

Cascade Corporation- Fairview, OR

Sample Delivery Group: L1629172
Samples Received: 06/23/2023
Project Number: PNG0564S23/03
Description: Cascade
Site: CASCADE
Report To: Cindy Bartlett
2201 NE 201st Avenue
Fairview, OR 97024-9718

Entire Report Reviewed By:



Kelly Mercer
Project Manager

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Pace Analytical National

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

SAMPLE SUMMARY

IDW-SS-062223 L1629172-01 Solid

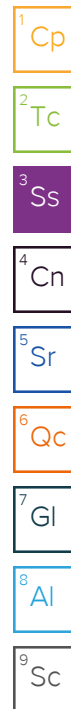
Collected by Lucas Henry
Collected date/time 06/22/23 10:12
Received date/time 06/23/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2084294	1	06/26/23 15:02	06/26/23 15:08	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2084170	1	07/05/23 09:12	07/06/23 10:14	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2083716	1	06/24/23 08:54	07/06/23 00:09	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2086602	45	06/22/23 10:12	06/30/23 05:51	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2087967	1	06/22/23 10:12	07/01/23 14:50	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2085573	1	06/29/23 06:55	06/29/23 11:08	JAS	Mt. Juliet, TN

TRIPBLANK-062223 L1629172-02 GW

Collected by Lucas Henry
Collected date/time 06/22/23 10:15
Received date/time 06/23/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2087920	1	07/01/23 12:30	07/01/23 12:30	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2088743	1	07/03/23 15:07	07/03/23 15:07	ACG	Mt. Juliet, TN



ACCOUNT:

Cascade Corporation- Fairview, OR

PROJECT:

PNG0564S23/03

SDG:

L1629172

DATE/TIME:

07/06/23 15:54

PAGE:

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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.



Kelly Mercer
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	41.0		1	06/26/2023 15:08	WG2084294

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	ND		0.0975	1	07/06/2023 10:14	WG2084170

Metals (ICP) by Method 6010D

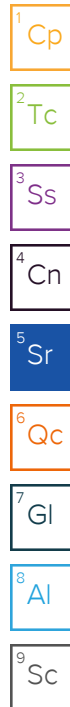
Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	ND		4.87	1	07/06/2023 00:09	WG2083716
Barium	51.6		1.22	1	07/06/2023 00:09	WG2083716
Cadmium	ND		1.22	1	07/06/2023 00:09	WG2083716
Chromium	16.5		2.44	1	07/06/2023 00:09	WG2083716
Lead	15.6		1.22	1	07/06/2023 00:09	WG2083716
Selenium	ND		4.87	1	07/06/2023 00:09	WG2083716
Silver	ND		2.44	1	07/06/2023 00:09	WG2083716

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	ND		14.6	45	06/30/2023 05:51	WG2086602
(S) a,a,a-Trifluorotoluene(FID)	91.9		77.0-120		06/30/2023 05:51	WG2086602

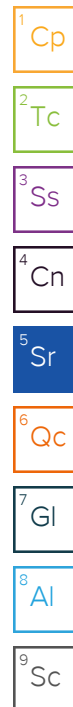
Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.194	1	07/01/2023 14:50	WG2087967
Acrylonitrile	ND		0.0484	1	07/01/2023 14:50	WG2087967
Benzene	ND		0.00387	1	07/01/2023 14:50	WG2087967
Bromobenzene	ND		0.0484	1	07/01/2023 14:50	WG2087967
Bromodichloromethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
Bromoform	ND		0.0969	1	07/01/2023 14:50	WG2087967
Bromomethane	ND		0.0484	1	07/01/2023 14:50	WG2087967
n-Butylbenzene	ND		0.0484	1	07/01/2023 14:50	WG2087967
sec-Butylbenzene	ND		0.0484	1	07/01/2023 14:50	WG2087967
tert-Butylbenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
Carbon tetrachloride	ND		0.0194	1	07/01/2023 14:50	WG2087967
Chlorobenzene	ND		0.00969	1	07/01/2023 14:50	WG2087967
Chlorodibromomethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
Chloroethane	ND		0.0194	1	07/01/2023 14:50	WG2087967
Chloroform	ND		0.00969	1	07/01/2023 14:50	WG2087967
Chloromethane	ND		0.0484	1	07/01/2023 14:50	WG2087967
2-Chlorotoluene	ND		0.00969	1	07/01/2023 14:50	WG2087967
4-Chlorotoluene	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,2-Dibromo-3-Chloropropane	ND		0.0969	1	07/01/2023 14:50	WG2087967
1,2-Dibromoethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
Dibromomethane	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,2-Dichlorobenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,3-Dichlorobenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,4-Dichlorobenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
Dichlorodifluoromethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
1,1-Dichloroethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
1,2-Dichloroethane	ND		0.00969	1	07/01/2023 14:50	WG2087967



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

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1-Dichloroethene	ND		0.00969	1	07/01/2023 14:50	WG2087967
cis-1,2-Dichloroethene	ND		0.00969	1	07/01/2023 14:50	WG2087967
trans-1,2-Dichloroethene	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,2-Dichloropropane	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,1-Dichloropropene	ND		0.00969	1	07/01/2023 14:50	WG2087967
1,3-Dichloropropane	ND		0.0194	1	07/01/2023 14:50	WG2087967
cis-1,3-Dichloropropene	ND		0.00969	1	07/01/2023 14:50	WG2087967
trans-1,3-Dichloropropene	ND		0.0194	1	07/01/2023 14:50	WG2087967
2,2-Dichloropropane	ND		0.00969	1	07/01/2023 14:50	WG2087967
Di-isopropyl ether	ND		0.00387	1	07/01/2023 14:50	WG2087967
Ethylbenzene	ND		0.00969	1	07/01/2023 14:50	WG2087967
Hexachloro-1,3-butadiene	ND		0.0969	1	07/01/2023 14:50	WG2087967
Isopropylbenzene	ND		0.00969	1	07/01/2023 14:50	WG2087967
p-Isopropyltoluene	ND		0.0194	1	07/01/2023 14:50	WG2087967
2-Butanone (MEK)	ND		0.387	1	07/01/2023 14:50	WG2087967
Methylene Chloride	ND		0.0969	1	07/01/2023 14:50	WG2087967
4-Methyl-2-pentanone (MIBK)	ND		0.0969	1	07/01/2023 14:50	WG2087967
Methyl tert-butyl ether	ND		0.00387	1	07/01/2023 14:50	WG2087967
Naphthalene	ND		0.0484	1	07/01/2023 14:50	WG2087967
n-Propylbenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
Styrene	ND	C3	0.0484	1	07/01/2023 14:50	WG2087967
1,1,1,2-Tetrachloroethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
1,1,2,2-Tetrachloroethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
1,1,2-Trichlorotrifluoroethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
Tetrachloroethene	ND		0.00969	1	07/01/2023 14:50	WG2087967
Toluene	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,2,3-Trichlorobenzene	ND		0.0484	1	07/01/2023 14:50	WG2087967
1,2,4-Trichlorobenzene	ND		0.0484	1	07/01/2023 14:50	WG2087967
1,1,1-Trichloroethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
1,1,2-Trichloroethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
Trichloroethene	ND		0.00387	1	07/01/2023 14:50	WG2087967
Trichlorofluoromethane	ND		0.00969	1	07/01/2023 14:50	WG2087967
1,2,3-Trichloropropane	ND		0.0484	1	07/01/2023 14:50	WG2087967
1,2,4-Trimethylbenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,2,3-Trimethylbenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
1,3,5-Trimethylbenzene	ND		0.0194	1	07/01/2023 14:50	WG2087967
Vinyl chloride	ND		0.00969	1	07/01/2023 14:50	WG2087967
Xylenes, Total	ND		0.0252	1	07/01/2023 14:50	WG2087967
(S) Toluene-d8	98.4		75.0-131		07/01/2023 14:50	WG2087967
(S) 4-Bromofluorobenzene	95.1		67.0-138		07/01/2023 14:50	WG2087967
(S) 1,2-Dichloroethane-d4	97.4		70.0-130		07/01/2023 14:50	WG2087967



Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		9.75	1	06/29/2023 11:08	WG2085573
Residual Range Organics (RRO)	ND		24.4	1	06/29/2023 11:08	WG2085573
(S) o-Terphenyl	95.3		18.0-148		06/29/2023 11:08	WG2085573

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	07/01/2023 12:30	WG2087920
(S) a,a,a-Trifluorotoluene(FID)	98.0		78.0-120		07/01/2023 12:30	WG2087920

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	07/03/2023 15:07	WG2088743
Acrolein	ND		50.0	1	07/03/2023 15:07	WG2088743
Acrylonitrile	ND		5.00	1	07/03/2023 15:07	WG2088743
Benzene	ND		0.500	1	07/03/2023 15:07	WG2088743
Bromobenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
Bromodichloromethane	ND		0.500	1	07/03/2023 15:07	WG2088743
Bromoform	ND		0.500	1	07/03/2023 15:07	WG2088743
Bromomethane	ND		2.50	1	07/03/2023 15:07	WG2088743
n-Butylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
sec-Butylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
tert-Butylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
Carbon disulfide	ND		0.500	1	07/03/2023 15:07	WG2088743
Carbon tetrachloride	ND		0.500	1	07/03/2023 15:07	WG2088743
Chlorobenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
Chlorodibromomethane	ND		0.500	1	07/03/2023 15:07	WG2088743
Chloroethane	ND		2.50	1	07/03/2023 15:07	WG2088743
Chloroform	ND		0.500	1	07/03/2023 15:07	WG2088743
Chloromethane	ND		1.25	1	07/03/2023 15:07	WG2088743
2-Chlorotoluene	ND		0.500	1	07/03/2023 15:07	WG2088743
4-Chlorotoluene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,2-Dibromo-3-Chloropropane	ND		2.50	1	07/03/2023 15:07	WG2088743
1,2-Dibromoethane	ND		0.500	1	07/03/2023 15:07	WG2088743
Dibromomethane	ND		0.500	1	07/03/2023 15:07	WG2088743
1,2-Dichlorobenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,3-Dichlorobenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,4-Dichlorobenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
Dichlorodifluoromethane	ND		2.50	1	07/03/2023 15:07	WG2088743
1,1-Dichloroethane	ND		0.500	1	07/03/2023 15:07	WG2088743
1,2-Dichloroethane	ND		0.500	1	07/03/2023 15:07	WG2088743
1,1-Dichloroethene	ND		0.500	1	07/03/2023 15:07	WG2088743
cis-1,2-Dichloroethene	ND		0.500	1	07/03/2023 15:07	WG2088743
trans-1,2-Dichloroethene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,2-Dichloropropane	ND		0.500	1	07/03/2023 15:07	WG2088743
1,1-Dichloropropene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,3-Dichloropropane	ND		1.00	1	07/03/2023 15:07	WG2088743
cis-1,3-Dichloropropene	ND		0.500	1	07/03/2023 15:07	WG2088743
trans-1,3-Dichloropropene	ND		0.500	1	07/03/2023 15:07	WG2088743
2,2-Dichloropropane	ND		0.500	1	07/03/2023 15:07	WG2088743
Di-isopropyl ether	ND		0.500	1	07/03/2023 15:07	WG2088743
Ethylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
Hexachloro-1,3-butadiene	ND		1.00	1	07/03/2023 15:07	WG2088743
Isopropylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
p-Isopropyltoluene	ND		0.500	1	07/03/2023 15:07	WG2088743
2-Butanone (MEK)	ND		5.00	1	07/03/2023 15:07	WG2088743
Methylene Chloride	ND		2.50	1	07/03/2023 15:07	WG2088743
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	07/03/2023 15:07	WG2088743
Methyl tert-butyl ether	ND		0.500	1	07/03/2023 15:07	WG2088743
Naphthalene	ND		2.50	1	07/03/2023 15:07	WG2088743
n-Propylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,1,1,2-Tetrachloroethane	ND		0.500	1	07/03/2023 15:07	WG2088743
1,1,2,2-Tetrachloroethane	ND		0.500	1	07/03/2023 15:07	WG2088743
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	07/03/2023 15:07	WG2088743
Tetrachloroethene	ND		0.500	1	07/03/2023 15:07	WG2088743
Toluene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,2,3-Trichlorobenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,2,4-Trichlorobenzene	ND		1.00	1	07/03/2023 15:07	WG2088743
1,1,1-Trichloroethane	ND		0.500	1	07/03/2023 15:07	WG2088743
1,1,2-Trichloroethane	ND		0.500	1	07/03/2023 15:07	WG2088743
Trichloroethene	ND		0.500	1	07/03/2023 15:07	WG2088743
Trichlorofluoromethane	ND		2.50	1	07/03/2023 15:07	WG2088743
1,2,3-Trichloropropane	ND		2.50	1	07/03/2023 15:07	WG2088743
1,2,4-Trimethylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,2,3-Trimethylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
1,3,5-Trimethylbenzene	ND		0.500	1	07/03/2023 15:07	WG2088743
Vinyl chloride	ND		0.500	1	07/03/2023 15:07	WG2088743
Xylenes, Total	ND		1.50	1	07/03/2023 15:07	WG2088743
(S) Toluene-d8	104		80.0-120		07/03/2023 15:07	WG2088743
(S) 4-Bromofluorobenzene	98.6		77.0-126		07/03/2023 15:07	WG2088743
(S) 1,2-Dichloroethane-d4	105		70.0-130		07/03/2023 15:07	WG2088743

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Method Blank (MB)

(MB) R3941628-1 06/26/23 15:08

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0.000			

L1629176-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1629176-01 06/26/23 15:08 • (DUP) R3941628-3 06/26/23 15:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	%	%		%		%
Total Solids	85.6	87.2	1	1.88		10

Laboratory Control Sample (LCS)

(LCS) R3941628-2 06/26/23 15:08

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3945305-1 07/06/23 09:26

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3945305-2 07/06/23 09:28

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.482	96.3	80.0-120	

L1628819-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1628819-05 07/06/23 09:31 • (MS) R3945305-3 07/06/23 09:33 • (MSD) R3945305-4 07/06/23 09:36

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.591	ND	0.573	0.600	96.9	101	1	75.0-125			4.61	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3945158-1 07/05/23 22:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00
Barium	0.155	U	0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Lead	U		0.208	0.500
Selenium	U		0.764	2.00
Silver	U		0.127	1.00

Laboratory Control Sample (LCS)

(LCS) R3945158-2 07/05/23 22:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	102	102	80.0-120	
Barium	100	105	105	80.0-120	
Cadmium	100	101	101	80.0-120	
Chromium	100	100	100	80.0-120	
Lead	100	99.7	99.7	80.0-120	
Selenium	100	101	101	80.0-120	
Silver	20.0	19.7	98.3	80.0-120	

L1628774-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1628774-02 07/05/23 22:55 • (MS) R3945158-5 07/05/23 23:03 • (MSD) R3945158-6 07/05/23 23:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	119	6.83	123	129	97.7	103	1	75.0-125			4.82	20
Barium	119	105	227	230	103	105	1	75.0-125			1.15	20
Cadmium	119	ND	113	119	94.9	99.8	1	75.0-125			5.01	20
Chromium	119	19.7	126	133	89.6	95.2	1	75.0-125			5.15	20
Lead	119	8.52	118	123	91.8	96.4	1	75.0-125			4.54	20
Selenium	119	ND	110	116	92.4	98.0	1	75.0-125			5.82	20
Silver	23.8	ND	22.4	23.4	94.1	98.6	1	75.0-125			4.65	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3944844-3 06/30/23 03:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Gasoline Range Organics-NWTPH	1.39	J	0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	91.4			77.0-120

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

(LCS) R3944844-1 06/30/23 02:01 • (LCSD) R3944844-2 06/30/23 02:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	6.15	6.21	112	113	71.0-124			0.971	20
(S) a,a,a-Trifluorotoluene(FID)				95.9	96.2	77.0-120				

L1629172-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1629172-01 06/30/23 05:51 • (MS) R3944844-4 06/30/23 14:07 • (MSD) R3944844-5 06/30/23 14:33

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	803	ND	920	903	113	111	45	50.0-150			1.78	27
(S) a,a,a-Trifluorotoluene(FID)					101	101		77.0-120				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R3944346-1 07/01/23 11:00

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	105			78.0-120

Laboratory Control Sample (LCS)

(LCS) R3944346-2 07/01/23 11:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5910	107	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			111	78.0-120	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3943899-3 07/01/23 10:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0365	0.0500
Acrylonitrile	U		0.00361	0.0125
Benzene	U		0.000467	0.00100
Bromobenzene	U		0.000900	0.0125
Bromodichloromethane	U		0.000725	0.00250
Bromoform	U		0.00117	0.0250
Bromomethane	U		0.00197	0.0125
n-Butylbenzene	U		0.00525	0.0125
sec-Butylbenzene	U		0.00288	0.0125
tert-Butylbenzene	U		0.00195	0.00500
Carbon tetrachloride	U		0.000898	0.00500
Chlorobenzene	U		0.000210	0.00250
Chlorodibromomethane	U		0.000612	0.00250
Chloroethane	U		0.00170	0.00500
Chloroform	U		0.00103	0.00250
Chloromethane	U		0.00435	0.0125
2-Chlorotoluene	U		0.000865	0.00250
4-Chlorotoluene	U		0.000450	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00390	0.0250
1,2-Dibromoethane	U		0.000648	0.00250
Dibromomethane	U		0.000750	0.00500
1,2-Dichlorobenzene	U		0.000425	0.00500
1,3-Dichlorobenzene	U		0.000600	0.00500
1,4-Dichlorobenzene	U		0.000700	0.00500
Dichlorodifluoromethane	U		0.00161	0.00250
1,1-Dichloroethane	U		0.000491	0.00250
1,2-Dichloroethane	U		0.000649	0.00250
1,1-Dichloroethene	U		0.000606	0.00250
cis-1,2-Dichloroethene	U		0.000734	0.00250
trans-1,2-Dichloroethene	U		0.00104	0.00500
1,2-Dichloropropane	U		0.00142	0.00500
1,1-Dichloropropene	U		0.000809	0.00250
1,3-Dichloropropane	U		0.000501	0.00500
cis-1,3-Dichloropropene	U		0.000757	0.00250
trans-1,3-Dichloropropene	U		0.00114	0.00500
2,2-Dichloropropane	U		0.00138	0.00250
Di-isopropyl ether	U		0.000410	0.00100
Ethylbenzene	U		0.000737	0.00250
Hexachloro-1,3-butadiene	U		0.00600	0.0250
Isopropylbenzene	U		0.000425	0.00250

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3943899-3 07/01/23 10:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00255	0.00500
2-Butanone (MEK)	U		0.0635	0.100
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.00228	0.0250
Methyl tert-butyl ether	U		0.000350	0.00100
Naphthalene	U		0.00488	0.0125
n-Propylbenzene	U		0.000950	0.00500
Styrene	U		0.000229	0.0125
1,1,1,2-Tetrachloroethane	U		0.000948	0.00250
1,1,2,2-Tetrachloroethane	U		0.000695	0.00250
1,1,2-Trichlorotrifluoroethane	U		0.000754	0.00250
Tetrachloroethene	U		0.000896	0.00250
Toluene	U		0.00130	0.00500
1,2,3-Trichlorobenzene	U		0.00733	0.0125
1,2,4-Trichlorobenzene	U		0.00440	0.0125
1,1,1-Trichloroethane	U		0.000923	0.00250
1,1,2-Trichloroethane	U		0.000597	0.00250
Trichloroethene	U		0.000584	0.00100
Trichlorofluoromethane	U		0.000827	0.00250
1,2,3-Trichloropropane	U		0.00162	0.0125
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,2,3-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Vinyl chloride	U		0.00116	0.00250
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	100			75.0-131
(S) 4-Bromofluorobenzene	94.8			67.0-138
(S) 1,2-Dichloroethane-d4	89.1			70.0-130

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

(LCS) R3943899-1 07/01/23 09:02 • (LCSD) R3943899-2 07/01/23 09:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.625	0.662	0.731	106	117	10.0-160			9.91	31
Acrylonitrile	0.625	0.720	0.763	115	122	45.0-153			5.80	22
Benzene	0.125	0.129	0.137	103	110	70.0-123			6.02	20
Bromobenzene	0.125	0.123	0.130	98.4	104	73.0-121			5.53	20
Bromodichloromethane	0.125	0.126	0.134	101	107	73.0-121			6.15	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3943899-1 07/01/23 09:02 • (LCSD) R3943899-2 07/01/23 09:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Bromoform	0.125	0.103	0.111	82.4	88.8	64.0-132			7.48	20
Bromomethane	0.125	0.119	0.127	95.2	102	56.0-147			6.50	20
n-Butylbenzene	0.125	0.111	0.110	88.8	88.0	68.0-135			0.905	20
sec-Butylbenzene	0.125	0.129	0.140	103	112	74.0-130			8.18	20
tert-Butylbenzene	0.125	0.138	0.147	110	118	75.0-127			6.32	20
Carbon tetrachloride	0.125	0.134	0.140	107	112	66.0-128			4.38	20
Chlorobenzene	0.125	0.115	0.129	92.0	103	76.0-128			11.5	20
Chlorodibromomethane	0.125	0.115	0.124	92.0	99.2	74.0-127			7.53	20
Chloroethane	0.125	0.134	0.139	107	111	61.0-134			3.66	20
Chloroform	0.125	0.125	0.131	100	105	72.0-123			4.69	20
Chloromethane	0.125	0.135	0.144	108	115	51.0-138			6.45	20
2-Chlorotoluene	0.125	0.126	0.132	101	106	75.0-124			4.65	20
4-Chlorotoluene	0.125	0.124	0.132	99.2	106	75.0-124			6.25	20
1,2-Dibromo-3-Chloropropane	0.125	0.111	0.127	88.8	102	59.0-130			13.4	20
1,2-Dibromoethane	0.125	0.117	0.136	93.6	109	74.0-128			15.0	20
Dibromomethane	0.125	0.128	0.138	102	110	75.0-122			7.52	20
1,2-Dichlorobenzene	0.125	0.123	0.128	98.4	102	76.0-124			3.98	20
1,3-Dichlorobenzene	0.125	0.121	0.127	96.8	102	76.0-125			4.84	20
1,4-Dichlorobenzene	0.125	0.118	0.116	94.4	92.8	77.0-121			1.71	20
Dichlorodifluoromethane	0.125	0.120	0.117	96.0	93.6	43.0-156			2.53	20
1,1-Dichloroethane	0.125	0.134	0.135	107	108	70.0-127			0.743	20
1,2-Dichloroethane	0.125	0.117	0.134	93.6	107	65.0-131			13.5	20
1,1-Dichloroethene	0.125	0.135	0.141	108	113	65.0-131			4.35	20
cis-1,2-Dichloroethene	0.125	0.133	0.139	106	111	73.0-125			4.41	20
trans-1,2-Dichloroethene	0.125	0.126	0.131	101	105	71.0-125			3.89	20
1,2-Dichloropropane	0.125	0.136	0.139	109	111	74.0-125			2.18	20
1,1-Dichloropropene	0.125	0.146	0.150	117	120	73.0-125			2.70	20
1,3-Dichloropropane	0.125	0.128	0.139	102	111	80.0-125			8.24	20
cis-1,3-Dichloropropene	0.125	0.146	0.156	117	125	76.0-127			6.62	20
trans-1,3-Dichloropropene	0.125	0.122	0.142	97.6	114	73.0-127			15.2	20
2,2-Dichloropropane	0.125	0.117	0.120	93.6	96.0	59.0-135			2.53	20
Di-isopropyl ether	0.125	0.135	0.143	108	114	60.0-136			5.76	20
Ethylbenzene	0.125	0.118	0.132	94.4	106	74.0-126			11.2	20
Hexachloro-1,3-butadiene	0.125	0.120	0.130	96.0	104	57.0-150			8.00	20
Isopropylbenzene	0.125	0.119	0.128	95.2	102	72.0-127			7.29	20
p-Isopropyltoluene	0.125	0.135	0.140	108	112	72.0-133			3.64	20
2-Butanone (MEK)	0.625	0.581	0.599	93.0	95.8	30.0-160			3.05	24
Methylene Chloride	0.125	0.120	0.123	96.0	98.4	68.0-123			2.47	20
4-Methyl-2-pentanone (MIBK)	0.625	0.684	0.724	109	116	56.0-143			5.68	20
Methyl tert-butyl ether	0.125	0.136	0.137	109	110	66.0-132			0.733	20

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

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

(LCS) R3943899-1 07/01/23 09:02 • (LCSD) R3943899-2 07/01/23 09:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Naphthalene	0.125	0.113	0.114	90.4	91.2	59.0-130			0.881	20
n-Propylbenzene	0.125	0.135	0.144	108	115	74.0-126			6.45	20
Styrene	0.125	0.0977	0.104	78.2	83.2	72.0-127			6.25	20
1,1,1,2-Tetrachloroethane	0.125	0.113	0.122	90.4	97.6	74.0-129			7.66	20
1,1,2,2-Tetrachloroethane	0.125	0.119	0.127	95.2	102	68.0-128			6.50	20
1,1,2-Trichlorotrifluoroethane	0.125	0.120	0.127	96.0	102	61.0-139			5.67	20
Tetrachloroethene	0.125	0.122	0.125	97.6	100	70.0-136			2.43	20
Toluene	0.125	0.119	0.128	95.2	102	75.0-121			7.29	20
1,2,3-Trichlorobenzene	0.125	0.132	0.133	106	106	59.0-139			0.755	20
1,2,4-Trichlorobenzene	0.125	0.110	0.109	88.0	87.2	62.0-137			0.913	20
1,1,1-Trichloroethane	0.125	0.134	0.142	107	114	69.0-126			5.80	20
1,1,2-Trichloroethane	0.125	0.124	0.137	99.2	110	78.0-123			9.96	20
Trichloroethene	0.125	0.141	0.150	113	120	76.0-126			6.19	20
Trichlorofluoromethane	0.125	0.115	0.122	92.0	97.6	61.0-142			5.91	20
1,2,3-Trichloropropane	0.125	0.123	0.132	98.4	106	67.0-129			7.06	20
1,2,4-Trimethylbenzene	0.125	0.112	0.120	89.6	96.0	70.0-126			6.90	20
1,2,3-Trimethylbenzene	0.125	0.124	0.129	99.2	103	74.0-124			3.95	20
1,3,5-Trimethylbenzene	0.125	0.127	0.130	102	104	73.0-127			2.33	20
Vinyl chloride	0.125	0.143	0.148	114	118	63.0-134			3.44	20
Xylenes, Total	0.375	0.354	0.374	94.4	99.7	72.0-127			5.49	20
(S) Toluene-d8				96.6	97.6	75.0-131				
(S) 4-Bromofluorobenzene				94.3	95.3	67.0-138				
(S) 1,2-Dichloroethane-d4				97.2	98.9	70.0-130				

L1628312-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1628312-09 07/01/23 14:30 • (MS) R3943899-4 07/01/23 19:25 • (MSD) R3943899-5 07/01/23 19:45

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acetone	0.932	ND	0.634	0.592	68.0	63.5	1	10.0-160			6.81	40
Acrylonitrile	0.932	ND	1.12	0.886	120	95.0	1	10.0-160			23.2	40
Benzene	0.186	ND	0.234	0.213	126	114	1	10.0-149			9.33	37
Bromobenzene	0.186	ND	0.234	0.219	126	118	1	10.0-156			6.58	38
Bromodichloromethane	0.186	ND	0.231	0.206	124	110	1	10.0-143			11.6	37
Bromoform	0.186	ND	0.175	0.163	93.6	87.2	1	10.0-146			7.08	36
Bromomethane	0.186	ND	0.120	0.116	64.4	62.3	1	10.0-149			3.28	38
n-Butylbenzene	0.186	ND	0.189	0.172	102	92.0	1	10.0-160			9.92	40
sec-Butylbenzene	0.186	ND	0.255	0.227	137	122	1	10.0-159			11.8	39
tert-Butylbenzene	0.186	ND	0.270	0.248	145	133	1	10.0-156			8.65	39

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1628312-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1628312-09 07/01/23 14:30 • (MS) R3943899-4 07/01/23 19:25 • (MSD) R3943899-5 07/01/23 19:45

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon tetrachloride	0.186	ND	0.228	0.206	122	110	1	10.0-145			10.3	37
Chlorobenzene	0.186	ND	0.213	0.200	114	107	1	10.0-152			6.50	39
Chlorodibromomethane	0.186	ND	0.206	0.185	110	99.2	1	10.0-146			10.7	37
Chloroethane	0.186	ND	0.0922	0.0804	49.4	43.1	1	10.0-146			13.7	40
Chloroform	0.186	ND	0.219	0.197	118	106	1	10.0-146			10.8	37
Chloromethane	0.186	ND	0.204	0.189	110	102	1	10.0-159			7.58	37
2-Chlorotoluene	0.186	ND	0.237	0.215	127	115	1	10.0-159			9.90	38
4-Chlorotoluene	0.186	ND	0.237	0.228	127	122	1	10.0-155			3.85	39
1,2-Dibromo-3-Chloropropane	0.186	ND	0.175	0.158	93.6	84.8	1	10.0-151			9.87	39
1,2-Dibromoethane	0.186	ND	0.219	0.204	118	110	1	10.0-148			7.04	34
Dibromomethane	0.186	ND	0.225	0.204	121	110	1	10.0-147			9.72	35
1,2-Dichlorobenzene	0.186	ND	0.227	0.204	122	110	1	10.0-155			10.4	37
1,3-Dichlorobenzene	0.186	ND	0.224	0.206	120	110	1	10.0-153			8.33	38
1,4-Dichlorobenzene	0.186	ND	0.213	0.204	114	110	1	10.0-151			4.29	38
Dichlorodifluoromethane	0.186	ND	0.189	0.163	102	87.2	1	10.0-160			15.3	35
1,1-Dichloroethane	0.186	ND	0.219	0.198	118	106	1	10.0-147			10.0	37
1,2-Dichloroethane	0.186	ND	0.216	0.194	115	103	1	10.0-148			10.9	35
1,1-Dichloroethene	0.186	ND	0.206	0.185	110	99.2	1	10.0-155			10.7	37
cis-1,2-Dichloroethene	0.186	ND	0.210	0.204	113	110	1	10.0-149			2.88	37
trans-1,2-Dichloroethene	0.186	ND	0.195	0.176	105	94.4	1	10.0-150			10.4	37
1,2-Dichloropropane	0.186	ND	0.255	0.222	137	119	1	10.0-148			13.8	37
1,1-Dichloropropene	0.186	ND	0.254	0.227	136	122	1	10.0-153			11.2	35
1,3-Dichloropropane	0.186	ND	0.242	0.221	130	118	1	10.0-154			9.03	35
cis-1,3-Dichloropropene	0.186	ND	0.277	0.249	149	134	1	10.0-151			10.8	37
trans-1,3-Dichloropropene	0.186	ND	0.236	0.216	126	116	1	10.0-148			8.58	37
2,2-Dichloropropane	0.186	ND	0.166	0.142	88.8	76.0	1	10.0-138			15.5	36
Di-isopropyl ether	0.186	ND	0.245	0.216	131	116	1	10.0-147			12.3	36
Ethylbenzene	0.186	ND	0.221	0.192	118	103	1	10.0-160			13.7	38
Hexachloro-1,3-butadiene	0.186	ND	0.212	0.198	114	106	1	10.0-160			6.55	40
Isopropylbenzene	0.186	ND	0.218	0.201	117	108	1	10.0-155			7.83	38
p-Isopropyltoluene	0.186	ND	0.252	0.227	135	122	1	10.0-160			10.6	40
2-Butanone (MEK)	0.932	ND	0.795	0.831	85.3	89.1	1	10.0-160			4.40	40
Methylene Chloride	0.186	ND	0.201	0.175	108	93.6	1	10.0-141			14.3	37
4-Methyl-2-pentanone (MIBK)	0.932	ND	1.08	1.06	116	114	1	10.0-160			1.53	35
Methyl tert-butyl ether	0.186	ND	0.203	0.179	109	96.0	1	11.0-147			12.5	35
Naphthalene	0.186	ND	0.175	0.167	93.6	89.6	1	10.0-160			4.37	36
n-Propylbenzene	0.186	ND	0.252	0.236	135	126	1	10.0-158			6.73	38
Styrene	0.186	ND	0.186	0.169	100	90.4	1	10.0-160			10.1	40
1,1,1,2-Tetrachloroethane	0.186	ND	0.200	0.183	107	98.4	1	10.0-149			8.56	39

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1628312-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1628312-09 07/01/23 14:30 • (MS) R3943899-4 07/01/23 19:25 • (MSD) R3943899-5 07/01/23 19:45

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	0.186	ND	0.212	0.195	114	105	1	10.0-160			8.06	35
1,1,2-Trichlorotrifluoroethane	0.186	ND	0.201	0.183	108	98.4	1	10.0-160			9.30	36
Tetrachloroethene	0.186	ND	0.219	0.197	118	106	1	10.0-156			10.8	39
Toluene	0.186	ND	0.219	0.204	118	110	1	10.0-156			7.04	38
1,2,3-Trichlorobenzene	0.186	ND	0.236	0.216	126	116	1	10.0-160			8.58	40
1,2,4-Trichlorobenzene	0.186	ND	0.191	0.181	102	96.8	1	10.0-160			5.62	40
1,1,1-Trichloroethane	0.186	ND	0.227	0.203	122	109	1	10.0-144			11.1	35
1,1,2-Trichloroethane	0.186	ND	0.228	0.218	122	117	1	10.0-160			4.68	35
Trichloroethene	0.186	ND	0.246	0.222	132	119	1	10.0-156			10.2	38
Trichlorofluoromethane	0.186	ND	0.0988	0.0743	53.0	39.8	1	10.0-160			28.3	40
1,2,3-Trichloropropane	0.186	ND	0.221	0.207	118	111	1	10.0-156			6.27	35
1,2,4-Trimethylbenzene	0.186	ND	0.206	0.188	110	101	1	10.0-160			9.09	36
1,2,3-Trimethylbenzene	0.186	ND	0.230	0.206	123	110	1	10.0-160			11.0	36
1,3,5-Trimethylbenzene	0.186	ND	0.236	0.216	126	116	1	10.0-160			8.58	38
Vinyl chloride	0.186	ND	0.222	0.204	119	110	1	10.0-160			8.39	37
Xylenes, Total	0.559	ND	0.636	0.597	114	107	1	10.0-160			6.30	38
(S) Toluene-d8					99.7	98.8		75.0-131				
(S) 4-Bromofluorobenzene					94.9	93.3		67.0-138				
(S) 1,2-Dichloroethane-d4					96.5	95.6		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3944731-3 07/03/23 12:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		11.3	25.0
Acrolein	U		2.54	50.0
Acrylonitrile	U		0.671	5.00
Benzene	U		0.0941	0.500
Bromobenzene	U		0.118	0.500
Bromodichloromethane	U		0.136	0.500
Bromoform	U		0.129	0.500
Bromomethane	U		0.605	2.50
n-Butylbenzene	U		0.157	0.500
sec-Butylbenzene	U		0.125	0.500
tert-Butylbenzene	U		0.127	0.500
Carbon disulfide	U		0.0962	0.500
Carbon tetrachloride	U		0.128	0.500
Chlorobenzene	U		0.117	0.500
Chlorodibromomethane	U		0.140	0.500
Chloroethane	U		0.192	2.50
Chloroform	U		0.111	0.500
Chloromethane	U		0.960	1.25
2-Chlorotoluene	U		0.106	0.500
4-Chlorotoluene	U		0.114	0.500
1,2-Dibromo-3-Chloropropane	U		0.276	2.50
1,2-Dibromoethane	U		0.126	0.500
Dibromomethane	U		0.122	0.500
1,2-Dichlorobenzene	U		0.107	0.500
1,3-Dichlorobenzene	U		0.299	0.500
1,4-Dichlorobenzene	U		0.120	0.500
Dichlorodifluoromethane	U		0.374	2.50
1,1-Dichloroethane	U		0.100	0.500
1,2-Dichloroethane	U		0.0819	0.500
1,1-Dichloroethene	U		0.188	0.500
cis-1,2-Dichloroethene	U		0.126	0.500
trans-1,2-Dichloroethene	U		0.149	0.500
1,2-Dichloropropane	U		0.149	0.500
1,1-Dichloropropene	U		0.142	0.500
1,3-Dichloropropane	U		0.109	1.00
cis-1,3-Dichloropropene	U		0.111	0.500
trans-1,3-Dichloropropene	U		0.118	0.500
2,2-Dichloropropane	U		0.161	0.500
Di-isopropyl ether	U		0.105	0.500
Ethylbenzene	U		0.137	0.500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3944731-3 07/03/23 12:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	U		0.337	1.00
Isopropylbenzene	U		0.105	0.500
p-Isopropyltoluene	U		0.120	0.500
2-Butanone (MEK)	U		1.19	5.00
Methylene Chloride	U		0.430	2.50
4-Methyl-2-pentanone (MIBK)	U		0.478	5.00
Methyl tert-butyl ether	U		0.101	0.500
Naphthalene	U		0.174	2.50
n-Propylbenzene	U		0.0993	0.500
Styrene	U		0.118	0.500
1,1,1,2-Tetrachloroethane	U		0.147	0.500
1,1,2,2-Tetrachloroethane	U		0.133	0.500
1,1,2-Trichlorotrifluoroethane	U		0.180	0.500
Tetrachloroethene	U		0.300	0.500
Toluene	U		0.278	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.481	1.00
1,1,1-Trichloroethane	U		0.149	0.500
1,1,2-Trichloroethane	U		0.158	0.500
Trichloroethene	U		0.190	0.500
Trichlorofluoromethane	U		0.160	2.50
1,2,3-Trichloropropane	U		0.237	2.50
1,2,4-Trimethylbenzene	U		0.322	0.500
1,2,3-Trimethylbenzene	U		0.104	0.500
1,3,5-Trimethylbenzene	U		0.104	0.500
Vinyl chloride	U		0.234	0.500
Xylenes, Total	U		0.174	1.50
(S) Toluene-d8	101			80.0-120
(S) 4-Bromofluorobenzene	99.2			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R3944731-1 07/03/23 11:34 • (LCSD) R3944731-2 07/03/23 11:55

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	27.4	27.8	110	111	19.0-160			1.45	27
Acrolein	25.0	30.1	29.5	120	118	10.0-160			2.01	26
Acrylonitrile	25.0	26.7	27.8	107	111	55.0-149			4.04	20

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

(LCS) R3944731-1 07/03/23 11:34 • (LCSD) R3944731-2 07/03/23 11:55

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	5.39	5.30	108	106	70.0-123			1.68	20
Bromobenzene	5.00	5.53	5.24	111	105	73.0-121			5.39	20
Bromodichloromethane	5.00	4.98	5.11	99.6	102	75.0-120			2.58	20
Bromoform	5.00	4.80	5.04	96.0	101	68.0-132			4.88	20
Bromomethane	5.00	5.33	5.38	107	108	10.0-160			0.934	25
n-Butylbenzene	5.00	5.63	5.74	113	115	73.0-125			1.93	20
sec-Butylbenzene	5.00	5.56	5.57	111	111	75.0-125			0.180	20
tert-Butylbenzene	5.00	5.45	5.46	109	109	76.0-124			0.183	20
Carbon disulfide	5.00	5.34	4.79	107	95.8	61.0-128			10.9	20
Carbon tetrachloride	5.00	5.46	5.18	109	104	68.0-126			5.26	20
Chlorobenzene	5.00	5.16	5.16	103	103	80.0-121			0.000	20
Chlorodibromomethane	5.00	4.92	5.06	98.4	101	77.0-125			2.81	20
Chloroethane	5.00	5.14	5.11	103	102	47.0-150			0.585	20
Chloroform	5.00	5.39	5.43	108	109	73.0-120			0.739	20
Chloromethane	5.00	4.85	4.94	97.0	98.8	41.0-142			1.84	20
2-Chlorotoluene	5.00	5.45	5.41	109	108	76.0-123			0.737	20
4-Chlorotoluene	5.00	5.43	5.40	109	108	75.0-122			0.554	20
1,2-Dibromo-3-Chloropropane	5.00	4.89	4.71	97.8	94.2	58.0-134			3.75	20
1,2-Dibromoethane	5.00	5.13	5.06	103	101	80.0-122			1.37	20
Dibromomethane	5.00	5.10	5.08	102	102	80.0-120			0.393	20
1,2-Dichlorobenzene	5.00	5.37	5.41	107	108	79.0-121			0.742	20
1,3-Dichlorobenzene	5.00	5.50	5.53	110	111	79.0-120			0.544	20
1,4-Dichlorobenzene	5.00	5.36	5.50	107	110	79.0-120			2.58	20
Dichlorodifluoromethane	5.00	5.03	4.90	101	98.0	51.0-149			2.62	20
1,1-Dichloroethane	5.00	5.31	5.33	106	107	70.0-126			0.376	20
1,2-Dichloroethane	5.00	5.11	5.10	102	102	70.0-128			0.196	20
1,1-Dichloroethene	5.00	5.12	5.07	102	101	71.0-124			0.981	20
cis-1,2-Dichloroethene	5.00	5.26	5.32	105	106	73.0-120			1.13	20
trans-1,2-Dichloroethene	5.00	5.37	5.50	107	110	73.0-120			2.39	20
1,2-Dichloropropane	5.00	4.92	4.96	98.4	99.2	77.0-125			0.810	20
1,1-Dichloropropene	5.00	5.35	5.05	107	101	74.0-126			5.77	20
1,3-Dichloropropane	5.00	5.07	5.12	101	102	80.0-120			0.981	20
cis-1,3-Dichloropropene	5.00	5.32	5.23	106	105	80.0-123			1.71	20
trans-1,3-Dichloropropene	5.00	5.05	5.17	101	103	78.0-124			2.35	20
2,2-Dichloropropane	5.00	6.06	5.98	121	120	58.0-130			1.33	20
Di-isopropyl ether	5.00	5.05	5.24	101	105	58.0-138			3.69	20
Ethylbenzene	5.00	5.23	5.28	105	106	79.0-123			0.951	20
Hexachloro-1,3-butadiene	5.00	5.01	4.43	100	88.6	54.0-138			12.3	20
Isopropylbenzene	5.00	5.22	5.15	104	103	76.0-127			1.35	20
p-Isopropyltoluene	5.00	5.64	5.62	113	112	76.0-125			0.355	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3944731-1 07/03/23 11:34 • (LCSD) R3944731-2 07/03/23 11:55

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
2-Butanone (MEK)	25.0	27.7	27.5	111	110	44.0-160			0.725	20
Methylene Chloride	5.00	5.19	5.06	104	101	67.0-120			2.54	20
4-Methyl-2-pentanone (MIBK)	25.0	25.5	26.0	102	104	68.0-142			1.94	20
Methyl tert-butyl ether	5.00	5.30	5.27	106	105	68.0-125			0.568	20
Naphthalene	5.00	4.47	4.54	89.4	90.8	54.0-135			1.55	20
n-Propylbenzene	5.00	5.48	5.37	110	107	77.0-124			2.03	20
Styrene	5.00	5.19	5.05	104	101	73.0-130			2.73	20
1,1,1,2-Tetrachloroethane	5.00	4.95	5.19	99.0	104	75.0-125			4.73	20
1,1,2,2-Tetrachloroethane	5.00	5.95	5.84	119	117	65.0-130			1.87	20
1,1,2-Trichlorotrifluoroethane	5.00	5.34	5.09	107	102	69.0-132			4.79	20
Tetrachloroethene	5.00	5.42	5.14	108	103	72.0-132			5.30	20
Toluene	5.00	5.34	5.33	107	107	79.0-120			0.187	20
1,2,3-Trichlorobenzene	5.00	4.66	4.89	93.2	97.8	50.0-138			4.82	20
1,2,4-Trichlorobenzene	5.00	4.84	5.00	96.8	100	57.0-137			3.25	20
1,1,1-Trichloroethane	5.00	5.24	5.13	105	103	73.0-124			2.12	20
1,1,2-Trichloroethane	5.00	5.15	5.39	103	108	80.0-120			4.55	20
Trichloroethene	5.00	5.45	5.10	109	102	78.0-124			6.64	20
Trichlorofluoromethane	5.00	5.19	4.90	104	98.0	59.0-147			5.75	20
1,2,3-Trichloropropane	5.00	5.60	5.55	112	111	73.0-130			0.897	20
1,2,4-Trimethylbenzene	5.00	5.59	5.55	112	111	76.0-121			0.718	20
1,2,3-Trimethylbenzene	5.00	5.41	5.47	108	109	77.0-120			1.10	20
1,3,5-Trimethylbenzene	5.00	5.60	5.48	112	110	76.0-122			2.17	20
Vinyl chloride	5.00	5.07	4.85	101	97.0	67.0-131			4.44	20
Xylenes, Total	15.0	15.9	15.4	106	103	79.0-123			3.19	20
(S) Toluene-d8				101	102	80.0-120				
(S) 4-Bromofluorobenzene				96.6	98.3	77.0-126				
(S) 1,2-Dichloroethane-d4				101	104	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3942892-1 06/29/23 10:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	88.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3942892-2 06/29/23 10:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	39.6	79.2	50.0-150	
(S) o-Terphenyl			90.1	18.0-148	

L1629999-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1629999-01 06/29/23 11:22 • (MS) R3942892-3 06/29/23 11:34 • (MSD) R3942892-4 06/29/23 11:47

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	59.6	179	225	329	76.3	251	1	50.0-150		J3 J5	37.7	20
(S) o-Terphenyl					92.0	78.4		18.0-148				

Sample Narrative:

OS: Sample resembles laboratory standard for Diesel.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

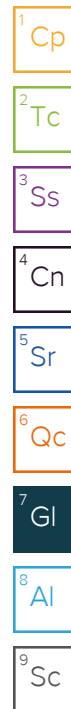
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	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
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
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.



ACCREDITATIONS & LOCATIONS

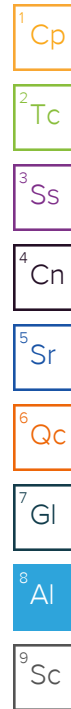
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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.



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