

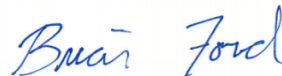
July 30, 2018

Cascade Corporation- Fairview, OR

Sample Delivery Group: L1011440
Samples Received: 07/21/2018
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



CMW36DG-072018 L1011440-01 GW

Collected by Pat Yadon	Collected date/time 07/20/18 13:15	Received date/time 07/21/18 08:33
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Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1141579	1	07/23/18 05:21	07/23/18 05:21	LRL

¹ Cp

² Tc

³ Ss

TRIP BLANK#388 L1011440-02 GW

Collected by Pat Yadon	Collected date/time 07/20/18 00:00	Received date/time 07/21/18 08:33
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Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1141579	1	07/23/18 00:43	07/23/18 00:43	LRL

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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	07/23/2018 05:21	WG1141579
Acrolein	ND		50.0	1	07/23/2018 05:21	WG1141579
Acrylonitrile	ND		5.00	1	07/23/2018 05:21	WG1141579
Benzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Bromobenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Bromodichloromethane	ND		0.500	1	07/23/2018 05:21	WG1141579
Bromoform	ND		0.500	1	07/23/2018 05:21	WG1141579
Bromomethane	ND		2.50	1	07/23/2018 05:21	WG1141579
n-Butylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
sec-Butylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
tert-Butylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Carbon disulfide	ND		0.500	1	07/23/2018 05:21	WG1141579
Carbon tetrachloride	ND		0.500	1	07/23/2018 05:21	WG1141579
Chlorobenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Chlorodibromomethane	ND		0.500	1	07/23/2018 05:21	WG1141579
Chloroethane	ND		2.50	1	07/23/2018 05:21	WG1141579
Chloroform	ND		0.500	1	07/23/2018 05:21	WG1141579
Chloromethane	ND		1.25	1	07/23/2018 05:21	WG1141579
2-Chlorotoluene	ND		0.500	1	07/23/2018 05:21	WG1141579
4-Chlorotoluene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,2-Dibromo-3-Chloropropane	ND		2.50	1	07/23/2018 05:21	WG1141579
1,2-Dibromoethane	ND		0.500	1	07/23/2018 05:21	WG1141579
Dibromomethane	ND		0.500	1	07/23/2018 05:21	WG1141579
1,2-Dichlorobenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,3-Dichlorobenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,4-Dichlorobenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Dichlorodifluoromethane	ND		2.50	1	07/23/2018 05:21	WG1141579
1,1-Dichloroethane	ND		0.500	1	07/23/2018 05:21	WG1141579
1,2-Dichloroethane	ND		0.500	1	07/23/2018 05:21	WG1141579
1,1-Dichloroethene	ND		0.500	1	07/23/2018 05:21	WG1141579
cis-1,2-Dichloroethene	ND		0.500	1	07/23/2018 05:21	WG1141579
trans-1,2-Dichloroethene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,2-Dichloropropane	ND		0.500	1	07/23/2018 05:21	WG1141579
1,1-Dichloropropene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,3-Dichloropropane	ND		1.00	1	07/23/2018 05:21	WG1141579
cis-1,3-Dichloropropene	ND		0.500	1	07/23/2018 05:21	WG1141579
trans-1,3-Dichloropropene	ND		0.500	1	07/23/2018 05:21	WG1141579
2,2-Dichloropropane	ND		0.500	1	07/23/2018 05:21	WG1141579
Di-isopropyl ether	ND		0.500	1	07/23/2018 05:21	WG1141579
Ethylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Hexachloro-1,3-butadiene	ND		1.00	1	07/23/2018 05:21	WG1141579
Isopropylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
p-Isopropyltoluene	ND		0.500	1	07/23/2018 05:21	WG1141579
2-Butanone (MEK)	ND		5.00	1	07/23/2018 05:21	WG1141579
Methylene Chloride	ND		2.50	1	07/23/2018 05:21	WG1141579
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	07/23/2018 05:21	WG1141579
Methyl tert-butyl ether	ND		0.500	1	07/23/2018 05:21	WG1141579
Naphthalene	ND		2.50	1	07/23/2018 05:21	WG1141579
n-Propylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Styrene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,1,1,2-Tetrachloroethane	ND		0.500	1	07/23/2018 05:21	WG1141579
1,1,2,2-Tetrachloroethane	ND		0.500	1	07/23/2018 05:21	WG1141579
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	07/23/2018 05:21	WG1141579
Tetrachloroethene	ND		0.500	1	07/23/2018 05:21	WG1141579
Toluene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,2,3-Trichlorobenzene	ND		0.500	1	07/23/2018 05:21	WG1141579

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	07/23/2018 05:21	WG1141579
1,1,1-Trichloroethane	ND		0.500	1	07/23/2018 05:21	WG1141579
1,1,2-Trichloroethane	ND		0.500	1	07/23/2018 05:21	WG1141579
Trichloroethene	ND		0.500	1	07/23/2018 05:21	WG1141579
Trichlorofluoromethane	ND		2.50	1	07/23/2018 05:21	WG1141579
1,2,3-Trichloropropane	ND		2.50	1	07/23/2018 05:21	WG1141579
1,2,4-Trimethylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,2,3-Trimethylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
1,3,5-Trimethylbenzene	ND		0.500	1	07/23/2018 05:21	WG1141579
Vinyl chloride	ND		0.500	1	07/23/2018 05:21	WG1141579
Xylenes, Total	ND		1.50	1	07/23/2018 05:21	WG1141579
(S) Toluene-d8	107		80.0-120		07/23/2018 05:21	WG1141579
(S) Dibromofluoromethane	101		76.0-123		07/23/2018 05:21	WG1141579
(S) 4-Bromofluorobenzene	89.7		80.0-120		07/23/2018 05:21	WG1141579

- 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	07/23/2018 00:43	WG1141579
Acrolein	ND		50.0	1	07/23/2018 00:43	WG1141579
Acrylonitrile	ND		5.00	1	07/23/2018 00:43	WG1141579
Benzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Bromobenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Bromodichloromethane	ND		0.500	1	07/23/2018 00:43	WG1141579
Bromoform	ND		0.500	1	07/23/2018 00:43	WG1141579
Bromomethane	ND		2.50	1	07/23/2018 00:43	WG1141579
n-Butylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
sec-Butylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
tert-Butylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Carbon disulfide	ND		0.500	1	07/23/2018 00:43	WG1141579
Carbon tetrachloride	ND		0.500	1	07/23/2018 00:43	WG1141579
Chlorobenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Chlorodibromomethane	ND		0.500	1	07/23/2018 00:43	WG1141579
Chloroethane	ND		2.50	1	07/23/2018 00:43	WG1141579
Chloroform	ND		0.500	1	07/23/2018 00:43	WG1141579
Chloromethane	ND		1.25	1	07/23/2018 00:43	WG1141579
2-Chlorotoluene	ND		0.500	1	07/23/2018 00:43	WG1141579
4-Chlorotoluene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,2-Dibromo-3-Chloropropane	ND		2.50	1	07/23/2018 00:43	WG1141579
1,2-Dibromoethane	ND		0.500	1	07/23/2018 00:43	WG1141579
Dibromomethane	ND		0.500	1	07/23/2018 00:43	WG1141579
1,2-Dichlorobenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,3-Dichlorobenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,4-Dichlorobenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Dichlorodifluoromethane	ND		2.50	1	07/23/2018 00:43	WG1141579
1,1-Dichloroethane	ND		0.500	1	07/23/2018 00:43	WG1141579
1,2-Dichloroethane	ND		0.500	1	07/23/2018 00:43	WG1141579
1,1-Dichloroethene	ND		0.500	1	07/23/2018 00:43	WG1141579
cis-1,2-Dichloroethene	ND		0.500	1	07/23/2018 00:43	WG1141579
trans-1,2-Dichloroethene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,2-Dichloropropane	ND		0.500	1	07/23/2018 00:43	WG1141579
1,1-Dichloropropene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,3-Dichloropropane	ND		1.00	1	07/23/2018 00:43	WG1141579
cis-1,3-Dichloropropene	ND		0.500	1	07/23/2018 00:43	WG1141579
trans-1,3-Dichloropropene	ND		0.500	1	07/23/2018 00:43	WG1141579
2,2-Dichloropropane	ND		0.500	1	07/23/2018 00:43	WG1141579
Di-isopropyl ether	ND		0.500	1	07/23/2018 00:43	WG1141579
Ethylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Hexachloro-1,3-butadiene	ND		1.00	1	07/23/2018 00:43	WG1141579
Isopropylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
p-Isopropyltoluene	ND		0.500	1	07/23/2018 00:43	WG1141579
2-Butanone (MEK)	ND		5.00	1	07/23/2018 00:43	WG1141579
Methylene Chloride	ND		2.50	1	07/23/2018 00:43	WG1141579
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	07/23/2018 00:43	WG1141579
Methyl tert-butyl ether	ND		0.500	1	07/23/2018 00:43	WG1141579
Naphthalene	ND		2.50	1	07/23/2018 00:43	WG1141579
n-Propylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Styrene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,1,1,2-Tetrachloroethane	ND		0.500	1	07/23/2018 00:43	WG1141579
1,1,2,2-Tetrachloroethane	ND		0.500	1	07/23/2018 00:43	WG1141579
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	07/23/2018 00:43	WG1141579
Tetrachloroethene	ND		0.500	1	07/23/2018 00:43	WG1141579
Toluene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,2,3-Trichlorobenzene	ND		0.500	1	07/23/2018 00:43	WG1141579

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 date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,1,1-Trichloroethane	ND		0.500	1	07/23/2018 00:43	WG1141579
1,1,2-Trichloroethane	ND		0.500	1	07/23/2018 00:43	WG1141579
Trichloroethene	ND		0.500	1	07/23/2018 00:43	WG1141579
Trichlorofluoromethane	ND		2.50	1	07/23/2018 00:43	WG1141579
1,2,3-Trichloropropane	ND		2.50	1	07/23/2018 00:43	WG1141579
1,2,4-Trimethylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,2,3-Trimethylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
1,3,5-Trimethylbenzene	ND		0.500	1	07/23/2018 00:43	WG1141579
Vinyl chloride	ND		0.500	1	07/23/2018 00:43	WG1141579
Xylenes, Total	ND		1.50	1	07/23/2018 00:43	WG1141579
(S) Toluene-d8	101		80.0-120		07/23/2018 00:43	WG1141579
(S) Dibromofluoromethane	101		76.0-123		07/23/2018 00:43	WG1141579
(S) 4-Bromofluorobenzene	85.7		80.0-120		07/23/2018 00:43	WG1141579

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3327795-5 07/22/18 21:03

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
2-Chlorotoluene	U		0.111	0.500
4-Chlorotoluene	U		0.0972	0.500
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
1,2-Dibromoethane	U		0.193	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
1,3-Dichloropropane	U		0.147	1.00
cis-1,3-Dichloropropene	U		0.0976	0.500
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) R3327795-5 07/22/18 21:03

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
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
1,2,3-Trichlorobenzene	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
1,2,4-Trimethylbenzene	U		0.123	0.500
1,2,3-Trimethylbenzene	U		0.0739	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	105			80.0-120
(S) Dibromofluoromethane	99.9			76.0-123
(S) 4-Bromofluorobenzene	87.9			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) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3327795-1 07/22/18 19:04 • (LCSD) R3327795-3 07/22/18 19:44

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	125	109	123	87.1	98.1	10.0-160			11.9	23
Acrylonitrile	125	125	126	100	101	60.0-142			0.704	20
Benzene	25.0	24.3	23.1	97.3	92.3	69.0-123			5.22	20



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

(LCS) R3327795-1 07/22/18 19:04 • (LCSD) R3327795-3 07/22/18 19:44

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 %
Bromobenzene	25.0	21.6	21.1	86.3	84.4	79.0-120			2.26	20
Bromodichloromethane	25.0	25.8	24.9	103	99.5	76.0-120			3.66	20
Bromoform	25.0	22.6	23.0	90.5	92.0	67.0-132			1.62	20
Bromomethane	25.0	13.5	13.6	54.1	54.5	18.0-160			0.783	20
n-Butylbenzene	25.0	25.0	24.1	100	96.6	72.0-126			3.42	20
sec-Butylbenzene	25.0	25.0	24.8	100	99.3	74.0-121			0.830	20
tert-Butylbenzene	25.0	23.2	23.1	92.7	92.3	75.0-122			0.465	20
Carbon disulfide	25.0	21.6	21.4	86.4	85.5	55.0-127			1.03	20
Carbon tetrachloride	25.0	23.5	23.1	93.8	92.3	63.0-122			1.62	20
Acrolein	125	125	127	100	102	10.0-160			1.53	20
Chlorobenzene	25.0	25.5	25.8	102	103	79.0-121			1.21	20
Chlorodibromomethane	25.0	24.5	24.7	97.9	98.8	75.0-125			0.878	20
Chloroethane	25.0	30.0	28.1	120	112	47.0-152			6.54	20
Chloroform	25.0	25.8	24.4	103	97.8	72.0-121			5.33	20
Chloromethane	25.0	31.1	31.4	124	125	48.0-139			0.900	20
2-Chlorotoluene	25.0	24.1	23.5	96.3	93.9	74.0-122			2.55	20
4-Chlorotoluene	25.0	23.9	23.1	95.6	92.5	79.0-120			3.36	20
1,2-Dibromo-3-Chloropropane	25.0	26.0	24.7	104	98.8	64.0-127			5.21	20
1,2-Dibromoethane	25.0	25.5	26.0	102	104	77.0-123			1.61	20
Dibromomethane	25.0	25.4	24.5	102	98.2	78.0-120			3.37	20
1,2-Dichlorobenzene	25.0	25.6	25.2	102	101	80.0-120			1.85	20
1,3-Dichlorobenzene	25.0	24.0	23.8	96.0	95.2	72.0-123			0.795	20
1,4-Dichlorobenzene	25.0	24.8	23.8	99.3	95.3	77.0-120			4.13	20
Dichlorodifluoromethane	25.0	25.7	25.1	103	100	49.0-155			2.60	20
1,1-Dichloroethane	25.0	25.2	24.1	101	96.5	70.0-126			4.35	20
1,2-Dichloroethane	25.0	26.6	24.6	106	98.3	67.0-126			8.00	20
1,1-Dichloroethene	25.0	24.0	23.7	96.1	94.8	64.0-129			1.43	20
cis-1,2-Dichloroethene	25.0	25.3	24.0	101	96.1	73.0-120			5.24	20
trans-1,2-Dichloroethene	25.0	24.7	24.6	98.6	98.6	71.0-121			0.0770	20
1,2-Dichloropropane	25.0	26.0	25.4	104	102	75.0-125			2.22	20
1,1-Dichloropropene	25.0	25.5	24.1	102	96.4	71.0-129			5.85	20
1,3-Dichloropropane	25.0	25.9	25.6	103	102	80.0-121			1.05	20
cis-1,3-Dichloropropene	25.0	26.5	25.9	106	104	79.0-123			2.12	20
trans-1,3-Dichloropropene	25.0	24.8	23.9	99.3	95.4	74.0-127			4.02	20
2,2-Dichloropropane	25.0	25.1	23.5	100	94.1	60.0-125			6.37	20
Di-isopropyl ether	25.0	24.9	23.9	99.6	95.6	59.0-133			4.16	20
Ethylbenzene	25.0	24.8	25.3	99.2	101	77.0-120			2.01	20
Hexachloro-1,3-butadiene	25.0	20.7	20.9	82.7	83.6	64.0-131			1.09	20
Isopropylbenzene	25.0	23.5	23.0	94.0	92.1	75.0-120			2.04	20
p-Isopropyltoluene	25.0	25.4	24.7	102	98.7	74.0-126			2.92	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

(LCS) R3327795-1 07/22/18 19:04 • (LCSD) R3327795-3 07/22/18 19:44

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
2-Butanone (MEK)	125	114	115	91.3	92.0	37.0-158			0.818	20
Methylene Chloride	25.0	22.6	21.8	90.5	87.2	66.0-121			3.70	20
4-Methyl-2-pentanone (MIBK)	125	126	127	101	101	59.0-143			0.539	20
Methyl tert-butyl ether	25.0	25.5	24.6	102	98.4	64.0-123			3.62	20
Naphthalene	25.0	23.8	24.8	95.0	99.0	62.0-128			4.15	20
n-Propylbenzene	25.0	22.8	22.6	91.1	90.5	79.0-120			0.659	20
Styrene	25.0	23.4	22.7	93.8	90.9	78.0-124			3.08	20
1,1,1,2-Tetrachloroethane	25.0	25.4	26.3	102	105	75.0-122			3.50	20
1,1,2,2-Tetrachloroethane	25.0	24.5	24.4	98.0	97.5	71.0-122			0.591	20
1,1,2-Trichlorotrifluoroethane	25.0	24.9	25.2	99.5	101	61.0-136			1.45	20
Tetrachloroethene	25.0	24.5	24.7	97.9	98.7	70.0-127			0.884	20
Toluene	25.0	24.3	24.7	97.2	98.9	77.0-120			1.63	20
1,2,3-Trichlorobenzene	25.0	23.8	24.1	95.2	96.2	61.0-133			1.04	20
1,2,4-Trichlorobenzene	25.0	23.9	24.2	95.5	96.9	69.0-129			1.54	20
1,1,1-Trichloroethane	25.0	24.6	23.9	98.4	95.6	68.0-122			2.85	20
1,1,2-Trichloroethane	25.0	26.0	25.4	104	102	78.0-120			2.27	20
Trichloroethene	25.0	24.5	23.6	98.0	94.2	78.0-120			3.91	20
Trichlorofluoromethane	25.0	27.4	27.0	110	108	56.0-137			1.50	20
1,2,3-Trichloropropane	25.0	25.4	24.8	101	99.3	72.0-124			2.11	20
1,2,4-Trimethylbenzene	25.0	24.8	25.7	99.3	103	75.0-120			3.56	20
1,2,3-Trimethylbenzene	25.0	25.1	24.5	100	97.8	75.0-120			2.56	20
1,3,5-Trimethylbenzene	25.0	24.7	23.8	98.7	95.4	75.0-120			3.48	20
Vinyl chloride	25.0	25.9	24.8	104	99.1	64.0-133			4.65	20
Xylenes, Total	75.0	73.4	74.7	97.9	99.6	77.0-120			1.76	20
<i>(S) Toluene-d8</i>				101	104	80.0-120				
<i>(S) Dibromofluoromethane</i>				98.2	98.3	76.0-123				
<i>(S) 4-Bromofluorobenzene</i>				88.6	88.5	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

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	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

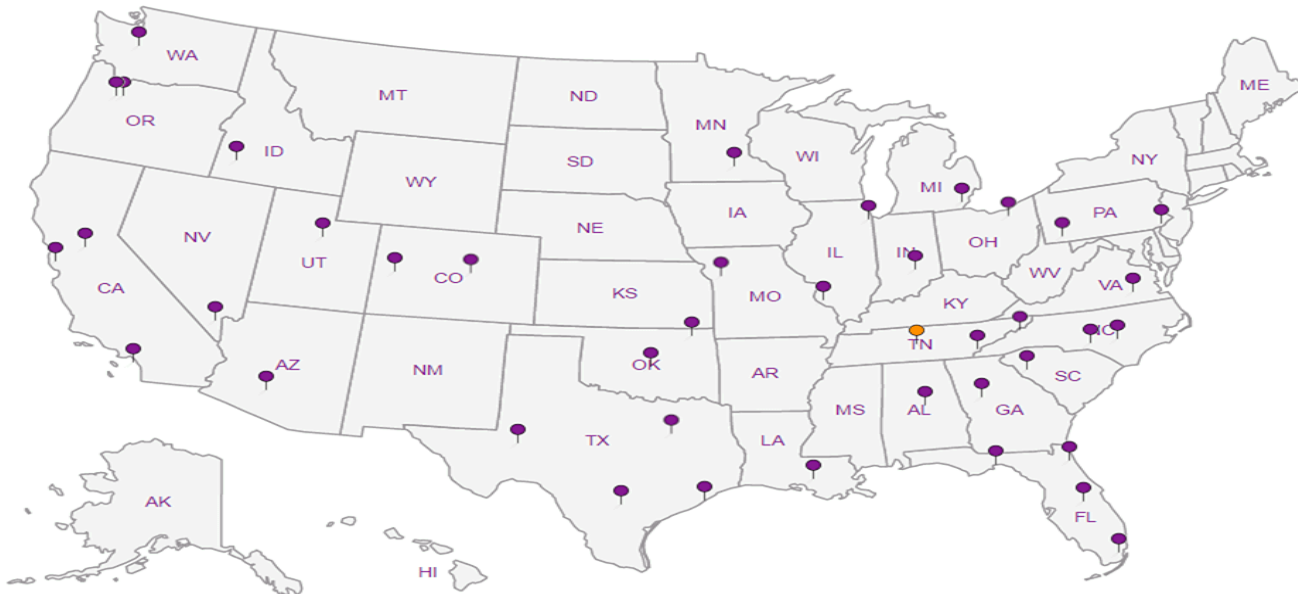
Third Party Federal Accreditations

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: **Fairview OR.**

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

Client Project #
PNG0564

Lab Project #
CASCORFOR-PNG0564

Collected by (print):
PAT YADON

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Immediately Packed on Ice: N ___ Y **X**

Pres Chk

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# **1011440**
D113

Acctnum: **CASCORFOR**

Template: **T138608**

Preflogjn: **P663522**

TSR: **110 - Brian Ford**

PB:

Shipped Via:

Remarks Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative	Remarks	Sample # (lab only)
CMW36dg-072018		GW		7/20/18	13:15	3	VOCs V8260LL 40mlAmb-HCl		01
		GW							
		GW							
TRIP BLANK # 388				7/20/18	NA	1	trip VOCs V8260LL 40mlAmb-HCl-Blk		02

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
___ UPS **X** FedEx ___ Courier

Tracking # **7466 1466 9091**

Sample Receipt Checklist

COC Seal Present/Intact: **49P** 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 C Yodon	Date: 7/20/18	Time: 14:50	Received by: (Signature) FedEx	Trip Blank Received: Yes / No 1 HCL/ MeOH TBR	Bottles Received: 3	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.03 °C		
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [Signature]	Date: 7/21/18	Time: 0833	Hold: Condition: NCF / OK