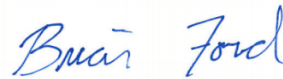


Cascade Corporation- Fairview, OR

Sample Delivery Group: L1247645
Samples Received: 08/06/2020
Project Number: PNG0564S20
Description: Cascade TSA

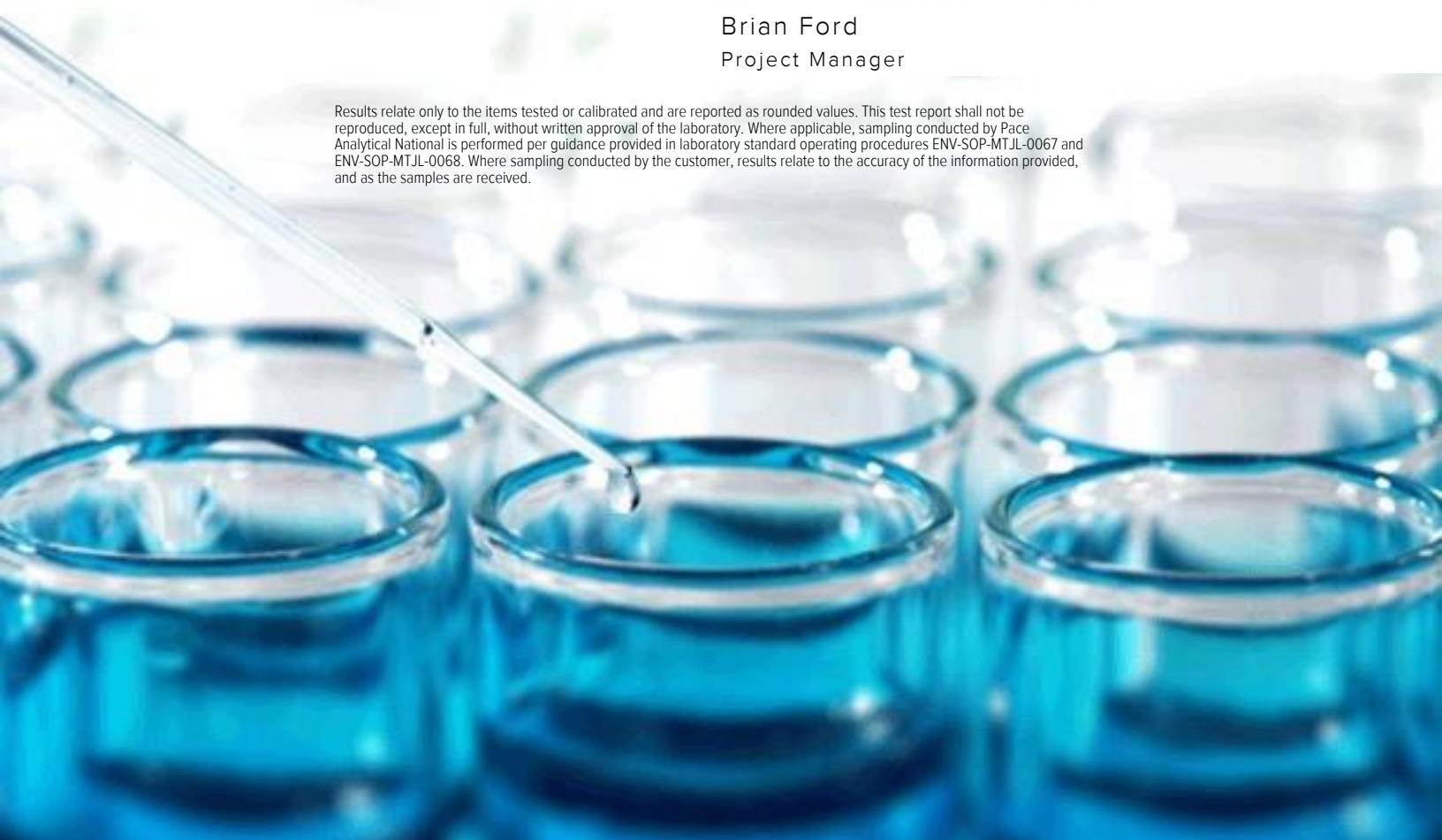
Report To: Cindy Bartlett
2201 NE 201st Avenue
Fairview, OR 97024-9718

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



TS-C-INF-080520 L1247645-01 GW

Collected by
Pat YadonCollected date/time
08/05/20 13:00Received date/time
08/06/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1523155	1	08/10/20 03:59	08/10/20 03:59	BMB	Mt. Juliet, TN

TRIP BLANK LOT #444 L1247645-02 GW

Collected by
Pat YadonCollected date/time
08/05/20 00:00Received date/time
08/06/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1523155	1	08/10/20 01:18	08/10/20 01:18	BMB	Mt. Juliet, TN

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



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



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	08/10/2020 03:59	WG1523155
Acrolein	ND		50.0	1	08/10/2020 03:59	WG1523155
Acrylonitrile	ND		5.00	1	08/10/2020 03:59	WG1523155
Benzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Bromobenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Bromodichloromethane	ND		0.500	1	08/10/2020 03:59	WG1523155
Bromoform	ND		0.500	1	08/10/2020 03:59	WG1523155
Bromomethane	ND		2.50	1	08/10/2020 03:59	WG1523155
n-Butylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
sec-Butylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
tert-Butylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Carbon disulfide	ND		0.500	1	08/10/2020 03:59	WG1523155
Carbon tetrachloride	ND		0.500	1	08/10/2020 03:59	WG1523155
Chlorobenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Chlorodibromomethane	ND		0.500	1	08/10/2020 03:59	WG1523155
Chloroethane	ND		2.50	1	08/10/2020 03:59	WG1523155
Chloroform	ND		0.500	1	08/10/2020 03:59	WG1523155
Chloromethane	ND		1.25	1	08/10/2020 03:59	WG1523155
2-Chlorotoluene	ND		0.500	1	08/10/2020 03:59	WG1523155
4-Chlorotoluene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,2-Dibromo-3-Chloropropane	ND		2.50	1	08/10/2020 03:59	WG1523155
1,2-Dibromoethane	ND		0.500	1	08/10/2020 03:59	WG1523155
Dibromomethane	ND		0.500	1	08/10/2020 03:59	WG1523155
1,2-Dichlorobenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,3-Dichlorobenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,4-Dichlorobenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Dichlorodifluoromethane	ND		2.50	1	08/10/2020 03:59	WG1523155
1,1-Dichloroethane	ND		0.500	1	08/10/2020 03:59	WG1523155
1,2-Dichloroethane	ND		0.500	1	08/10/2020 03:59	WG1523155
1,1-Dichloroethene	ND		0.500	1	08/10/2020 03:59	WG1523155
cis-1,2-Dichloroethene	0.684		0.500	1	08/10/2020 03:59	WG1523155
trans-1,2-Dichloroethene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,2-Dichloropropane	ND		0.500	1	08/10/2020 03:59	WG1523155
1,1-Dichloropropene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,3-Dichloropropane	ND		1.00	1	08/10/2020 03:59	WG1523155
cis-1,3-Dichloropropene	ND		0.500	1	08/10/2020 03:59	WG1523155
trans-1,3-Dichloropropene	ND		0.500	1	08/10/2020 03:59	WG1523155
2,2-Dichloropropane	ND		0.500	1	08/10/2020 03:59	WG1523155
Di-isopropyl ether	ND		0.500	1	08/10/2020 03:59	WG1523155
Ethylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Hexachloro-1,3-butadiene	ND		1.00	1	08/10/2020 03:59	WG1523155
Isopropylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
p-Isopropyltoluene	ND		0.500	1	08/10/2020 03:59	WG1523155
2-Butanone (MEK)	ND		5.00	1	08/10/2020 03:59	WG1523155
Methylene Chloride	ND		2.50	1	08/10/2020 03:59	WG1523155
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	08/10/2020 03:59	WG1523155
Methyl tert-butyl ether	ND		0.500	1	08/10/2020 03:59	WG1523155
Naphthalene	ND		2.50	1	08/10/2020 03:59	WG1523155
n-Propylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Styrene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,1,1,2-Tetrachloroethane	ND		0.500	1	08/10/2020 03:59	WG1523155
1,1,2,2-Tetrachloroethane	ND		0.500	1	08/10/2020 03:59	WG1523155
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	08/10/2020 03:59	WG1523155
Tetrachloroethene	ND		0.500	1	08/10/2020 03:59	WG1523155
Toluene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,2,3-Trichlorobenzene	ND		0.500	1	08/10/2020 03:59	WG1523155

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
1,2,4-Trichlorobenzene	ND		1.00	1	08/10/2020 03:59	WG1523155
1,1,1-Trichloroethane	ND		0.500	1	08/10/2020 03:59	WG1523155
1,1,2-Trichloroethane	ND		0.500	1	08/10/2020 03:59	WG1523155
Trichloroethene	6.49		0.500	1	08/10/2020 03:59	WG1523155
Trichlorofluoromethane	ND		2.50	1	08/10/2020 03:59	WG1523155
1,2,3-Trichloropropane	ND		2.50	1	08/10/2020 03:59	WG1523155
1,2,4-Trimethylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,2,3-Trimethylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
1,3,5-Trimethylbenzene	ND		0.500	1	08/10/2020 03:59	WG1523155
Vinyl chloride	ND		0.500	1	08/10/2020 03:59	WG1523155
Xylenes, Total	ND		1.50	1	08/10/2020 03:59	WG1523155
(S) Toluene-d8	104		80.0-120		08/10/2020 03:59	WG1523155
(S) 4-Bromofluorobenzene	91.2		77.0-126		08/10/2020 03:59	WG1523155
(S) 1,2-Dichloroethane-d4	102		70.0-130		08/10/2020 03:59	WG1523155

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



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	08/10/2020 01:18	WG1523155
Acrolein	ND		50.0	1	08/10/2020 01:18	WG1523155
Acrylonitrile	ND		5.00	1	08/10/2020 01:18	WG1523155
Benzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Bromobenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Bromodichloromethane	ND		0.500	1	08/10/2020 01:18	WG1523155
Bromoform	ND		0.500	1	08/10/2020 01:18	WG1523155
Bromomethane	ND		2.50	1	08/10/2020 01:18	WG1523155
n-Butylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
sec-Butylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
tert-Butylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Carbon disulfide	ND		0.500	1	08/10/2020 01:18	WG1523155
Carbon tetrachloride	ND		0.500	1	08/10/2020 01:18	WG1523155
Chlorobenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Chlorodibromomethane	ND		0.500	1	08/10/2020 01:18	WG1523155
Chloroethane	ND		2.50	1	08/10/2020 01:18	WG1523155
Chloroform	ND		0.500	1	08/10/2020 01:18	WG1523155
Chloromethane	ND		1.25	1	08/10/2020 01:18	WG1523155
2-Chlorotoluene	ND		0.500	1	08/10/2020 01:18	WG1523155
4-Chlorotoluene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,2-Dibromo-3-Chloropropane	ND		2.50	1	08/10/2020 01:18	WG1523155
1,2-Dibromoethane	ND		0.500	1	08/10/2020 01:18	WG1523155
Dibromomethane	ND		0.500	1	08/10/2020 01:18	WG1523155
1,2-Dichlorobenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,3-Dichlorobenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,4-Dichlorobenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Dichlorodifluoromethane	ND		2.50	1	08/10/2020 01:18	WG1523155
1,1-Dichloroethane	ND		0.500	1	08/10/2020 01:18	WG1523155
1,2-Dichloroethane	ND		0.500	1	08/10/2020 01:18	WG1523155
1,1-Dichloroethene	ND		0.500	1	08/10/2020 01:18	WG1523155
cis-1,2-Dichloroethene	ND		0.500	1	08/10/2020 01:18	WG1523155
trans-1,2-Dichloroethene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,2-Dichloropropane	ND		0.500	1	08/10/2020 01:18	WG1523155
1,1-Dichloropropene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,3-Dichloropropane	ND		1.00	1	08/10/2020 01:18	WG1523155
cis-1,3-Dichloropropene	ND		0.500	1	08/10/2020 01:18	WG1523155
trans-1,3-Dichloropropene	ND		0.500	1	08/10/2020 01:18	WG1523155
2,2-Dichloropropane	ND		0.500	1	08/10/2020 01:18	WG1523155
Di-isopropyl ether	ND		0.500	1	08/10/2020 01:18	WG1523155
Ethylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Hexachloro-1,3-butadiene	ND		1.00	1	08/10/2020 01:18	WG1523155
Isopropylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
p-Isopropyltoluene	ND		0.500	1	08/10/2020 01:18	WG1523155
2-Butanone (MEK)	ND		5.00	1	08/10/2020 01:18	WG1523155
Methylene Chloride	ND		2.50	1	08/10/2020 01:18	WG1523155
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	08/10/2020 01:18	WG1523155
Methyl tert-butyl ether	ND		0.500	1	08/10/2020 01:18	WG1523155
Naphthalene	ND		2.50	1	08/10/2020 01:18	WG1523155
n-Propylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Styrene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,1,1,2-Tetrachloroethane	ND		0.500	1	08/10/2020 01:18	WG1523155
1,1,2,2-Tetrachloroethane	ND		0.500	1	08/10/2020 01:18	WG1523155
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	08/10/2020 01:18	WG1523155
Tetrachloroethene	ND		0.500	1	08/10/2020 01:18	WG1523155
Toluene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,2,3-Trichlorobenzene	ND		0.500	1	08/10/2020 01:18	WG1523155

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
1,2,4-Trichlorobenzene	ND		1.00	1	08/10/2020 01:18	WG1523155
1,1,1-Trichloroethane	ND		0.500	1	08/10/2020 01:18	WG1523155
1,1,2-Trichloroethane	ND		0.500	1	08/10/2020 01:18	WG1523155
Trichloroethene	ND		0.500	1	08/10/2020 01:18	WG1523155
Trichlorofluoromethane	ND		2.50	1	08/10/2020 01:18	WG1523155
1,2,3-Trichloropropane	ND		2.50	1	08/10/2020 01:18	WG1523155
1,2,4-Trimethylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,2,3-Trimethylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
1,3,5-Trimethylbenzene	ND		0.500	1	08/10/2020 01:18	WG1523155
Vinyl chloride	ND		0.500	1	08/10/2020 01:18	WG1523155
Xylenes, Total	ND		1.50	1	08/10/2020 01:18	WG1523155
(S) Toluene-d8	107		80.0-120		08/10/2020 01:18	WG1523155
(S) 4-Bromofluorobenzene	91.9		77.0-126		08/10/2020 01:18	WG1523155
(S) 1,2-Dichloroethane-d4	103		70.0-130		08/10/2020 01:18	WG1523155

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Method Blank (MB)

(MB) R3558761-3 08/09/20 22:30

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3558761-3 08/09/20 22:30

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
Tetrachloroethene	U		0.300	0.500
Toluene	U		0.278	0.500
1,1,2-Trichlorotrifluoroethane	U		0.180	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
1,2,3-Trimethylbenzene	U		0.104	0.500
1,2,4-Trimethylbenzene	U		0.322	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	106			80.0-120
(S) 4-Bromofluorobenzene	93.8			77.0-126
(S) 1,2-Dichloroethane-d4	99.4			70.0-130

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3558761-1 08/09/20 21:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	25.0	29.6	118	19.0-160	
Acrolein	25.0	28.3	113	10.0-160	
Acrylonitrile	25.0	25.8	103	55.0-149	

Laboratory Control Sample (LCS)

(LCS) R3558761-1 08/09/20 21:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Benzene	5.00	4.89	97.8	70.0-123	
Bromobenzene	5.00	4.30	86.0	73.0-121	
Bromodichloromethane	5.00	4.58	91.6	75.0-120	
Bromoform	5.00	4.82	96.4	68.0-132	
Bromomethane	5.00	5.24	105	10.0-160	
n-Butylbenzene	5.00	4.82	96.4	73.0-125	
sec-Butylbenzene	5.00	4.82	96.4	75.0-125	
tert-Butylbenzene	5.00	4.88	97.6	76.0-124	
Carbon disulfide	5.00	4.92	98.4	61.0-128	
Carbon tetrachloride	5.00	5.16	103	68.0-126	
Chlorobenzene	5.00	4.78	95.6	80.0-121	
Chlorodibromomethane	5.00	4.91	98.2	77.0-125	
Chloroethane	5.00	5.49	110	47.0-150	
Chloroform	5.00	4.90	98.0	73.0-120	
Chloromethane	5.00	5.62	112	41.0-142	
2-Chlorotoluene	5.00	4.50	90.0	76.0-123	
4-Chlorotoluene	5.00	4.22	84.4	75.0-122	
1,2-Dibromo-3-Chloropropane	5.00	5.21	104	58.0-134	
1,2-Dibromoethane	5.00	4.99	99.8	80.0-122	
Dibromomethane	5.00	5.22	104	80.0-120	
1,2-Dichlorobenzene	5.00	5.11	102	79.0-121	
1,3-Dichlorobenzene	5.00	5.27	105	79.0-120	
1,4-Dichlorobenzene	5.00	5.15	103	79.0-120	
Dichlorodifluoromethane	5.00	6.00	120	51.0-149	
1,1-Dichloroethane	5.00	5.32	106	70.0-126	
1,2-Dichloroethane	5.00	5.34	107	70.0-128	
1,1-Dichloroethene	5.00	4.60	92.0	71.0-124	
cis-1,2-Dichloroethene	5.00	4.92	98.4	73.0-120	
trans-1,2-Dichloroethene	5.00	5.24	105	73.0-120	
1,2-Dichloropropane	5.00	5.30	106	77.0-125	
1,1-Dichloropropene	5.00	5.12	102	74.0-126	
1,3-Dichloropropane	5.00	5.40	108	80.0-120	
cis-1,3-Dichloropropene	5.00	4.97	99.4	80.0-123	
trans-1,3-Dichloropropene	5.00	5.24	105	78.0-124	
2,2-Dichloropropane	5.00	4.59	91.8	58.0-130	
Di-isopropyl ether	5.00	5.14	103	58.0-138	
Ethylbenzene	5.00	4.81	96.2	79.0-123	
Hexachloro-1,3-butadiene	5.00	6.09	122	54.0-138	
Isopropylbenzene	5.00	4.64	92.8	76.0-127	
p-Isopropyltoluene	5.00	4.78	95.6	76.0-125	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Laboratory Control Sample (LCS)

(LCS) R3558761-1 08/09/20 21:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
2-Butanone (MEK)	25.0	29.5	118	44.0-160	
Methylene Chloride	5.00	4.64	92.8	67.0-120	
4-Methyl-2-pentanone (MIBK)	25.0	28.4	114	68.0-142	
Methyl tert-butyl ether	5.00	4.38	87.6	68.0-125	
Naphthalene	5.00	5.58	112	54.0-135	
n-Propylbenzene	5.00	4.40	88.0	77.0-124	
Styrene	5.00	4.51	90.2	73.0-130	
1,1,1,2-Tetrachloroethane	5.00	5.16	103	75.0-125	
1,1,2,2-Tetrachloroethane	5.00	4.55	91.0	65.0-130	
Tetrachloroethene	5.00	4.69	93.8	72.0-132	
Toluene	5.00	4.84	96.8	79.0-120	
1,1,2-Trichlorotrifluoroethane	5.00	4.80	96.0	69.0-132	
1,2,3-Trichlorobenzene	5.00	6.58	132	50.0-138	
1,2,4-Trichlorobenzene	5.00	5.92	118	57.0-137	
1,1,1-Trichloroethane	5.00	4.96	99.2	73.0-124	
1,1,2-Trichloroethane	5.00	5.34	107	80.0-120	
Trichloroethene	5.00	5.01	100	78.0-124	
Trichlorofluoromethane	5.00	5.84	117	59.0-147	
1,2,3-Trichloropropane	5.00	5.40	108	73.0-130	
1,2,3-Trimethylbenzene	5.00	4.81	96.2	77.0-120	
1,2,4-Trimethylbenzene	5.00	4.58	91.6	76.0-121	
1,3,5-Trimethylbenzene	5.00	4.79	95.8	76.0-122	
Vinyl chloride	5.00	6.03	121	67.0-131	
Xylenes, Total	15.0	14.6	97.3	79.0-123	
(S) Toluene-d8			99.8	80.0-120	
(S) 4-Bromofluorobenzene			94.7	77.0-126	
(S) 1,2-Dichloroethane-d4			101	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1247571-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1247571-24 08/10/20 01:58 • (MS) R3558761-4 08/10/20 06:40 • (MSD) R3558761-5 08/10/20 07:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Carbon disulfide	5.00	ND	3.46	3.72	69.2	74.4	1	10.0-156			7.24	28
Acetone	25.0	ND	ND	25.8	98.8	103	1	10.0-160			4.36	35
Acrolein	25.0	ND	ND	ND	143	155	1	10.0-160			8.06	39
Acrylonitrile	25.0	ND	23.6	25.3	94.4	101	1	21.0-160			6.95	32
Benzene	5.00	ND	4.48	4.82	89.6	96.4	1	17.0-158			7.31	27
Bromobenzene	5.00	ND	4.22	4.60	84.4	92.0	1	30.0-149			8.62	28

L1247571-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1247571-24 08/10/20 01:58 • (MS) R3558761-4 08/10/20 06:40 • (MSD) R3558761-5 08/10/20 07:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromodichloromethane	5.00	ND	4.32	4.91	86.4	98.2	1	31.0-150			12.8	27
Bromoform	5.00	ND	4.43	4.78	88.6	95.6	1	29.0-150			7.60	29
Bromomethane	5.00	ND	4.15	4.48	83.0	89.6	1	10.0-160			7.65	38
n-Butylbenzene	5.00	ND	4.72	5.29	94.4	106	1	31.0-150			11.4	30
sec-Butylbenzene	5.00	ND	4.67	5.13	93.4	103	1	33.0-155			9.39	29
tert-Butylbenzene	5.00	ND	4.66	5.26	93.2	105	1	34.0-153			12.1	28
Carbon tetrachloride	5.00	ND	5.14	5.46	103	109	1	23.0-159			6.04	28
Chlorobenzene	5.00	ND	4.46	4.86	89.2	97.2	1	33.0-152			8.58	27
Chlorodibromomethane	5.00	ND	4.70	5.02	94.0	100	1	37.0-149			6.58	27
Chloroethane	5.00	ND	4.74	5.10	94.8	102	1	10.0-160			7.32	30
Chloroform	5.00	ND	4.65	4.94	93.0	98.8	1	29.0-154			6.05	28
Chloromethane	5.00	ND	4.71	4.78	94.2	95.6	1	10.0-160			1.48	29
2-Chlorotoluene	5.00	ND	4.39	4.76	87.8	95.2	1	32.0-153			8.09	28
4-Chlorotoluene	5.00	ND	4.26	4.62	85.2	92.4	1	32.0-150			8.11	28
1,2-Dibromo-3-Chloropropane	5.00	ND	5.27	5.88	105	118	1	22.0-151			10.9	34
1,2-Dibromoethane	5.00	ND	4.62	4.87	92.4	97.4	1	34.0-147			5.27	27
Dibromomethane	5.00	ND	4.16	5.14	83.2	103	1	30.0-151			21.1	27
1,2-Dichlorobenzene	5.00	ND	5.06	5.61	101	112	1	34.0-149			10.3	28
1,3-Dichlorobenzene	5.00	ND	5.14	5.14	103	103	1	36.0-146			0.000	27
1,4-Dichlorobenzene	5.00	ND	5.02	5.99	100	120	1	35.0-142			17.6	27
Dichlorodifluoromethane	5.00	ND	5.61	6.04	112	121	1	10.0-160			7.38	29
1,1-Dichloroethane	5.00	ND	5.06	5.49	101	110	1	25.0-158			8.15	27
1,2-Dichloroethane	5.00	ND	5.16	5.32	103	106	1	29.0-151			3.05	27
1,1-Dichloroethene	5.00	ND	4.57	4.84	91.4	96.8	1	11.0-160			5.74	29
cis-1,2-Dichloroethene	5.00	ND	4.45	4.98	89.0	99.6	1	10.0-160			11.2	27
trans-1,2-Dichloroethene	5.00	ND	4.34	4.84	86.8	96.8	1	17.0-153			10.9	27
1,2-Dichloropropane	5.00	0.673	4.97	5.63	85.9	99.1	1	30.0-156			12.5	27
1,1-Dichloropropene	5.00	ND	5.01	5.12	100	102	1	25.0-158			2.17	27
1,3-Dichloropropane	5.00	ND	5.13	5.56	103	111	1	38.0-147			8.04	27
cis-1,3-Dichloropropene	5.00	ND	4.48	4.88	89.6	97.6	1	34.0-149			8.55	28
trans-1,3-Dichloropropene	5.00	ND	4.77	5.18	95.4	104	1	32.0-149			8.24	28
2,2-Dichloropropane	5.00	ND	4.64	5.02	92.8	100	1	24.0-152			7.87	29
Di-isopropyl ether	5.00	ND	4.80	5.31	96.0	106	1	21.0-160			10.1	28
Ethylbenzene	5.00	ND	4.86	5.14	97.2	103	1	30.0-155			5.60	27
Hexachloro-1,3-butadiene	5.00	ND	6.03	6.82	121	136	1	20.0-154			12.3	34
Isopropylbenzene	5.00	ND	4.47	4.91	89.4	98.2	1	28.0-157			9.38	27
p-Isopropyltoluene	5.00	ND	4.86	5.20	97.2	104	1	30.0-154			6.76	29
2-Butanone (MEK)	25.0	ND	26.9	29.5	108	118	1	10.0-160			9.22	32
Methylene Chloride	5.00	ND	4.30	4.50	86.0	90.0	1	23.0-144			4.55	28
4-Methyl-2-pentanone (MIBK)	25.0	ND	28.6	30.7	114	123	1	29.0-160			7.08	29

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1247571-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1247571-24 08/10/20 01:58 • (MS) R3558761-4 08/10/20 06:40 • (MSD) R3558761-5 08/10/20 07:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Methyl tert-butyl ether	5.00	ND	4.21	4.64	84.2	92.8	1	28.0-150			9.72	29
Naphthalene	5.00	ND	5.56	5.72	111	114	1	12.0-156			2.84	35
n-Propylbenzene	5.00	ND	4.31	4.70	86.2	94.0	1	31.0-154			8.66	28
Styrene	5.00	ND	4.32	4.50	86.4	90.0	1	33.0-155			4.08	28
1,1,1,2-Tetrachloroethane	5.00	ND	4.99	5.25	99.8	105	1	36.0-151			5.08	29
1,1,2,2-Tetrachloroethane	5.00	ND	4.68	5.07	93.6	101	1	33.0-150			8.00	28
Tetrachloroethene	5.00	ND	4.57	4.92	91.4	98.4	1	10.0-160			7.38	27
Toluene	5.00	ND	4.66	4.86	93.2	97.2	1	26.0-154			4.20	28
1,1,2-Trichlorotrifluoroethane	5.00	ND	4.98	5.40	99.6	108	1	23.0-160			8.09	30
1,2,3-Trichlorobenzene	5.00	ND	6.31	6.75	126	135	1	17.0-150			6.74	36
1,2,4-Trichlorobenzene	5.00	ND	5.46	6.16	109	123	1	24.0-150			12.0	33
1,1,1-Trichloroethane	5.00	ND	4.71	5.28	94.2	106	1	23.0-160			11.4	28
1,1,2-Trichloroethane	5.00	ND	5.02	5.28	100	106	1	35.0-147			5.05	27
Trichloroethene	5.00	ND	4.74	4.79	94.8	95.8	1	10.0-160			1.05	25
Trichlorofluoromethane	5.00	ND	5.58	6.15	112	123	1	17.0-160			9.72	31
1,2,3-Trichloropropane	5.00	ND	5.02	5.48	100	110	1	34.0-151			8.76	29
1,2,3-Trimethylbenzene	5.00	ND	4.51	5.01	90.2	100	1	32.0-149			10.5	28
1,2,4-Trimethylbenzene	5.00	ND	4.37	4.72	87.4	94.4	1	26.0-154			7.70	27
1,3,5-Trimethylbenzene	5.00	ND	4.22	4.99	84.4	99.8	1	28.0-153			16.7	27
Vinyl chloride	5.00	ND	5.29	5.64	106	113	1	10.0-160			6.40	27
Xylenes, Total	15.0	ND	13.7	14.8	91.3	98.7	1	29.0-154			7.72	28
(S) Toluene-d8					102	98.2		80.0-120				
(S) 4-Bromofluorobenzene					93.3	93.5		77.0-126				
(S) 1,2-Dichloroethane-d4					105	102		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.

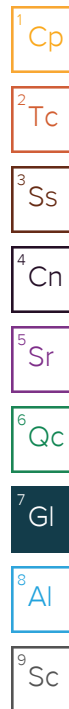
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

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





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

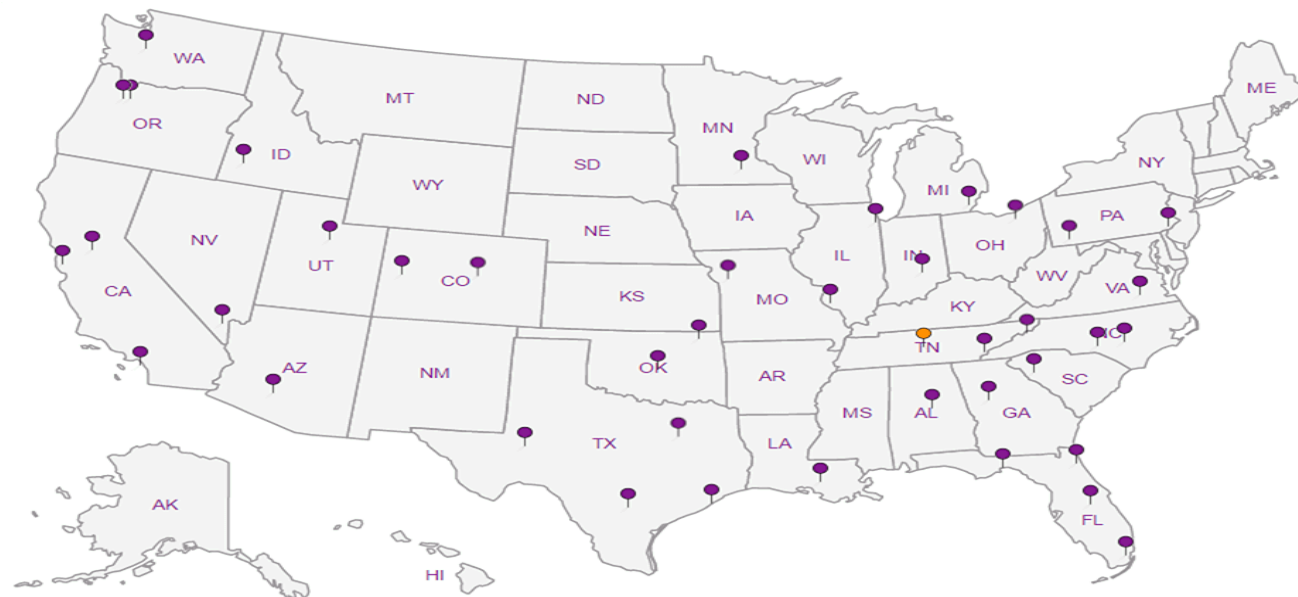
Third Party Federal Accreditations

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.



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