

Quandary Consultants

Sample Delivery Group: L1343666

Samples Received: 04/24/2021

Project Number:

Description:

Report To: Asher Weinberg
55 E. 4th Avenue
Denver, CO 80203

Entire Report Reviewed By:



Jordan N Zito
Project Manager

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Pace Analytical National

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

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¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

SAMPLE SUMMARY

LOCHBUIE 0429137 L1343666-01 GW

Collected by:
 Collected date/time: 04/22/21 13:43
 Received date/time: 04/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method BART	WG1659740	1	05/06/21 09:15	05/06/21 09:15	BPS	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1661111	1	04/29/21 09:36	04/29/21 12:27	CAT	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1661958	1	05/01/21 13:49	05/01/21 13:49	ARD	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1664978	2	05/11/21 18:52	05/11/21 18:52	JER	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1664523	1	04/29/21 20:12	05/05/21 08:18	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1660932	1	04/29/21 06:39	04/29/21 06:39	AMH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1661628	1	05/02/21 20:25	05/02/21 20:25	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1661628	5	05/02/21 20:43	05/02/21 20:43	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1667339	1	05/10/21 23:11	05/11/21 08:25	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1660167	1	04/29/21 07:41	04/29/21 07:41	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1660703	1	04/29/21 13:25	04/29/21 13:25	DAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1662409	1	05/01/21 10:50	05/02/21 11:34	TJD	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 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 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.

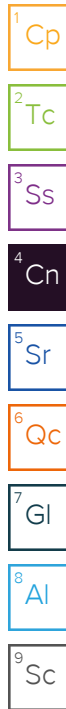


Jordan N Zito
Project Manager

Project Narrative

The following reactions were observed on one or more samples within this SDG.

- BR Brown Ring
- FO Foam
- SR Slime Ring around Ball
- PB Pale Blue Glow in UV Light



Microbiology by Method BART

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Iron Related Bacteria	Present		1	05/06/2021 09:15	WG1659740
Slime Forming Bacteria	Present		1	05/06/2021 09:15	WG1659740
Sulfate Reducing Bacteria	Absent		1	05/06/2021 09:15	WG1659740

Sample Narrative:

L1343666-01 WG1659740: IRB Approximate Population=9,000 CFU/mL. Reactions=FO/BR.
 L1343666-01 WG1659740: SLYM Approximate Population=13,000 CFU/mL. Reactions=SR/PB.

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	643		13.3	1	04/29/2021 12:27	WG1661111

Wet Chemistry by Method 2320 B-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	214		20.0	1	05/01/2021 13:49	WG1661958
Alkalinity,Carbonate	ND		20.0	1	05/01/2021 13:49	WG1661958

Sample Narrative:

L1343666-01 WG1661958: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 353.2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	6.34		0.200	2	05/11/2021 18:52	WG1664978

Wet Chemistry by Method 365.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Phosphorus>Total	ND		0.100	1	05/05/2021 08:18	WG1664523

Wet Chemistry by Method 9050A

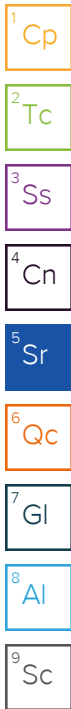
Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	110		10.0	1	04/29/2021 06:39	WG1660932

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	ND		1.00	1	05/02/2021 20:25	WG1661628
Chloride	123		5.00	5	05/02/2021 20:43	WG1661628
Fluoride	1.39		0.150	1	05/02/2021 20:25	WG1661628
Sulfate	174		25.0	5	05/02/2021 20:43	WG1661628

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.0852		0.00500	1	05/11/2021 08:25	WG1667339
Boron	1.32		0.200	1	05/11/2021 08:25	WG1667339
Calcium	71.8		1.00	1	05/11/2021 08:25	WG1667339
Iron	4.42		0.100	1	05/11/2021 08:25	WG1667339



Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Magnesium	41.5		1.00	1	05/11/2021 08:25	WG1667339
Manganese	0.547		0.0100	1	05/11/2021 08:25	WG1667339
Potassium	3.76		2.00	1	05/11/2021 08:25	WG1667339
Selenium	ND		0.0100	1	05/11/2021 08:25	WG1667339
Sodium	88.8	<u>V</u>	3.00	1	05/11/2021 08:25	WG1667339
Strontium	1.74		0.0100	1	05/11/2021 08:25	WG1667339

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

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.000500	1	04/29/2021 07:41	WG1660167
Toluene	ND		0.00100	1	04/29/2021 07:41	WG1660167
Ethylbenzene	ND		0.000500	1	04/29/2021 07:41	WG1660167
Total Xylene	ND		0.00150	1	04/29/2021 07:41	WG1660167
TPH (GC/FID) Low Fraction	ND		0.100	1	04/29/2021 07:41	WG1660167
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	99.7		78.0-120		04/29/2021 07:41	WG1660167
(S) <i>a,a,a</i> -Trifluorotoluene(PID)	106		79.0-125		04/29/2021 07:41	WG1660167

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Methane	ND		0.0100	1	04/29/2021 13:25	WG1660703
Ethane	ND		0.0130	1	04/29/2021 13:25	WG1660703
Propane	ND		0.0190	1	04/29/2021 13:25	WG1660703

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		0.100	1	05/02/2021 11:34	WG1662409
C28-C40 Oil Range	ND		0.100	1	05/02/2021 11:34	WG1662409
(S) <i>o</i> -Terphenyl	65.8		52.0-156		05/02/2021 11:34	WG1662409

Method Blank (MB)

(MB) R3648525-1 04/29/21 12:27

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

¹Cp

²Tc

³Ss

L1343547-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1343547-01 04/29/21 12:27 • (DUP) R3648525-3 04/29/21 12:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	803	805	1	0.331		5

⁴Cn

⁵Sr

L1343547-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1343547-02 04/29/21 12:27 • (DUP) R3648525-4 04/29/21 12:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	737	739	1	0.182		5

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3648525-2 04/29/21 12:27

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8730	99.2	77.4-123	

⁹Sc

Method Blank (MB)

(MB) R3649151-1 05/01/21 10:06

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

Sample Narrative:

BLANK: Endpoint pH 4.5

L1343605-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1343605-14 05/01/21 10:37 • (DUP) R3649151-3 05/01/21 10:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Alkalinity,Bicarbonate	ND	ND	1	31.4		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1343642-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1343642-04 05/01/21 12:56 • (DUP) R3649151-6 05/01/21 13:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Alkalinity,Bicarbonate	31.5	30.6	1	2.86		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3653138-1 05/11/21 18:42

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

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3653138-3 05/11/21 18:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	ND	ND	1	0.933		20

L1345353-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1345353-01 05/11/21 19:35 • (DUP) R3653138-7 05/11/21 19:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3653138-2 05/11/21 18:43

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Nitrate-Nitrite	2.50	2.60	104	90.0-110	

L1342935-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1342935-03 05/11/21 18:48 • (MS) R3653138-4 05/11/21 18:50 • (MSD) R3653138-5 05/11/21 18:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Nitrate-Nitrite	2.50	ND	2.35	2.43	90.8	94.0	1	90.0-110			3.35	20

L1345353-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1345353-02 05/11/21 19:14 • (MS) R3653138-6 05/11/21 19:15

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Nitrate-Nitrite	2.50	0.202	2.45	89.9	1	90.0-110	J6

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3650419-1 05/05/21 07:46

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

¹Cp

²Tc

³Ss

L1343518-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1343518-01 05/05/21 07:50 • (DUP) R3650419-3 05/05/21 07:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Phosphorus,Total	ND	ND	1	200	P1	20

⁴Cn

⁵Sr

Laboratory Control Sample (LCS)

(LCS) R3650419-2 05/05/21 07:47

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Phosphorus,Total	3.16	2.89	91.6	81.2-118	

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3647987-1 04/29/21 06:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Specific Conductance	U		10.0	10.0

¹Cp

²Tc

³Ss

L1341525-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1341525-02 04/29/21 06:39 • (DUP) R3647987-3 04/29/21 06:39

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	1270	1270	1	0.0788		20

⁴Cn

⁵Sr

L1343666-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1343666-01 04/29/21 06:39 • (DUP) R3647987-4 04/29/21 06:39

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	1110	1110	1	0.271		20

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3647987-2 04/29/21 06:39

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	741	743	100	85.0-115	

⁹Sc

Method Blank (MB)

(MB) R3649563-1 05/02/21 13:27

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Bromide	U		0.353	1.00
Chloride	U		0.379	1.00
Fluoride	U		0.0640	0.150
Sulfate	U		0.594	5.00

L1344197-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1344197-09 05/02/21 15:21 • (DUP) R3649563-3 05/02/21 15:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Bromide	ND	ND	1	0.000		15
Chloride	5.51	5.48	1	0.580		15
Fluoride	ND	ND	1	0.000		15
Sulfate	15.7	15.8	1	0.114		15

L1344070-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1344070-01 05/02/21 21:00 • (DUP) R3649563-6 05/02/21 21:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Bromide	ND	ND	1	0.000		15
Chloride	8.76	8.83	1	0.785		15
Fluoride	0.489	0.493	1	0.754		15
Sulfate	14.5	14.8	1	2.14		15

Laboratory Control Sample (LCS)

(LCS) R3649563-2 05/02/21 13:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Bromide	40.0	40.0	99.9	80.0-120	
Chloride	40.0	39.8	99.6	80.0-120	
Fluoride	8.00	8.06	101	80.0-120	
Sulfate	40.0	39.8	99.4	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1343391-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1343391-01 05/02/21 17:08 • (MS) R3649563-4 05/02/21 17:26 • (MSD) R3649563-5 05/02/21 18:19

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	50.0	ND	52.0	52.6	104	105	1	80.0-120			1.06	15
Chloride	50.0	18.2	70.9	71.0	105	106	1	80.0-120			0.174	15
Fluoride	5.00	ND	5.43	5.43	107	107	1	80.0-120			0.0387	15
Sulfate	50.0	20.6	75.0	75.9	109	111	1	80.0-120			1.18	15

L1345463-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1345463-01 05/03/21 00:35 • (MS) R3649563-7 05/03/21 01:29

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	ND	46.5	93.0	1	80.0-120	
Chloride	50.0	22.8	73.9	102	1	80.0-120	
Fluoride	5.00	0.720	6.03	106	1	80.0-120	
Sulfate	50.0	507	542	70.1	1	80.0-120	<u>E.V</u>

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

Method Blank (MB)

(MB) R3652988-1 05/11/21 08:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Barium	U		0.000736	0.00500
Boron	U		0.0200	0.200
Calcium	U		0.0793	1.00
Iron	U		0.0180	0.100
Magnesium	U		0.0853	1.00
Manganese	U		0.000934	0.0100
Potassium	U		0.261	2.00
Selenium	U		0.00735	0.0100
Sodium	U		0.504	3.00
Strontium	U		0.000640	0.0100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R3652988-2 05/11/21 08:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	1.00	0.997	99.7	80.0-120	
Boron	1.00	0.962	96.2	80.0-120	
Calcium	10.0	9.64	96.4	80.0-120	
Iron	10.0	9.54	95.4	80.0-120	
Magnesium	10.0	9.81	98.1	80.0-120	
Manganese	1.00	0.930	93.0	80.0-120	
Potassium	10.0	9.24	92.4	80.0-120	
Selenium	1.00	0.941	94.1	80.0-120	
Sodium	10.0	9.50	95.0	80.0-120	
Strontium	1.00	0.968	96.8	80.0-120	

⁷Gl

⁸Al

⁹Sc

L1343666-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1343666-01 05/11/21 08:25 • (MS) R3652988-4 05/11/21 08:31 • (MSD) R3652988-5 05/11/21 08:33

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	0.0852	1.08	1.07	99.7	98.7	1	75.0-125			0.853	20
Boron	1.00	1.32	2.25	2.24	93.2	92.4	1	75.0-125			0.379	20
Calcium	10.0	71.8	80.4	79.9	85.6	80.6	1	75.0-125			0.617	20
Iron	10.0	4.42	13.8	13.8	94.2	93.5	1	75.0-125			0.512	20
Magnesium	10.0	41.5	50.5	50.2	90.1	86.5	1	75.0-125			0.708	20
Manganese	1.00	0.547	1.47	1.46	92.2	91.2	1	75.0-125			0.642	20
Potassium	10.0	3.76	13.0	12.9	92.3	91.7	1	75.0-125			0.437	20

L1343666-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1343666-01 05/11/21 08:25 • (MS) R3652988-4 05/11/21 08:31 • (MSD) R3652988-5 05/11/21 08:33

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	ND	1.00	0.986	100	98.6	1	75.0-125			1.45	20
Sodium	10.0	88.8	96.0	95.6	71.2	67.3	1	75.0-125	√	√	0.410	20
Strontium	1.00	1.74	2.68	2.65	94.4	91.7	1	75.0-125			0.991	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3648396-3 04/29/21 01:05

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Benzene	U		0.000190	0.000500
Toluene	U		0.000412	0.00100
Ethylbenzene	U		0.000160	0.000500
Total Xylene	U		0.000510	0.00150
TPH (GC/FID) Low Fraction	U		0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	99.7			78.0-120
(S) a,a,a-Trifluorotoluene(PID)	105			79.0-125

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

Laboratory Control Sample (LCS)

(LCS) R3648396-1 04/28/21 23:50

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Benzene	0.0500	0.0466	93.2	77.0-122	
Toluene	0.0500	0.0461	92.2	80.0-121	
Ethylbenzene	0.0500	0.0499	99.8	80.0-123	
Total Xylene	0.150	0.142	94.7	47.0-154	
(S) a,a,a-Trifluorotoluene(FID)			99.2	78.0-120	
(S) a,a,a-Trifluorotoluene(PID)			104	79.0-125	

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3648396-2 04/29/21 00:12

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
TPH (GC/FID) Low Fraction	5.50	5.01	91.1	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			110	78.0-120	
(S) a,a,a-Trifluorotoluene(PID)			119	79.0-125	

Method Blank (MB)

(MB) R3648269-2 04/29/21 11:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Methane	U		0.00291	0.0100
Ethane	U		0.00407	0.0130
Propane	U		0.00548	0.0190

L1343583-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1343583-20 04/29/21 12:58 • (DUP) R3648269-3 04/29/21 13:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Methane	1.79	1.85	1	3.30		20
Ethane	ND	ND	1	10.3		20
Propane	ND	ND	1	0.000		20

L1343729-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1343729-01 04/29/21 13:53 • (DUP) R3648269-4 04/29/21 14:34

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

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

(LCS) R3648269-1 04/29/21 11:32 • (LCSD) R3648269-5 04/29/21 14:39

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Methane	0.0678	0.0632	0.0626	93.2	92.3	85.0-115			0.954	20
Ethane	0.129	0.123	0.122	95.3	94.6	85.0-115			0.816	20
Propane	0.186	0.178	0.177	95.7	95.2	85.0-115			0.563	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3649294-1 05/02/21 08:36

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-C40 Oil Range	U		0.0118	0.100
(S) o-Terphenyl	71.0			52.0-156

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

(LCS) R3649294-2 05/02/21 09:02 • (LCSD) R3649294-3 05/02/21 09:27

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	1.63	1.64	109	109	50.0-150			0.612	20
(S) o-Terphenyl				103	105	52.0-156				

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

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

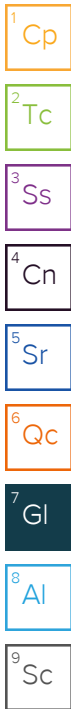
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
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.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Quandary Consultants
 55 E. 4th Ave.
 Denver, CO 80203

Billing Information:
 55 E. 4th Ave.
 Denver, CO 80203

Report to:
Erin Bailey

Email To:
ebailey@quandaryconsultants.com

Project Description: _____ City/State Collected: _____

Client Project # _____ Lab Project # _____

Site/Facility ID # _____ P.O. # _____

Quote # _____

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 _____

Immediately Packed on Ice N ___ Y ___

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	SPCON, pH - 250ml HDPE No Pres	TDS - 250ml HDPE No Pres	RKS-175 (2) 40ml Amber w/HCl	ALKBI, ALKCA - 250ml HDPE No Pres	Br,Cl,FI,SO4 - 250ml HDPE No Pres	NO2NO3 - 250ml HDPE w/H2SO4	PT - 250ml HDPE w/H2SO4	*Total Metals - 250ml HDPE w/HNO3	IRB,SRB,SLYM - Microbiological	BTEX/GRO/DRO/ORO (6) 40ml Amber w/H ₂ O
Lochbuie 0429137	Grab			4/22/21	13:43	16	X	X	X	X	X	X	X	X	X	X

Remarks: ***Ca,Fe,Mg,Mn,K,Sr,Ba,Bo,Se,Na**

Samples returned via: ___ UPS ___ FedEx ___ Courier

Tracking # **9883 0089 2243**

Relinquished by: (Signature) _____ Date: 4/22/21 Time: 14:33

Received by: (Signature) _____ Trip Blank Received: Yes No
 HCL / MeOH
 TBR

Relinquished by: (Signature) _____ Date: 4/23/21 Time: 1730

Received by: (Signature) _____ Temp: 22.6°C Bottles Received: 16

Relinquished by: (Signature) _____ Date: 4/24/21 Time: 930

Received for lab by: (Signature) _____ Hold: _____ Condition: NCF OK

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical
 National Center for Testing & Innovation

12065 Lebanon Rd
 Mount Juliet, TN 37122
 Phone: 615-758-5858
 Phone: 800-767-5859
 Fax: 615-758-5859

L# **1343666**
F060

Acctnum: **QUACONDCO**

Template: _____

Prelogin: _____

TSR: _____

PB: _____

Shipped Via: _____

Remarks _____ Sample # (lab only) _____