Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

February 14, 2019

Cascade Corporation- Fairview, OR

Sample Delivery Group:	L1067715
Samples Received:	02/07/2019
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

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TS-C-INF-020519 L1067715-01 GW

Collected by: DT | Collected date/time: 02/05/19 11:40 | Received date/time: 02/07/19 08:50

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1234213	1	02/07/19 22:25	02/07/19 22:25	TJJ
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1236071	1	02/12/19 19:45	02/12/19 19:45	JHH

TS-C-EFF-020519 L1067715-02 GW

Collected by: DT | Collected date/time: 02/05/19 11:50 | Received date/time: 02/07/19 08:50

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1234213	1	02/07/19 22:45	02/07/19 22:45	TJJ
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1236071	1	02/12/19 20:06	02/12/19 20:06	JHH

TS-C-EFF-020519-DUP L1067715-03 GW

Collected by: DT | Collected date/time: 02/05/19 11:51 | Received date/time: 02/07/19 08:50

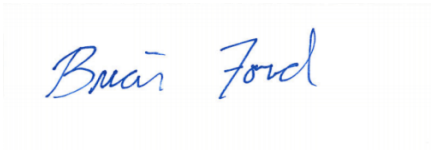
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1234213	1	02/07/19 23:06	02/07/19 23:06	TJJ
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1236071	1	02/12/19 20:28	02/12/19 20:28	JHH

TRIP BLANK LOT #414 L1067715-04 GW

Collected by: DT | Collected date/time: 02/05/19 00:00 | Received date/time: 02/07/19 08:50

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1234087	1	02/07/19 17:02	02/07/19 17:02	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	02/07/2019 22:25	WG1234213
Acrolein	ND		50.0	1	02/07/2019 22:25	WG1234213
Acrylonitrile	ND		5.00	1	02/07/2019 22:25	WG1234213
Benzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Bromobenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Bromodichloromethane	ND		0.500	1	02/07/2019 22:25	WG1234213
Bromoform	ND		0.500	1	02/07/2019 22:25	WG1234213
Bromomethane	ND		2.50	1	02/07/2019 22:25	WG1234213
n-Butylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
sec-Butylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
tert-Butylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Carbon disulfide	ND		0.500	1	02/07/2019 22:25	WG1234213
Carbon tetrachloride	ND		0.500	1	02/07/2019 22:25	WG1234213
Chlorobenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Chlorodibromomethane	ND		0.500	1	02/07/2019 22:25	WG1234213
Chloroethane	ND		2.50	1	02/07/2019 22:25	WG1234213
Chloroform	ND		0.500	1	02/07/2019 22:25	WG1234213
Chloromethane	ND		1.25	1	02/07/2019 22:25	WG1234213
2-Chlorotoluene	ND		0.500	1	02/07/2019 22:25	WG1234213
4-Chlorotoluene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,2-Dibromo-3-Chloropropane	ND		2.50	1	02/07/2019 22:25	WG1234213
1,2-Dibromoethane	ND		0.500	1	02/07/2019 22:25	WG1234213
Dibromomethane	ND		0.500	1	02/07/2019 22:25	WG1234213
1,2-Dichlorobenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,3-Dichlorobenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,4-Dichlorobenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Dichlorodifluoromethane	ND		2.50	1	02/07/2019 22:25	WG1234213
1,1-Dichloroethane	ND		0.500	1	02/07/2019 22:25	WG1234213
1,2-Dichloroethane	ND		0.500	1	02/07/2019 22:25	WG1234213
1,1-Dichloroethene	ND		0.500	1	02/07/2019 22:25	WG1234213
cis-1,2-Dichloroethene	0.644		0.500	1	02/12/2019 19:45	WG1236071
trans-1,2-Dichloroethene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,2-Dichloropropane	ND		0.500	1	02/07/2019 22:25	WG1234213
1,1-Dichloropropene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,3-Dichloropropane	ND		1.00	1	02/07/2019 22:25	WG1234213
cis-1,3-Dichloropropene	ND		0.500	1	02/07/2019 22:25	WG1234213
trans-1,3-Dichloropropene	ND		0.500	1	02/07/2019 22:25	WG1234213
2,2-Dichloropropane	ND		0.500	1	02/07/2019 22:25	WG1234213
Di-isopropyl ether	ND		0.500	1	02/07/2019 22:25	WG1234213
Ethylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Hexachloro-1,3-butadiene	ND		1.00	1	02/07/2019 22:25	WG1234213
Isopropylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
p-Isopropyltoluene	ND		0.500	1	02/07/2019 22:25	WG1234213
2-Butanone (MEK)	ND		5.00	1	02/07/2019 22:25	WG1234213
Methylene Chloride	ND		2.50	1	02/07/2019 22:25	WG1234213
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	02/07/2019 22:25	WG1234213
Methyl tert-butyl ether	ND		0.500	1	02/07/2019 22:25	WG1234213
Naphthalene	ND		2.50	1	02/07/2019 22:25	WG1234213
n-Propylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Styrene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,1,1,2-Tetrachloroethane	ND		0.500	1	02/07/2019 22:25	WG1234213
1,1,2,2-Tetrachloroethane	ND		0.500	1	02/07/2019 22:25	WG1234213
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	02/07/2019 22:25	WG1234213
Tetrachloroethene	0.552		0.500	1	02/07/2019 22:25	WG1234213
Toluene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,2,3-Trichlorobenzene	ND		0.500	1	02/07/2019 22:25	WG1234213

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	02/07/2019 22:25	WG1234213
1,1,1-Trichloroethane	ND		0.500	1	02/07/2019 22:25	WG1234213
1,1,2-Trichloroethane	ND		0.500	1	02/07/2019 22:25	WG1234213
Trichloroethene	4.91		0.500	1	02/07/2019 22:25	WG1234213
Trichlorofluoromethane	ND		2.50	1	02/07/2019 22:25	WG1234213
1,2,3-Trichloropropane	ND		2.50	1	02/07/2019 22:25	WG1234213
1,2,4-Trimethylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,2,3-Trimethylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
1,3,5-Trimethylbenzene	ND		0.500	1	02/07/2019 22:25	WG1234213
Vinyl chloride	ND		0.500	1	02/07/2019 22:25	WG1234213
Xylenes, Total	ND		1.50	1	02/07/2019 22:25	WG1234213
(S) Toluene-d8	*100*		*80.0-120*		*02/07/2019 22:25*	WG1234213
(S) Toluene-d8	*101*		*80.0-120*		*02/12/2019 19:45*	WG1236071
(S) 4-Bromofluorobenzene	*89.2*		*77.0-126*		*02/07/2019 22:25*	WG1234213
(S) 4-Bromofluorobenzene	*99.1*		*77.0-126*		*02/12/2019 19:45*	WG1236071
(S) 1,2-Dichloroethane-d4	*101*		*70.0-130*		*02/07/2019 22:25*	WG1234213
(S) 1,2-Dichloroethane-d4	*110*		*70.0-130*		*02/12/2019 19:45*	WG1236071

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	02/07/2019 22:45	WG1234213
Acrolein	ND		50.0	1	02/07/2019 22:45	WG1234213
Acrylonitrile	ND		5.00	1	02/07/2019 22:45	WG1234213
Benzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Bromobenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Bromodichloromethane	ND		0.500	1	02/07/2019 22:45	WG1234213
Bromoform	ND		0.500	1	02/07/2019 22:45	WG1234213
Bromomethane	ND		2.50	1	02/07/2019 22:45	WG1234213
n-Butylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
sec-Butylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
tert-Butylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Carbon disulfide	ND		0.500	1	02/07/2019 22:45	WG1234213
Carbon tetrachloride	ND		0.500	1	02/07/2019 22:45	WG1234213
Chlorobenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Chlorodibromomethane	ND		0.500	1	02/07/2019 22:45	WG1234213
Chloroethane	ND		2.50	1	02/07/2019 22:45	WG1234213
Chloroform	ND		0.500	1	02/07/2019 22:45	WG1234213
Chloromethane	ND		1.25	1	02/07/2019 22:45	WG1234213
2-Chlorotoluene	ND		0.500	1	02/07/2019 22:45	WG1234213
4-Chlorotoluene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,2-Dibromo-3-Chloropropane	ND		2.50	1	02/07/2019 22:45	WG1234213
1,2-Dibromoethane	ND		0.500	1	02/07/2019 22:45	WG1234213
Dibromomethane	ND		0.500	1	02/07/2019 22:45	WG1234213
1,2-Dichlorobenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,3-Dichlorobenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,4-Dichlorobenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Dichlorodifluoromethane	ND		2.50	1	02/07/2019 22:45	WG1234213
1,1-Dichloroethane	ND		0.500	1	02/07/2019 22:45	WG1234213
1,2-Dichloroethane	ND		0.500	1	02/07/2019 22:45	WG1234213
1,1-Dichloroethene	ND		0.500	1	02/07/2019 22:45	WG1234213
cis-1,2-Dichloroethene	ND		0.500	1	02/12/2019 20:06	WG1236071
trans-1,2-Dichloroethene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,2-Dichloropropane	ND		0.500	1	02/07/2019 22:45	WG1234213
1,1-Dichloropropene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,3-Dichloropropane	ND		1.00	1	02/07/2019 22:45	WG1234213
cis-1,3-Dichloropropene	ND		0.500	1	02/07/2019 22:45	WG1234213
trans-1,3-Dichloropropene	ND		0.500	1	02/07/2019 22:45	WG1234213
2,2-Dichloropropane	ND		0.500	1	02/07/2019 22:45	WG1234213
Di-isopropyl ether	ND		0.500	1	02/07/2019 22:45	WG1234213
Ethylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Hexachloro-1,3-butadiene	ND		1.00	1	02/07/2019 22:45	WG1234213
Isopropylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
p-Isopropyltoluene	ND		0.500	1	02/07/2019 22:45	WG1234213
2-Butanone (MEK)	ND		5.00	1	02/07/2019 22:45	WG1234213
Methylene Chloride	ND		2.50	1	02/07/2019 22:45	WG1234213
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	02/07/2019 22:45	WG1234213
Methyl tert-butyl ether	ND		0.500	1	02/07/2019 22:45	WG1234213
Naphthalene	ND		2.50	1	02/07/2019 22:45	WG1234213
n-Propylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Styrene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,1,1,2-Tetrachloroethane	ND		0.500	1	02/07/2019 22:45	WG1234213
1,1,2,2-Tetrachloroethane	ND		0.500	1	02/07/2019 22:45	WG1234213
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	02/07/2019 22:45	WG1234213
Tetrachloroethene	ND		0.500	1	02/07/2019 22:45	WG1234213
Toluene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,2,3-Trichlorobenzene	ND		0.500	1	02/07/2019 22:45	WG1234213

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	02/07/2019 22:45	WG1234213
1,1,1-Trichloroethane	ND		0.500	1	02/07/2019 22:45	WG1234213
1,1,2-Trichloroethane	ND		0.500	1	02/07/2019 22:45	WG1234213
Trichloroethene	ND		0.500	1	02/07/2019 22:45	WG1234213
Trichlorofluoromethane	ND		2.50	1	02/07/2019 22:45	WG1234213
1,2,3-Trichloropropane	ND		2.50	1	02/07/2019 22:45	WG1234213
1,2,4-Trimethylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,2,3-Trimethylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
1,3,5-Trimethylbenzene	ND		0.500	1	02/07/2019 22:45	WG1234213
Vinyl chloride	ND		0.500	1	02/07/2019 22:45	WG1234213
Xylenes, Total	ND		1.50	1	02/07/2019 22:45	WG1234213
(S) Toluene-d8	*103*		*80.0-120*		*02/07/2019 22:45*	WG1234213
(S) Toluene-d8	*100*		*80.0-120*		*02/12/2019 20:06*	WG1236071
(S) 4-Bromofluorobenzene	*90.2*		*77.0-126*		*02/07/2019 22:45*	WG1234213
(S) 4-Bromofluorobenzene	*98.7*		*77.0-126*		*02/12/2019 20:06*	WG1236071
(S) 1,2-Dichloroethane-d4	*94.7*		*70.0-130*		*02/07/2019 22:45*	WG1234213
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*02/12/2019 20:06*	WG1236071

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	02/07/2019 23:06	WG1234213
Acrolein	ND		50.0	1	02/07/2019 23:06	WG1234213
Acrylonitrile	ND		5.00	1	02/07/2019 23:06	WG1234213
Benzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Bromobenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Bromodichloromethane	ND		0.500	1	02/07/2019 23:06	WG1234213
Bromoform	ND		0.500	1	02/07/2019 23:06	WG1234213
Bromomethane	ND		2.50	1	02/07/2019 23:06	WG1234213
n-Butylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
sec-Butylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
tert-Butylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Carbon disulfide	ND		0.500	1	02/07/2019 23:06	WG1234213
Carbon tetrachloride	ND		0.500	1	02/07/2019 23:06	WG1234213
Chlorobenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Chlorodibromomethane	ND		0.500	1	02/07/2019 23:06	WG1234213
Chloroethane	ND		2.50	1	02/07/2019 23:06	WG1234213
Chloroform	ND		0.500	1	02/07/2019 23:06	WG1234213
Chloromethane	ND		1.25	1	02/07/2019 23:06	WG1234213
2-Chlorotoluene	ND		0.500	1	02/07/2019 23:06	WG1234213
4-Chlorotoluene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,2-Dibromo-3-Chloropropane	ND		2.50	1	02/07/2019 23:06	WG1234213
1,2-Dibromoethane	ND		0.500	1	02/07/2019 23:06	WG1234213
Dibromomethane	ND		0.500	1	02/07/2019 23:06	WG1234213
1,2-Dichlorobenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,3-Dichlorobenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,4-Dichlorobenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Dichlorodifluoromethane	ND		2.50	1	02/07/2019 23:06	WG1234213
1,1-Dichloroethane	ND		0.500	1	02/07/2019 23:06	WG1234213
1,2-Dichloroethane	ND		0.500	1	02/07/2019 23:06	WG1234213
1,1-Dichloroethene	ND		0.500	1	02/07/2019 23:06	WG1234213
cis-1,2-Dichloroethene	ND		0.500	1	02/12/2019 20:28	WG1236071
trans-1,2-Dichloroethene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,2-Dichloropropane	ND		0.500	1	02/07/2019 23:06	WG1234213
1,1-Dichloropropene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,3-Dichloropropane	ND		1.00	1	02/07/2019 23:06	WG1234213
cis-1,3-Dichloropropene	ND		0.500	1	02/07/2019 23:06	WG1234213
trans-1,3-Dichloropropene	ND		0.500	1	02/07/2019 23:06	WG1234213
2,2-Dichloropropane	ND		0.500	1	02/07/2019 23:06	WG1234213
Di-isopropyl ether	ND		0.500	1	02/07/2019 23:06	WG1234213
Ethylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Hexachloro-1,3-butadiene	ND		1.00	1	02/07/2019 23:06	WG1234213
Isopropylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
p-Isopropyltoluene	ND		0.500	1	02/07/2019 23:06	WG1234213
2-Butanone (MEK)	ND		5.00	1	02/07/2019 23:06	WG1234213
Methylene Chloride	ND		2.50	1	02/07/2019 23:06	WG1234213
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	02/07/2019 23:06	WG1234213
Methyl tert-butyl ether	ND		0.500	1	02/07/2019 23:06	WG1234213
Naphthalene	ND		2.50	1	02/07/2019 23:06	WG1234213
n-Propylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Styrene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,1,1,2-Tetrachloroethane	ND		0.500	1	02/07/2019 23:06	WG1234213
1,1,2,2-Tetrachloroethane	ND		0.500	1	02/07/2019 23:06	WG1234213
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	02/07/2019 23:06	WG1234213
Tetrachloroethene	ND		0.500	1	02/07/2019 23:06	WG1234213
Toluene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,2,3-Trichlorobenzene	ND		0.500	1	02/07/2019 23:06	WG1234213

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	02/07/2019 23:06	WG1234213
1,1,1-Trichloroethane	ND		0.500	1	02/07/2019 23:06	WG1234213
1,1,2-Trichloroethane	ND		0.500	1	02/07/2019 23:06	WG1234213
Trichloroethene	ND		0.500	1	02/07/2019 23:06	WG1234213
Trichlorofluoromethane	ND		2.50	1	02/07/2019 23:06	WG1234213
1,2,3-Trichloropropane	ND		2.50	1	02/07/2019 23:06	WG1234213
1,2,4-Trimethylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,2,3-Trimethylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
1,3,5-Trimethylbenzene	ND		0.500	1	02/07/2019 23:06	WG1234213
Vinyl chloride	ND		0.500	1	02/07/2019 23:06	WG1234213
Xylenes, Total	ND		1.50	1	02/07/2019 23:06	WG1234213
(S) Toluene-d8	*104*		*80.0-120*		*02/07/2019 23:06*	WG1234213
(S) Toluene-d8	*100*		*80.0-120*		*02/12/2019 20:28*	WG1236071
(S) 4-Bromofluorobenzene	*87.5*		*77.0-126*		*02/07/2019 23:06*	WG1234213
(S) 4-Bromofluorobenzene	*98.8*		*77.0-126*		*02/12/2019 20:28*	WG1236071
(S) 1,2-Dichloroethane-d4	*95.3*		*70.0-130*		*02/07/2019 23:06*	WG1234213
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*02/12/2019 20:28*	WG1236071

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	02/07/2019 17:02	WG1234087
Acrolein	ND		50.0	1	02/07/2019 17:02	WG1234087
Acrylonitrile	ND		5.00	1	02/07/2019 17:02	WG1234087
Benzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Bromobenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Bromodichloromethane	ND		0.500	1	02/07/2019 17:02	WG1234087
Bromoform	ND		0.500	1	02/07/2019 17:02	WG1234087
Bromomethane	ND		2.50	1	02/07/2019 17:02	WG1234087
n-Butylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
sec-Butylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
tert-Butylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Carbon disulfide	ND		0.500	1	02/07/2019 17:02	WG1234087
Carbon tetrachloride	ND		0.500	1	02/07/2019 17:02	WG1234087
Chlorobenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Chlorodibromomethane	ND		0.500	1	02/07/2019 17:02	WG1234087
Chloroethane	ND		2.50	1	02/07/2019 17:02	WG1234087
Chloroform	ND		0.500	1	02/07/2019 17:02	WG1234087
Chloromethane	ND		1.25	1	02/07/2019 17:02	WG1234087
2-Chlorotoluene	ND		0.500	1	02/07/2019 17:02	WG1234087
4-Chlorotoluene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,2-Dibromo-3-Chloropropane	ND		2.50	1	02/07/2019 17:02	WG1234087
1,2-Dibromoethane	ND		0.500	1	02/07/2019 17:02	WG1234087
Dibromomethane	ND		0.500	1	02/07/2019 17:02	WG1234087
1,2-Dichlorobenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,3-Dichlorobenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,4-Dichlorobenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Dichlorodifluoromethane	ND		2.50	1	02/07/2019 17:02	WG1234087
1,1-Dichloroethane	ND		0.500	1	02/07/2019 17:02	WG1234087
1,2-Dichloroethane	ND		0.500	1	02/07/2019 17:02	WG1234087
1,1-Dichloroethene	ND		0.500	1	02/07/2019 17:02	WG1234087
cis-1,2-Dichloroethene	ND		0.500	1	02/07/2019 17:02	WG1234087
trans-1,2-Dichloroethene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,2-Dichloropropane	ND		0.500	1	02/07/2019 17:02	WG1234087
1,1-Dichloropropene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,3-Dichloropropane	ND		1.00	1	02/07/2019 17:02	WG1234087
cis-1,3-Dichloropropene	ND		0.500	1	02/07/2019 17:02	WG1234087
trans-1,3-Dichloropropene	ND		0.500	1	02/07/2019 17:02	WG1234087
2,2-Dichloropropane	ND		0.500	1	02/07/2019 17:02	WG1234087
Di-isopropyl ether	ND		0.500	1	02/07/2019 17:02	WG1234087
Ethylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Hexachloro-1,3-butadiene	ND		1.00	1	02/07/2019 17:02	WG1234087
Isopropylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
p-Isopropyltoluene	ND		0.500	1	02/07/2019 17:02	WG1234087
2-Butanone (MEK)	ND		5.00	1	02/07/2019 17:02	WG1234087
Methylene Chloride	ND		2.50	1	02/07/2019 17:02	WG1234087
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	02/07/2019 17:02	WG1234087
Methyl tert-butyl ether	ND		0.500	1	02/07/2019 17:02	WG1234087
Naphthalene	ND		2.50	1	02/07/2019 17:02	WG1234087
n-Propylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Styrene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,1,1,2-Tetrachloroethane	ND		0.500	1	02/07/2019 17:02	WG1234087
1,1,2,2-Tetrachloroethane	ND		0.500	1	02/07/2019 17:02	WG1234087
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	02/07/2019 17:02	WG1234087
Tetrachloroethene	ND		0.500	1	02/07/2019 17:02	WG1234087
Toluene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,2,3-Trichlorobenzene	ND		0.500	1	02/07/2019 17:02	WG1234087

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	02/07/2019 17:02	WG1234087
1,1,1-Trichloroethane	ND		0.500	1	02/07/2019 17:02	WG1234087
1,1,2-Trichloroethane	ND		0.500	1	02/07/2019 17:02	WG1234087
Trichloroethene	ND		0.500	1	02/07/2019 17:02	WG1234087
Trichlorofluoromethane	ND		2.50	1	02/07/2019 17:02	WG1234087
1,2,3-Trichloropropane	ND		2.50	1	02/07/2019 17:02	WG1234087
1,2,4-Trimethylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,2,3-Trimethylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
1,3,5-Trimethylbenzene	ND		0.500	1	02/07/2019 17:02	WG1234087
Vinyl chloride	ND		0.500	1	02/07/2019 17:02	WG1234087
Xylenes, Total	ND		1.50	1	02/07/2019 17:02	WG1234087
(S) Toluene-d8	*97.0*		*80.0-120*		*02/07/2019 17:02*	WG1234087
(S) 4-Bromofluorobenzene	*96.0*		*77.0-126*		*02/07/2019 17:02*	WG1234087
(S) 1,2-Dichloroethane-d4	*99.2*		*70.0-130*		*02/07/2019 17:02*	WG1234087

Method Blank (MB)

(MB) R3383102-3 02/07/19 15:42

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
Carbon disulfide	U		0.101	0.500
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	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-1,3-Dichloropropene	U		0.0976	0.500
cis-1,2-Dichloroethene	U		0.0933	0.500
trans-1,3-Dichloropropene	U		0.222	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
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) R3383102-3 02/07/19 15:42

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	0.239	J	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
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	0.215	J	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
1,2,3-Trimethylbenzene	U		0.0739	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
Xylenes, Total	U		0.316	1.50
1,2,3-Trichlorobenzene	0.254	J	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
1,3,5-Trimethylbenzene	U		0.124	0.500
Vinyl chloride	U		0.118	0.500
(S) Toluene-d8	*101*			*80.0-120*
(S) 4-Bromofluorobenzene	*92.9*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*99.9*			*70.0-130*

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

(LCS) R3383102-1 02/07/19 14:41 • (LCSD) R3383102-2 02/07/19 15:02

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 %
Carbon disulfide	25.0	25.7	26.0	103	104	61.0-128			1.30	20
Acetone	125	153	150	123	120	19.0-160			2.30	27
Acrolein	125	163	164	130	131	10.0-160			0.586	26

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

(LCS) R3383102-1 02/07/19 14:41 • (LCSD) R3383102-2 02/07/19 15:02

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 %
cis-1,3-Dichloropropene	25.0	27.4	27.8	110	111	80.0-123			1.40	20
Acrylonitrile	125	151	137	121	110	55.0-149			9.35	20
trans-1,3-Dichloropropene	25.0	27.4	26.6	109	106	78.0-124			2.98	20
Benzene	25.0	25.0	25.1	99.8	101	70.0-123			0.697	20
Bromobenzene	25.0	27.1	27.1	108	108	73.0-121			0.0698	20
Bromodichloromethane	25.0	27.3	27.2	109	109	75.0-120			0.631	20
Bromoform	25.0	27.8	27.3	111	109	68.0-132			1.88	20
Bromomethane	25.0	25.6	26.1	102	104	10.0-160			1.71	25
n-Butylbenzene	25.0	25.2	25.7	101	103	73.0-125			2.00	20
sec-Butylbenzene	25.0	26.3	26.4	105	106	75.0-125			0.507	20
tert-Butylbenzene	25.0	28.0	28.2	112	113	76.0-124			0.767	20
Carbon tetrachloride	25.0	25.5	25.2	102	101	68.0-126			1.07	20
Chlorobenzene	25.0	26.1	26.0	104	104	80.0-121			0.385	20
Chlorodibromomethane	25.0	28.0	27.6	112	110	77.0-125			1.53	20
Chloroethane	25.0	25.0	25.5	99.9	102	47.0-150			2.16	20
Chloroform	25.0	26.9	27.1	107	108	73.0-120			0.727	20
Chloromethane	25.0	28.0	28.7	112	115	41.0-142			2.20	20
1,1,2-Trichlorotrifluoroethane	25.0	25.4	26.0	102	104	69.0-132			2.37	20
2-Chlorotoluene	25.0	27.1	27.1	108	108	76.0-123			0.0903	20
4-Chlorotoluene	25.0	27.5	27.4	110	110	75.0-122			0.227	20
1,2-Dibromo-3-Chloropropane	25.0	25.7	27.0	103	108	58.0-134			4.75	20
1,2-Dibromoethane	25.0	26.2	26.4	105	106	80.0-122			0.909	20
Dibromomethane	25.0	26.8	27.0	107	108	80.0-120			0.763	20
1,2-Dichlorobenzene	25.0	24.6	24.8	98.5	99.1	79.0-121			0.605	20
1,3-Dichlorobenzene	25.0	26.3	26.7	105	107	79.0-120			1.55	20
1,4-Dichlorobenzene	25.0	24.4	24.8	97.7	99.1	79.0-120			1.44	20
Dichlorodifluoromethane	25.0	28.6	28.8	114	115	51.0-149			0.566	20
1,1-Dichloroethane	25.0	26.4	26.4	105	105	70.0-126			0.0183	20
1,2,3-Trimethylbenzene	25.0	25.2	25.3	101	101	77.0-120			0.313	20
1,2-Dichloroethane	25.0	24.7	24.8	98.7	99.3	70.0-128			0.611	20
1,1-Dichloroethene	25.0	27.0	27.6	108	110	71.0-124			2.11	20
cis-1,2-Dichloroethene	25.0	26.7	27.0	107	108	73.0-120			1.11	20
trans-1,2-Dichloroethene	25.0	26.3	26.8	105	107	73.0-120			1.64	20
Xylenes, Total	75.0	78.5	78.0	105	104	79.0-123			0.639	20
1,2-Dichloropropane	25.0	26.0	26.5	104	106	77.0-125			1.85	20
1,1-Dichloropropene	25.0	25.9	26.1	104	105	74.0-126			0.823	20
1,3-Dichloropropane	25.0	26.9	25.9	107	104	80.0-120			3.49	20
2,2-Dichloropropane	25.0	25.8	25.9	103	104	58.0-130			0.304	20
Di-isopropyl ether	25.0	27.6	27.4	110	109	58.0-138			0.826	20
Ethylbenzene	25.0	26.1	25.3	104	101	79.0-123			3.27	20

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

(LCS) R3383102-1 02/07/19 14:41 • (LCSD) R3383102-2 02/07/19 15:02

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 %
Hexachloro-1,3-butadiene	25.0	24.3	26.8	97.1	107	54.0-138			9.77	20
Isopropylbenzene	25.0	27.4	26.9	110	108	76.0-127			2.01	20
p-Isopropyltoluene	25.0	26.5	26.6	106	107	76.0-125			0.461	20
2-Butanone (MEK)	125	145	143	116	114	44.0-160			1.17	20
Methylene Chloride	25.0	27.0	26.9	108	108	67.0-120			0.240	20
4-Methyl-2-pentanone (MIBK)	125	143	139	115	111	68.0-142			3.08	20
Methyl tert-butyl ether	25.0	27.9	27.2	112	109	68.0-125			2.31	20
Naphthalene	25.0	22.9	25.0	91.7	99.9	54.0-135			8.62	20
n-Propylbenzene	25.0	27.3	27.4	109	109	77.0-124			0.178	20
Styrene	25.0	28.6	28.2	114	113	73.0-130			1.45	20
1,1,1,2-Tetrachloroethane	25.0	26.7	26.7	107	107	75.0-125			0.0173	20
1,1,2,2-Tetrachloroethane	25.0	29.4	29.6	118	119	65.0-130			0.789	20
Tetrachloroethene	25.0	25.8	25.3	103	101	72.0-132			1.86	20
Toluene	25.0	24.7	24.4	98.7	97.6	79.0-120			1.12	20
1,2,3-Trichlorobenzene	25.0	22.3	24.5	89.2	97.9	50.0-138			9.28	20
1,2,4-Trichlorobenzene	25.0	23.8	24.7	95.3	99.0	57.0-137			3.79	20
1,1,1-Trichloroethane	25.0	27.4	27.4	110	110	73.0-124			0.0410	20
1,1,2-Trichloroethane	25.0	26.4	26.3	106	105	80.0-120			0.485	20
Trichloroethene	25.0	25.8	26.4	103	106	78.0-124			2.05	20
Trichlorofluoromethane	25.0	26.1	26.8	104	107	59.0-147			2.77	20
1,2,3-Trichloropropane	25.0	28.0	27.7	112	111	73.0-130			1.21	20
1,2,4-Trimethylbenzene	25.0	26.2	26.2	105	105	76.0-121			0.177	20
1,3,5-Trimethylbenzene	25.0	28.2	28.5	113	114	76.0-122			1.17	20
Vinyl chloride	25.0	27.2	27.5	109	110	67.0-131			0.884	20
(S) Toluene-d8				*94.8*	*93.9*	*80.0-120*				
(S) 4-Bromofluorobenzene				*96.1*	*98.3*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*96.9*	*98.0*	*70.0-130*				

Method Blank (MB)

(MB) R3383141-3 02/07/19 21:52

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
Bromobenzene	U		0.133	0.500
Benzene	U		0.0896	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
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
Hexachloro-1,3-butadiene	U		0.157	1.00
Ethylbenzene	U		0.158	0.500

Method Blank (MB)

(MB) R3383141-3 02/07/19 21:52

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
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
Isopropylbenzene	U		0.126	0.500
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
Methyl tert-butyl ether	U		0.102	0.500
Tetrachloroethene	U		0.199	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
Naphthalene	U		0.174	2.50
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
Toluene	U		0.412	0.500
Vinyl chloride	U		0.118	0.500
Xylenes, Total	U		0.316	1.50
(S) Toluene-d8	*102*			*80.0-120*
(S) 4-Bromofluorobenzene	*85.3*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*94.0*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3383141-1 02/07/19 20:49

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	125	98.0	78.4	19.0-160	
Acrolein	125	124	99.6	10.0-160	
Acrylonitrile	125	111	88.9	55.0-149	
Bromobenzene	25.0	25.5	102	73.0-121	

Laboratory Control Sample (LCS)

(LCS) R3383141-1 02/07/19 20:49

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromodichloromethane	25.0	24.3	97.2	75.0-120	
Bromoform	25.0	25.2	101	68.0-132	
Bromomethane	25.0	35.1	140	10.0-160	
n-Butylbenzene	25.0	26.9	107	73.0-125	
sec-Butylbenzene	25.0	25.8	103	75.0-125	
tert-Butylbenzene	25.0	26.2	105	76.0-124	
Carbon disulfide	25.0	23.8	95.2	61.0-128	
Carbon tetrachloride	25.0	25.7	103	68.0-126	
Chlorobenzene	25.0	24.2	96.9	80.0-121	
Chlorodibromomethane	25.0	25.7	103	77.0-125	
Chloroethane	25.0	20.6	82.5	47.0-150	
Chloroform	25.0	25.0	100	73.0-120	
Chloromethane	25.0	25.1	100	41.0-142	
2-Chlorotoluene	25.0	25.6	102	76.0-123	
4-Chlorotoluene	25.0	25.0	100	75.0-122	
1,2-Dibromo-3-Chloropropane	25.0	19.4	77.5	58.0-134	
1,2-Dibromoethane	25.0	23.1	92.4	80.0-122	
Dibromomethane	25.0	23.2	92.6	80.0-120	
1,2-Dichlorobenzene	25.0	25.9	104	79.0-121	
1,3-Dichlorobenzene	25.0	25.4	102	79.0-120	
1,4-Dichlorobenzene	25.0	25.2	101	79.0-120	
Dichlorodifluoromethane	25.0	18.5	73.9	51.0-149	
1,1-Dichloroethane	25.0	25.0	99.8	70.0-126	
1,2-Dichloroethane	25.0	23.9	95.4	70.0-128	
1,1-Dichloroethene	25.0	23.3	93.4	71.0-124	
trans-1,2-Dichloroethene	25.0	24.1	96.3	73.0-120	
1,2-Dichloropropane	25.0	23.7	94.8	77.0-125	
1,1-Dichloropropene	25.0	24.2	96.6	74.0-126	
1,3-Dichloropropane	25.0	24.3	97.4	80.0-120	
cis-1,3-Dichloropropene	25.0	25.4	102	80.0-123	
trans-1,3-Dichloropropene	25.0	26.2	105	78.0-124	
Benzene	25.0	24.9	99.4	70.0-123	
2,2-Dichloropropane	25.0	25.5	102	58.0-130	
Di-isopropyl ether	25.0	23.8	95.1	58.0-138	
Hexachloro-1,3-butadiene	25.0	25.6	102	54.0-138	
p-Isopropyltoluene	25.0	26.5	106	76.0-125	
2-Butanone (MEK)	125	105	84.0	44.0-160	
Methylene Chloride	25.0	24.5	98.2	67.0-120	
4-Methyl-2-pentanone (MIBK)	125	103	82.1	68.0-142	
n-Propylbenzene	25.0	25.9	104	77.0-124	

Laboratory Control Sample (LCS)

(LCS) R3383141-1 02/07/19 20:49

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Styrene	25.0	26.3	105	73.0-130	
1,1,1,2-Tetrachloroethane	25.0	25.5	102	75.0-125	
1,1,2,2-Tetrachloroethane	25.0	24.3	97.2	65.0-130	
1,1,2-Trichlorotrifluoroethane	25.0	24.0	95.8	69.0-132	
Tetrachloroethene	25.0	24.9	99.6	72.0-132	
1,2,3-Trichlorobenzene	25.0	19.4	77.5	50.0-138	
1,2,4-Trichlorobenzene	25.0	20.4	81.4	57.0-137	
1,1,1-Trichloroethane	25.0	25.0	100	73.0-124	
1,1,2-Trichloroethane	25.0	24.9	99.7	80.0-120	
Trichloroethene	25.0	23.8	95.1	78.0-124	
Trichlorofluoromethane	25.0	25.3	101	59.0-147	
1,2,3-Trichloropropane	25.0	24.4	97.4	73.0-130	
1,2,4-Trimethylbenzene	25.0	26.3	105	76.0-121	
1,2,3-Trimethylbenzene	25.0	25.5	102	77.0-120	
1,3,5-Trimethylbenzene	25.0	26.2	105	76.0-122	
Vinyl chloride	25.0	21.6	86.5	67.0-131	
Ethylbenzene	25.0	25.5	102	79.0-123	
Isopropylbenzene	25.0	25.6	102	76.0-127	
Methyl tert-butyl ether	25.0	22.8	91.1	68.0-125	
Naphthalene	25.0	15.2	60.7	54.0-135	
Toluene	25.0	25.7	103	79.0-120	
Xylenes, Total	75.0	74.4	99.2	79.0-123	
(S) Toluene-d8			*98.0*	*80.0-120*	
(S) 4-Bromofluorobenzene			*90.5*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*91.1*	*70.0-130*	

Method Blank (MB)

(MB) R3383760-3 02/12/19 18:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
cis-1,2-Dichloroethene	U		0.0933	0.500
(S) Toluene-d8	*104*			*80.0-120*
(S) 4-Bromofluorobenzene	*100*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*107*			*70.0-130*

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

(LCS) R3383760-1 02/12/19 16:55 • (LCSD) R3383760-2 02/12/19 17:16

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 %
cis-1,2-Dichloroethene	25.0	21.1	20.9	84.6	83.5	73.0-120			1.30	20
(S) Toluene-d8				*97.4*	*100*	*80.0-120*				
(S) 4-Bromofluorobenzene				*98.1*	*99.7*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*105*	*106*	*70.0-130*				

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.
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
J	The identification of the analyte is acceptable; the reported value is an estimate.

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	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

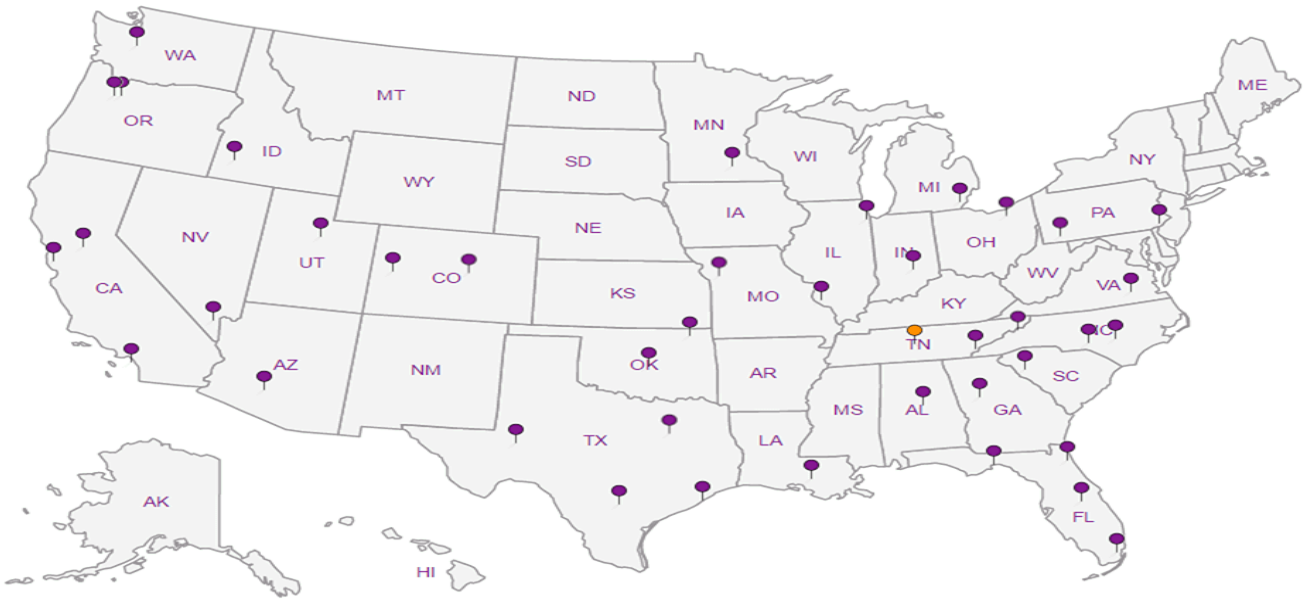
Third Party Federal Accreditations

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.



Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

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Cascade Corporation- Fairview, OR

201 NE 201st Avenue
Fairview, OR 97024-9718

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

Email To: CBartlett@Geosyntec.com

Report to: Cindy Bartlett

City/State Collected: FAIRVIEW/OR

Project Description: CASCADE TSA

Client Project #:

Lab Project #: CASCORFOR-PNG0564

Phone: 503-669-6286
Fax:

Site/Facility ID #:

P.O. #:

Collected by (print): Dietrich Tietjen

Collected by (signature): [signature]

Immediately Packed on Ice N___ Y X

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

L# 1067715

1206

Acctnum: CASCORFOR
Template: T142451
Prelogin: P692841
TSR: 110 - Brian Ford
PB:
Shipped Via:

Analysis / Container / Preservative: VOCs V8260LL 40mlAmb-HCl

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOCs V8260LL 40mlAmb-HCl	Remarks	Sample # (lab only)
TS-C-INF-020519		GW		2-5-19	11:40	3	X		-01
TS-C-EFF-020519		GW		2-5-19	11:50	3	X		-02
TS-C-EFF-020519-DUP		GW		2-5-19	11:51	3	X		-03
TRIP BLANK LOT #414		H20		10-15-18	NA		X		-04

* 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 ___ FedEx ___ Courier ______

Tracking #

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
RAD SCREEN: <0.5 mR/hr

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Pat Yoder	2/6/19	16:15	FEDEX
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Malik P.

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

Temp: 3.6-.1=3.5 °C
Bottles Received: 9 + TB

Date: 2/7 Time: 8:50

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)