

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 09, 2024

L Glazier

CGRS Inc.

1301 Academy Ct.

Fort Collins, CO 80524

RE: Impetro 909J 2024

Work Order #2402403

Enclosed are the results of analyses for samples received by Summit Scientific on 02/22/24 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie Tessier". The signature is fluid and cursive, with the first name being more prominent.

Natalie Tessier For Paul Shrewsbury
President

Send Data To:		Send Invoice To:
Client: CGRS, Inc	Project Manager: L. Glazier	Company: CGRS, Inc
Address: 1301 Academy Ct	E-Mail: lglaizer@cgrs.com, dkinnaired@cgrs.com	Project Name/Location: Impetro 909J 2024
City/State/Zip: Fort Collins, CO 80524		AFE#:
Phone: 970-493-7780	Project Name: Impetro 909J 2024	PO/Billing Codes:
Sampler Name:	Project Number: 27760	Contact: L. Glazier

				Preservative				Matrix				Analysis Requested				Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other H2SO4	Water	Soil	Air-Canister #	Other	ECMC Rule 909J			
1	CHRISTIANSON (spotted dog)	2-22	10:15	18	3	3	3	2	X				X			
2	KINCHLOE															
3	PETERSON	2-22	12:30	8	3	2	2	1	X				X			
4	WARD KINCHLOE	NO sample taken		8	3	2	2	1	X				X			
5	CAUSEY 10, 17, 20	2-22	2:00	8	3	2	2	1	X				X			
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																

Relinquished by: <u>Conner Newt</u>	Date/Time: <u>2-22 4:11</u>	Received by: <u>[Signature]</u>	Date/Time: <u>2-22 4:11</u>	TAT Business Days	Field DO	Notes: Please separate samples on individual reports and include ECMC compatible EDD + individual invoices / sample
Relinquished by: <u>52</u>	Date/Time: <u>2-22 10:30</u>	Received by: <u>[Signature]</u>	Date/Time: <u>2-22 10:30</u>	Same Day	Field EC	
				1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Standard	X Field Turb.	
Temperature Upon Receipt: <u>6.4</u>	Corrected Temperature: <u>6</u>	IR gun #:		HNO3 lot #:		

S₂

Sample Receipt Checklist

S2 Work Order# 2402403

Client: CERS Client Project ID: Impetro 909J 2024Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply) Air ☐ Soil/Solid ☐ Water ☒ Other ☐Temp (°C) 6.4Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl, HNO ₃ , H ₂ SO ₄
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS
Custodian Printed Name2/22/24
Date/Time



ANALYTICAL REPORT

July 09, 2024

Revised Report

Summit Scientific

Sample Delivery Group: L1709480

Samples Received: 02/24/2024

Project Number:

Description: 2402403-01

Report To:

REPORTS

4653 Table Mountain Drive

Golden, CO 80403

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

T. Alan Harvill

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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SAMPLE SUMMARY

CHRISTIANSON (SPOTTED DOG) L1709480-01 WW

Collected by

Collected date/time

Received date/time

02/22/24 10:15

02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2241178	1	03/06/24 16:55	03/07/24 08:33	JAC	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2015	WG2241552	1	03/07/24 09:25	03/07/24 12:59	JAC	Mt. Juliet, TN
Wet Chemistry by Method 120.1	WG2237713	1	03/01/24 17:10	03/01/24 17:10	KRB	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2236152	1	02/29/24 16:24	02/29/24 16:24	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2235114	10	02/27/24 22:15	02/27/24 22:15	GEB	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2236571	10	02/29/24 21:41	02/29/24 21:41	DLH	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG2235441	1	02/27/24 16:21	02/27/24 23:20	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2235304	1	02/28/24 10:00	02/28/24 10:00	KRB	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2236694	1	03/04/24 08:32	03/04/24 15:22	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2237497	25	03/02/24 00:18	03/02/24 00:18	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2236700	1	02/29/24 16:51	02/29/24 16:51	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2235520	1	03/01/24 06:48	03/03/24 21:51	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2235520	5	03/01/24 06:48	03/04/24 20:11	TJD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

ACCOUNT:

Summit Scientific

PROJECT:

SDG:

L1709480

DATE/TIME:

07/09/24 09:10

PAGE:

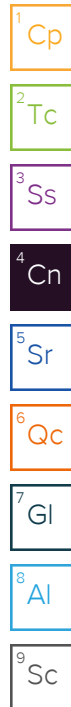
3 of 28

CASE NARRATIVE

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



T. Alan Harvill
Project Manager



Report Revision History

Level II Report - Version 1: 03/05/24 08:20

Level II Report - Version 2: 03/14/24 13:46

Project Narrative

TDS and TSS added.

Revised report issued with BTEX + Naphthalene reported by 8260D instead of 624.1 per client request.

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 (*).

<u>Lab Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L1709480-01	CHRISTIANSON (SPOTTED DOG)	300.0

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1200	T8	25.0	1	03/07/2024 08:33	WG2241178

1
Cp

2
Tc

Gravimetric Analysis by Method 2540 D-2015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Suspended Solids	16.8	T8	3.63	1	03/07/2024 12:59	WG2241552

3
Ss

4
Cn

Wet Chemistry by Method 120.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	2290		10.0	1	03/01/2024 17:10	WG2237713

5
Sr

6
Qc

Sample Narrative:

L1709480-01 WG2237713: at 25C

7
Gl

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Alkalinity	896		8.45	20.0	1	02/29/2024 16:24	WG2236152
Alkalinity,Bicarbonate	896		8.45	20.0	1	02/29/2024 16:24	WG2236152
Alkalinity,Carbonate	U		8.45	20.0	1	02/29/2024 16:24	WG2236152

8
Al

9
Sc

Sample Narrative:

L1709480-01 WG2236152: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
*Bromide	5.25	J	3.53	10.0	10	02/27/2024 22:15	WG2235114
Chloride	222		3.79	10.0	10	02/29/2024 21:41	WG2236571
Fluoride	6.48		0.640	1.50	10	02/29/2024 21:41	WG2236571
Nitrate as (N)	U	T8	0.480	1.00	10	02/27/2024 22:15	WG2235114
Nitrite as (N)	0.473	J T8	0.420	1.00	10	02/27/2024 22:15	WG2235114
Sulfate	36.4	J	5.94	50.0	10	02/27/2024 22:15	WG2235114

Sample Narrative:

L1709480-01 WG2235114: Br-, NO3-, NO2-, and SO4- BDL at 10x due to matrix/high Cl

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Phosphorus,Total	0.177		0.0350	0.100	1	02/27/2024 23:20	WG2235441

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	T8	1	02/28/2024 10:00	WG2235304

Sample Narrative:

L1709480-01 WG2235304: 8.22 at 19.3C

Metals (ICP) by Method 200.7

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.170		0.000795	0.00500	1	03/04/2024 15:22	WG2236694
Boron	0.962		0.0396	0.200	1	03/04/2024 15:22	WG2236694
Calcium	1.85		0.0473	1.00	1	03/04/2024 15:22	WG2236694
Iron	0.0867	J	0.0205	0.100	1	03/04/2024 15:22	WG2236694
Magnesium	0.568	J	0.115	1.00	1	03/04/2024 15:22	WG2236694
Manganese	0.00886	J	0.000855	0.0100	1	03/04/2024 15:22	WG2236694
Potassium	3.55		0.313	1.00	1	03/04/2024 15:22	WG2236694
Selenium	0.0108		0.00616	0.0100	1	03/04/2024 15:22	WG2236694
Sodium	558		0.444	1.00	1	03/04/2024 15:22	WG2236694
Strontium	0.111		0.000683	0.0100	1	03/04/2024 15:22	WG2236694

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.950	J	0.785	2.50	25	03/02/2024 00:18	WG2237497
(S) a,a,a-Trifluorotoluene(FID)	89.3			78.0-120		03/02/2024 00:18	WG2237497

Sample Narrative:

L1709480-01 WG2237497: Dilution due to foam.

Volatile Organic Compounds (GC/MS) by Method 624.1/8260D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00112		0.0000941	0.00100	1	02/29/2024 16:51	WG2236700
Toluene	0.000892	J	0.000278	0.00100	1	02/29/2024 16:51	WG2236700
Ethylbenzene	0.00277		0.000137	0.00100	1	02/29/2024 16:51	WG2236700
Xylenes, Total	0.00114	J	0.000174	0.00300	1	02/29/2024 16:51	WG2236700
Naphthalene	0.00936		0.00100	0.00500	1	02/29/2024 16:51	WG2236700
(S) Toluene-d8	103			80.0-120		02/29/2024 16:51	WG2236700
(S) 4-Bromofluorobenzene	123			77.0-126		02/29/2024 16:51	WG2236700
(S) 1,2-Dichloroethane-d4	95.4			70.0-130		02/29/2024 16:51	WG2236700

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.13		0.0222	0.100	1	03/03/2024 21:51	WG2235520
C28-C36 Motor Oil Range	6.05		0.0590	0.500	5	03/04/2024 20:11	WG2235520
(S) o-Terphenyl	77.9			52.0-156		03/04/2024 20:11	WG2235520
(S) o-Terphenyl	80.5			52.0-156		03/03/2024 21:51	WG2235520

Method Blank (MB)

(MB) R4043749-1 03/07/24 08:33

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

L1711443-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1711443-03 03/07/24 08:33 • (DUP) R4043749-3 03/07/24 08:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	44.0	46.0	1	4.44		10

L1712142-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1712142-01 03/07/24 08:33 • (DUP) R4043749-4 03/07/24 08:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	1040	1090	1	4.87		10

Laboratory Control Sample (LCS)

(LCS) R4043749-2 03/07/24 08:33

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8700	98.9	85.0-115	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4043033-1 03/07/24 12:59

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

L1710698-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1710698-01 03/07/24 12:59 • (DUP) R4043033-3 03/07/24 12:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	200	210	1	4.88		10

L1711999-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1711999-01 03/07/24 12:59 • (DUP) R4043033-4 03/07/24 12:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	180	174	1	3.39		10

Laboratory Control Sample (LCS)

(LCS) R4043033-2 03/07/24 12:59

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	764	98.8	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4040590-1 03/01/24 17:10

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

Sample Narrative:

BLANK: at 25C

L1709172-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1709172-05 03/01/24 17:10 • (DUP) R4040590-3 03/01/24 17:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	83300	84200	1	1.07		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1709877-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1709877-01 03/01/24 17:10 • (DUP) R4040590-4 03/01/24 17:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1550	1560	1	0.836		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4040590-2 03/01/24 17:10

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	327	330	101	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4040034-2 02/29/24 13:04

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

L1709172-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1709172-05 02/29/24 14:12 • (DUP) R4040034-3 02/29/24 14:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	274	289	1	5.47		20
Alkalinity,Bicarbonate	274	289	1	5.47		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1709473-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1709473-01 02/29/24 16:09 • (DUP) R4040034-4 02/29/24 16:14

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	1770	1760	1	0.460		20
Alkalinity,Bicarbonate	1770	1760	1	0.460		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5



Laboratory Control Sample (LCS)

(LCS) R4040034-1 02/29/24 12:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Alkalinity	100	98.6	98.6	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4039404-1 02/27/24 09:16

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.353	1.00
Nitrate as (N)	U		0.0480	0.100
Nitrite as (N)	U		0.0420	0.100
Sulfate	U		0.594	5.00

L1709142-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1709142-01 02/27/24 18:16 • (DUP) R4039404-3 02/27/24 18:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	U	U	1	0.000		15
Nitrate as (N)	U	U	1	0.000		15
Nitrite as (N)	U	U	1	0.000		15
Sulfate	113	111	1	1.47		15

L1709498-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1709498-01 02/28/24 02:15 • (DUP) R4039404-6 02/28/24 02:33

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.361	U	1	200	P1	15
Nitrate as (N)	0.103	0.0801	1	24.7	J P1	15
Nitrite as (N)	U	0.0455	1	200	J P1	15
Sulfate	340	326	1	4.10	E	15

Laboratory Control Sample (LCS)

(LCS) R4039404-2 02/27/24 09:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	39.5	98.7	90.0-110	
Nitrate as (N)	8.00	7.71	96.3	90.0-110	
Nitrite as (N)	8.00	8.33	104	90.0-110	
Sulfate	40.0	40.9	102	90.0-110	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

L1709142-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709142-01 02/27/24 18:16 • (MS) R4039404-4 02/27/24 18:52 • (MSD) R4039404-5 02/27/24 19:11

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 %
Bromide	40.0	U	42.3	40.3	106	101	1	80.0-120			4.85	15
Nitrate as (N)	8.00	U	8.53	8.15	107	102	1	80.0-120			4.63	15
Nitrite as (N)	8.00	U	9.07	8.90	113	111	1	80.0-120			1.80	15
Sulfate	40.0	113	137	137	59.3	59.1	1	80.0-120	J6	J6	0.0563	15

Sample Narrative:

- MS: SO4 spike failed due to sample matrix
- MSD: SO4 spike failed due to sample matrix

L1709498-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1709498-01 02/28/24 02:15 • (MS) R4039404-7 02/28/24 02:52

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	40.0	0.361	395	986	1	80.0-120	E J5
Nitrate as (N)	8.00	0.103	8.48	105	1	80.0-120	
Nitrite as (N)	8.00	U	8.94	112	1	80.0-120	
Sulfate	40.0	340	21.9	0.000	1	80.0-120	V

Sample Narrative:

- MS: SO4/Br spike failed due to sample matrix

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4040243-1 02/29/24 13:43

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

L1708122-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1708122-01 02/29/24 18:54 • (DUP) R4040243-3 02/29/24 19:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	151	150	1	1.10		15
Fluoride	0.748	0.736	1	1.56		15

L1709780-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1709780-14 03/01/24 00:15 • (DUP) R4040243-6 03/01/24 00:27

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	2.58	2.60	1	0.405		15
Fluoride	0.242	0.248	1	2.82		15

Laboratory Control Sample (LCS)

(LCS) R4040243-2 02/29/24 13:56

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	39.3	98.2	90.0-110	
Fluoride	8.00	8.26	103	90.0-110	

L1708122-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708122-01 02/29/24 18:54 • (MS) R4040243-4 02/29/24 19:20 • (MSD) R4040243-5 02/29/24 19:33

	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	%	%		%			%	%
Chloride	40.0	151	172	162	51.5	26.4	1	80.0-120	J6	J6	6.02	15
Fluoride	8.00	0.748	9.10	9.11	104	105	1	80.0-120			0.213	15

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1709780-14 Original Sample (OS) • Matrix Spike (MS)

(OS) L1709780-14 03/01/24 00:15 • (MS) R4040243-7 03/01/24 00:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	40.0	2.58	41.4	97.0	1	80.0-120	
Fluoride	8.00	0.242	8.41	102	1	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4039041-1 02/27/24 23:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Phosphorus,Total	U		0.0350	0.100

L1709394-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1709394-02 02/27/24 23:08 • (DUP) R4039041-3 02/27/24 23:09

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	3.72	3.73	1	0.268		20

L1709357-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1709357-01 02/27/24 23:25 • (DUP) R4039041-6 02/27/24 23:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	10.1	10.7	5	5.80		20

Laboratory Control Sample (LCS)

(LCS) R4039041-2 02/27/24 23:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phosphorus,Total	1.81	1.84	102	85.0-115	

L1709461-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709461-02 02/27/24 23:10 • (MS) R4039041-4 02/27/24 23:11 • (MSD) R4039041-5 02/27/24 23:15

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 %
Phosphorus,Total	2.50	0.0527	1.05	1.06	39.9	40.3	1	90.0-110	J6	J6	0.948	20

Sample Narrative:

- MS: spike failed due to sample matrix
- MSD: spike failed due to sample matrix

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1709576-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1709576-01 02/28/24 10:00 • (DUP) R4039169-3 02/28/24 10:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.75	7.73	1	0.258		1

Sample Narrative:
OS: 7.75 at 19.3C
DUP: 7.73 at 19.6C

Laboratory Control Sample (LCS)

(LCS) R4039169-1 02/28/24 10:00

	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: 10.01 at 20.4C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4041312-1 03/04/24 14:32

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Barium	U		0.000795	0.00500
Boron	U		0.0396	0.200
Calcium	U		0.0473	1.00
Iron	U		0.0205	0.100
Magnesium	U		0.115	1.00
Manganese	U		0.000855	0.0100
Potassium	U		0.313	1.00
Selenium	U		0.00616	0.0100
Sodium	U		0.444	1.00
Strontium	U		0.000683	0.0100

Laboratory Control Sample (LCS)

(LCS) R4041312-2 03/04/24 14:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	1.00	1.05	105	85.0-115	
Boron	1.00	1.04	104	85.0-115	
Calcium	10.0	10.5	105	85.0-115	
Iron	10.0	10.5	105	85.0-115	
Magnesium	10.0	10.6	106	85.0-115	
Manganese	1.00	1.09	109	85.0-115	
Potassium	10.0	10.4	104	85.0-115	
Selenium	1.00	1.07	107	85.0-115	
Sodium	10.0	10.1	101	85.0-115	
Strontium	1.00	1.06	106	85.0-115	

L1709430-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709430-02 03/04/24 14:37 • (MS) R4041312-4 03/04/24 14:43 • (MSD) R4041312-5 03/04/24 14:45

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 %
Barium	1.00	0.0244	1.07	1.03	104	101	1	70.0-130			3.07	20
Boron	1.00	0.172	1.24	1.20	107	103	1	70.0-130			3.43	20
Calcium	10.0	61.4	73.3	66.9	119	54.9	1	70.0-130		V	9.15	20
Iron	10.0	0.0588	10.5	10.3	105	102	1	70.0-130			2.45	20
Magnesium	10.0	12.9	23.4	21.9	105	90.3	1	70.0-130			6.65	20
Manganese	1.00	0.0222	1.11	1.08	109	106	1	70.0-130			2.95	20
Potassium	10.0	11.4	21.6	20.3	102	88.9	1	70.0-130			6.33	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1709430-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709430-02 03/04/24 14:37 • (MS) R4041312-4 03/04/24 14:43 • (MSD) R4041312-5 03/04/24 14:45

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 %
Selenium	1.00	U	1.09	1.06	109	106	1	70.0-130			3.00	20
Sodium	10.0	42.0	53.1	48.1	111	61.3	1	70.0-130		V	9.76	20
Strontium	1.00	0.133	1.21	1.16	108	103	1	70.0-130			3.96	20

L1710219-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1710219-01 03/04/24 14:48 • (MS) R4041312-6 03/04/24 14:51 • (MSD) R4041312-7 03/04/24 14:54

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 %
Barium	1.00	0.00117	1.04	1.02	104	102	1	70.0-130			1.54	20
Boron	1.00	0.0663	1.14	1.12	108	105	1	70.0-130			1.97	20
Calcium	10.0	2.51	13.0	13.0	105	105	1	70.0-130			0.412	20
Iron	10.0	0.651	11.3	11.2	106	105	1	70.0-130			1.08	20
Magnesium	10.0	0.639	11.2	11.2	106	105	1	70.0-130			0.617	20
Manganese	1.00	0.301	1.44	1.42	114	112	1	70.0-130			1.36	20
Potassium	10.0	122	137	141	148	189	1	70.0-130	V	V	2.96	20
Selenium	1.00	U	1.13	1.12	113	112	1	70.0-130			0.859	20
Sodium	10.0	466	494	513	286	471	1	70.0-130	V	V	3.68	20
Strontium	1.00	0.00335	1.09	1.08	108	107	1	70.0-130			0.863	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4041018-2 03/01/24 16:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH (GC/FID) Low Fraction	U		0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	90.7			78.0-120

Laboratory Control Sample (LCS)

(LCS) R4041018-1 03/01/24 13:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.09	102	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	78.0-120	

L1709094-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709094-18 03/01/24 21:30 • (MS) R4041018-3 03/02/24 01:10 • (MSD) R4041018-4 03/02/24 02:00

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 %
TPH (GC/FID) Low Fraction	5.00	U	3.19	3.84	63.8	76.8	1	10.0-160			18.5	22
(S) a,a,a-Trifluorotoluene(FID)					91.1	92.8		78.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4040374-5 02/29/24 12:24

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Toluene	U		0.000278	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
(S) Toluene-d8	104			80.0-120
(S) 4-Bromofluorobenzene	99.2			77.0-126
(S) 1,2-Dichloroethane-d4	98.3			70.0-130

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

(LCS) R4040374-1 02/29/24 10:42 • (LCSD) R4040374-2 02/29/24 11:03

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	0.00564	0.00531	113	106	70.0-123			6.03	20
Ethylbenzene	0.00500	0.00490	0.00475	98.0	95.0	79.0-123			3.11	20
Toluene	0.00500	0.00491	0.00476	98.2	95.2	79.0-120			3.10	20
Xylenes, Total	0.0150	0.0145	0.0139	96.7	92.7	79.0-123			4.23	20
Naphthalene	0.00500	0.00497	0.00448	99.4	89.6	54.0-135	J	J	10.4	20
(S) Toluene-d8				100	102	80.0-120				
(S) 4-Bromofluorobenzene				98.8	101	77.0-126				
(S) 1,2-Dichloroethane-d4				95.7	94.3	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4041026-1 03/03/24 14:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
C10-C28 Diesel Range	U		0.0222	0.100
C28-C36 Motor Oil Range	U		0.0118	0.100
(S) o-Terphenyl	74.0			52.0-156

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

(LCS) R4041026-2 03/03/24 14:25 • (LCSD) R4041026-3 03/03/24 14:47

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 %
C10-C28 Diesel Range	1.50	1.42	1.44	94.7	96.0	50.0-150			1.40	20
(S) o-Terphenyl				77.0	74.0	52.0-156				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

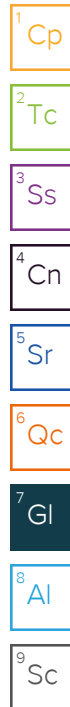
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

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[illegible]

17094880

j. Produced Water Quality Analyses. Beginning January 15, 2021, Operators will submit an initial water quality analysis for produced water for each Well from which produced water is placed into a permitted or registered Pit, including Pits that were constructed prior to January 15, 2021.

(1) The water sample will be analyzed for the following:

- A. pH;
- B. Specific conductance;
- C. Total dissolved and suspended solids (TDS and TSS);
- D. Alkalinity (total, bicarbonate, and carbonate as CaCO_3);
- E. Major anions (bromide, chloride, fluoride, sulfate, nitrate and nitrite as N, and phosphorus);
- F. Major cations (calcium, iron, magnesium, manganese, potassium, and sodium);
- G. Other elements (barium, boron, selenium, and strontium);
- H. Naphthalene;
- I. Total petroleum hydrocarbons ("TPH") as total volatile hydrocarbons (C_6 to C_{10}) and total extractable hydrocarbons (C_{10} to C_{36});
- J. BTEX compounds (benzene, toluene, ethylbenzene, and xylenes); and
- K. Radium (^{226}Ra and ^{228}Ra).

2/24-NCF-SUMSCIGCO

R5

Time estimate: 0h

Time spent: 0h

Members

 Hailey Robertson (responsible)  Alan Harvill

Due on 28 February 2024 8:00 AM 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:2/26/24 8:53
- ☒ PM initials: TAH
- ☐ Client Contact: _____

Comments

Hailey Robertson	24 February 2024 12:28 PM
What analysis is needed for the attached COCs?	
For ID: Peterson we received (1-1L AMB, 2-1L HDPE, 1-500ml HDPE, 3-40ml HCL, 1-250 H2SO4)	
For ID: Christianson we received (4-500ml HDPE, 3-40ml HCL, 1-250 H2SO4)	
For ID: Causey we received (3-40ml HCL, 3-1L HDPE, 1-1L AMB, 1-250 H2SO4)	
Alan Harvill	26 February 2024 8:53 AM
pH, SPCON, ALK, ALKBI, ALKCA, BROMIDE, CHLORIDE, FLUORIDE, SULFATE, NITRATE, NITRITE, PT, CAICP, FEICP, MNICP, MGICP, KICP, NAICP, BAICP, BICP, SEICP, SRICP, GRO, DROMM, V624, IBTEXn, RA226, RA228,	

Hailey Robertson

27 February 2024 1:50 PM

NON-RAD - L1709473, L1709480, L1709485

RAD - L1709472, L1709481, L1709486

Summit Scientific

Sample Delivery Group: L1709481
Samples Received: 02/24/2024
Project Number:
Description: 2402403-02

Report To: REPORTS
4653 Table Mountain Drive
Golden, CO 80403

Entire Report Reviewed By:



T. Alan Harvill
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 National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

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Sr: Sample Results	5	³ Ss
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		⁹ Sc

SAMPLE SUMMARY

CHRISTIANSON (SPOTTED DOG) L1709481-01 Non-Potable Water

Received date/time

02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2242277	1	03/08/24 23:18	03/15/24 15:41	SNR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2239607	1	03/05/24 12:37	03/07/24 17:11	ZRG	Mt. Juliet, TN

 ${}^9\text{Sc}$

CASE NARRATIVE

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



T. Alan Harvill
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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	1.35		0.455	1.53	0.806	0.428	03/15/2024 15:41	WG2242277
(T) Barium	124					30.0-143	03/15/2024 15:41	WG2242277
(T) Yttrium	111					30.0-136	03/15/2024 15:41	WG2242277

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	0.356		0.274	0.117	0.301	0.213	03/07/2024 17:11	WG2239607
(T) Barium-133	87.7					30.0-143	03/07/2024 17:11	WG2239607

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4047105-1 03/15/24 15:41

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.0551	<u>U</u>	0.166	0.310	0.163
(T) Barium	135		135		
(T) Yttrium	103		103		

L1710316-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1710316-01 03/15/24 15:41 • (DUP) R4047105-5 03/15/24 15:41

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-228	1.21	0.275	0.470	0.250	0.811	0.258	0.455	0.242	39.5	1.06		20	3
(T) Barium	136				143	143							
(T) Yttrium	108				111	111							

Laboratory Control Sample (LCS)

(LCS) R4047105-2 03/15/24 15:41

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.07	101	80.0-120	
(T) Barium			118		
(T) Yttrium			115		

L1710323-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1710323-03 03/15/24 15:41 • (MS) R4047105-3 03/15/24 15:41 • (MSD) R4047105-4 03/15/24 15:41

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-228	16.7	1.64	19.8	21.2	109	117	1	70.0-130			4.02		20
(T) Barium		133			140	122							
(T) Yttrium		122			104	115							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4047651-1 03/07/24 17:11

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0192	<u>U</u>	0.0376	0.0633	0.0461
(T) Barium-133	88.5		88.5		

L1708671-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1708671-06 03/07/24 17:11 • (DUP) R4047651-5 03/07/24 17:11

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	0.767	0.363	0.298	0.206	0.960	0.407	0.203	0.168	22.3	0.353		20	3
(T) Barium-133	92.1				81.5	81.5							

Laboratory Control Sample (LCS)

(LCS) R4047651-2 03/07/24 17:11

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	4.71	94.2	80.0-120	
(T) Barium-133			83.5		

L1708671-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708671-01 03/07/24 17:11 • (MS) R4047651-3 03/07/24 17:11 • (MSD) R4047651-4 03/07/24 17:11

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	1.34	24.5	20.9	116	97.5	1	75.0-125			16.1		20
(T) Barium-133		75.1			74.8	87.0							

1

Cp

2

Tc

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Ss

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Cn

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Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

U	Below Detectable Limits: Indicates that the analyte was not detected.
---	---

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

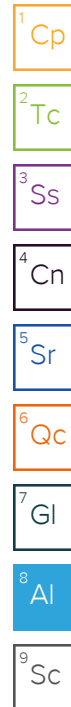
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
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[illegible]

L1709480

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- F. Major cations (calcium, iron, magnesium, manganese, potassium, and sodium);
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- H. Naphthalene;
- I. Total petroleum hydrocarbons ("TPH") as total volatile hydrocarbons (C_6 to C_{10}) and total extractable hydrocarbons (C_{10} to C_{36});
- J. BTEX compounds (benzene, toluene, ethylbenzene, and xylenes); and
- K. Radium (^{226}Ra and ^{228}Ra).

2/24-NCF-SUMSCIGCO

R5

Time estimate: 0h

Time spent: 0h

Members

 Hailey Robertson (responsible)  Alan Harvill

Due on 28 February 2024 8:00 AM for target Done

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- ☐ If no COC: Tracking #: _____
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- ☐ Client informed by Email
- ☐ Client informed by Voicemail
- ☒ Date/Time: 2/26/24 8:53
- ☒ PM initials: TAH
- ☐ Client Contact: _____

Comments

Hailey Robertson

24 February 2024 12:28 PM

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For ID: Causey we received (3-40ml HCL, 3-1L HDPE, 1-1L AMB, 1-250 H2SO4)

Alan Harvill

26 February 2024 8:53 AM

pH, SPCON, ALK, ALKBI, ALKCA, BROMIDE, CHLORIDE, FLUORIDE, SULFATE, NITRATE, NITRITE, PT, CAICP, FEICP, MNICP, MGICP, KICP, NAICP, BAICP, BICP, SEICP, SRICP, GRO, DROMM, V624, IBTEXn, RA226, RA228,

Hailey Robertson

27 February 2024 1:50 PM

NON-RAD - L1709473, L1709480, L1709485

RAD - L1709472, L1709481, L1709486



Project:

Project Number:

Project Manager:

Reported:

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference