n-propylamine	U		0.000261	0.0100
Phenanthrene	U		0.000112	0.00100
Benzylbutyl phthalate	U		0.000765	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000895	0.00300
Di-n-butyl phthalate	U		0.000453	0.00300
Diethyl phthalate	U		0.000287	0.00300
Dimethyl phthalate	U		0.000260	0.00300

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

L1748067-01

Method Blank (MB)

(MB) R4086423-3 06/25/24 01:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Di-n-octyl phthalate	U		0.000932	0.00300
Pyrene	U		0.000107	0.00100
1,2,4-Trichlorobenzene	U		0.0000698	0.0100
4-Chloro-3-methylphenol	U		0.000131	0.0100
2-Chlorophenol	U		0.000133	0.0100
2,4-Dichlorophenol	U		0.000102	0.0100
2,4-Dimethylphenol	U		0.0000636	0.0100
4,6-Dinitro-2-methylphenol	U		0.00112	0.0100
2,4-Dinitrophenol	U		0.00593	0.0100
2-Nitrophenol	U		0.000117	0.0100
4-Nitrophenol	U		0.000143	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.00433	0.0100
2,4,6-Trichlorophenol	U		0.000100	0.0100
(S) Nitrobenzene-d5	125			15.0-314
(S) 2-Fluorobiphenyl	117			22.0-127
(S) p-Terphenyl-d14	132			29.0-141
(S) Phenol-d5	44.5			8.00-424
(S) 2-Fluorophenol	70.0			10.0-120
(S) 2,4,6-Tribromophenol	107			10.0-153

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4086423-1 06/25/24 00:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0500	0.0381	76.2	47.0-145	
Acenaphthylene	0.0500	0.0424	84.8	33.0-145	
Anthracene	0.0500	0.0416	83.2	27.0-133	
Benzidine	0.100	0.0152	15.2	1.00-120	
Benzo(a)anthracene	0.0500	0.0458	91.6	33.0-143	
Benzo(b)fluoranthene	0.0500	0.0483	96.6	24.0-159	
Benzo(k)fluoranthene	0.0500	0.0493	98.6	11.0-162	
Benzo(g,h,i)perylene	0.0500	0.0356	71.2	1.00-219	
Benzo(a)pyrene	0.0500	0.0455	91.0	17.0-163	
Bis(2-chlorethoxy)methane	0.0500	0.0389	77.8	1.00-219	
Bis(2-chloroethyl)ether	0.0500	0.0416	83.2	33.0-185	
2,2-Oxybis(1-Chloropropane)	0.0500	0.0385	77.0	36.0-166	
4-Bromophenyl-phenylether	0.0500	0.0456	91.2	53.0-127	

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

L1748067-01

Laboratory Control Sample (LCS)

(LCS) R4086423-1 06/25/24 00:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2-Chloronaphthalene	0.0500	0.0387	77.4	60.0-120	
4-Chlorophenyl-phenylether	0.0500	0.0453	90.6	25.0-158	
Chrysene	0.0500	0.0434	86.8	17.0-168	
Dibenz(a,h)anthracene	0.0500	0.0358	71.6	1.00-227	
3,3-Dichlorobenzidine	0.100	0.0827	82.7	1.00-262	
2,4-Dinitrotoluene	0.0500	0.0471	94.2	39.0-139	
2,6-Dinitrotoluene	0.0500	0.0459	91.8	50.0-158	
1,2-Diphenylhydrazine	0.0500	0.0411	82.2	37.0-125	N2
Fluoranthene	0.0500	0.0427	85.4	26.0-137	
Fluorene	0.0500	0.0405	81.0	59.0-121	
Hexachlorobenzene	0.0500	0.0426	85.2	1.00-152	
Hexachloro-1,3-butadiene	0.0500	0.0426	85.2	24.0-120	
Hexachlorocyclopentadiene	0.0500	0.0406	81.2	10.0-120	
Hexachloroethane	0.0500	0.0382	76.4	40.0-120	
Indeno(1,2,3-cd)pyrene	0.0500	0.0365	73.0	1.00-171	
Isophorone	0.0500	0.0393	78.6	21.0-196	
Naphthalene	0.0500	0.0349	69.8	21.0-133	
Nitrobenzene	0.0500	0.0395	79.0	35.0-180	
n-Nitrosodimethylamine	0.0500	0.0372	74.4	10.0-120	
n-Nitrosodiphenylamine	0.0500	0.0414	82.8	44.0-120	
n-Nitrosodi-n-propylamine	0.0500	0.0432	86.4	1.00-230	
Phenanthrene	0.0500	0.0415	83.0	54.0-120	
Benzylbutyl phthalate	0.0500	0.0513	103	1.00-152	
Bis(2-ethylhexyl)phthalate	0.0500	0.0470	94.0	8.00-158	
Di-n-butyl phthalate	0.0500	0.0430	86.0	1.00-120	
Diethyl phthalate	0.0500	0.0422	84.4	1.00-120	
Dimethyl phthalate	0.0500	0.0427	85.4	1.00-120	
Di-n-octyl phthalate	0.0500	0.0431	86.2	4.00-146	
Pyrene	0.0500	0.0513	103	52.0-120	
1,2,4-Trichlorobenzene	0.0500	0.0394	78.8	44.0-142	
4-Chloro-3-methylphenol	0.0500	0.0365	73.0	22.0-147	
2-Chlorophenol	0.0500	0.0338	67.6	23.0-134	
2,4-Dichlorophenol	0.0500	0.0381	76.2	39.0-135	
2,4-Dimethylphenol	0.0500	0.0441	88.2	32.0-120	
4,6-Dinitro-2-methylphenol	0.0500	0.0596	119	1.00-181	
2,4-Dinitrophenol	0.0500	0.0592	118	1.00-191	
2-Nitrophenol	0.0500	0.0421	84.2	29.0-182	
4-Nitrophenol	0.0500	0.0179	35.8	1.00-132	
Pentachlorophenol	0.0500	0.0366	73.2	14.0-176	
Phenol	0.0500	0.0185	37.0	5.00-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

L1748067-01

Laboratory Control Sample (LCS)

(LCS) R4086423-1 06/25/24 00:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,6-Trichlorophenol	0.0500	0.0472	94.4	37.0-144	
(S) Nitrobenzene-d5			76.5	15.0-314	
(S) 2-Fluorobiphenyl			86.2	22.0-127	
(S) p-Terphenyl-d14			95.8	29.0-141	
(S) Phenol-d5			30.9	8.00-424	
(S) 2-Fluorophenol			44.6	10.0-120	
(S) 2,4,6-Tribromophenol			83.5	10.0-153	

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

L1748378-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748378-01 06/25/24 02:27 • (MS) R4086423-4 06/25/24 02:48 • (MSD) R4086423-5 06/25/24 03:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	ND	0.0416	0.0404	83.2	80.8	1	47.0-145			2.93	48
Acenaphthylene	0.0500	ND	0.0460	0.0447	92.0	89.4	1	33.0-145			2.87	74
Anthracene	0.0500	ND	0.0449	0.0445	89.8	89.0	1	27.0-133			0.895	66
Benzydine	0.100	ND	0.0465	0.0166	46.5	16.6	1	1.00-120		J3	94.8	40
Benzo(a)anthracene	0.0500	ND	0.0471	0.0456	94.2	91.2	1	33.0-143			3.24	53
Benzo(b)fluoranthene	0.0500	ND	0.0457	0.0450	91.4	90.0	1	24.0-159			1.54	71
Benzo(k)fluoranthene	0.0500	ND	0.0462	0.0457	92.4	91.4	1	11.0-162			1.09	63
Benzo(g,h,i)perylene	0.0500	ND	0.0440	0.0397	88.0	79.4	1	1.00-219			10.3	97
Benzo(a)pyrene	0.0500	ND	0.0454	0.0445	90.8	89.0	1	17.0-163			2.00	72
Bis(2-chlorethoxy)methane	0.0500	ND	0.0412	0.0408	82.4	81.6	1	33.0-184			0.976	54
Bis(2-chloroethyl)ether	0.0500	ND	0.0439	0.0464	87.8	92.8	1	12.0-158			5.54	108
2,2-Oxybis(1-Chloropropane)	0.0500	ND	0.0430	0.0405	86.0	81.0	1	36.0-166			5.99	76
4-Bromophenyl-phenylether	0.0500	ND	0.0463	0.0472	92.6	94.4	1	53.0-127			1.93	43
2-Chloronaphthalene	0.0500	ND	0.0406	0.0401	81.2	80.2	1	60.0-120			1.24	24
4-Chlorophenyl-phenylether	0.0500	ND	0.0496	0.0485	99.2	97.0	1	25.0-158			2.24	61
Chrysene	0.0500	ND	0.0458	0.0438	91.6	87.6	1	17.0-168			4.46	87
Dibenz(a,h)anthracene	0.0500	ND	0.0438	0.0405	87.6	81.0	1	1.00-227			7.83	126
3,3-Dichlorobenzidine	0.100	ND	0.100	0.0954	100	95.4	1	1.00-262			4.71	108
2,4-Dinitrotoluene	0.0500	ND	0.0562	0.0538	112	108	1	39.0-139			4.36	42
2,6-Dinitrotoluene	0.0500	ND	0.0516	0.0499	103	99.8	1	50.0-158			3.35	48
1,2-Diphenylhydrazine	0.0500	ND	0.0469	0.0451	93.8	90.2	1	18.0-156	N2	N2	3.91	34
Fluoranthene	0.0500	ND	0.0492	0.0476	98.4	95.2	1	26.0-137			3.31	66
Fluorene	0.0500	ND	0.0457	0.0439	91.4	87.8	1	59.0-121			4.02	38
Hexachlorobenzene	0.0500	ND	0.0431	0.0436	86.2	87.2	1	1.00-152			1.15	55
Hexachloro-1,3-butadiene	0.0500	ND	0.0435	0.0446	87.0	89.2	1	24.0-120			2.50	62
Hexachlorocyclopentadiene	0.0500	ND	0.0384	0.0393	76.8	78.6	1	10.0-146			2.32	34

L1748378-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748378-01 06/25/24 02:27 • (MS) R4086423-4 06/25/24 02:48 • (MSD) R4086423-5 06/25/24 03:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexachloroethane	0.0500	ND	0.0421	0.0408	84.2	81.6	1	40.0-120			3.14	52
Indeno(1,2,3-cd)pyrene	0.0500	ND	0.0430	0.0395	86.0	79.0	1	1.00-171			8.48	99
Isophorone	0.0500	ND	0.0423	0.0414	84.6	82.8	1	21.0-196			2.15	93
Naphthalene	0.0500	ND	0.0365	0.0363	73.0	72.6	1	21.0-133			0.549	65
Nitrobenzene	0.0500	ND	0.0409	0.0409	81.8	81.8	1	35.0-180			0.000	62
n-Nitrosodimethylamine	0.0500	ND	0.0446	0.0399	89.2	79.8	1	10.0-120			11.1	40
n-Nitrosodiphenylamine	0.0500	ND	0.0434	0.0437	86.8	87.4	1	16.0-160			0.689	28
n-Nitrosodi-n-propylamine	0.0500	ND	0.0490	0.0460	98.0	92.0	1	1.00-230			6.32	87
Phenanthrene	0.0500	ND	0.0446	0.0440	89.2	88.0	1	54.0-120			1.35	39
Benzylbutyl phthalate	0.0500	ND	0.0490	0.0500	98.0	100	1	1.00-152			2.02	60
Bis(2-ethylhexyl)phthalate	0.0500	ND	0.0446	0.0443	89.2	88.6	1	8.00-158			0.675	82
Di-n-butyl phthalate	0.0500	ND	0.0465	0.0468	93.0	93.6	1	1.00-120			0.643	47
Diethyl phthalate	0.0500	ND	0.0485	0.0470	97.0	94.0	1	1.00-120			3.14	100
Dimethyl phthalate	0.0500	ND	0.0481	0.0471	96.2	94.2	1	1.00-120			2.10	183
Di-n-octyl phthalate	0.0500	ND	0.0469	0.0449	93.8	89.8	1	4.00-146			4.36	69
Pyrene	0.0500	ND	0.0470	0.0480	94.0	96.0	1	52.0-120			2.11	49
1,2,4-Trichlorobenzene	0.0500	ND	0.0401	0.0409	80.2	81.8	1	44.0-142			1.98	50
4-Chloro-3-methylphenol	0.0500	ND	0.0432	0.0385	86.4	77.0	1	22.0-147			11.5	73
2-Chlorophenol	0.0500	ND	0.0388	0.0346	77.6	69.2	1	23.0-134			11.4	61
2,4-Dichlorophenol	0.0500	ND	0.0419	0.0400	83.8	80.0	1	39.0-135			4.64	50
2,4-Dimethylphenol	0.0500	ND	0.0493	0.0463	98.6	92.6	1	32.0-120			6.28	58
4,6-Dinitro-2-methylphenol	0.0500	ND	0.0619	0.0617	124	123	1	1.00-181			0.324	203
2,4-Dinitrophenol	0.0500	ND	0.0621	0.0572	124	114	1	1.00-191			8.21	132
2-Nitrophenol	0.0500	ND	0.0446	0.0443	89.2	88.6	1	29.0-182			0.675	55
4-Nitrophenol	0.0500	ND	0.0221	0.0186	44.2	37.2	1	1.00-132			17.2	131
Pentachlorophenol	0.0500	ND	0.0357	0.0354	71.4	70.8	1	14.0-176			0.844	86
Phenol	0.0500	ND	0.0226	0.0214	45.2	42.8	1	5.00-120			5.45	64
2,4,6-Trichlorophenol	0.0500	ND	0.0504	0.0493	101	98.6	1	37.0-144			2.21	58
(S) Nitrobenzene-d5					79.1	78.0		15.0-314				
(S) 2-Fluorobiphenyl					86.3	85.9		22.0-127				
(S) p-Terphenyl-d14					82.5	84.3		29.0-141				
(S) Phenol-d5					36.0	33.7		8.00-424				
(S) 2-Fluorophenol					51.5	48.0		10.0-120				
(S) 2,4,6-Tribromophenol					83.5	87.0		10.0-153				

¹Cp

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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
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.
N2	Analyte reported using a calibration and validation based on Azobenzene (CAS 103-33-3). 1,2-Diphenylhydrazine decomposes into Azobenzene during the analysis.
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.

1Cp

2Tc

3Ss

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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.

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Company Name/Address: Devon Energy - Oklahoma City, OK 333 W Sheridan Avenue Oklahoma City, OK 73102-5015		Billing Information: Paul Barbour 333 W Sheridan Avenue Oklahoma City, OK 73102-5015		Pres Chk		Analysis / Container / Preservative 625.1 100ml Amb-NaTio ALKB1 500mlHDPE-NoPres Alk,CL,Iodide,pH,SO4 500mlHDPE-NoPres BR,SPCON,SULFITE 250mlHDPE-NoPres Custom Metals 250mlHDPE-HNO3 DOC 250mlAmb-No Pres GROSS ALPHA/BETA 1L-HDPE-Add HNO3 GROSS ALPHA/BETA 500mlHDPE-Add HNO3 NH3 250mlHDPE-NaThioH2SO4 PFAS 1633 500mlHDPE-Add HNO3 12 12 12										Chain of Custody Page 1 of 1			
Report to: Paul Barbour		Email To: paul.barbour@devn.com;asharma@ccrh2o.com														 MT JULIET, TN 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf			
Project Description: <i>Desalinization Pilot</i>		City/State Collected: <i>Tul, NM</i>		Please Circle: PT ☒ M ☐ CT ☐ ET												SDG # <i>1748067</i> B170			
Phone: 405-228-4308		Client Project # <i>212C-NM-02831</i>		Lab Project # DEVENEOCOK-EFFLUENT															
Collected by (print): <i>Danma Dangel</i>		Site/Facility ID # <i>CCR</i>		P.O. #															
Collected by (signature): <i>[Signature]</i>		Rush? (Lab MUST Be Notified) Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 10 Day (Rad Only) ☐ Three Day ☐		Quote #												Acctnum: DEVENEOCOK Template: T253872 Prelogin: P1083339 PM: 3500 - Jennifer Gambill PB:			
Immediately Packed on Ice N ☐ Y ☐				Date Results Needed												Shipped Via: FedEX Ground			
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time	No. of											Remarks	
CONCENTRATED BRINE		<i>G</i>	WW		<i>6-18-24</i>	<i>1030</i>	<i>2</i>											<i>-01</i>	
CONCENTRATED BRINE PFAS		<i>E</i>	GW		<i>6-18-24</i>	<i>1030</i>	<i>2</i>												
CONCENTRATED BRINE RAD		<i>G</i>	NPW		<i>6-18-24</i>	<i>1030</i>	<i>4</i>												

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

Remarks:

Samples returned via:
 ___ UPS ___ FedEx ___ Courier

Tracking #

Relinquished by: (Signature)
[Signature]
 Relinquished by: (Signature)
[Signature]
 Relinquished by: (Signature)
[Signature]

Date: *6-18-24*
 Date: *6/18/24*
 Date: _____

Time: *1600*
 Time: *16:50*
 Time: _____

Received by: (Signature)
[Signature]
 Received by: (Signature)
[Signature]
 Received for lab by: (Signature)
[Signature]

Trip Blank Received: ☒ Yes ☐ No
 HCL/MeOH
 TBR
 Temp: *45.03-4.8* °C
 Bottles Received: *27*
 Date: *6-19-24* Time: *0900*

Sample Receipt Checklist
 COC Seal Present/Intact: ☒ NP ☐ Y ☐ N
 COC Signed/Accurate: ☒ ☐ N
 Bottles arrive intact: ☒ ☐ N
 Correct bottles used: ☒ ☐ N
 Sufficient volume sent: ☒ ☐ N
If Applicable
 VOA Zero Headspace: ☒ ☐ N
 Preservation Correct/Checked: ☒ ☐ N
 RAD Screen <0.5 mR/hr: ☒ ☐ N
 PH-10BDH432
 TRC-3223A22R
 Date/Time: _____
 Condition: NCF / ☒ OK

Company Name/Address: Devon Energy - Oklahoma City, OK 333 W Sheridan Avenue Oklahoma City, OK 73102-5015		Billing Information: Paul Barbour 333 W Sheridan Avenue Oklahoma City, OK 73102-5015		Pres Chk 12	Analysis / Container / Preservative 12										Chain of Custody MT JULIET, TN 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf	
Report to: Paul Barbour		Email To: paul.barbour@dvn.com; asharma@ccrh2o.com		Project Description: Desaturation Pilot		City/State Collected: Jal, NM		Please Circle: PT MT CT ET 0		Client Project # 212C-HM-02831		Lab Project # DEVENEOCOK-EFFLUENT		Phone: 405-228-4308		
Collected by (print): Vanny Daniels		Site/Facility ID # CCH		P.O. #		Quote #		Date Results Needed		No. of		RA-228 1L-HDPE-Add-HNO3 SUBGRAVITY 1L-HDPE-NoPres SULFIDE 250mlAmb-S-NaOH+ZnAc TDS 1L-HDPE-NoPres TOC 250mlAmb-HCl TSS 1L-HDPE NoPres V624.1 40mlAmb-HCl		SDG # L1748067		
Collected by (signature): 		Rush? (Lab MUST Be Notified) ☐ Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 10 Day (Rad Only) ☐ Three Day		Date Results Needed		Date Results Needed		Date Results Needed		Date Results Needed		Date Results Needed		Acctnum: DEVENEOCOK Template: T253872 Prelogin: P1083339 PM: 3500 - Jennifer Gambill PB:		
Immediately Packed on Ice N ☐ Y ☐		Sample ID		Comp/Grab		Matrix *		Depth		Date		Time		Shipped Via: FedEX Ground		
CONCENTRATED BRINE		G		WW		6-18-24		1030		2		X		-01		
CONCENTRATED BRINE PFAS		G		GW		6-18-24		1030		4		X				
CONCENTRATED BRINE RAD		G		NPW												

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

Remarks:

Samples returned via:
☐ UPS ☐ FedEx ☐ Courier

Tracking #

Relinquished by: (Signature)

Relinquished by: (Signature)

Relinquished by: (Signature)

Date: **6-18-24** Time: **1600**

Date: **6/18/24** Time: **1630**

Date: Time:

Received by: (Signature)

Received by: (Signature)

Received for lab by: (Signature)

Trip Blank Received: Yes / No
 HCL / MeOH
 TBR

Temp: °C Bottles Received:

Date: Time:

Sample Receipt Checklist

COC Seal Present/Intact: ☒ NP ☐ Y ☐ N

COC Signed/Accurate: ☒ Y ☐ N

Bottles arrive intact: ☒ Y ☐ N

Correct bottles used: ☒ Y ☐ N

Sufficient volume sent: ☒ Y ☐ N

If Applicable

VOA Zero Headspace: ☒ Y ☐ N

Preservation Correct/Checked: ☒ Y ☐ N

RAD Screen <0.5 mR/hr: ☒ Y ☐ N

If preservation required by Login: Date/Time

Hold: Condition: **NCF / OK**



ANALYTICAL REPORT

July 16, 2024

1Cp

2Tc

3Ss

4Cn

5Gl

6Al

7Sc

Devon Energy - Oklahoma City, OK

Sample Delivery Group:

L1748068

Samples Received:

06/19/2024

Project Number:

212C-HN-02831

Description:

Desalination Pilot

Report To:

Paul Barbour

333 W Sheridan Avenue

Oklahoma City, OK 73102-5015

Entire Report Reviewed By:

Jennifer Gambill
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

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Gl: Glossary of Terms	5	³ Ss
Al: Accreditations & Locations	6	⁴ Cn
Sc: Sample Chain of Custody	7	⁵ Gl
		⁶ Al
		⁷ Sc

CONCENTRATED BRINE PFAS L1748068-01 GW

Collected by
Collected date/time
Received date/time

06/18/24 10:30
06/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2308178	1	07/01/24 00:00	07/01/24 00:00	ANF	Green Bay, WI 54302
Subcontracted Analyses	WG2308194	1	07/01/24 00:00	07/01/24 00:00	ANF	Indianapolis, IN 46268
Subcontracted Analyses	WG2308210	1	07/05/24 00:00	07/05/24 00:00	ANF	East Longmeadow, MA 01028

1Cp

2Tc

3Ss

4Cn

5Gl

6Al

7Sc

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.



Jennifer Gambill
Project Manager

Project Narrative

L1748068 -01 contains subout data that is included after the chain of custody.

1Cp

2Tc

3Ss

4Cn

5Gl

6Al

7Sc

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

SDG	Sample Delivery Group.
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

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

1

Cp

2

Tc

3

Ss

4

Cn

5

Gl

6

Al

7

Sc

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.

¹Cp

²Tc

³Ss

⁴Cn

⁵Gl

⁶Al

⁷Sc

Released to Imaging: 9/6/2024 10:20:04 AM

Released to Imaging: 9/6/2024 10:20:04 AM



June 28, 2024

MTJLSuboutTeam
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122

RE: Project: L1748068 WG2308178
Pace Project No.: 40280016

Dear MTJLSuboutTeam:

Enclosed are the analytical results for sample(s) received by the laboratory on June 20, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Angela Lane".

Angela Lane
angela.lane@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Jimmy Huckaba, Pace Analytical Allen
Pace National Subout Team, Pace National



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: L1748068 WG2308178

Pace Project No.: 40280016

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-21-8

Virginia VELAP Certification ID: 11873

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-21-00008

Federal Fish & Wildlife Permit #: 51774A

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: L1748068 WG2308178

Pace Project No.: 40280016

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40280016001	CONCENTRATED BRINE PFAS	Water	06/18/24 10:30	06/20/24 09:25

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: L1748068 WG2308178

Pace Project No.: 40280016

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40280016001	CONCENTRATED BRINE PFAS	SM 2710F	HML	2

PASI-G = Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: L1748068 WG2308178

Pace Project No.: 40280016

Sample: CONCENTRATED BRINE **Lab ID:** 40280016001 Collected: 06/18/24 10:30 Received: 06/20/24 09:25 Matrix: Water
PFAS

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Specific Gravity /Bulk Density		Analytical Method: SM 2710F Pace Analytical Services - Green Bay							
Density	1.1	g/mL			1		06/28/24 16:14		
Specific Gravity	1.1	no units			1		06/28/24 16:14		

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Date: 06/28/2024 05:16 PM

Page 5 of 11



QUALITY CONTROL DATA

Project: L1748068 WG2308178

Pace Project No.: 40280016

QC Batch: 478479

QC Batch Method: SM 2710F

Analysis Method: SM 2710F

Analysis Description: Specific Gravity /Bulk Density

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40280016001

SAMPLE DUPLICATE: 2740482

Parameter	Units	40280011001 Result	Dup Result	RPD	Max RPD	Qualifiers
Density	g/mL	0.99	0.99	0	20	
Specific Gravity	no units	0.99	0.99	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Date: 06/28/2024 05:16 PM

Page 6 of 11



QUALIFIERS

Project: L1748068 WG2308178

Pace Project No.: 40280016

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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Date: 06/28/2024 05:16 PM

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: L1748068 WG2308178
Pace Project No.: 40280016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40280016001	CONCENTRATED BRINE PFAS	SM 2710F	478479		

REPORT OF LABORATORY ANALYSIS

Date: 06/28/2024 05:16 PM

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40280016

Sub-Contract Chain of Custody

Batch Date/Time: 06/19/24 13:30
 Sub-Contract Lab: PACEGBWI
 Address: 1241 Bellvue Street, Suite 9
 City/State: Green Bay, WI 54302
 Contact:
 Angela.Lane@pacelabs.com
 Owner Lab: PACEMTJL
 Address: 12065 Lebanon Rd.
 City/State: Mt. Juliet, TN 37122
 Phone: (615) 773-9756
 Fax: (615) 758-5859

WO: WG2308178
 Email: MTJLSuboutTeam@pacelabs.com
 Results Due Date: 07/03/24
 ESC Purchase Order #: L1748068
 Send Reports to: James C Huckaba



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 Phone: (615) 773-9756
 Fax: (615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
CONCENTRATED BRINE PFAS	GW	NM	06/18/24 10:30	Specific Gravity	2. L1748068-01	

Relinquished by: [Signature] Date: 6-19-24

Received by: _____ Date: _____

Relinquished by: Fedix Date: 11/20/24 0925

Received by: Gerrit Ruppel Date: 11/20/24 0925

DC#_Title: ENV-FRM-GBAY-0035 v03_Sample Preservation Receipt Form

Effective Date: 8/16/2022

Client Name: Pace TN

Sample Preservation Receipt Form

Project #

40280016All containers needing preservation have been checked and noted below:
Lab Lot# of pH paper.☐ Yes☐ No☒ N/A

Lab Std #ID of preservation (if pH adjusted):

Initial when
completed:Date/
Time:

Pace Lab #	Glass						Plastic						Vials					Jars				General				VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2					
001																																2.5 / 5
002																																2.5 / 5
003																																2.5 / 5
004																																2.5 / 5
005																																2.5 / 5
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019																																2.5 / 5
020																																2.5 / 5

Exceptions to preservation check. VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____

Headspace in VOA Vials (>6mm) . ☐ Yes ☐ No ☒ N/A

*If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	
						GN 2	

Page 1 of 2

DC#_Title: ENV-FRM-GBAY-0014 v03_SCUR

Effective Date: 8/17/2022

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: Pace TN

Courier: ☐ CS Logistics ☒ Fed Ex ☐ Speedee ☐ UPS ☐ Walco
☐ Client ☐ Pace Other: _____

Tracking #: 7315 3205 6489Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ noCustody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ noPacking Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other _____Thermometer Used SR - 136 Type of Ice: ☒ Wet ☐ Blue ☐ Dry ☐ None ☐ Meltwater OnlyCooler Temperature Uncorr: 2.0 /Corr: 2.0Temp Blank Present: ☒ yes ☐ noBiological Tissue is Frozen: ☐ yes ☐ no

Temp should be above freezing to 6°C.

Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:

Date 10/20/24 /Initials: GFLabeled By Initials: SG

Chain of Custody Present:	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out:	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished:	☒ Yes ☐ No ☐ N/A	3.
Sampler Name & Signature on COC:	☐ Yes ☐ No ☒ N/A	4. <u>IRWD</u> <u>10/20/24 GF</u>
Samples Arrived within Hold Time:	☒ Yes ☐ No	5.
- DI VOA Samples frozen upon receipt	☐ Yes ☐ No	Date/Time:
Short Hold Time Analysis (<72hr):	☐ Yes ☒ No	6.
Rush Turn Around Time Requested:	☐ Yes ☒ No	7.
Sufficient Volume:		8.
For Analysis: ☒ Yes ☐ No MS/MSD: ☐ Yes ☒ No ☐ N/A		
Correct Containers Used:	☒ Yes ☐ No	9.
Correct Type <u>Pace Green Bay</u> , Pace IR, Non-Pace		
Containers Intact:	☒ Yes ☐ No	10.
Filtered volume received for Dissolved tests	☐ Yes ☐ No ☒ N/A	11.
Sample Labels match COC:	☒ Yes ☐ No ☐ N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	☐ Yes ☐ No ☒ N/A	13.
Trip Blank Custody Seals Present	☐ Yes ☐ No ☒ N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2



July 01, 2024

Jimmy Huckaba
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122

RE: Project: WG2308194
Pace Project No.: 50376379

Dear Jimmy Huckaba:

Enclosed are the analytical results for sample(s) received by the laboratory on June 20, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Randal Rastorfer".

Randal Rastorfer
randal.rastorfer@pacelabs.com
(614)301-3304
Project Manager

Enclosures

cc: Pace National Subout Team, Pace National



REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

CERTIFICATIONS

Project: WG2308194

Pace Project No.: 50376379

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268

Illinois Accreditation #: 200074

Indiana Drinking Water Laboratory #: C-49-06

Kansas/TNI Certification #: E-10177

Kentucky UST Agency Interest #: 80226

Kentucky WW Laboratory ID #: 98019

Michigan Drinking Water Laboratory #9050

Oklahoma Laboratory #: 9204

Texas Certification #: T104704355

Washington Dept of Ecology #: C1081

Wisconsin Laboratory #: 999788130

USDA Foreign Soil Permit #: 525-23-13-23119

USDA Compliance Agreement #: IN-SL-22-001

REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SAMPLE SUMMARY

Project: WG2308194

Pace Project No.: 50376379

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50376379001	CONCENTRATED BRINE PFAS	Water	06/18/24 10:30	06/20/24 09:20

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SAMPLE ANALYTE COUNT

Project: WG2308194

Pace Project No.: 50376379

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50376379001	CONCENTRATED BRINE PFAS	EPA 9056	ADM	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

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SUMMARY OF DETECTION

Project: WG2308194
Pace Project No.: 50376379

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50376379001	CONCENTRATED BRINE PFAS					
EPA 9056	Iodide	201	mg/L	50.0	06/28/24 18:23	

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ANALYTICAL RESULTS

Project: WG2308194

Pace Project No.: 50376379

Sample: CONCENTRATED BRINE PFAS		Lab ID: 50376379001	Collected: 06/18/24 10:30	Received: 06/20/24 09:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
9056 Iodide by IC		Analytical Method: EPA 9056 Initial Volume/Weight: 10 mL Final Volume/Weight: 10 mL Pace Analytical Services - Indianapolis						
Iodide	201	mg/L	50.0	100		06/28/24 18:23		

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QUALITY CONTROL DATA

Project: WG2308194

Pace Project No.: 50376379

QC Batch: 797018

Analysis Method: EPA 9056

QC Batch Method: EPA 9056

Analysis Description: 9056 Iodide by IC

Laboratory: Pace Analytical Services - Indianapolis

Associated Lab Samples: 50376379001

METHOD BLANK: 3646735

Matrix: Water

Associated Lab Samples: 50376379001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iodide	mg/L	ND	0.50	06/28/24 16:56	

LABORATORY CONTROL SAMPLE: 3646736

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iodide	mg/L	5	4.9	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3646737 3646738

Parameter	Units	50376286004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iodide	mg/L	ND	5	5	4.8	4.7	95	94	80-120	1	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: WG2308194
Pace Project No.: 50376379

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WG2308194

Pace Project No.: 50376379

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50376379001	CONCENTRATED BRINE PFAS	EPA 9056	797018		

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Sub-Contract Chain of Custody**Batch Date/Time:** 06/19/24 13:41**Sub-Contract Lab:** PACEIIN**Address:** 7726 Moller Rd.**City/State:** Indianapolis, IN 46268**Contact:**

Randal.Rastorfer@pacelabs.com

Owner Lab: PACEMTJL**Address:** 12065 Lebanon Rd.**City/State:** Mt. Juliet, TN 37122**Phone:** (615) 773-9756**Fax:** (615) 758-5859**WO:** WG2308194**Email:** MTJLSuboutTeam@pacelabs.com**Results Due Date:** 07/03/24**ESC Purchase Order #:** L1748068**Send Reports to:** James C Huckaba

12065 Lebanon Rd.

Mt. Juliet, TN 37122

Phone: (615) 773-9756

Fax: (615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
CONCENTRATED BRINE PFAS	WW	NM	06/18/24 10:30	Iodide	2. L1748068-01	

Relinquished by: [Signature] Date 6-19-24Received by: Fedex Date _____Relinquished by: Fedex Date 6/20/24 9:20Received by: [Signature] Date 6/20/24 9:20**WO# : 50376379****50376379**

F-IN-Q-290-rev.27, 13Jun2024



SAMPLE CONDITION UPON RECEIPT FORM

Date/Time and Initials of person examining contents: 6/20/24 19:07 JG

1. Courier: ☒ FED EX ☐ UPS ☐ CLIENT ☐ PACE ☐ NOW/JETT ☐ OTHER _____2. Custody Seal on Cooler/Box Present: ☒ Yes ☐ No(If yes) Seals Intact: ☒ Yes ☐ No (leave blank if no seals were present)

3. Thermometer: 1 2 3 4 5 6 7 8 9 A B C D E F G H I

4. Cooler Temperature(s): 17/1.7
(Initial/Corrected) RECORD TEMPS OF ALL COOLERS RECEIVED (use Comments below to add more)5. Packing Material: ☒ Bubble Wrap ☐ Bubble Bags☐ None ☐ Other _____6. Ice Type: ☒ Wet ☐ Blue ☐ None7. Was the PM notified of out of temp cooler?: ☐ Yes ☐ No
Cooler temp should be above freezing to 6°C8. EZ Bottle Order? ☐ Yes ☒ NoIf yes but not on COC
what is the EZ Bottle
Order Number?:

All discrepancies will be written out in the comments section below.

	Yes	No		Yes	No	N/A
USDA Regulated Soils? (HI, ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)			All containers needing acid/base preservation have been pH CHECKED?: Exceptions: VOA, coliform, LLHg, O&G, RAD CHEM, and any container with a septum cap or preserved with HCl.			
Short Hold Time Analysis (48 hours or less)? Analysis:			Circle: HNO3 (<2) H2SO4 (<2) NaOH (>10) NaOH/ZnAc (>9) Any non-conformance to pH recommendations will be noted on the container count form			
Time 5035A TC placed in Freezer or Short Holds To Lab	Time:		Residual Chlorine Check (SVOC 625 Pest/PCB 608)	Present	Absent	N/A
Rush TAT Requested (4 days or less):			Residual Chlorine Check (Total/Amenable/Free Cyanide)			
Custody Signatures Present?			Headspace Wisconsin Sulfide?			
Containers Intact?:			Headspace in VOA Vials (>6mm): See Containter Count form for details	Present	Absent	No VOA Vials Sent
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID			Trip Blank Present?			
Extra labels on Terracore Vials? (soils only)			Trip Blank Custody Seals?:			

COMMENTS:

COC PAGE ____ of ____

Sample Container Count

** Place a PINK dot on containers

that are out of conformance **

COC Line Item	WGFL	WGKU	BG1U	MeOH (only)	DG9H	VG9H	VOA VIAL HS (>6mm)	VG9U	DG9U	VG9T	AMBER GLASS						PLASTIC								OTHER				Matrix	Nitric Red	Sulfuric Yellow	Sodium Hydroxide Green	Sodium Hydroxide/ ZnAc Black
				SBS																													
				DI																													
1																																	
2																																	
3																																	
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	
11																																	
12																																	

Container Codes

Glass				Plastic			
DG9H	40mL HCl amber voa vial	BG1T	1L Na Thiosulfate clear glass	BP1B	1L NaOH plastic	BP4U	125mL unpreserved plastic
DG9P	40mL TSP amber vial	BG1U	1L unpreserved glass	BP1N	1L HNO3 plastic	BP4N	125mL HNO3 plastic
DG9S	40mL H2SO4 amber vial	CG3H	250mL HCl Clear Glass	BP1S	1L H2SO4 plastic	BP4S	125mL H2SO4 plastic
DG9T	40mL Na Thio amber vial	CG3U	250mL Unpres Clear Glass	BP1U	1L unpreserved plastic	Miscellaneous	
DG9U	40mL unpreserved amber vial	AG0U	100mL unpres amber glass	BP1Z	1L NaOH, Zn, Ac		
VG9H	40mL HCl clear vial	AG1H	1L HCl amber glass	BP2N	500mL HNO3 plastic	Syringe Kit	LL Cr+6 sampling kit
VG9T	40mL Na Thio. clear vial	AG1S	1L H2SO4 amber glass	BP2C	500mL NaOH plastic	ZPLC	Ziploc Bag
VG9U	40mL unpreserved clear vial	AG1T	1L Na Thiosulfate amber glass	BP2S	500mL H2SO4 plastic	R	Terracore Kit
I	40mL w/hexane wipe vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic	SP5T	120mL Coliform Sodium Thiosulfate
WGKU	8oz unpreserved clear jar	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Ac	GN	General Container
WGFU	4oz clear soil jar	AG2S	500mL H2SO4 amber glass	BP3B	250mL NaOH plastic	U	Summa Can (air sample)
JGFU	4oz unpreserved amber wide	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic	WT	Water
CG3H	250mL clear glass HCl	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic-field filtered	SL	Solid
CG3F	250mL clear glass HCl, Field Filter	AG3SF	250mL H2SO4 amb glass -field filtered	BP3U	250mL unpreserved plastic	OL:	Oil
BG1H	1L HCl clear glass	AG3U	250mL unpres amber glass	BP3S	250mL H2SO4 plastic	NAL	Non-aqueous liquid
BG1S	1L H2SO4 clear glass	AG3B	250mL NaOH amber glass	BP3Z	250mL NaOH, ZnAc plastic	WP	Wipe



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

July 3, 2024

Subout Team
Pace National - TN
12065 Lebanon Road
Mt. Juliet, TN 37122

Project Location: NM
Client Job Number:
Project Number: WG2308210
Laboratory Work Order Number: 24F2878

Enclosed are results of analyses for samples as received by the laboratory on June 20, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Kaitlyn A. Feliciano". The signature is fluid and cursive, with a large initial "K" and a long, sweeping underline.

Kaitlyn A. Feliciano
Project Manager

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Pace National - TN
12065 Lebanon Road
Mt. Juliet, TN 37122
ATTN: Subout Team

REPORT DATE: 7/3/2024

PURCHASE ORDER NUMBER: L1748068

PROJECT NUMBER: WG2308210

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24F2878

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: NM

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
CONCENTRATED BRINE PFAS	24F2878-01	Ground Water		Draft Method 1633	



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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

Draft Method 1633

Qualifications:

D-03

Sample diluted pre-extraction due to elevated TSS pre-analysis result.

Analyte & Samples(s) Qualified:

24F2878-01[CONCENTRATED BRINE PFAS]

H-01

Recommended sample holding time was exceeded, but analysis was performed before 2X the allowable holding time.

Analyte & Samples(s) Qualified:

Total Suspended Solids

24F2878-01[CONCENTRATED BRINE PFAS]

PF-22

Qualifier ion ratio >150% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluoropentanoic acid (PFPeA)

24F2878-01[CONCENTRATED BRINE PFAS]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is fluid and cursive, with the first name "Meghan" and last name "Kelley" clearly legible.

Meghan E. Kelley
Reporting Specialist



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: NM

Sample Description:

Work Order: 24F2878

Date Received: 6/20/2024

Field Sample #: CONCENTRATED BRINE PFA

Sampled: 6/18/2024 10:30

Sample ID: 24F2878-01

Sample Matrix: Ground Water

Sample Flags: D-03

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluoropentanoic acid (PFPeA)	ND	40	ng/L	1	PF-22	Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorohexanoic acid (PFHxA)	47	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluoroheptanoic acid (PFHpA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorooctanoic acid (PFOA)	30	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorononanoic acid (PFNA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorodecanoic acid (PFDA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluoroundecanoic acid (PFUnA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorododecanoic acid (PFDoA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorooctanesulfonic acid (PFOS)	78	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorononanesulfonic acid (PFNS)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
N-MeFOSAA (NMeFOSAA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
N-EtFOSAA (NEtFOSAA)	ND	20	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	200	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	200	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
9Cl-PF3ONS (F53B Minor)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
11Cl-PF3OUdS (F53B Major)	ND	80	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	200	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	1000	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
3-Perfluoroheptyl propanoic acid (FHPrPA) (7:3FTCA)	ND	1000	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	40	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	40	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: NM

Sample Description:

Work Order: 24F2878

Date Received: 6/20/2024

Field Sample #: CONCENTRATED BRINE PFA Sampled: 6/18/2024 10:30

Sample ID: 24F2878-01

Sample Matrix: Ground Water

Sample Flags: D-03

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	40	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	40	ng/L	1		Draft Method 1633	6/28/24	7/2/24 2:13	AMS
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
13C4-PFBA	82.5	10-130						7/2/24 2:13	
13C5-PFPeA	78.4	35-150						7/2/24 2:13	
13C5-PFHxA	80.7	55-150						7/2/24 2:13	
13C4-PFHpA	75.5	55-150						7/2/24 2:13	
13C8-PFOA	85.5	60-140						7/2/24 2:13	
13C9-PFNA	75.7	55-140						7/2/24 2:13	
13C6-PFDA	75.8	50-140						7/2/24 2:13	
13C7-PFUnA	77.2	30-140						7/2/24 2:13	
13C2-PFDoA	74.4	10-150						7/2/24 2:13	
13C2-PFTeDA	78.1	10-130						7/2/24 2:13	
13C3-PFBS	86.6	55-150						7/2/24 2:13	
13C3-PFHxS	80.8	55-150						7/2/24 2:13	
13C8-PFOS	77.5	45-140						7/2/24 2:13	
13C2-4:2FTS	62.0	60-200						7/2/24 2:13	
13C2-6:2FTS	95.0	60-200						7/2/24 2:13	
13C2-8:2FTS	57.4	50-200						7/2/24 2:13	
13C8-PFOSA	70.8	30-130						7/2/24 2:13	
D3-NMeFOSA	64.6	15-130						7/2/24 2:13	
D5-NEtFOSA	60.7	10-130						7/2/24 2:13	
D3-NMeFOSAA	78.4	45-200						7/2/24 2:13	
D5-NEtFOSAA	75.7	10-200						7/2/24 2:13	
D7-NMeFOSE	75.4	10-150						7/2/24 2:13	
D9-NEtFOSE	65.7	10-150						7/2/24 2:13	
13C3-HFPO-DA	75.8	25-160						7/2/24 2:13	

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	2000	10	mg/L	1	H-01	Draft Method 1633	6/25/24	6/25/24 13:00	LL



39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method:Draft Method 1633 Analytical Method:Draft Method 1633 Leachates were extracted on 6/25/2024 per NO PREP in Batch B378179

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24F2878-01 [CONCENTRATED BRINE PFAS]	B378029	25.0	5.00	06/28/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24F2878-01 [CONCENTRATED BRINE PFAS]	B378179	50.0	06/25/24



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

Blank (B378029-BLK1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L
Perfluorohexanoic acid (PFHxA)	ND	0.97	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	0.97	ng/L
Perfluorooctanoic acid (PFOA)	ND	0.97	ng/L
Perfluorononanoic acid (PFNA)	ND	0.97	ng/L
Perfluorodecanoic acid (PFDA)	ND	0.97	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	0.97	ng/L
Perfluorododecanoic acid (PFDoA)	ND	0.97	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	0.97	ng/L
Perfluorotetradecanoic acid (PFTeDA)	ND	0.97	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	0.97	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	0.97	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	0.97	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.97	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	0.97	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	0.97	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	0.97	ng/L
Perfluorododecanesulfonic acid (PFDoS)	ND	0.97	ng/L
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L
Perfluorooctanesulfonamide (PFOSA)	ND	0.97	ng/L
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.97	ng/L
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.97	ng/L
N-MeFOSAA (NMeFOSAA)	ND	0.97	ng/L
N-EtFOSAA (NEtFOSAA)	ND	0.97	ng/L
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.7	ng/L
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.7	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.7	ng/L
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Surrogate: 13C4-PFBA	81.2		ng/L

97.5

83.3

10-130



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

Blank (B378029-BLK1)

Prepared: 06/28/24 Analyzed: 07/01/24

Surrogate: 13C5-PFPeA	39.9		ng/L	48.7		81.8	35-150			
Surrogate: 13C5-PFHxA	19.7		ng/L	24.4		81.0	55-150			
Surrogate: 13C4-PFHpA	18.8		ng/L	24.4		77.3	55-150			
Surrogate: 13C8-PFOA	20.2		ng/L	24.4		83.0	60-140			
Surrogate: 13C9-PFNA	10.2		ng/L	12.2		83.4	55-140			
Surrogate: 13C6-PFDA	9.71		ng/L	12.2		79.7	50-140			
Surrogate: 13C7-PFUnA	9.55		ng/L	12.2		78.4	30-140			
Surrogate: 13C2-PFDoA	9.16		ng/L	12.2		75.1	10-150			
Surrogate: 13C2-PFTeDA	9.27		ng/L	12.2		76.1	10-130			
Surrogate: 13C3-PFBS	20.3		ng/L	24.4		83.5	55-150			
Surrogate: 13C3-PFHxS	19.8		ng/L	24.4		81.4	55-150			
Surrogate: 13C8-PFOS	20.3		ng/L	24.4		83.2	45-140			
Surrogate: 13C2-4:2FTS	35.9		ng/L	48.7		73.6	60-200			
Surrogate: 13C2-6:2FTS	35.7		ng/L	48.7		73.3	60-200			
Surrogate: 13C2-8:2FTS	32.8		ng/L	48.7		67.2	50-200			
Surrogate: 13C8-PFOA	18.5		ng/L	24.4		76.1	30-130			
Surrogate: D3-NMeFOSA	14.1		ng/L	24.4		58.0	15-130			
Surrogate: D5-NEtFOSA	14.4		ng/L	24.4		59.3	10-130			
Surrogate: D3-NMeFOSAA	37.9		ng/L	48.7		77.8	45-200			
Surrogate: D5-NEtFOSAA	35.5		ng/L	48.7		72.9	10-200			
Surrogate: D7-NMeFOSE	166		ng/L	244		68.0	10-150			
Surrogate: D9-NEtFOSE	146		ng/L	244		60.0	10-150			
Surrogate: 13C3-HFPO-DA	86.4		ng/L	97.5		88.6	25-160			

LCS (B378029-BS1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorobutanoic acid (PFBA)	93.2	3.9	ng/L	94.5		98.6	58-148			
Perfluoropentanoic acid (PFPeA)	46.6	2.0	ng/L	47.2		98.6	54-152			
Perfluorohexanoic acid (PFHxA)	23.5	0.98	ng/L	23.6		99.6	55-152			
Perfluoroheptanoic acid (PFHpA)	23.3	0.98	ng/L	23.6		98.5	54-154			
Perfluorooctanoic acid (PFOA)	22.7	0.98	ng/L	23.6		96.0	52-161			
Perfluorononanoic acid (PFNA)	22.9	0.98	ng/L	23.6		96.8	59-149			
Perfluorodecanoic acid (PFDA)	22.4	0.98	ng/L	23.6		94.7	52-147			
Perfluoroundecanoic acid (PFUnA)	24.4	0.98	ng/L	23.6		103	48-159			
Perfluorododecanoic acid (PFDoA)	23.4	0.98	ng/L	23.6		99.0	64-142			
Perfluorotridecanoic acid (PFTTrDA)	21.7	0.98	ng/L	23.6		91.9	49-148			
Perfluorotetradecanoic acid (PFTeDA)	23.0	0.98	ng/L	23.6		97.4	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.0	0.98	ng/L	21.0		100	62-144			
Perfluoropentanesulfonic acid (PFPeS)	21.8	0.98	ng/L	22.2		98.1	59-151			
Perfluorohexanesulfonic acid (PFHxS)	19.7	0.98	ng/L	21.6		91.0	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	22.1	0.98	ng/L	22.5		98.4	55-152			
Perfluorooctanesulfonic acid (PFOS)	20.8	0.98	ng/L	21.9		94.8	58-149			
Perfluorononanesulfonic acid (PFNS)	22.7	0.98	ng/L	22.7		99.6	52-148			
Perfluorodecanesulfonic acid (PFDS)	20.9	0.98	ng/L	22.8		91.7	51-147			
Perfluorododecanesulfonic acid (PFDoS)	18.7	0.98	ng/L	22.9		81.6	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	91.2	3.9	ng/L	88.6		103	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	95.6	3.9	ng/L	89.8		107	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	85.9	3.9	ng/L	90.9		94.5	63-152			
Perfluorooctanesulfonamide (PFOSA)	23.1	0.98	ng/L	23.6		97.8	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	23.0	0.98	ng/L	23.6		97.5	63-145			



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

LCS (B378029-BS1)

Prepared: 06/28/24 Analyzed: 07/01/24

N-ethyl perfluorooctanesulfonamide (NEtFOSA)	23.3	0.98	ng/L	23.6		98.6	65-139			
N-MeFOSAA (NMeFOSAA)	22.0	0.98	ng/L	23.6		93.0	58-144			
N-EtFOSAA (NEtFOSAA)	21.6	0.98	ng/L	23.6		91.3	59-146			
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	245	9.8	ng/L	236		104	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	246	9.8	ng/L	236		104	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	101	3.9	ng/L	94.5		107	63-144			
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	95.9	3.9	ng/L	89.2		108	68-146			
9Cl-PF3ONS (F53B Minor)	93.6	3.9	ng/L	88.6		106	56-156			
11Cl-PF3OUdS (F53B Major)	89.4	3.9	ng/L	89.2		100	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	230	9.8	ng/L	236		97.2	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1150	49	ng/L	1180		97.5	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1040	49	ng/L	1180		87.7	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	40.0	2.0	ng/L	42.0		95.1	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	44.6	2.0	ng/L	47.2		94.4	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	42.6	2.0	ng/L	47.2		90.2	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	44.2	2.0	ng/L	47.2		93.5	48-161			
Surrogate: 13C4-PFBA	80.7		ng/L	98.4		82.0	10-130			
Surrogate: 13C5-PFPeA	39.9		ng/L	49.2		81.2	35-150			
Surrogate: 13C5-PFHxA	19.7		ng/L	24.6		80.2	55-150			
Surrogate: 13C4-PFHpA	18.0		ng/L	24.6		73.3	55-150			
Surrogate: 13C8-PFOA	21.0		ng/L	24.6		85.3	60-140			
Surrogate: 13C9-PFNA	9.90		ng/L	12.3		80.5	55-140			
Surrogate: 13C6-PFDA	9.91		ng/L	12.3		80.6	50-140			
Surrogate: 13C7-PFUnA	9.20		ng/L	12.3		74.7	30-140			
Surrogate: 13C2-PFDoA	8.86		ng/L	12.3		72.0	10-150			
Surrogate: 13C2-PFTeDA	8.38		ng/L	12.3		68.1	10-130			
Surrogate: 13C3-PFBS	20.2		ng/L	24.6		81.9	55-150			
Surrogate: 13C3-PFHxS	19.8		ng/L	24.6		80.3	55-150			
Surrogate: 13C8-PFOS	19.1		ng/L	24.6		77.8	45-140			
Surrogate: 13C2-4:2FTS	36.5		ng/L	49.2		74.3	60-200			
Surrogate: 13C2-6:2FTS	36.9		ng/L	49.2		74.9	60-200			
Surrogate: 13C2-8:2FTS	35.3		ng/L	49.2		71.7	50-200			
Surrogate: 13C8-PFOSA	17.7		ng/L	24.6		72.1	30-130			
Surrogate: D3-NMeFOSA	14.5		ng/L	24.6		58.9	15-130			
Surrogate: D5-NEtFOSA	14.5		ng/L	24.6		58.9	10-130			
Surrogate: D3-NMeFOSAA	36.8		ng/L	49.2		74.7	45-200			
Surrogate: D5-NEtFOSAA	33.4		ng/L	49.2		67.8	10-200			
Surrogate: D7-NMeFOSE	157		ng/L	246		63.7	10-150			
Surrogate: D9-NEtFOSE	142		ng/L	246		57.9	10-150			
Surrogate: 13C3-HFPO-DA	77.4		ng/L	98.4		78.6	25-160			

MRL Check (B378029-MRL1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorobutanoic acid (PFBA)	7.17	3.9	ng/L	7.80		92.0	44-157			
Perfluoropentanoic acid (PFPeA)	3.52	1.9	ng/L	3.90		90.2	57-148			



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

MRL Check (B378029-MRL1)

Prepared: 06/28/24 Analyzed: 07/01/24

Perfluorohexanoic acid (PFHxA)	1.79	0.97	ng/L	1.95		91.8	62-149			
Perfluoroheptanoic acid (PFHpA)	1.69	0.97	ng/L	1.95		87.0	56-150			
Perfluorooctanoic acid (PFOA)	1.91	0.97	ng/L	1.95		98.2	57-161			
Perfluorononanoic acid (PFNA)	1.62	0.97	ng/L	1.95		83.3	53-157			
Perfluorodecanoic acid (PFDA)	1.68	0.97	ng/L	1.95		86.3	43-158			
Perfluoroundecanoic acid (PFUnA)	1.44	0.97	ng/L	1.95		73.7	50-155			
Perfluorododecanoic acid (PFDoA)	1.69	0.97	ng/L	1.95		86.5	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.62	0.97	ng/L	1.95		83.3	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.63	0.97	ng/L	1.95		83.8	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.43	0.97	ng/L	1.73		82.7	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.51	0.97	ng/L	1.83		82.6	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.53	0.97	ng/L	1.78		85.6	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.51	0.97	ng/L	1.86		81.3	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.64	0.97	ng/L	1.81		90.5	43-162			
Perfluorononanesulfonic acid (PFNS)	1.57	0.97	ng/L	1.88		83.9	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.45	0.97	ng/L	1.88		76.9	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.27	0.97	ng/L	1.89		67.4	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.50	3.9	ng/L	7.31		88.9	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.78	3.9	ng/L	7.41		91.5	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.21	3.9	ng/L	7.50		82.8	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.64	0.97	ng/L	1.95		84.4	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.77	0.97	ng/L	1.95		90.6	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.70	0.97	ng/L	1.95		87.2	49-156			
N-MeFOSAA (NMeFOSAA)	1.60	0.97	ng/L	1.95		82.3	32-160			
N-EtFOSAA (NEtFOSAA)	1.73	0.97	ng/L	1.95		88.6	51-154			
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	17.6	9.7	ng/L	19.5		90.5	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	17.5	9.7	ng/L	19.5		89.6	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.11	3.9	ng/L	7.80		91.2	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.23	3.9	ng/L	7.36		84.7	61-148			
9Cl-PF3ONS (F53B Minor)	6.11	3.9	ng/L	7.31		83.5	44-167			
11Cl-PF3OUs (F53B Major)	5.66	3.9	ng/L	7.36		77.0	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	15.6	9.7	ng/L	19.5		80.2	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)(5:3FTCA)	80.2	49	ng/L	97.5		82.3	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	73.1	49	ng/L	97.5		75.0	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	2.73	1.9	ng/L	3.47		78.7	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.20	1.9	ng/L	3.90		82.1	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.07	1.9	ng/L	3.90		78.6	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.38	1.9	ng/L	3.90		86.7	47-160			
Surrogate: 13C4-PFBA	80.9		ng/L	97.5		83.0	10-130			
Surrogate: 13C5-PFPeA	40.0		ng/L	48.7		82.1	35-150			
Surrogate: 13C5-PFHxA	19.7		ng/L	24.4		80.9	55-150			



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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B378029 - Draft Method 1633

MRL Check (B378029-MRL1)

Prepared: 06/28/24 Analyzed: 07/01/24

Surrogate: 13C4-PFHpA	18.5		ng/L	24.4		76.0	55-150			
Surrogate: 13C8-PFOA	20.6		ng/L	24.4		84.7	60-140			
Surrogate: 13C9-PFNA	9.90		ng/L	12.2		81.3	55-140			
Surrogate: 13C6-PFDA	9.72		ng/L	12.2		79.8	50-140			
Surrogate: 13C7-PFUnA	9.68		ng/L	12.2		79.4	30-140			
Surrogate: 13C2-PFDoA	8.45		ng/L	12.2		69.4	10-150			
Surrogate: 13C2-PFTeDA	8.60		ng/L	12.2		70.6	10-130			
Surrogate: 13C3-PFBS	21.3		ng/L	24.4		87.2	55-150			
Surrogate: 13C3-PFHxS	20.3		ng/L	24.4		83.2	55-150			
Surrogate: 13C8-PFOS	20.3		ng/L	24.4		83.2	45-140			
Surrogate: 13C2-4:2FTS	37.1		ng/L	48.7		76.2	60-200			
Surrogate: 13C2-6:2FTS	35.8		ng/L	48.7		73.5	60-200			
Surrogate: 13C2-8:2FTS	36.8		ng/L	48.7		75.6	50-200			
Surrogate: 13C8-PFOSA	17.4		ng/L	24.4		71.6	30-130			
Surrogate: D3-NMeFOSA	13.9		ng/L	24.4		57.2	15-130			
Surrogate: D5-NEtFOSA	14.6		ng/L	24.4		59.8	10-130			
Surrogate: D3-NMeFOSAA	39.0		ng/L	48.7		80.0	45-200			
Surrogate: D5-NEtFOSAA	32.5		ng/L	48.7		66.6	10-200			
Surrogate: D7-NMeFOSE	154		ng/L	244		63.1	10-150			
Surrogate: D9-NEtFOSE	142		ng/L	244		58.3	10-150			
Surrogate: 13C3-HFPO-DA	78.7		ng/L	97.5		80.7	25-160			



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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch B378179 - Draft Method 1633

Blank (B378179-BLK1)				Prepared & Analyzed: 06/25/24						
Total Suspended Solids	ND	5.0	mg/L							
LCS (B378179-BS1)				Prepared & Analyzed: 06/25/24						
Total Suspended Solids	207	5.0	mg/L	200		104	51.5-130			



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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
D-03	Sample diluted pre-extraction due to elevated TSS pre-analysis result.
H-01	Recommended sample holding time was exceeded, but analysis was performed before 2X the allowable holding time.
PF-22	Qualifier ion ratio >150% of associated calibration. Detection is suspect.



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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT



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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2025
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

24F2878
KAF**Sub-Contract Chain of Custody**

Batch Date/Time: 06/19/24 13:50
Sub-Contract Lab: PACEELMA
Address: 39 Spruce St
City/State: East Longmeadow, MA
01028

Contact:
elonprojectmanagers@pacelabs.com

Owner Lab: PACEMTJL
Address: 12065 Lebanon Rd.
City/State: Mt. Juliet, TN 37122
Phone: (615) 773-9756
Fax: (615) 758-5859

WO: WG2308210
Email: MTJLSuboutTeam@pacelabs.com
Results Due Date: 07/18/24
ESC Purchase Order #: L1748068
Send Reports to: James C Huckaba



12065 Lebanon Rd.
Mt. Juliet, TN 37122
Phone: (615) 773-9756
Fax: (615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
CONCENTRATED BRINE PFAS	GW	NM	06/18/24 10:30	SUBPFAS1633	2. L1748068-01	

Relinquished by: [Signature] Date 6-19-24

Received by: JP 2.3 Date 6/20/2024

Relinquished by: _____ Date _____

Received by: _____ Date _____



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DELIVERED

Thursday

6/20/24 at 10:01 AM

Signed for by: A.MULINARE

↓ Obtain proof of delivery

How was your delivery?



DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

731532056490

FROM

MOUNT JULIET, TN US

Label Created

6/19/24 4:17 PM

ON THE WAY

WINDSOR LOCKS, CT

6/20/24 7:30 AM

OUT FOR DELIVERY

WINDSOR LOCKS, CT

6/20/24 7:38 AM

DELIVERED

East Longmeadow, MA US

Delivered

6/20/24 at 10:01 AM

↓ [View travel history](#)

Want updates on this shipment? Enter your email and we will do the rest!

	DC#_ Title: ENV-FRM-ELON-0001 v08_Sample Receiving Checklist
	Effective Date: 06/11/2024

Log In Back-Sheet

Login Sample Receipt Checklist – (Rejection Criteria Listing – Using Acceptance Policy) Any False statement will be brought to the attention of the Client – True or False

Client Pace
 Project NA
 MCP/RCP Required NA
 Deliverable Package Requirement NA
 Location 12065 Lebanon Rd. A/A AB
 PWSID# (When Applicable) NA
 Arrival Method:
 Courier ☐ Fed Ex ☒ Walk In ☐ Other ☐
 Received By / Date / Time AB 6/20/24
 Back-Sheet By / Date / Time AB 6/20/24 12:10
 Temperature Method temp gun # 4
 WV samples: Yes (see note*) / No (follow normal procedure)
 Temp < 6° C Actual Temperature 2.3
 Rush Samples: Yes / ☒ No Notify _____
 Short Hold: Yes / ☒ No Notify _____

Notes regarding Samples/COC outside of SOP:

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☒	☐
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☐	☒
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH: <u>N/A</u> ☐ ☐		

Additional Container Notes

**Note: West Virginia requires all samples to have their temperature taken. Note any outliers.*



ANALYTICAL REPORT

July 18, 2024

Devon Energy - Oklahoma City, OK

Sample Delivery Group: L1748069

Samples Received: 06/19/2024

Project Number: 212C-HN-02831

Description: Desalination Pilot

Report To: Paul Barbour

333 W Sheridan Avenue

Oklahoma City, OK 73102-5015

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Entire Report Reviewed By:

A handwritten signature in blue ink that reads "Jennifer Gambill".

Jennifer Gambill

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

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
CONCENTRATED BRINE RAD L1748069-01	5	
Qc: Quality Control Summary	6	⁴ Cn
Radiochemistry by Method 900	6	⁵ Sr
Radiochemistry by Method 904/9320	7	
Radiochemistry by Method D3972 U-02	8	⁶ Qc
Radiochemistry by Method SM7500Ra B M	9	
Gl: Glossary of Terms	10	⁷ Gl
Al: Accreditations & Locations	11	⁸ Al
Sc: Sample Chain of Custody	12	⁹ Sc

CONCENTRATED BRINE RAD L1748069-01 Non-Potable Water

Collected by
Collected date/time
Received date/time

06/18/24 10:30
06/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2310835	1	06/24/24 09:04	06/27/24 16:03	ALG	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2309149	1	06/21/24 21:36	07/05/24 17:29	DDD	Mt. Juliet, TN
Radiochemistry by Method D3972 U-02	WG2315459	1	07/06/24 11:43	07/08/24 23:25	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2309111	1	06/26/24 11:05	06/28/24 14:09	ASN	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.



Jennifer Gambill
Project Manager



Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	2520		810	814	721	291	06/27/2024 16:03	WG2310835
GROSS BETA	3170		575	579	584	276	06/27/2024 16:03	WG2310835

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	814		3.20	3.30	0.549	0.289	07/05/2024 17:29	WG2309149
(T) Barium	645	C1				30.0-143	07/05/2024 17:29	WG2309149
(T) Yttrium	103					30.0-136	07/05/2024 17:29	WG2309149

Radiochemistry by Method D3972 U-02

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
URANIUM-234	0.286		0.221	0.363	0.194	0.160	07/08/2024 23:25	WG2315459
URANIUM-235	-0.0184	U	0.0369	0.179	0.194	0.160	07/08/2024 23:25	WG2315459
URANIUM-238	0.0925	U	0.161	0.303	0.262	0.194	07/08/2024 23:25	WG2315459
(T) URANIUM-232	92.9					30.0-110	07/08/2024 23:25	WG2315459

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	192		15.3	39.3	1.52	0.572	06/28/2024 14:09	WG2309111
(T) Barium-133	90.4					30.0-143	06/28/2024 14:09	WG2309111

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

L1748069-01

Method Blank (MB)

(MB) R4087325-1 06/27/24 12:35

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	0.148	U	0.445	0.666	0.272
GROSS BETA	-0.125	U	1.24	1.68	0.804

L1747966-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1747966-01 06/27/24 12:35 • (DUP) R4087325-5 06/27/24 12:35

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	185	56.7	49.2	19.8	131	52.3	52.8	21.5	34.5	0.707		20	3
GROSS BETA	160	48.3	54.7	25.8	247	51.7	54.8	25.9	42.8	1.23		20	3

Laboratory Control Sample (LCS)

(LCS) R4087325-2 06/27/24 12:35

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	14.0	93.3	80.0-120	
GROSS BETA	40.2	43.0	107	80.0-120	

L1749017-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1749017-01 06/27/24 12:35 • (MS) R4087325-3 06/27/24 12:35 • (MSD) R4087325-4 06/27/24 12:35

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	18.2	6.89	25.1	25.9	100	104	1	70.0-130			2.90		20
GROSS BETA	48.8	9.75	56.4	57.3	95.6	97.5	1	70.0-130			1.67		20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 904/9320

L1748069-01

Method Blank (MB)

(MB) R4091735-1 07/05/24 17:29

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.466		0.216	0.368	0.192
(T) Barium	90.3		90.3		
(T) Yttrium	106		106		

L1748044-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1748044-01 07/05/24 17:29 • (DUP) R4091735-5 07/05/24 17:29

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.604	0.409	0.708	0.373	0.215	0.297	0.522	0.276	94.9	0.769	U	20	3
(T) Barium	105				98.0	98.0							
(T) Yttrium	73.3				108	108							

Laboratory Control Sample (LCS)

(LCS) R4091735-2 07/05/24 17:29

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.91	98.2	80.0-120	
(T) Barium			97.1		
(T) Yttrium			87.5		

L1748527-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748527-01 07/05/24 17:29 • (MS) R4091735-3 07/05/24 17:29 • (MSD) R4091735-4 07/05/24 17:29

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.432	17.7	16.3	106	97.4	1	70.0-130			8.59		20
(T) Barium		116			106	107							
(T) Yttrium		96.0			104	103							

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R4093343-3 07/11/24 22:38

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
URANIUM-234	0.0827		0.0420	0.0375	0.0259
URANIUM-235	0.00933	U	0.0173	0.0277	0.0209
URANIUM-238	0.0260	U	0.0236	0.0277	0.0209
(T) URANIUM-232	75.9		75.9		

L1750499-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1750499-01 07/08/24 23:25 • (DUP) R4093343-2 07/08/24 23:25

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
URANIUM-234	0.386	0.359	0.371	0.306	0.545	0.517	0.644	0.450	34.2	0.253	U	20	3
URANIUM-235	0.0543	0.173	0.371	0.306	0.0411	0.198	0.450	0.353	27.6	0.0502	U	20	3
URANIUM-238	0.305	0.323	0.371	0.306	0.273	0.366	0.530	0.393	11.3	0.0672	U	20	3
(T) URANIUM-232	47.1				45.8	45.8							

Laboratory Control Sample (LCS)

(LCS) R4093343-1 07/08/24 23:25

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
URANIUM-234	5.03	5.52	110	80.0-120	
URANIUM-238	4.90	5.23	107	80.0-120	
(T) URANIUM-232			58.0		

L1748503-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1748503-01 07/12/24 15:29 • (MS) R4093343-4 07/12/24 15:29 • (MSD) R4093343-5 07/12/24 15:29

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
URANIUM-234	20.1	1.36	20.7	21.5	96.1	100	1	75.0-125			4.03		20
URANIUM-238	19.6	0.839	20.6	23.1	101	114	1	75.0-125			11.8		20
(T) URANIUM-232		82.8			85.0	82.4							

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R4087337-1 06/25/24 17:41

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	-0.0166	<u>U</u>	0.0386	0.0915	0.0614
(T) Barium-133	83.6		83.6		

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

L1748511-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1748511-03 06/25/24 17:42 • (DUP) R4087337-5 06/25/24 17:41

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	-0.0726	0.154	0.364	0.243	-0.0164	0.233	0.433	0.278	0.000	0.201	<u>U</u>	20	3
(T) Barium-133	84.3				82.8	82.8							

Laboratory Control Sample (LCS)

(LCS) R4087337-2 06/25/24 17:41

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.11	102	75.0-125	
(T) Barium-133			82.2		

L1747363-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1747363-03 06/25/24 17:41 • (MS) R4087337-3 06/25/24 17:41 • (MSD) R4087337-4 06/25/24 17:41

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	1.06	19.7	20.2	93.4	95.4	1	75.0-125			2.06		20
(T) Barium-133		86.2			81.4	81.8							

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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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
C1	Tracer recovery limits have been exceeded; values are outside upper control limits.
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Released to Imaging: 9/6/2024 10:20:04 AM

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District III
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Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 381249

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 381249
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	None	9/6/2024