Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 12, 2018

Cascade Corporation- Fairview, OR

Sample Delivery Group:	L1040991
Samples Received:	11/03/2018
Project Number:	
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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TS-C-EFF-110118 L1040991-01 GW

Collected by: PY / DT
Collected date/time: 11/01/18 07:15
Received date/time: 11/03/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1191349	1	11/04/18 21:06	11/04/18 21:06	TJJ

TS-C-EFF-110118-DUP L1040991-02 GW

Collected by: PY / DT
Collected date/time: 11/01/18 07:16
Received date/time: 11/03/18 08:45

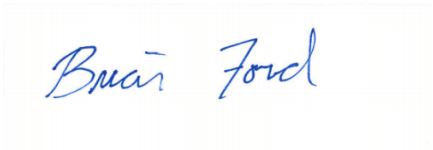
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1191349	1	11/04/18 21:27	11/04/18 21:27	TJJ

TS-C-INF-110118 L1040991-03 GW

Collected by: PY / DT
Collected date/time: 11/01/18 07:25
Received date/time: 11/03/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1191349	1	11/04/18 21:48	11/04/18 21:48	TJJ

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

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	11/04/2018 21:06	WG1191349
Acrolein	ND	J4	50.0	1	11/04/2018 21:06	WG1191349
Acrylonitrile	ND		5.00	1	11/04/2018 21:06	WG1191349
Benzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Bromobenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Bromodichloromethane	ND		0.500	1	11/04/2018 21:06	WG1191349
Bromoform	ND		0.500	1	11/04/2018 21:06	WG1191349
Bromomethane	ND		2.50	1	11/04/2018 21:06	WG1191349
n-Butylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
sec-Butylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
tert-Butylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Carbon disulfide	ND		0.500	1	11/04/2018 21:06	WG1191349
Carbon tetrachloride	ND		0.500	1	11/04/2018 21:06	WG1191349
Chlorobenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Chlorodibromomethane	ND		0.500	1	11/04/2018 21:06	WG1191349
Chloroethane	ND		2.50	1	11/04/2018 21:06	WG1191349
Chloroform	ND		0.500	1	11/04/2018 21:06	WG1191349
Chloromethane	ND		1.25	1	11/04/2018 21:06	WG1191349
2-Chlorotoluene	ND		0.500	1	11/04/2018 21:06	WG1191349
4-Chlorotoluene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/04/2018 21:06	WG1191349
1,2-Dibromoethane	ND		0.500	1	11/04/2018 21:06	WG1191349
Dibromomethane	ND		0.500	1	11/04/2018 21:06	WG1191349
1,2-Dichlorobenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,3-Dichlorobenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,4-Dichlorobenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Dichlorodifluoromethane	ND		2.50	1	11/04/2018 21:06	WG1191349
1,1-Dichloroethane	ND		0.500	1	11/04/2018 21:06	WG1191349
1,2-Dichloroethane	ND		0.500	1	11/04/2018 21:06	WG1191349
1,1-Dichloroethene	ND		0.500	1	11/04/2018 21:06	WG1191349
cis-1,2-Dichloroethene	ND		0.500	1	11/04/2018 21:06	WG1191349
trans-1,2-Dichloroethene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,2-Dichloropropane	ND		0.500	1	11/04/2018 21:06	WG1191349
1,1-Dichloropropene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,3-Dichloropropane	ND		1.00	1	11/04/2018 21:06	WG1191349
cis-1,3-Dichloropropene	ND		0.500	1	11/04/2018 21:06	WG1191349
trans-1,3-Dichloropropene	ND		0.500	1	11/04/2018 21:06	WG1191349
2,2-Dichloropropane	ND		0.500	1	11/04/2018 21:06	WG1191349
Di-isopropyl ether	ND		0.500	1	11/04/2018 21:06	WG1191349
Ethylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Hexachloro-1,3-butadiene	ND		1.00	1	11/04/2018 21:06	WG1191349
Isopropylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
p-Isopropyltoluene	ND		0.500	1	11/04/2018 21:06	WG1191349
2-Butanone (MEK)	ND		5.00	1	11/04/2018 21:06	WG1191349
Methylene Chloride	ND		2.50	1	11/04/2018 21:06	WG1191349
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/04/2018 21:06	WG1191349
Methyl tert-butyl ether	ND		0.500	1	11/04/2018 21:06	WG1191349
Naphthalene	ND		2.50	1	11/04/2018 21:06	WG1191349
n-Propylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Styrene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/04/2018 21:06	WG1191349
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/04/2018 21:06	WG1191349
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/04/2018 21:06	WG1191349
Tetrachloroethene	ND		0.500	1	11/04/2018 21:06	WG1191349
Toluene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,2,3-Trichlorobenzene	ND		0.500	1	11/04/2018 21:06	WG1191349

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	11/04/2018 21:06	WG1191349
1,1,1-Trichloroethane	ND		0.500	1	11/04/2018 21:06	WG1191349
1,1,2-Trichloroethane	ND		0.500	1	11/04/2018 21:06	WG1191349
Trichloroethene	ND		0.500	1	11/04/2018 21:06	WG1191349
Trichlorofluoromethane	ND		2.50	1	11/04/2018 21:06	WG1191349
1,2,3-Trichloropropane	ND		2.50	1	11/04/2018 21:06	WG1191349
1,2,4-Trimethylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,2,3-Trimethylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
1,3,5-Trimethylbenzene	ND		0.500	1	11/04/2018 21:06	WG1191349
Vinyl chloride	ND		0.500	1	11/04/2018 21:06	WG1191349
Xylenes, Total	ND		1.50	1	11/04/2018 21:06	WG1191349
(S) Toluene-d8	*103*		*80.0-120*		*11/04/2018 21:06*	WG1191349
(S) Dibromofluoromethane	*106*		*75.0-120*		*11/04/2018 21:06*	WG1191349
(S) 4-Bromofluorobenzene	*103*		*77.0-126*		*11/04/2018 21:06*	WG1191349

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	11/04/2018 21:27	WG1191349
Acrolein	ND	J4	50.0	1	11/04/2018 21:27	WG1191349
Acrylonitrile	ND		5.00	1	11/04/2018 21:27	WG1191349
Benzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Bromobenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Bromodichloromethane	ND		0.500	1	11/04/2018 21:27	WG1191349
Bromoform	ND		0.500	1	11/04/2018 21:27	WG1191349
Bromomethane	ND		2.50	1	11/04/2018 21:27	WG1191349
n-Butylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
sec-Butylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
tert-Butylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Carbon disulfide	ND		0.500	1	11/04/2018 21:27	WG1191349
Carbon tetrachloride	ND		0.500	1	11/04/2018 21:27	WG1191349
Chlorobenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Chlorodibromomethane	ND		0.500	1	11/04/2018 21:27	WG1191349
Chloroethane	ND		2.50	1	11/04/2018 21:27	WG1191349
Chloroform	ND		0.500	1	11/04/2018 21:27	WG1191349
Chloromethane	ND		1.25	1	11/04/2018 21:27	WG1191349
2-Chlorotoluene	ND		0.500	1	11/04/2018 21:27	WG1191349
4-Chlorotoluene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/04/2018 21:27	WG1191349
1,2-Dibromoethane	ND		0.500	1	11/04/2018 21:27	WG1191349
Dibromomethane	ND		0.500	1	11/04/2018 21:27	WG1191349
1,2-Dichlorobenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,3-Dichlorobenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,4-Dichlorobenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Dichlorodifluoromethane	ND		2.50	1	11/04/2018 21:27	WG1191349
1,1-Dichloroethane	ND		0.500	1	11/04/2018 21:27	WG1191349
1,2-Dichloroethane	ND		0.500	1	11/04/2018 21:27	WG1191349
1,1-Dichloroethene	ND		0.500	1	11/04/2018 21:27	WG1191349
cis-1,2-Dichloroethene	ND		0.500	1	11/04/2018 21:27	WG1191349
trans-1,2-Dichloroethene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,2-Dichloropropane	ND		0.500	1	11/04/2018 21:27	WG1191349
1,1-Dichloropropene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,3-Dichloropropane	ND		1.00	1	11/04/2018 21:27	WG1191349
cis-1,3-Dichloropropene	ND		0.500	1	11/04/2018 21:27	WG1191349
trans-1,3-Dichloropropene	ND		0.500	1	11/04/2018 21:27	WG1191349
2,2-Dichloropropane	ND		0.500	1	11/04/2018 21:27	WG1191349
Di-isopropyl ether	ND		0.500	1	11/04/2018 21:27	WG1191349
Ethylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Hexachloro-1,3-butadiene	ND		1.00	1	11/04/2018 21:27	WG1191349
Isopropylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
p-Isopropyltoluene	ND		0.500	1	11/04/2018 21:27	WG1191349
2-Butanone (MEK)	ND		5.00	1	11/04/2018 21:27	WG1191349
Methylene Chloride	ND		2.50	1	11/04/2018 21:27	WG1191349
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/04/2018 21:27	WG1191349
Methyl tert-butyl ether	ND		0.500	1	11/04/2018 21:27	WG1191349
Naphthalene	ND		2.50	1	11/04/2018 21:27	WG1191349
n-Propylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Styrene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/04/2018 21:27	WG1191349
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/04/2018 21:27	WG1191349
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/04/2018 21:27	WG1191349
Tetrachloroethene	ND		0.500	1	11/04/2018 21:27	WG1191349
Toluene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,2,3-Trichlorobenzene	ND		0.500	1	11/04/2018 21:27	WG1191349

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	11/04/2018 21:27	WG1191349
1,1,1-Trichloroethane	ND		0.500	1	11/04/2018 21:27	WG1191349
1,1,2-Trichloroethane	ND		0.500	1	11/04/2018 21:27	WG1191349
Trichloroethene	ND		0.500	1	11/04/2018 21:27	WG1191349
Trichlorofluoromethane	ND		2.50	1	11/04/2018 21:27	WG1191349
1,2,3-Trichloropropane	ND		2.50	1	11/04/2018 21:27	WG1191349
1,2,4-Trimethylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,2,3-Trimethylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
1,3,5-Trimethylbenzene	ND		0.500	1	11/04/2018 21:27	WG1191349
Vinyl chloride	ND		0.500	1	11/04/2018 21:27	WG1191349
Xylenes, Total	ND		1.50	1	11/04/2018 21:27	WG1191349
(S) Toluene-d8	*101*		*80.0-120*		*11/04/2018 21:27*	WG1191349
(S) Dibromofluoromethane	*104*		*75.0-120*		*11/04/2018 21:27*	WG1191349
(S) 4-Bromofluorobenzene	*103*		*77.0-126*		*11/04/2018 21:27*	WG1191349

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	11/04/2018 21:48	WG1191349
Acrolein	ND	J4	50.0	1	11/04/2018 21:48	WG1191349
Acrylonitrile	ND		5.00	1	11/04/2018 21:48	WG1191349
Benzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Bromobenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Bromodichloromethane	ND		0.500	1	11/04/2018 21:48	WG1191349
Bromoform	ND		0.500	1	11/04/2018 21:48	WG1191349
Bromomethane	ND		2.50	1	11/04/2018 21:48	WG1191349
n-Butylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
sec-Butylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
tert-Butylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Carbon disulfide	ND		0.500	1	11/04/2018 21:48	WG1191349
Carbon tetrachloride	ND		0.500	1	11/04/2018 21:48	WG1191349
Chlorobenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Chlorodibromomethane	ND		0.500	1	11/04/2018 21:48	WG1191349
Chloroethane	ND		2.50	1	11/04/2018 21:48	WG1191349
Chloroform	ND		0.500	1	11/04/2018 21:48	WG1191349
Chloromethane	ND		1.25	1	11/04/2018 21:48	WG1191349
2-Chlorotoluene	ND		0.500	1	11/04/2018 21:48	WG1191349
4-Chlorotoluene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/04/2018 21:48	WG1191349
1,2-Dibromoethane	ND		0.500	1	11/04/2018 21:48	WG1191349
Dibromomethane	ND		0.500	1	11/04/2018 21:48	WG1191349
1,2-Dichlorobenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,3-Dichlorobenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,4-Dichlorobenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Dichlorodifluoromethane	ND		2.50	1	11/04/2018 21:48	WG1191349
1,1-Dichloroethane	ND		0.500	1	11/04/2018 21:48	WG1191349
1,2-Dichloroethane	ND		0.500	1	11/04/2018 21:48	WG1191349
1,1-Dichloroethene	ND		0.500	1	11/04/2018 21:48	WG1191349
cis-1,2-Dichloroethene	0.843		0.500	1	11/04/2018 21:48	WG1191349
trans-1,2-Dichloroethene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,2-Dichloropropane	ND		0.500	1	11/04/2018 21:48	WG1191349
1,1-Dichloropropene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,3-Dichloropropane	ND		1.00	1	11/04/2018 21:48	WG1191349
cis-1,3-Dichloropropene	ND		0.500	1	11/04/2018 21:48	WG1191349
trans-1,3-Dichloropropene	ND		0.500	1	11/04/2018 21:48	WG1191349
2,2-Dichloropropane	ND		0.500	1	11/04/2018 21:48	WG1191349
Di-isopropyl ether	ND		0.500	1	11/04/2018 21:48	WG1191349
Ethylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Hexachloro-1,3-butadiene	ND		1.00	1	11/04/2018 21:48	WG1191349
Isopropylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
p-Isopropyltoluene	ND		0.500	1	11/04/2018 21:48	WG1191349
2-Butanone (MEK)	ND		5.00	1	11/04/2018 21:48	WG1191349
Methylene Chloride	ND		2.50	1	11/04/2018 21:48	WG1191349
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/04/2018 21:48	WG1191349
Methyl tert-butyl ether	ND		0.500	1	11/04/2018 21:48	WG1191349
Naphthalene	ND		2.50	1	11/04/2018 21:48	WG1191349
n-Propylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Styrene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/04/2018 21:48	WG1191349
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/04/2018 21:48	WG1191349
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/04/2018 21:48	WG1191349
Tetrachloroethene	0.508		0.500	1	11/04/2018 21:48	WG1191349
Toluene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,2,3-Trichlorobenzene	ND		0.500	1	11/04/2018 21:48	WG1191349

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	11/04/2018 21:48	WG1191349
1,1,1-Trichloroethane	ND		0.500	1	11/04/2018 21:48	WG1191349
1,1,2-Trichloroethane	ND		0.500	1	11/04/2018 21:48	WG1191349
Trichloroethene	7.35		0.500	1	11/04/2018 21:48	WG1191349
Trichlorofluoromethane	ND		2.50	1	11/04/2018 21:48	WG1191349
1,2,3-Trichloropropane	ND		2.50	1	11/04/2018 21:48	WG1191349
1,2,4-Trimethylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,2,3-Trimethylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
1,3,5-Trimethylbenzene	ND		0.500	1	11/04/2018 21:48	WG1191349
Vinyl chloride	ND		0.500	1	11/04/2018 21:48	WG1191349
Xylenes, Total	ND		1.50	1	11/04/2018 21:48	WG1191349
(S) Toluene-d8	*102*		*80.0-120*		*11/04/2018 21:48*	WG1191349
(S) Dibromofluoromethane	*104*		*75.0-120*		*11/04/2018 21:48*	WG1191349
(S) 4-Bromofluorobenzene	*104*		*77.0-126*		*11/04/2018 21:48*	WG1191349

Method Blank (MB)

(MB) R3357383-3 11/04/18 20:12

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

Method Blank (MB)

(MB) R3357383-3 11/04/18 20:12

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	*105*			*75.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*

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

(LCS) R3357383-1 11/04/18 19:08 • (LCSD) R3357383-2 11/04/18 19:29

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	140	142	112	114	19.0-160			1.54	27
Acrolein	125	230	230	184	184	10.0-160	J4	J4	0.101	26
Acrylonitrile	125	131	131	105	105	55.0-149			0.137	20

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

(LCS) R3357383-1 11/04/18 19:08 • (LCSD) R3357383-2 11/04/18 19:29

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	25.0	26.7	26.3	107	105	70.0-123			1.81	20
Bromobenzene	25.0	25.9	25.5	104	102	73.0-121			1.54	20
Bromodichloromethane	25.0	27.2	27.4	109	110	75.0-120			0.619	20
Bromoform	25.0	26.2	26.7	105	107	68.0-132			1.73	20
Bromomethane	25.0	21.7	20.3	86.6	81.3	10.0-160			6.31	25
n-Butylbenzene	25.0	26.7	26.7	107	107	73.0-125			0.0251	20
sec-Butylbenzene	25.0	26.2	26.3	105	105	75.0-125			0.587	20
tert-Butylbenzene	25.0	27.1	26.5	108	106	76.0-124			2.03	20
Carbon disulfide	25.0	27.4	27.6	110	110	61.0-128			0.443	20
Carbon tetrachloride	25.0	28.4	28.3	114	113	68.0-126			0.270	20
Chlorobenzene	25.0	26.1	26.0	104	104	80.0-121			0.399	20
Chlorodibromomethane	25.0	25.7	25.6	103	103	77.0-125			0.405	20
Chloroethane	25.0	27.2	27.3	109	109	47.0-150			0.494	20
Chloroform	25.0	26.1	25.7	104	103	73.0-120			1.45	20
Chloromethane	25.0	24.4	25.4	97.8	102	41.0-142			3.76	20
2-Chlorotoluene	25.0	26.1	25.6	104	102	76.0-123			2.05	20
4-Chlorotoluene	25.0	25.6	25.7	102	103	75.0-122			0.314	20
1,2-Dibromo-3-Chloropropane	25.0	25.5	25.8	102	103	58.0-134			1.23	20
1,2-Dibromoethane	25.0	26.9	26.4	108	106	80.0-122			1.72	20
Dibromomethane	25.0	26.6	26.4	107	105	80.0-120			1.12	20
1,2-Dichlorobenzene	25.0	25.5	25.4	102	102	79.0-121			0.272	20
1,3-Dichlorobenzene	25.0	25.3	25.4	101	102	79.0-120			0.167	20
1,4-Dichlorobenzene	25.0	24.0	24.5	96.1	97.9	79.0-120			1.87	20
Dichlorodifluoromethane	25.0	31.8	31.4	127	125	51.0-149			1.38	20
1,1-Dichloroethane	25.0	27.8	28.0	111	112	70.0-126			0.838	20
1,2-Dichloroethane	25.0	27.9	27.9	111	112	70.0-128			0.133	20
1,1-Dichloroethene	25.0	29.2	27.9	117	112	71.0-124			4.23	20
cis-1,2-Dichloroethene	25.0	26.1	26.1	104	104	73.0-120			0.0695	20
trans-1,2-Dichloroethene	25.0	27.6	27.5	111	110	73.0-120			0.432	20
1,2-Dichloropropane	25.0	26.6	27.0	106	108	77.0-125			1.54	20
1,1-Dichloropropene	25.0	28.8	28.2	115	113	74.0-126			1.78	20
1,3-Dichloropropane	25.0	26.6	26.6	106	106	80.0-120			0.217	20
cis-1,3-Dichloropropene	25.0	26.1	25.8	104	103	80.0-123			0.946	20
trans-1,3-Dichloropropene	25.0	26.7	26.7	107	107	78.0-124			0.0360	20
2,2-Dichloropropane	25.0	26.9	26.2	107	105	58.0-130			2.29	20
Di-isopropyl ether	25.0	27.5	27.3	110	109	58.0-138			0.701	20
Ethylbenzene	25.0	25.3	25.7	101	103	79.0-123			1.62	20
Hexachloro-1,3-butadiene	25.0	24.6	25.6	98.6	103	54.0-138			3.90	20
Isopropylbenzene	25.0	26.2	26.0	105	104	76.0-127			1.03	20
p-Isopropyltoluene	25.0	27.0	27.4	108	110	76.0-125			1.66	20

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

(LCS) R3357383-1 11/04/18 19:08 • (LCSD) R3357383-2 11/04/18 19:29

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
2-Butanone (MEK)	125	137	136	109	109	44.0-160			0.388	20
Methylene Chloride	25.0	25.3	25.3	101	101	67.0-120			0.0959	20
4-Methyl-2-pentanone (MIBK)	125	136	136	109	108	68.0-142			0.589	20
Methyl tert-butyl ether	25.0	26.5	27.2	106	109	68.0-125			2.67	20
Naphthalene	25.0	24.8	25.2	99.2	101	54.0-135			1.74	20
n-Propylbenzene	25.0	26.4	26.2	106	105	77.0-124			0.954	20
Styrene	25.0	26.9	26.8	108	107	73.0-130			0.475	20
1,1,1,2-Tetrachloroethane	25.0	26.9	26.7	108	107	75.0-125			0.607	20
1,1,2,2-Tetrachloroethane	25.0	26.3	25.7	105	103	65.0-130			2.18	20
1,1,2-Trichlorotrifluoroethane	25.0	29.1	29.0	116	116	69.0-132			0.352	20
Tetrachloroethene	25.0	25.8	26.8	103	107	72.0-132			3.85	20
Toluene	25.0	26.1	25.4	104	102	79.0-120			2.67	20
1,2,3-Trichlorobenzene	25.0	24.8	25.9	99.1	103	50.0-138			4.30	20
1,2,4-Trichlorobenzene	25.0	25.4	25.7	102	103	57.0-137			0.940	20
1,1,1-Trichloroethane	25.0	29.2	28.7	117	115	73.0-124			1.79	20
1,1,2-Trichloroethane	25.0	25.9	26.4	104	105	80.0-120			1.62	20
Trichloroethene	25.0	26.1	27.0	104	108	78.0-124			3.25	20
Trichlorofluoromethane	25.0	29.2	30.6	117	122	59.0-147			4.76	20
1,2,3-Trichloropropane	25.0	26.4	25.8	106	103	73.0-130			2.46	20
1,2,4-Trimethylbenzene	25.0	26.1	26.1	104	104	76.0-121			0.139	20
1,2,3-Trimethylbenzene	25.0	25.5	25.6	102	102	77.0-120			0.409	20
1,3,5-Trimethylbenzene	25.0	25.9	25.6	103	103	76.0-122			0.916	20
Vinyl chloride	25.0	28.6	28.2	115	113	67.0-131			1.50	20
Xylenes, Total	75.0	79.7	79.3	106	106	79.0-123			0.503	20
(S) Toluene-d8				*102*	*101*	*80.0-120*				
(S) Dibromofluoromethane				*105*	*106*	*75.0-120*				
(S) 4-Bromofluorobenzene				*102*	*101*	*77.0-126*				

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.

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	LAO00356
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

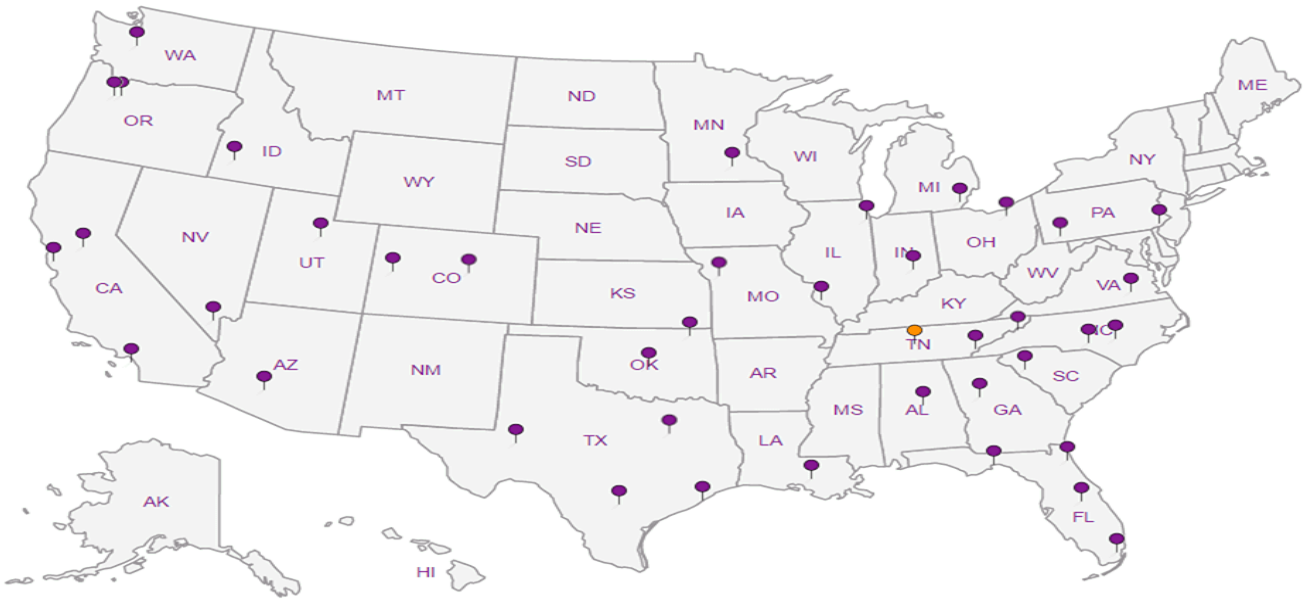
Third Party Federal Accreditations

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.



Cascade Corporation- Fairview, OR

2201 NE 201st Avenue
Fairview, OR 97024-9718

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

Pres Chk

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 #

Lab Project # CASCORFOR-PNG0564

Collected by (print): PAT YADON / DERRICK TIETZ

Site/Facility ID # STANDARD TURN around.

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

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

Date Results Needed

Quote #

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOCs V8260 40mlAmb/MeOH5ml/Syr	VOCs V8260LL 40mlAmb-HCl	dry weight 2ozClr-NoPres	Remarks	Sample # (lab only)
TS-C-EFF-110118		GW		11/1/18	7:15	3	X				-01
TS-C-EFF-110118-DUP		GW		11/1/18	7:16	3	X				02
TS-C-INF-110118		GW		11/1/18	7:25	3	X				03
		SS									
		SS									
		SS									

Chain of Custody Page 1 of 1

Pace Analytical
National Center for Testing & Innovation

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

L# L1040911

E133

Acctnum: CASCORFOR
Template: T142451
Prelogin: P678691
TSR: 110 - Brian Ford
PB:
Shipped Via:

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

Remarks: Trip BLANK in COOLER #413

RAD SCREEN: <0.5 mR/hr

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
__ UPS X FedEx __ Courier

Tracking # 4510 1660 5628

Sample Receipt Checklist
COC Seal Present/Intact: NP 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)	Date:	Time:	Received by: (Signature)
Dusted Tietz	11/2/18	13:00	FED EX
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Klamer

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: 02 °C Bottles Received: 9

Date: 11/3/18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)