

July 06, 2020

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

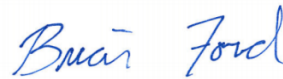
⁹ Sc

Cascade Corporation- Fairview, OR

Sample Delivery Group: L1233953
Samples Received: 06/26/2020
Project Number: PNG 0564S/20/02-2
Description: TSA Data Gaps

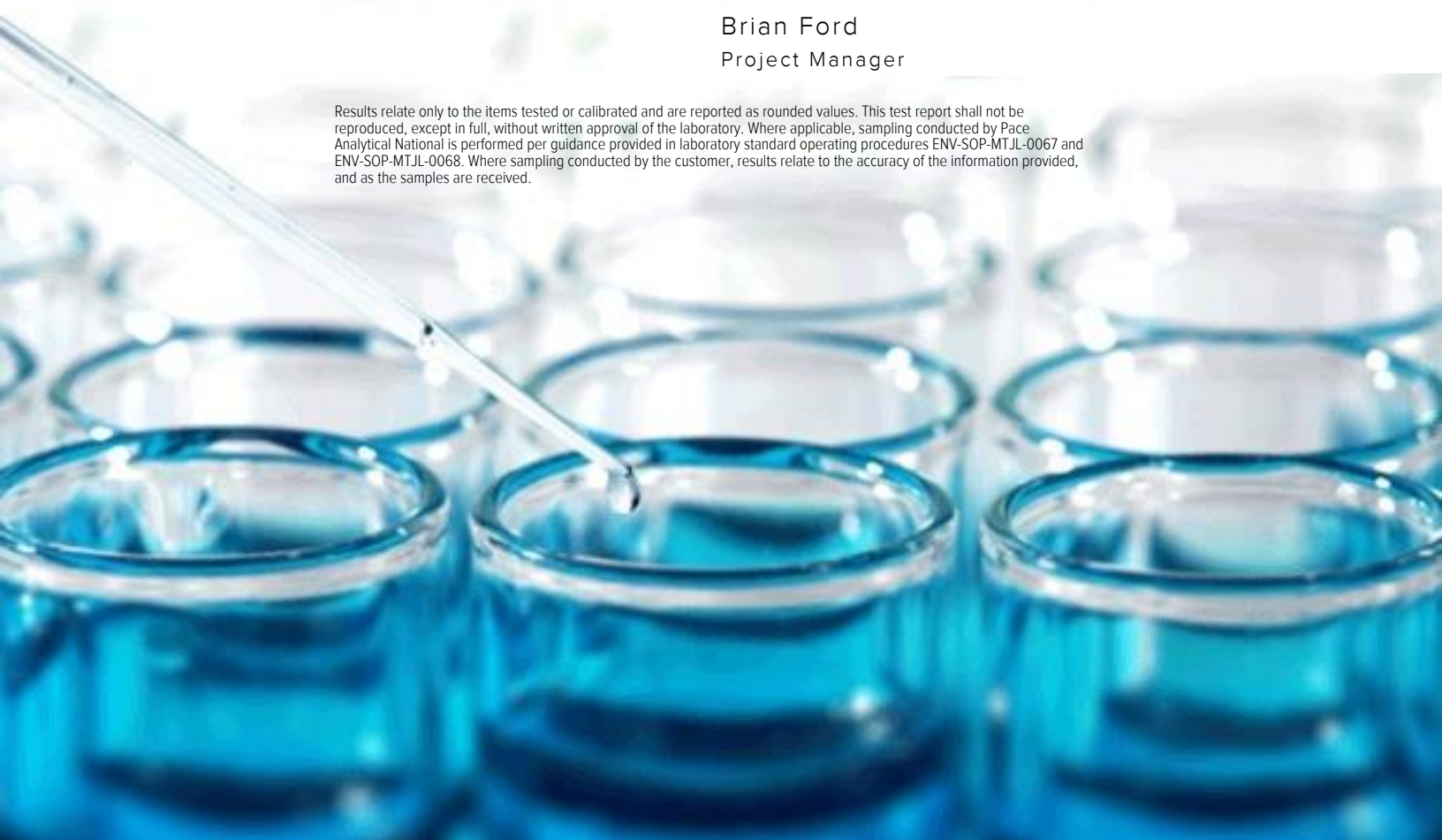
Report To: Cindy Bartlett
2201 NE 201st Avenue
Fairview, OR 97024-9718

Entire Report Reviewed By:



Brian Ford
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.





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VMW-L 67 L1233953-01 Solid

				Collected by S. Parton	Collected date/time 06/24/20 16:12	Received date/time 06/26/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1501712	1	06/30/20 23:21	06/30/20 23:36	KBC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1502044	1	06/24/20 16:12	07/01/20 02:06	BMB	Mt. Juliet, TN

VMW-L 72 L1233953-02 Solid

				Collected by S. Parton	Collected date/time 06/24/20 16:14	Received date/time 06/26/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1501714	1	06/30/20 23:01	06/30/20 23:14	KBC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1502044	1	06/24/20 16:14	07/01/20 02:25	BMB	Mt. Juliet, TN

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



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.

Brian Ford
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	86.5		1	06/30/2020 23:36	WG1501712

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		0.0578	1	07/01/2020 02:06	WG1502044
Acrylonitrile	ND		0.0144	1	07/01/2020 02:06	WG1502044
Benzene	ND		0.00116	1	07/01/2020 02:06	WG1502044
Bromobenzene	ND		0.0144	1	07/01/2020 02:06	WG1502044
Bromodichloromethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
Bromoform	ND		0.0289	1	07/01/2020 02:06	WG1502044
Bromomethane	ND		0.0144	1	07/01/2020 02:06	WG1502044
n-Butylbenzene	ND		0.0144	1	07/01/2020 02:06	WG1502044
sec-Butylbenzene	ND		0.0144	1	07/01/2020 02:06	WG1502044
tert-Butylbenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
Carbon tetrachloride	ND		0.00578	1	07/01/2020 02:06	WG1502044
Chlorobenzene	ND		0.00289	1	07/01/2020 02:06	WG1502044
Chlorodibromomethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
Chloroethane	ND		0.00578	1	07/01/2020 02:06	WG1502044
Chloroform	ND		0.00289	1	07/01/2020 02:06	WG1502044
Chloromethane	ND		0.0144	1	07/01/2020 02:06	WG1502044
2-Chlorotoluene	ND		0.00289	1	07/01/2020 02:06	WG1502044
4-Chlorotoluene	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,2-Dibromo-3-Chloropropane	ND		0.0289	1	07/01/2020 02:06	WG1502044
1,2-Dibromoethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
Dibromomethane	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,2-Dichlorobenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,3-Dichlorobenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,4-Dichlorobenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
Dichlorodifluoromethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
1,1-Dichloroethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
1,2-Dichloroethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
1,1-Dichloroethene	ND		0.00289	1	07/01/2020 02:06	WG1502044
cis-1,2-Dichloroethene	ND		0.00289	1	07/01/2020 02:06	WG1502044
trans-1,2-Dichloroethene	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,2-Dichloropropane	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,1-Dichloropropene	ND		0.00289	1	07/01/2020 02:06	WG1502044
1,3-Dichloropropane	ND		0.00578	1	07/01/2020 02:06	WG1502044
cis-1,3-Dichloropropene	ND		0.00289	1	07/01/2020 02:06	WG1502044
trans-1,3-Dichloropropene	ND		0.00578	1	07/01/2020 02:06	WG1502044
2,2-Dichloropropane	ND		0.00289	1	07/01/2020 02:06	WG1502044
Di-isopropyl ether	ND		0.00116	1	07/01/2020 02:06	WG1502044
Ethylbenzene	ND		0.00289	1	07/01/2020 02:06	WG1502044
Hexachloro-1,3-butadiene	ND		0.0289	1	07/01/2020 02:06	WG1502044
Isopropylbenzene	ND		0.00289	1	07/01/2020 02:06	WG1502044
p-Isopropyltoluene	ND		0.00578	1	07/01/2020 02:06	WG1502044
2-Butanone (MEK)	0.120	B	0.116	1	07/01/2020 02:06	WG1502044
Methylene Chloride	ND		0.0289	1	07/01/2020 02:06	WG1502044
4-Methyl-2-pentanone (MIBK)	ND		0.0289	1	07/01/2020 02:06	WG1502044
Methyl tert-butyl ether	ND		0.00116	1	07/01/2020 02:06	WG1502044
Naphthalene	ND		0.0144	1	07/01/2020 02:06	WG1502044
n-Propylbenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
Styrene	ND		0.0144	1	07/01/2020 02:06	WG1502044
1,1,1,2-Tetrachloroethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
1,1,2,2-Tetrachloroethane	ND		0.00289	1	07/01/2020 02:06	WG1502044

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 (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
Tetrachloroethene	ND		0.00289	1	07/01/2020 02:06	WG1502044
Toluene	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,2,3-Trichlorobenzene	ND		0.0144	1	07/01/2020 02:06	WG1502044
1,2,4-Trichlorobenzene	ND	J4	0.0144	1	07/01/2020 02:06	WG1502044
1,1,1-Trichloroethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
1,1,2-Trichloroethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
Trichloroethene	ND		0.00116	1	07/01/2020 02:06	WG1502044
Trichlorofluoromethane	ND		0.00289	1	07/01/2020 02:06	WG1502044
1,2,3-Trichloropropane	ND		0.0144	1	07/01/2020 02:06	WG1502044
1,2,4-Trimethylbenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,2,3-Trimethylbenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
1,3,5-Trimethylbenzene	ND		0.00578	1	07/01/2020 02:06	WG1502044
Vinyl chloride	ND		0.00289	1	07/01/2020 02:06	WG1502044
Xylenes, Total	ND		0.00751	1	07/01/2020 02:06	WG1502044
(S) Toluene-d8	109		75.0-131		07/01/2020 02:06	WG1502044
(S) 4-Bromofluorobenzene	98.2		67.0-138		07/01/2020 02:06	WG1502044
(S) 1,2-Dichloroethane-d4	104		70.0-130		07/01/2020 02:06	WG1502044

1 Cp

2 Tc

3 Ss

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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	83.9		1	06/30/2020 23:14	WG1501714

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		0.0596	1	07/01/2020 02:25	WG1502044
Acrylonitrile	ND		0.0149	1	07/01/2020 02:25	WG1502044
Benzene	ND		0.00119	1	07/01/2020 02:25	WG1502044
Bromobenzene	ND		0.0149	1	07/01/2020 02:25	WG1502044
Bromodichloromethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
Bromoform	ND		0.0298	1	07/01/2020 02:25	WG1502044
Bromomethane	ND		0.0149	1	07/01/2020 02:25	WG1502044
n-Butylbenzene	ND		0.0149	1	07/01/2020 02:25	WG1502044
sec-Butylbenzene	ND		0.0149	1	07/01/2020 02:25	WG1502044
tert-Butylbenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
Carbon tetrachloride	ND		0.00596	1	07/01/2020 02:25	WG1502044
Chlorobenzene	ND		0.00298	1	07/01/2020 02:25	WG1502044
Chlorodibromomethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
Chloroethane	ND		0.00596	1	07/01/2020 02:25	WG1502044
Chloroform	ND		0.00298	1	07/01/2020 02:25	WG1502044
Chloromethane	ND		0.0149	1	07/01/2020 02:25	WG1502044
2-Chlorotoluene	ND		0.00298	1	07/01/2020 02:25	WG1502044
4-Chlorotoluene	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,2-Dibromo-3-Chloropropane	ND		0.0298	1	07/01/2020 02:25	WG1502044
1,2-Dibromoethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
Dibromomethane	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,2-Dichlorobenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,3-Dichlorobenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,4-Dichlorobenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
Dichlorodifluoromethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
1,1-Dichloroethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
1,2-Dichloroethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
1,1-Dichloroethene	ND		0.00298	1	07/01/2020 02:25	WG1502044
cis-1,2-Dichloroethene	ND		0.00298	1	07/01/2020 02:25	WG1502044
trans-1,2-Dichloroethene	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,2-Dichloropropane	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,1-Dichloropropene	ND		0.00298	1	07/01/2020 02:25	WG1502044
1,3-Dichloropropene	ND		0.00596	1	07/01/2020 02:25	WG1502044
cis-1,3-Dichloropropene	ND		0.00298	1	07/01/2020 02:25	WG1502044
trans-1,3-Dichloropropene	ND		0.00596	1	07/01/2020 02:25	WG1502044
2,2-Dichloropropane	ND		0.00298	1	07/01/2020 02:25	WG1502044
Di-isopropyl ether	ND		0.00119	1	07/01/2020 02:25	WG1502044
Ethylbenzene	ND		0.00298	1	07/01/2020 02:25	WG1502044
Hexachloro-1,3-butadiene	ND		0.0298	1	07/01/2020 02:25	WG1502044
Isopropylbenzene	ND		0.00298	1	07/01/2020 02:25	WG1502044
p-Isopropyltoluene	ND		0.00596	1	07/01/2020 02:25	WG1502044
2-Butanone (MEK)	0.120	B	0.119	1	07/01/2020 02:25	WG1502044
Methylene Chloride	ND		0.0298	1	07/01/2020 02:25	WG1502044
4-Methyl-2-pentanone (MIBK)	ND		0.0298	1	07/01/2020 02:25	WG1502044
Methyl tert-butyl ether	ND		0.00119	1	07/01/2020 02:25	WG1502044
Naphthalene	ND		0.0149	1	07/01/2020 02:25	WG1502044
n-Propylbenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
Styrene	ND		0.0149	1	07/01/2020 02:25	WG1502044
1,1,1,2-Tetrachloroethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
1,1,2,2-Tetrachloroethane	ND		0.00298	1	07/01/2020 02:25	WG1502044

1 Cp

2 Tc

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5 Sr

6 Qc

7 Gl

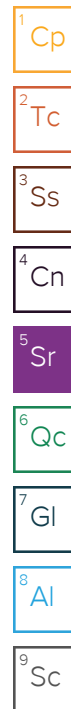
8 Al

9 Sc



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

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
Tetrachloroethene	ND		0.00298	1	07/01/2020 02:25	WG1502044
Toluene	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,2,3-Trichlorobenzene	ND		0.0149	1	07/01/2020 02:25	WG1502044
1,2,4-Trichlorobenzene	ND	J4	0.0149	1	07/01/2020 02:25	WG1502044
1,1,1-Trichloroethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
1,1,2-Trichloroethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
Trichloroethene	ND		0.00119	1	07/01/2020 02:25	WG1502044
Trichlorofluoromethane	ND		0.00298	1	07/01/2020 02:25	WG1502044
1,2,3-Trichloropropane	ND		0.0149	1	07/01/2020 02:25	WG1502044
1,2,4-Trimethylbenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,2,3-Trimethylbenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
1,3,5-Trimethylbenzene	ND		0.00596	1	07/01/2020 02:25	WG1502044
Vinyl chloride	ND		0.00298	1	07/01/2020 02:25	WG1502044
Xylenes, Total	ND		0.00774	1	07/01/2020 02:25	WG1502044
(S) Toluene-d8	111		75.0-131		07/01/2020 02:25	WG1502044
(S) 4-Bromofluorobenzene	99.5		67.0-138		07/01/2020 02:25	WG1502044
(S) 1,2-Dichloroethane-d4	105		70.0-130		07/01/2020 02:25	WG1502044





Total Solids by Method 2540 G-2011

L1233953-01

Method Blank (MB)

(MB) R3545230-1 06/30/20 23:36

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0.000			

Cp

 ${}^2\text{Tc}$

Ss

Cn

⁸⁷Sr

Qc

L1233917-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1233917-01 06/30/20 23:36 • (DUP) R3545230-3 06/30/20 23:36

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	%	%		%		%
Total Solids	84.7	82.6	1	2.52		10

G|

Al

Sc

Laboratory Control Sample (LCS)

(LCS) R3545230-2 06/30/20 23:36

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



Total Solids by Method 2540 G-2011

L1233953-02

Method Blank (MB)

(MB) R3545228-1 06/30/20 23:14

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0.00100			

¹Cp ${}^2\text{Tc}$ 3S_S ${}^4\text{Cn}$ ${}^5\text{Sr}$ ⁶Qc

L1233953-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1233953-02 06/30/20 23:14 • (DUP) R3545228-3 06/30/20 23:14

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	%	%		%		%
Total Solids	83.9	84.0	1	0.0969		10

 ${}^7\text{Gl}$ ${}^8\text{Al}$ ${}^9\text{Sc}$

Laboratory Control Sample (LCS)

(LCS) R3545228-2 06/30/20 23:14

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



Method Blank (MB)

(MB) R3546148-2 06/30/20 21:37

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) R3546148-2 06/30/20 21:37

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)	0.0736	J	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
Tetrachloroethene	U		0.000896	0.00250
Toluene	U		0.00130	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000754	0.00250
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
1,2,3-Trimethylbenzene	U		0.00158	0.00500
1,2,4-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	110			75.0-131
(S) 4-Bromofluorobenzene	103			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3546148-1 06/30/20 20:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.625	0.784	125	10.0-160	
Acrylonitrile	0.625	0.794	127	45.0-153	
Benzene	0.125	0.122	97.6	70.0-123	
Bromobenzene	0.125	0.108	86.4	73.0-121	
Bromodichloromethane	0.125	0.116	92.8	73.0-121	



Laboratory Control Sample (LCS)

(LCS) R3546148-1 06/30/20 20:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Bromoform	0.125	0.118	94.4	64.0-132	
Bromomethane	0.125	0.132	106	56.0-147	
n-Butylbenzene	0.125	0.115	92.0	68.0-135	
sec-Butylbenzene	0.125	0.111	88.8	74.0-130	
tert-Butylbenzene	0.125	0.111	88.8	75.0-127	
Carbon tetrachloride	0.125	0.0998	79.8	66.0-128	
Chlorobenzene	0.125	0.118	94.4	76.0-128	
Chlorodibromomethane	0.125	0.111	88.8	74.0-127	
Chloroethane	0.125	0.115	92.0	61.0-134	
Chloroform	0.125	0.122	97.6	72.0-123	
Chloromethane	0.125	0.116	92.8	51.0-138	
2-Chlorotoluene	0.125	0.117	93.6	75.0-124	
4-Chlorotoluene	0.125	0.110	88.0	75.0-124	
1,2-Dibromo-3-Chloropropane	0.125	0.119	95.2	59.0-130	
1,2-Dibromoethane	0.125	0.109	87.2	74.0-128	
Dibromomethane	0.125	0.129	103	75.0-122	
1,2-Dichlorobenzene	0.125	0.113	90.4	76.0-124	
1,3-Dichlorobenzene	0.125	0.120	96.0	76.0-125	
1,4-Dichlorobenzene	0.125	0.111	88.8	77.0-121	
Dichlorodifluoromethane	0.125	0.142	114	43.0-156	
1,1-Dichloroethane	0.125	0.115	92.0	70.0-127	
1,2-Dichloroethane	0.125	0.126	101	65.0-131	
1,1-Dichloroethene	0.125	0.123	98.4	65.0-131	
cis-1,2-Dichloroethene	0.125	0.118	94.4	73.0-125	
trans-1,2-Dichloroethene	0.125	0.128	102	71.0-125	
1,2-Dichloropropane	0.125	0.114	91.2	74.0-125	
1,1-Dichloropropene	0.125	0.110	88.0	73.0-125	
1,3-Dichloropropane	0.125	0.117	93.6	80.0-125	
cis-1,3-Dichloropropene	0.125	0.120	96.0	76.0-127	
trans-1,3-Dichloropropene	0.125	0.114	91.2	73.0-127	
2,2-Dichloropropane	0.125	0.115	92.0	59.0-135	
Di-isopropyl ether	0.125	0.128	102	60.0-136	
Ethylbenzene	0.125	0.113	90.4	74.0-126	
Hexachloro-1,3-butadiene	0.125	0.163	130	57.0-150	
Isopropylbenzene	0.125	0.119	95.2	72.0-127	
p-Isopropyltoluene	0.125	0.109	87.2	72.0-133	
2-Butanone (MEK)	0.625	0.700	112	30.0-160	
Methylene Chloride	0.125	0.117	93.6	68.0-123	
4-Methyl-2-pentanone (MIBK)	0.625	0.637	102	56.0-143	
Methyl tert-butyl ether	0.125	0.129	103	66.0-132	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3546148-1 06/30/20 20:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Naphthalene	0.125	0.128	102	59.0-130	
n-Propylbenzene	0.125	0.107	85.6	74.0-126	
Styrene	0.125	0.106	84.8	72.0-127	
1,1,1,2-Tetrachloroethane	0.125	0.112	89.6	74.0-129	
1,1,2,2-Tetrachloroethane	0.125	0.109	87.2	68.0-128	
Tetrachloroethene	0.125	0.112	89.6	70.0-136	
Toluene	0.125	0.117	93.6	75.0-121	
1,1,2-Trichlorotrifluoroethane	0.125	0.108	86.4	61.0-139	
1,2,3-Trichlorobenzene	0.125	0.171	137	59.0-139	
1,2,4-Trichlorobenzene	0.125	0.186	149	62.0-137	J4
1,1,1-Trichloroethane	0.125	0.125	100	69.0-126	
1,1,2-Trichloroethane	0.125	0.107	85.6	78.0-123	
Trichloroethene	0.125	0.116	92.8	76.0-126	
Trichlorofluoromethane	0.125	0.123	98.4	61.0-142	
1,2,3-Trichloropropane	0.125	0.126	101	67.0-129	
1,2,3-Trimethylbenzene	0.125	0.0962	77.0	74.0-124	
1,2,4-Trimethylbenzene	0.125	0.104	83.2	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.117	93.6	73.0-127	
Vinyl chloride	0.125	0.111	88.8	63.0-134	
Xylenes, Total	0.375	0.347	92.5	72.0-127	
(S) Toluene-d8			106	75.0-131	
(S) 4-Bromofluorobenzene			104	67.0-138	
(S) 1,2-Dichloroethane-d4			110	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



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

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 G

8 Al

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
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}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

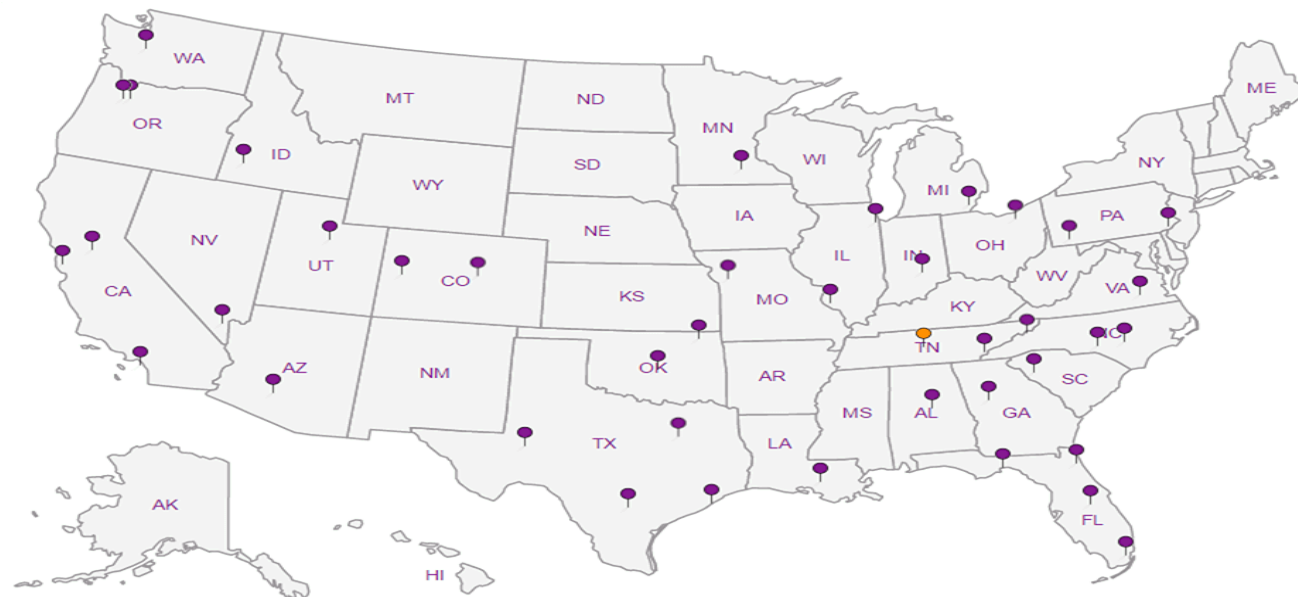
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



ACCOUNT:

Cascade Corporation- Fairview, OR

PROJECT:

PNG 0564S/20/02-2

SDG:

L1233953

DATE/TIME:

07/06/20 19:33

PAGE:

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