

Cascade Corporation- Fairview, OR

Sample Delivery Group: L1019536
Samples Received: 08/21/2018
Project Number: PNG0564
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SAMPLE SUMMARY



CMW-36DG-082018 L1019536-01 GW

Collected by Pat Yadon	Collected date/time 08/20/18 13:20	Received date/time 08/21/18 08:45
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Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1155525	1	08/22/18 07:58	08/22/18 07:58	BMB

1
Cp

2
Tc

3
Ss

TRIP BLANK LOT #404 L1019536-02 GW

Collected by Pat Yadon	Collected date/time 08/20/18 00:00	Received date/time 08/21/18 08:45
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Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1155525	1	08/22/18 01:59	08/22/18 01:59	BMB

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
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



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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	08/22/2018 07:58	WG1155525
Acrolein	ND		50.0	1	08/22/2018 07:58	WG1155525
Acrylonitrile	ND		5.00	1	08/22/2018 07:58	WG1155525
Benzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Bromobenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Bromodichloromethane	ND		0.500	1	08/22/2018 07:58	WG1155525
Bromoform	ND		0.500	1	08/22/2018 07:58	WG1155525
Bromomethane	ND		2.50	1	08/22/2018 07:58	WG1155525
n-Butylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
sec-Butylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
tert-Butylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Carbon disulfide	ND		0.500	1	08/22/2018 07:58	WG1155525
Carbon tetrachloride	ND		0.500	1	08/22/2018 07:58	WG1155525
Chlorobenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Chlorodibromomethane	ND		0.500	1	08/22/2018 07:58	WG1155525
Chloroethane	ND		2.50	1	08/22/2018 07:58	WG1155525
Chloroform	ND		0.500	1	08/22/2018 07:58	WG1155525
Chloromethane	ND		1.25	1	08/22/2018 07:58	WG1155525
2-Chlorotoluene	ND		0.500	1	08/22/2018 07:58	WG1155525
4-Chlorotoluene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,2-Dibromo-3-Chloropropane	ND		2.50	1	08/22/2018 07:58	WG1155525
1,2-Dibromoethane	ND		0.500	1	08/22/2018 07:58	WG1155525
Dibromomethane	ND		0.500	1	08/22/2018 07:58	WG1155525
1,2-Dichlorobenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,3-Dichlorobenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,4-Dichlorobenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Dichlorodifluoromethane	ND		2.50	1	08/22/2018 07:58	WG1155525
1,1-Dichloroethane	ND		0.500	1	08/22/2018 07:58	WG1155525
1,2-Dichloroethane	ND		0.500	1	08/22/2018 07:58	WG1155525
1,1-Dichloroethene	ND		0.500	1	08/22/2018 07:58	WG1155525
cis-1,2-Dichloroethene	ND		0.500	1	08/22/2018 07:58	WG1155525
trans-1,2-Dichloroethene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,2-Dichloropropane	ND		0.500	1	08/22/2018 07:58	WG1155525
1,1-Dichloropropene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,3-Dichloropropane	ND		1.00	1	08/22/2018 07:58	WG1155525
cis-1,3-Dichloropropene	ND		0.500	1	08/22/2018 07:58	WG1155525
trans-1,3-Dichloropropene	ND		0.500	1	08/22/2018 07:58	WG1155525
2,2-Dichloropropane	ND		0.500	1	08/22/2018 07:58	WG1155525
Di-isopropyl ether	ND		0.500	1	08/22/2018 07:58	WG1155525
Ethylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Hexachloro-1,3-butadiene	ND		1.00	1	08/22/2018 07:58	WG1155525
Isopropylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
p-Isopropyltoluene	ND		0.500	1	08/22/2018 07:58	WG1155525
2-Butanone (MEK)	ND		5.00	1	08/22/2018 07:58	WG1155525
Methylene Chloride	ND		2.50	1	08/22/2018 07:58	WG1155525
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	08/22/2018 07:58	WG1155525
Methyl tert-butyl ether	ND		0.500	1	08/22/2018 07:58	WG1155525
Naphthalene	ND	<u>J4</u>	2.50	1	08/22/2018 07:58	WG1155525
n-Propylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Styrene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,1,1,2-Tetrachloroethane	ND		0.500	1	08/22/2018 07:58	WG1155525
1,1,2,2-Tetrachloroethane	ND		0.500	1	08/22/2018 07:58	WG1155525
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	08/22/2018 07:58	WG1155525
Tetrachloroethene	ND		0.500	1	08/22/2018 07:58	WG1155525
Toluene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,2,3-Trichlorobenzene	ND		0.500	1	08/22/2018 07:58	WG1155525

- 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 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,1,1-Trichloroethane	ND		0.500	1	08/22/2018 07:58	WG1155525
1,1,2-Trichloroethane	ND		0.500	1	08/22/2018 07:58	WG1155525
Trichloroethene	ND		0.500	1	08/22/2018 07:58	WG1155525
Trichlorofluoromethane	ND		2.50	1	08/22/2018 07:58	WG1155525
1,2,3-Trichloropropane	ND		2.50	1	08/22/2018 07:58	WG1155525
1,2,4-Trimethylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,2,3-Trimethylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
1,3,5-Trimethylbenzene	ND		0.500	1	08/22/2018 07:58	WG1155525
Vinyl chloride	ND		0.500	1	08/22/2018 07:58	WG1155525
Xylenes, Total	ND		1.50	1	08/22/2018 07:58	WG1155525
(S) Toluene-d8	100		80.0-120		08/22/2018 07:58	WG1155525
(S) Dibromofluoromethane	98.2		76.0-123		08/22/2018 07:58	WG1155525
(S) 4-Bromofluorobenzene	99.7		80.0-120		08/22/2018 07:58	WG1155525

- 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 8260B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	08/22/2018 01:59	WG1155525
Acrolein	ND		50.0	1	08/22/2018 01:59	WG1155525
Acrylonitrile	ND		5.00	1	08/22/2018 01:59	WG1155525
Benzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Bromobenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Bromodichloromethane	ND		0.500	1	08/22/2018 01:59	WG1155525
Bromoform	ND		0.500	1	08/22/2018 01:59	WG1155525
Bromomethane	ND		2.50	1	08/22/2018 01:59	WG1155525
n-Butylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
sec-Butylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
tert-Butylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Carbon disulfide	ND		0.500	1	08/22/2018 01:59	WG1155525
Carbon tetrachloride	ND		0.500	1	08/22/2018 01:59	WG1155525
Chlorobenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Chlorodibromomethane	ND		0.500	1	08/22/2018 01:59	WG1155525
Chloroethane	ND		2.50	1	08/22/2018 01:59	WG1155525
Chloroform	ND		0.500	1	08/22/2018 01:59	WG1155525
Chloromethane	ND		1.25	1	08/22/2018 01:59	WG1155525
2-Chlorotoluene	ND		0.500	1	08/22/2018 01:59	WG1155525
4-Chlorotoluene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,2-Dibromo-3-Chloropropane	ND		2.50	1	08/22/2018 01:59	WG1155525
1,2-Dibromoethane	ND		0.500	1	08/22/2018 01:59	WG1155525
Dibromomethane	ND		0.500	1	08/22/2018 01:59	WG1155525
1,2-Dichlorobenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,3-Dichlorobenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,4-Dichlorobenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Dichlorodifluoromethane	ND		2.50	1	08/22/2018 01:59	WG1155525
1,1-Dichloroethane	ND		0.500	1	08/22/2018 01:59	WG1155525
1,2-Dichloroethane	ND		0.500	1	08/22/2018 01:59	WG1155525
1,1-Dichloroethene	ND		0.500	1	08/22/2018 01:59	WG1155525
cis-1,2-Dichloroethene	ND		0.500	1	08/22/2018 01:59	WG1155525
trans-1,2-Dichloroethene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,2-Dichloropropane	ND		0.500	1	08/22/2018 01:59	WG1155525
1,1-Dichloropropene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,3-Dichloropropane	ND		1.00	1	08/22/2018 01:59	WG1155525
cis-1,3-Dichloropropene	ND		0.500	1	08/22/2018 01:59	WG1155525
trans-1,3-Dichloropropene	ND		0.500	1	08/22/2018 01:59	WG1155525
2,2-Dichloropropane	ND		0.500	1	08/22/2018 01:59	WG1155525
Di-isopropyl ether	ND		0.500	1	08/22/2018 01:59	WG1155525
Ethylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Hexachloro-1,3-butadiene	ND		1.00	1	08/22/2018 01:59	WG1155525
Isopropylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
p-Isopropyltoluene	ND		0.500	1	08/22/2018 01:59	WG1155525
2-Butanone (MEK)	ND		5.00	1	08/22/2018 01:59	WG1155525
Methylene Chloride	ND		2.50	1	08/22/2018 01:59	WG1155525
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	08/22/2018 01:59	WG1155525
Methyl tert-butyl ether	ND		0.500	1	08/22/2018 01:59	WG1155525
Naphthalene	ND	<u>J4</u>	2.50	1	08/22/2018 01:59	WG1155525
n-Propylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Styrene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,1,1,2-Tetrachloroethane	ND		0.500	1	08/22/2018 01:59	WG1155525
1,1,2,2-Tetrachloroethane	ND		0.500	1	08/22/2018 01:59	WG1155525
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	08/22/2018 01:59	WG1155525
Tetrachloroethene	ND		0.500	1	08/22/2018 01:59	WG1155525
Toluene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,2,3-Trichlorobenzene	ND		0.500	1	08/22/2018 01:59	WG1155525

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 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,1,1-Trichloroethane	ND		0.500	1	08/22/2018 01:59	WG1155525
1,1,2-Trichloroethane	ND		0.500	1	08/22/2018 01:59	WG1155525
Trichloroethene	ND		0.500	1	08/22/2018 01:59	WG1155525
Trichlorofluoromethane	ND		2.50	1	08/22/2018 01:59	WG1155525
1,2,3-Trichloropropane	ND		2.50	1	08/22/2018 01:59	WG1155525
1,2,4-Trimethylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,2,3-Trimethylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
1,3,5-Trimethylbenzene	ND		0.500	1	08/22/2018 01:59	WG1155525
Vinyl chloride	ND		0.500	1	08/22/2018 01:59	WG1155525
Xylenes, Total	ND		1.50	1	08/22/2018 01:59	WG1155525
(S) Toluene-d8	101		80.0-120		08/22/2018 01:59	WG1155525
(S) Dibromofluoromethane	97.4		76.0-123		08/22/2018 01:59	WG1155525
(S) 4-Bromofluorobenzene	101		80.0-120		08/22/2018 01:59	WG1155525

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3335882-3 08/21/18 23:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		1.05	25.0
Acrolein	U		3.97	50.0
Acrylonitrile	U		0.873	5.00
Benzene	U		0.0896	0.500
Bromobenzene	U		0.133	0.500
Bromodichloromethane	U		0.0800	0.500
Bromoform	U		0.186	0.500
Bromomethane	U		0.157	2.50
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	0.500
Carbon disulfide	U		0.101	0.500
Carbon tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chlorodibromomethane	U		0.128	0.500
Chloroethane	U		0.141	2.50
Chloroform	U		0.0860	0.500
Chloromethane	U		0.153	1.25
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
2-Chlorotoluene	U		0.111	0.500
1,2-Dibromoethane	U		0.193	0.500
4-Chlorotoluene	U		0.0972	0.500
Dibromomethane	U		0.117	0.500
1,2-Dichlorobenzene	U		0.101	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,4-Dichlorobenzene	U		0.121	0.500
Dichlorodifluoromethane	U		0.127	2.50
1,1-Dichloroethane	U		0.114	0.500
1,2-Dichloroethane	U		0.108	0.500
1,1-Dichloroethene	U		0.188	0.500
cis-1,2-Dichloroethene	U		0.0933	0.500
trans-1,2-Dichloroethene	U		0.152	0.500
1,2-Dichloropropane	U		0.190	0.500
1,1-Dichloropropene	U		0.128	0.500
cis-1,3-Dichloropropene	U		0.0976	0.500
1,3-Dichloropropane	U		0.147	1.00
trans-1,3-Dichloropropene	U		0.222	0.500
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500
Ethylbenzene	U		0.158	0.500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3335882-3 08/21/18 23:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	U		0.157	1.00
Isopropylbenzene	U		0.126	0.500
p-Isopropyltoluene	U		0.138	0.500
2-Butanone (MEK)	U		1.28	5.00
Methylene Chloride	U		1.07	2.50
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
n-Propylbenzene	U		0.162	0.500
Styrene	U		0.117	0.500
1,1,1,2-Tetrachloroethane	U		0.120	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2-Trichloroethane	U		0.186	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
1,2,3-Trichloropropane	U		0.247	2.50
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,2,4-Trimethylbenzene	U		0.123	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Vinyl chloride	U		0.118	0.500
Xylenes, Total	U		0.316	1.50
(S) Toluene-d8	101			80.0-120
(S) Dibromofluoromethane	96.1			76.0-123
(S) 4-Bromofluorobenzene	100			80.0-120

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS)

(LCS) R3335882-1 08/21/18 22:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	125	86.9	69.6	10.0-160	
Acrylonitrile	125	95.4	76.3	60.0-142	
Benzene	25.0	25.1	100	69.0-123	



Laboratory Control Sample (LCS)

(LCS) R3335882-1 08/21/18 22:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Bromobenzene	25.0	26.3	105	79.0-120	
Bromodichloromethane	25.0	25.5	102	76.0-120	
Bromoform	25.0	26.5	106	67.0-132	
Bromomethane	25.0	23.9	95.5	18.0-160	
n-Butylbenzene	25.0	24.8	99.1	72.0-126	
sec-Butylbenzene	25.0	26.8	107	74.0-121	
tert-Butylbenzene	25.0	27.8	111	75.0-122	
Acrolein	125	134	107	10.0-160	
Carbon disulfide	25.0	29.0	116	55.0-127	
Carbon tetrachloride	25.0	27.2	109	63.0-122	
Chlorobenzene	25.0	26.9	108	79.0-121	
Chlorodibromomethane	25.0	26.6	106	75.0-125	
Chloroethane	25.0	23.5	94.2	47.0-152	
Chloroform	25.0	25.6	102	72.0-121	
Chloromethane	25.0	22.3	89.2	48.0-139	
1,2-Dibromo-3-Chloropropane	25.0	17.3	69.1	64.0-127	
1,2-Dibromoethane	25.0	23.5	93.9	77.0-123	
Dibromomethane	25.0	23.8	95.0	78.0-120	
1,2-Dichlorobenzene	25.0	25.4	102	80.0-120	
1,3-Dichlorobenzene	25.0	26.4	105	72.0-123	
1,4-Dichlorobenzene	25.0	25.4	102	77.0-120	
Dichlorodifluoromethane	25.0	23.9	95.6	49.0-155	
1,1-Dichloroethane	25.0	25.6	102	70.0-126	
1,2-Dichloroethane	25.0	23.5	94.2	67.0-126	
1,1-Dichloroethene	25.0	29.9	120	64.0-129	
2-Chlorotoluene	25.0	27.6	110	74.0-122	
4-Chlorotoluene	25.0	27.0	108	79.0-120	
cis-1,2-Dichloroethene	25.0	26.5	106	73.0-120	
trans-1,2-Dichloroethene	25.0	25.7	103	71.0-121	
1,2-Dichloropropane	25.0	26.4	106	75.0-125	
cis-1,3-Dichloropropene	25.0	26.6	106	79.0-123	
trans-1,3-Dichloropropene	25.0	25.8	103	74.0-127	
Di-isopropyl ether	25.0	27.1	108	59.0-133	
Ethylbenzene	25.0	26.2	105	77.0-120	
1,1-Dichloropropene	25.0	25.5	102	71.0-129	
1,3-Dichloropropane	25.0	24.5	98.0	80.0-121	
Isopropylbenzene	25.0	27.7	111	75.0-120	
p-Isopropyltoluene	25.0	26.9	107	74.0-126	
2-Butanone (MEK)	125	91.0	72.8	37.0-158	
2,2-Dichloropropane	25.0	27.2	109	60.0-125	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Laboratory Control Sample (LCS)

(LCS) R3335882-1 08/21/18 22:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Methylene Chloride	25.0	26.6	106	66.0-121	
4-Methyl-2-pentanone (MIBK)	125	102	81.7	59.0-143	
Methyl tert-butyl ether	25.0	26.4	106	64.0-123	
Naphthalene	25.0	14.2	56.6	62.0-128	J4
Hexachloro-1,3-butadiene	25.0	24.2	96.6	64.0-131	
n-Propylbenzene	25.0	26.9	108	79.0-120	
Styrene	25.0	28.4	114	78.0-124	
1,1,1,2-Tetrachloroethane	25.0	27.9	112	75.0-122	
1,1,2,2-Tetrachloroethane	25.0	22.9	91.7	71.0-122	
Tetrachloroethene	25.0	27.1	108	70.0-127	
Toluene	25.0	25.4	102	77.0-120	
1,2,3-Trichlorobenzene	25.0	16.7	66.9	61.0-133	
1,2,4-Trichlorobenzene	25.0	22.0	88.1	69.0-129	
1,1,1-Trichloroethane	25.0	27.9	112	68.0-122	
1,1,2-Trichloroethane	25.0	24.6	98.6	78.0-120	
Trichloroethene	25.0	26.9	107	78.0-120	
Trichlorofluoromethane	25.0	26.5	106	56.0-137	
1,2,3-Trichloropropane	25.0	22.7	90.9	72.0-124	
1,2,3-Trimethylbenzene	25.0	25.4	102	75.0-120	
1,2,4-Trimethylbenzene	25.0	27.2	109	75.0-120	
1,3,5-Trimethylbenzene	25.0	27.8	111	75.0-120	
Vinyl chloride	25.0	24.8	99.2	64.0-133	
Xylenes, Total	75.0	78.2	104	77.0-120	
1,1,2-Trichlorotrifluoroethane	25.0	27.9	112	61.0-136	
(S) Toluene-d8			99.6	80.0-120	
(S) Dibromofluoromethane			96.8	76.0-123	
(S) 4-Bromofluorobenzene			98.4	80.0-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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.

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.
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.
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.

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

Qualifier	Description
J4	The associated batch QC was outside the established quality control range for accuracy.



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	T 104704245-17-14
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

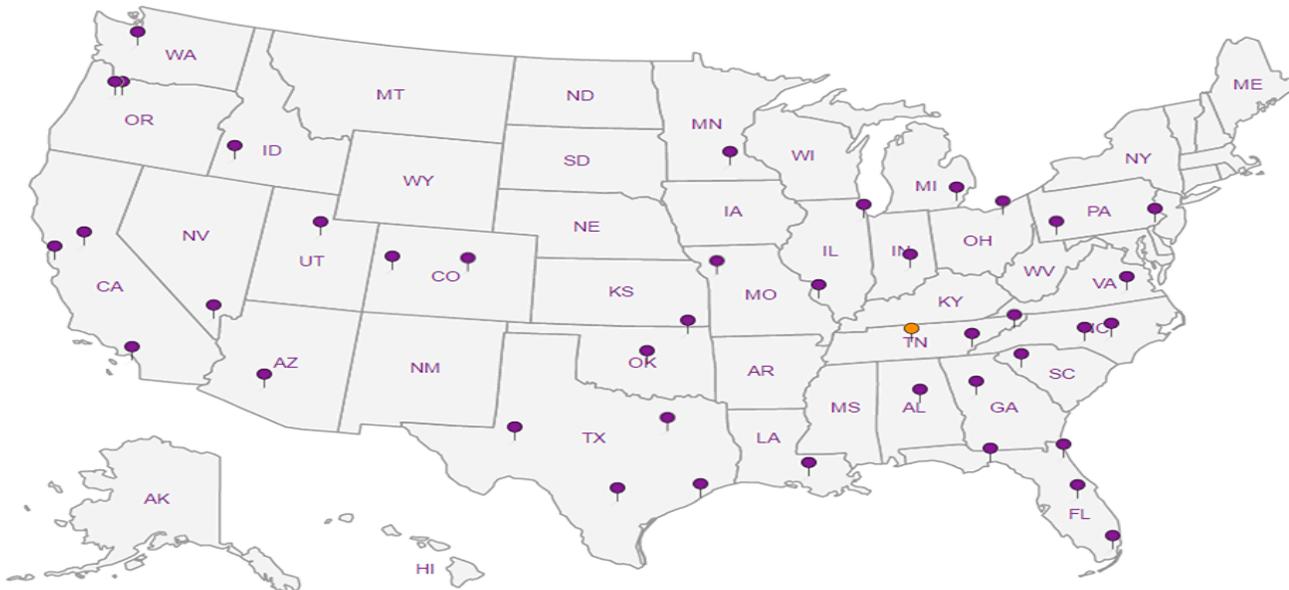
Third Party Federal Accreditations

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Cascade Corporation- Fairview, OR
 2201 NE 201st Avenue
 Fairview, OR 97024-9718

Billing Information:
Accounts Payable
 P.O. Box 20187
 Portland, OR 97294-0187

Report to:
Cindy Bartlett

Email To: **CBartlett@Geosyntec.com**

Project Description: **Cascade TSA**

City/State Collected:
 Lab Project # **CASCORFOR-PNG0564**

Phone: **503-669-6286**
 Fax:

Client Project # **PNG0564**

Collected by (print):
PAT YADON

Site/Facility ID #

P.O. #

Collected by (signature):
Patrick E Yodon

Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #
 Date Results Needed
ASAP Standard Turnaround No.

Immediately Packed on Ice: N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Contrs
CMW3bdg-082018		GW		8/20/18	13:20	3
TRIP BLANK LOT#404		H₂O		8/20/18	NA	1
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				

VOCs V8260LL 40mlAmb-HCl

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



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



L# **L109536**
A087
 Acctnum: **CASCORFOR**
 Template: **T138629**
 Prelogin: **P663642**
 TSR: **110 - Brian Ford**
 PB: **7/20/18**
 Shipped Via: **FedEx Ground**

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks: *** STANDARD Turnaround**

pH _____ Temp _____
 Flow _____ Other _____

Samples returned via:
 UPS FedEx Courier

Tracking # **4492 6217 8315**

Sample Receipt Checklist
 COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N

Relinquished by: (Signature)
Patrick Yodon

Date: **8/20/18** Time: **14:55**

Received by: (Signature)
FED EX

Trip Blank Received: No
 MeOH

Relinquished by: (Signature)

Date: _____ Time: _____

Received by: (Signature)

Temp: **16.3** °C Bottles Received: **3**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____ Time: _____

Received for lab by: (Signature)
Kathryn An

Date: **8/21/18** Time: **0845**

Hold: _____ Condition: **NCF / OK**