

April 01, 2019

Cascade Corporation- Fairview, OR

Sample Delivery Group: L1082939

Samples Received: 03/27/2019

Project Number:

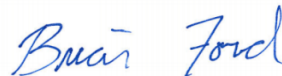
Description: Cascade TSA

Report To: Cindy Bartlett

2201 NE 201st Avenue

Fairview, OR 97024-9718

Entire Report Reviewed By:



Brian Ford

Project Manager

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

VMW-H-032519 L1082939-01 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Collected by PY / DT				Collected date/time 03/25/19 12:35	Received date/time 03/27/19 08:45	
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257024	1	03/28/19 21:37	03/28/19 21:37	ADM	Mt. Juliet, TN

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VMW-C-032519 L1082939-02 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Collected by PY / DT				Collected date/time 03/25/19 13:10	Received date/time 03/27/19 08:45	
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257024	1	03/28/19 21:57	03/28/19 21:57	ADM	Mt. Juliet, TN

VMW-G-032519 L1082939-03 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Collected by PY / DT				Collected date/time 03/25/19 15:15	Received date/time 03/27/19 08:45	
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257024	5	03/28/19 22:17	03/28/19 22:17	ADM	Mt. Juliet, TN

VMW-F-032519 L1082939-04 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Collected by PY / DT				Collected date/time 03/25/19 15:45	Received date/time 03/27/19 08:45	
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257024	1	03/28/19 22:37	03/28/19 22:37	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257766	5	03/29/19 23:49	03/29/19 23:49	BMB	Mt. Juliet, TN

VMW-E-032519 L1082939-05 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Collected by PY / DT				Collected date/time 03/25/19 16:00	Received date/time 03/27/19 08:45	
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257024	1	03/28/19 22:57	03/28/19 22:57	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257766	1	03/30/19 00:09	03/30/19 00:09	BMB	Mt. Juliet, TN

TRIP BLANK LOT #370 L1082939-06 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Collected by PY / DT				Collected date/time 03/25/19 00:00	Received date/time 03/27/19 08:45	
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1257024	1	03/28/19 19:40	03/28/19 19:40	ADM	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	03/28/2019 21:37	WG1257024
Acrolein	ND		50.0	1	03/28/2019 21:37	WG1257024
Acrylonitrile	ND		5.00	1	03/28/2019 21:37	WG1257024
Benzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Bromobenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Bromodichloromethane	ND		0.500	1	03/28/2019 21:37	WG1257024
Bromoform	ND		0.500	1	03/28/2019 21:37	WG1257024
Bromomethane	ND		2.50	1	03/28/2019 21:37	WG1257024
n-Butylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
sec-Butylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
tert-Butylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Carbon disulfide	ND		0.500	1	03/28/2019 21:37	WG1257024
Carbon tetrachloride	ND		0.500	1	03/28/2019 21:37	WG1257024
Chlorobenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Chlorodibromomethane	ND		0.500	1	03/28/2019 21:37	WG1257024
Chloroethane	ND		2.50	1	03/28/2019 21:37	WG1257024
Chloroform	ND		0.500	1	03/28/2019 21:37	WG1257024
Chloromethane	ND		1.25	1	03/28/2019 21:37	WG1257024
2-Chlorotoluene	ND		0.500	1	03/28/2019 21:37	WG1257024
4-Chlorotoluene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,2-Dibromo-3-Chloropropane	ND		2.50	1	03/28/2019 21:37	WG1257024
1,2-Dibromoethane	ND		0.500	1	03/28/2019 21:37	WG1257024
Dibromomethane	ND		0.500	1	03/28/2019 21:37	WG1257024
1,2-Dichlorobenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,3-Dichlorobenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,4-Dichlorobenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Dichlorodifluoromethane	ND		2.50	1	03/28/2019 21:37	WG1257024
1,1-Dichloroethane	ND		0.500	1	03/28/2019 21:37	WG1257024
1,2-Dichloroethane	ND		0.500	1	03/28/2019 21:37	WG1257024
1,1-Dichloroethene	ND		0.500	1	03/28/2019 21:37	WG1257024
cis-1,2-Dichloroethene	ND		0.500	1	03/28/2019 21:37	WG1257024
trans-1,2-Dichloroethene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,2-Dichloropropane	ND		0.500	1	03/28/2019 21:37	WG1257024
1,1-Dichloropropene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,3-Dichloropropane	ND		1.00	1	03/28/2019 21:37	WG1257024
cis-1,3-Dichloropropene	ND		0.500	1	03/28/2019 21:37	WG1257024
trans-1,3-Dichloropropene	ND		0.500	1	03/28/2019 21:37	WG1257024
2,2-Dichloropropane	ND		0.500	1	03/28/2019 21:37	WG1257024
Di-isopropyl ether	ND		0.500	1	03/28/2019 21:37	WG1257024
Ethylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Hexachloro-1,3-butadiene	ND		1.00	1	03/28/2019 21:37	WG1257024
Isopropylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
p-Isopropyltoluene	ND		0.500	1	03/28/2019 21:37	WG1257024
2-Butanone (MEK)	ND		5.00	1	03/28/2019 21:37	WG1257024
Methylene Chloride	ND		2.50	1	03/28/2019 21:37	WG1257024
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	03/28/2019 21:37	WG1257024
Methyl tert-butyl ether	ND		0.500	1	03/28/2019 21:37	WG1257024
Naphthalene	ND		2.50	1	03/28/2019 21:37	WG1257024
n-Propylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Styrene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,1,1,2-Tetrachloroethane	ND		0.500	1	03/28/2019 21:37	WG1257024
1,1,2,2-Tetrachloroethane	ND		0.500	1	03/28/2019 21:37	WG1257024
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	03/28/2019 21:37	WG1257024
Tetrachloroethene	ND		0.500	1	03/28/2019 21:37	WG1257024
Toluene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,2,3-Trichlorobenzene	ND		0.500	1	03/28/2019 21:37	WG1257024

- 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 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,1,1-Trichloroethane	ND		0.500	1	03/28/2019 21:37	WG1257024
1,1,2-Trichloroethane	ND		0.500	1	03/28/2019 21:37	WG1257024
Trichloroethene	0.604		0.500	1	03/28/2019 21:37	WG1257024
Trichlorofluoromethane	ND		2.50	1	03/28/2019 21:37	WG1257024
1,2,3-Trichloropropane	ND		2.50	1	03/28/2019 21:37	WG1257024
1,2,4-Trimethylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,2,3-Trimethylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
1,3,5-Trimethylbenzene	ND		0.500	1	03/28/2019 21:37	WG1257024
Vinyl chloride	ND		0.500	1	03/28/2019 21:37	WG1257024
Xylenes, Total	ND		1.50	1	03/28/2019 21:37	WG1257024
(S) Toluene-d8	107		80.0-120		03/28/2019 21:37	WG1257024
(S) 4-Bromofluorobenzene	103		77.0-126		03/28/2019 21:37	WG1257024
(S) 1,2-Dichloroethane-d4	98.1		70.0-130		03/28/2019 21:37	WG1257024

1 Cp

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	27.7		25.0	1	03/28/2019 21:57	WG1257024
Acrolein	ND		50.0	1	03/28/2019 21:57	WG1257024
Acrylonitrile	ND		5.00	1	03/28/2019 21:57	WG1257024
Benzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Bromobenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Bromodichloromethane	ND		0.500	1	03/28/2019 21:57	WG1257024
Bromoform	ND		0.500	1	03/28/2019 21:57	WG1257024
Bromomethane	ND		2.50	1	03/28/2019 21:57	WG1257024
n-Butylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
sec-Butylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
tert-Butylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Carbon disulfide	ND		0.500	1	03/28/2019 21:57	WG1257024
Carbon tetrachloride	ND		0.500	1	03/28/2019 21:57	WG1257024
Chlorobenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Chlorodibromomethane	ND		0.500	1	03/28/2019 21:57	WG1257024
Chloroethane	ND		2.50	1	03/28/2019 21:57	WG1257024
Chloroform	ND		0.500	1	03/28/2019 21:57	WG1257024
Chloromethane	ND		1.25	1	03/28/2019 21:57	WG1257024
2-Chlorotoluene	ND		0.500	1	03/28/2019 21:57	WG1257024
4-Chlorotoluene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,2-Dibromo-3-Chloropropane	ND		2.50	1	03/28/2019 21:57	WG1257024
1,2-Dibromoethane	ND		0.500	1	03/28/2019 21:57	WG1257024
Dibromomethane	ND		0.500	1	03/28/2019 21:57	WG1257024
1,2-Dichlorobenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,3-Dichlorobenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,4-Dichlorobenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Dichlorodifluoromethane	ND		2.50	1	03/28/2019 21:57	WG1257024
1,1-Dichloroethane	ND		0.500	1	03/28/2019 21:57	WG1257024
1,2-Dichloroethane	ND		0.500	1	03/28/2019 21:57	WG1257024
1,1-Dichloroethene	ND		0.500	1	03/28/2019 21:57	WG1257024
cis-1,2-Dichloroethene	2.39		0.500	1	03/28/2019 21:57	WG1257024
trans-1,2-Dichloroethene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,2-Dichloropropane	ND		0.500	1	03/28/2019 21:57	WG1257024
1,1-Dichloropropene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,3-Dichloropropane	ND		1.00	1	03/28/2019 21:57	WG1257024
cis-1,3-Dichloropropene	ND		0.500	1	03/28/2019 21:57	WG1257024
trans-1,3-Dichloropropene	ND		0.500	1	03/28/2019 21:57	WG1257024
2,2-Dichloropropane	ND		0.500	1	03/28/2019 21:57	WG1257024
Di-isopropyl ether	ND		0.500	1	03/28/2019 21:57	WG1257024
Ethylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Hexachloro-1,3-butadiene	ND		1.00	1	03/28/2019 21:57	WG1257024
Isopropylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
p-Isopropyltoluene	ND		0.500	1	03/28/2019 21:57	WG1257024
2-Butanone (MEK)	9.84		5.00	1	03/28/2019 21:57	WG1257024
Methylene Chloride	ND		2.50	1	03/28/2019 21:57	WG1257024
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	03/28/2019 21:57	WG1257024
Methyl tert-butyl ether	ND		0.500	1	03/28/2019 21:57	WG1257024
Naphthalene	ND		2.50	1	03/28/2019 21:57	WG1257024
n-Propylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Styrene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,1,1,2-Tetrachloroethane	ND		0.500	1	03/28/2019 21:57	WG1257024
1,1,2,2-Tetrachloroethane	ND		0.500	1	03/28/2019 21:57	WG1257024
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	03/28/2019 21:57	WG1257024
Tetrachloroethene	ND		0.500	1	03/28/2019 21:57	WG1257024
Toluene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,2,3-Trichlorobenzene	ND		0.500	1	03/28/2019 21:57	WG1257024

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,1,1-Trichloroethane	ND		0.500	1	03/28/2019 21:57	WG1257024
1,1,2-Trichloroethane	ND		0.500	1	03/28/2019 21:57	WG1257024
Trichloroethene	32.0		0.500	1	03/28/2019 21:57	WG1257024
Trichlorofluoromethane	ND		2.50	1	03/28/2019 21:57	WG1257024
1,2,3-Trichloropropane	ND		2.50	1	03/28/2019 21:57	WG1257024
1,2,4-Trimethylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,2,3-Trimethylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
1,3,5-Trimethylbenzene	ND		0.500	1	03/28/2019 21:57	WG1257024
Vinyl chloride	ND		0.500	1	03/28/2019 21:57	WG1257024
Xylenes, Total	ND		1.50	1	03/28/2019 21:57	WG1257024
(S) Toluene-d8	109		80.0-120		03/28/2019 21:57	WG1257024
(S) 4-Bromofluorobenzene	99.1		77.0-126		03/28/2019 21:57	WG1257024
(S) 1,2-Dichloroethane-d4	100		70.0-130		03/28/2019 21:57	WG1257024

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 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		125	5	03/28/2019 22:17	WG1257024
Acrolein	ND		250	5	03/28/2019 22:17	WG1257024
Acrylonitrile	ND		25.0	5	03/28/2019 22:17	WG1257024
Benzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Bromobenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Bromodichloromethane	ND		2.50	5	03/28/2019 22:17	WG1257024
Bromoform	ND		2.50	5	03/28/2019 22:17	WG1257024
Bromomethane	ND	<u>JO</u>	12.5	5	03/28/2019 22:17	WG1257024
n-Butylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
sec-Butylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
tert-Butylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Carbon disulfide	ND		2.50	5	03/28/2019 22:17	WG1257024
Carbon tetrachloride	ND		2.50	5	03/28/2019 22:17	WG1257024
Chlorobenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Chlorodibromomethane	ND		2.50	5	03/28/2019 22:17	WG1257024
Chloroethane	ND		12.5	5	03/28/2019 22:17	WG1257024
Chloroform	ND		2.50	5	03/28/2019 22:17	WG1257024
Chloromethane	ND		6.25	5	03/28/2019 22:17	WG1257024
2-Chlorotoluene	ND		2.50	5	03/28/2019 22:17	WG1257024
4-Chlorotoluene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,2-Dibromo-3-Chloropropane	ND		12.5	5	03/28/2019 22:17	WG1257024
1,2-Dibromoethane	ND		2.50	5	03/28/2019 22:17	WG1257024
Dibromomethane	ND		2.50	5	03/28/2019 22:17	WG1257024
1,2-Dichlorobenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,3-Dichlorobenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,4-Dichlorobenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Dichlorodifluoromethane	ND		12.5	5	03/28/2019 22:17	WG1257024
1,1-Dichloroethane	ND		2.50	5	03/28/2019 22:17	WG1257024
1,2-Dichloroethane	ND		2.50	5	03/28/2019 22:17	WG1257024
1,1-Dichloroethene	ND		2.50	5	03/28/2019 22:17	WG1257024
cis-1,2-Dichloroethene	ND		2.50	5	03/28/2019 22:17	WG1257024
trans-1,2-Dichloroethene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,2-Dichloropropane	ND		2.50	5	03/28/2019 22:17	WG1257024
1,1-Dichloropropene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,3-Dichloropropane	ND		5.00	5	03/28/2019 22:17	WG1257024
cis-1,3-Dichloropropene	ND		2.50	5	03/28/2019 22:17	WG1257024
trans-1,3-Dichloropropene	ND		2.50	5	03/28/2019 22:17	WG1257024
2,2-Dichloropropane	ND		2.50	5	03/28/2019 22:17	WG1257024
Di-isopropyl ether	ND		2.50	5	03/28/2019 22:17	WG1257024
Ethylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Hexachloro-1,3-butadiene	ND		5.00	5	03/28/2019 22:17	WG1257024
Isopropylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
p-Isopropyltoluene	ND		2.50	5	03/28/2019 22:17	WG1257024
2-Butanone (MEK)	ND		25.0	5	03/28/2019 22:17	WG1257024
Methylene Chloride	ND		12.5	5	03/28/2019 22:17	WG1257024
4-Methyl-2-pentanone (MIBK)	ND		25.0	5	03/28/2019 22:17	WG1257024
Methyl tert-butyl ether	ND		2.50	5	03/28/2019 22:17	WG1257024
Naphthalene	ND		12.5	5	03/28/2019 22:17	WG1257024
n-Propylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Styrene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,1,1,2-Tetrachloroethane	ND		2.50	5	03/28/2019 22:17	WG1257024
1,1,2,2-Tetrachloroethane	ND		2.50	5	03/28/2019 22:17	WG1257024
1,1,2-Trichlorotrifluoroethane	ND		2.50	5	03/28/2019 22:17	WG1257024
Tetrachloroethene	ND		2.50	5	03/28/2019 22:17	WG1257024
Toluene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,2,3-Trichlorobenzene	ND		2.50	5	03/28/2019 22:17	WG1257024

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 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,1,1-Trichloroethane	ND		2.50	5	03/28/2019 22:17	WG1257024
1,1,2-Trichloroethane	ND		2.50	5	03/28/2019 22:17	WG1257024
Trichloroethene	ND		2.50	5	03/28/2019 22:17	WG1257024
Trichlorofluoromethane	ND		12.5	5	03/28/2019 22:17	WG1257024
1,2,3-Trichloropropane	ND		12.5	5	03/28/2019 22:17	WG1257024
1,2,4-Trimethylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,2,3-Trimethylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
1,3,5-Trimethylbenzene	ND		2.50	5	03/28/2019 22:17	WG1257024
Vinyl chloride	ND		2.50	5	03/28/2019 22:17	WG1257024
Xylenes, Total	ND		7.50	5	03/28/2019 22:17	WG1257024
(S) Toluene-d8	112		80.0-120		03/28/2019 22:17	WG1257024
(S) 4-Bromofluorobenzene	101		77.0-126		03/28/2019 22:17	WG1257024
(S) 1,2-Dichloroethane-d4	95.1		70.0-130		03/28/2019 22:17	WG1257024

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

Sample Narrative:

L1082939-03 WG1257024: Lowest possible dilution due to sediment.



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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	724		25.0	1	03/28/2019 22:37	WG1257024
Acrolein	ND		50.0	1	03/28/2019 22:37	WG1257024
Acrylonitrile	ND		5.00	1	03/28/2019 22:37	WG1257024
Benzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Bromobenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Bromodichloromethane	ND		0.500	1	03/28/2019 22:37	WG1257024
Bromoform	ND		0.500	1	03/28/2019 22:37	WG1257024
Bromomethane	ND	JO	2.50	1	03/28/2019 22:37	WG1257024
n-Butylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
sec-Butylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
tert-Butylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Carbon disulfide	ND		0.500	1	03/28/2019 22:37	WG1257024
Carbon tetrachloride	ND		0.500	1	03/28/2019 22:37	WG1257024
Chlorobenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Chlorodibromomethane	ND		0.500	1	03/28/2019 22:37	WG1257024
Chloroethane	ND		2.50	1	03/28/2019 22:37	WG1257024
Chloroform	2.11		0.500	1	03/28/2019 22:37	WG1257024
Chloromethane	ND		1.25	1	03/28/2019 22:37	WG1257024
2-Chlorotoluene	ND		0.500	1	03/28/2019 22:37	WG1257024
4-Chlorotoluene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,2-Dibromo-3-Chloropropane	ND		2.50	1	03/28/2019 22:37	WG1257024
1,2-Dibromoethane	ND		0.500	1	03/28/2019 22:37	WG1257024
Dibromomethane	ND		0.500	1	03/28/2019 22:37	WG1257024
1,2-Dichlorobenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,3-Dichlorobenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,4-Dichlorobenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Dichlorodifluoromethane	ND		2.50	1	03/28/2019 22:37	WG1257024
1,1-Dichloroethane	ND		0.500	1	03/28/2019 22:37	WG1257024
1,2-Dichloroethane	ND		0.500	1	03/28/2019 22:37	WG1257024
1,1-Dichloroethene	ND		0.500	1	03/28/2019 22:37	WG1257024
cis-1,2-Dichloroethene	2.56		0.500	1	03/28/2019 22:37	WG1257024
trans-1,2-Dichloroethene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,2-Dichloropropane	ND		0.500	1	03/28/2019 22:37	WG1257024
1,1-Dichloropropene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,3-Dichloropropane	ND		1.00	1	03/28/2019 22:37	WG1257024
cis-1,3-Dichloropropene	ND		0.500	1	03/28/2019 22:37	WG1257024
trans-1,3-Dichloropropene	ND		0.500	1	03/28/2019 22:37	WG1257024
2,2-Dichloropropane	ND		0.500	1	03/28/2019 22:37	WG1257024
Di-isopropyl ether	ND		0.500	1	03/28/2019 22:37	WG1257024
Ethylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Hexachloro-1,3-butadiene	ND		1.00	1	03/28/2019 22:37	WG1257024
Isopropylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
p-Isopropyltoluene	ND		0.500	1	03/28/2019 22:37	WG1257024
2-Butanone (MEK)	1140		25.0	5	03/29/2019 23:49	WG1257766
Methylene Chloride	ND		2.50	1	03/28/2019 22:37	WG1257024
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	03/28/2019 22:37	WG1257024
Methyl tert-butyl ether	ND		0.500	1	03/28/2019 22:37	WG1257024
Naphthalene	ND		2.50	1	03/28/2019 22:37	WG1257024
n-Propylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Styrene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,1,1,2-Tetrachloroethane	ND		0.500	1	03/28/2019 22:37	WG1257024
1,1,2,2-Tetrachloroethane	ND		0.500	1	03/28/2019 22:37	WG1257024
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	03/28/2019 22:37	WG1257024
Tetrachloroethene	0.635		0.500	1	03/28/2019 22:37	WG1257024
Toluene	0.745		0.500	1	03/28/2019 22:37	WG1257024
1,2,3-Trichlorobenzene	ND		0.500	1	03/28/2019 22:37	WG1257024

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 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,1,1-Trichloroethane	ND		0.500	1	03/28/2019 22:37	WG1257024
1,1,2-Trichloroethane	ND		0.500	1	03/28/2019 22:37	WG1257024
Trichloroethene	18.0		0.500	1	03/28/2019 22:37	WG1257024
Trichlorofluoromethane	ND		2.50	1	03/28/2019 22:37	WG1257024
1,2,3-Trichloropropane	ND		2.50	1	03/28/2019 22:37	WG1257024
1,2,4-Trimethylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,2,3-Trimethylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
1,3,5-Trimethylbenzene	ND		0.500	1	03/28/2019 22:37	WG1257024
Vinyl chloride	ND		0.500	1	03/28/2019 22:37	WG1257024
Xylenes, Total	ND		1.50	1	03/28/2019 22:37	WG1257024
(S) Toluene-d8	106		80.0-120		03/28/2019 22:37	WG1257024
(S) Toluene-d8	107		80.0-120		03/29/2019 23:49	WG1257766
(S) 4-Bromofluorobenzene	102		77.0-126		03/28/2019 22:37	WG1257024
(S) 4-Bromofluorobenzene	105		77.0-126		03/29/2019 23:49	WG1257766
(S) 1,2-Dichloroethane-d4	101		70.0-130		03/28/2019 22:37	WG1257024
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/29/2019 23:49	WG1257766

- 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 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	03/28/2019 22:57	WG1257024
Acrolein	ND		50.0	1	03/28/2019 22:57	WG1257024
Acrylonitrile	ND		5.00	1	03/28/2019 22:57	WG1257024
Benzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Bromobenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Bromodichloromethane	ND		0.500	1	03/28/2019 22:57	WG1257024
Bromoform	ND		0.500	1	03/28/2019 22:57	WG1257024
Bromomethane	ND	JO	2.50	1	03/28/2019 22:57	WG1257024
n-Butylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
sec-Butylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
tert-Butylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Carbon disulfide	ND		0.500	1	03/28/2019 22:57	WG1257024
Carbon tetrachloride	ND		0.500	1	03/28/2019 22:57	WG1257024
Chlorobenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Chlorodibromomethane	ND		0.500	1	03/28/2019 22:57	WG1257024
Chloroethane	ND		2.50	1	03/28/2019 22:57	WG1257024
Chloroform	ND		0.500	1	03/28/2019 22:57	WG1257024
Chloromethane	ND		1.25	1	03/28/2019 22:57	WG1257024
2-Chlorotoluene	ND		0.500	1	03/28/2019 22:57	WG1257024
4-Chlorotoluene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,2-Dibromo-3-Chloropropane	ND		2.50	1	03/28/2019 22:57	WG1257024
1,2-Dibromoethane	ND		0.500	1	03/28/2019 22:57	WG1257024
Dibromomethane	ND		0.500	1	03/28/2019 22:57	WG1257024
1,2-Dichlorobenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,3-Dichlorobenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,4-Dichlorobenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Dichlorodifluoromethane	ND		2.50	1	03/28/2019 22:57	WG1257024
1,1-Dichloroethane	ND		0.500	1	03/28/2019 22:57	WG1257024
1,2-Dichloroethane	ND		0.500	1	03/28/2019 22:57	WG1257024
1,1-Dichloroethene	ND		0.500	1	03/28/2019 22:57	WG1257024
cis-1,2-Dichloroethene	6.66		0.500	1	03/28/2019 22:57	WG1257024
trans-1,2-Dichloroethene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,2-Dichloropropane	ND		0.500	1	03/28/2019 22:57	WG1257024
1,1-Dichloropropene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,3-Dichloropropane	ND		1.00	1	03/28/2019 22:57	WG1257024
cis-1,3-Dichloropropene	ND		0.500	1	03/28/2019 22:57	WG1257024
trans-1,3-Dichloropropene	ND		0.500	1	03/28/2019 22:57	WG1257024
2,2-Dichloropropane	ND		0.500	1	03/28/2019 22:57	WG1257024
Di-isopropyl ether	ND		0.500	1	03/28/2019 22:57	WG1257024
Ethylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Hexachloro-1,3-butadiene	ND		1.00	1	03/28/2019 22:57	WG1257024
Isopropylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
p-Isopropyltoluene	ND		0.500	1	03/28/2019 22:57	WG1257024
2-Butanone (MEK)	ND		5.00	1	03/30/2019 00:09	WG1257766
Methylene Chloride	ND		2.50	1	03/28/2019 22:57	WG1257024
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	03/28/2019 22:57	WG1257024
Methyl tert-butyl ether	ND		0.500	1	03/28/2019 22:57	WG1257024
Naphthalene	ND		2.50	1	03/28/2019 22:57	WG1257024
n-Propylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Styrene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,1,1,2-Tetrachloroethane	ND		0.500	1	03/28/2019 22:57	WG1257024
1,1,2,2-Tetrachloroethane	ND		0.500	1	03/28/2019 22:57	WG1257024
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	03/28/2019 22:57	WG1257024
Tetrachloroethene	2.62		0.500	1	03/28/2019 22:57	WG1257024
Toluene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,2,3-Trichlorobenzene	ND		0.500	1	03/28/2019 22:57	WG1257024

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 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,1,1-Trichloroethane	ND		0.500	1	03/28/2019 22:57	WG1257024
1,1,2-Trichloroethane	ND		0.500	1	03/28/2019 22:57	WG1257024
Trichloroethene	43.4		0.500	1	03/28/2019 22:57	WG1257024
Trichlorofluoromethane	ND		2.50	1	03/28/2019 22:57	WG1257024
1,2,3-Trichloropropane	ND		2.50	1	03/28/2019 22:57	WG1257024
1,2,4-Trimethylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,2,3-Trimethylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
1,3,5-Trimethylbenzene	ND		0.500	1	03/28/2019 22:57	WG1257024
Vinyl chloride	ND		0.500	1	03/28/2019 22:57	WG1257024
Xylenes, Total	ND		1.50	1	03/28/2019 22:57	WG1257024
(S) Toluene-d8	107		80.0-120		03/28/2019 22:57	WG1257024
(S) Toluene-d8	109		80.0-120		03/30/2019 00:09	WG1257766
(S) 4-Bromofluorobenzene	96.0		77.0-126		03/28/2019 22:57	WG1257024
(S) 4-Bromofluorobenzene	101		77.0-126		03/30/2019 00:09	WG1257766
(S) 1,2-Dichloroethane-d4	97.9		70.0-130		03/28/2019 22:57	WG1257024
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/30/2019 00:09	WG1257766

- 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 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	03/28/2019 19:40	WG1257024
Acrolein	ND		50.0	1	03/28/2019 19:40	WG1257024
Acrylonitrile	ND		5.00	1	03/28/2019 19:40	WG1257024
Benzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Bromobenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Bromodichloromethane	ND		0.500	1	03/28/2019 19:40	WG1257024
Bromoform	ND		0.500	1	03/28/2019 19:40	WG1257024
Bromomethane	ND		2.50	1	03/28/2019 19:40	WG1257024
n-Butylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
sec-Butylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
tert-Butylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Carbon disulfide	ND		0.500	1	03/28/2019 19:40	WG1257024
Carbon tetrachloride	ND		0.500	1	03/28/2019 19:40	WG1257024
Chlorobenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Chlorodibromomethane	ND		0.500	1	03/28/2019 19:40	WG1257024
Chloroethane	ND		2.50	1	03/28/2019 19:40	WG1257024
Chloroform	ND		0.500	1	03/28/2019 19:40	WG1257024
Chloromethane	ND		1.25	1	03/28/2019 19:40	WG1257024
2-Chlorotoluene	ND		0.500	1	03/28/2019 19:40	WG1257024
4-Chlorotoluene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,2-Dibromo-3-Chloropropane	ND		2.50	1	03/28/2019 19:40	WG1257024
1,2-Dibromoethane	ND		0.500	1	03/28/2019 19:40	WG1257024
Dibromomethane	ND		0.500	1	03/28/2019 19:40	WG1257024
1,2-Dichlorobenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,3-Dichlorobenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,4-Dichlorobenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Dichlorodifluoromethane	ND		2.50	1	03/28/2019 19:40	WG1257024
1,1-Dichloroethane	ND		0.500	1	03/28/2019 19:40	WG1257024
1,2-Dichloroethane	ND		0.500	1	03/28/2019 19:40	WG1257024
1,1-Dichloroethene	ND		0.500	1	03/28/2019 19:40	WG1257024
cis-1,2-Dichloroethene	ND		0.500	1	03/28/2019 19:40	WG1257024
trans-1,2-Dichloroethene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,2-Dichloropropane	ND		0.500	1	03/28/2019 19:40	WG1257024
1,1-Dichloropropene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,3-Dichloropropane	ND		1.00	1	03/28/2019 19:40	WG1257024
cis-1,3-Dichloropropene	ND		0.500	1	03/28/2019 19:40	WG1257024
trans-1,3-Dichloropropene	ND		0.500	1	03/28/2019 19:40	WG1257024
2,2-Dichloropropane	ND		0.500	1	03/28/2019 19:40	WG1257024
Di-isopropyl ether	ND		0.500	1	03/28/2019 19:40	WG1257024
Ethylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Hexachloro-1,3-butadiene	ND		1.00	1	03/28/2019 19:40	WG1257024
Isopropylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
p-Isopropyltoluene	ND		0.500	1	03/28/2019 19:40	WG1257024
2-Butanone (MEK)	ND		5.00	1	03/28/2019 19:40	WG1257024
Methylene Chloride	ND		2.50	1	03/28/2019 19:40	WG1257024
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	03/28/2019 19:40	WG1257024
Methyl tert-butyl ether	ND		0.500	1	03/28/2019 19:40	WG1257024
Naphthalene	ND		2.50	1	03/28/2019 19:40	WG1257024
n-Propylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Styrene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,1,1,2-Tetrachloroethane	ND		0.500	1	03/28/2019 19:40	WG1257024
1,1,2,2-Tetrachloroethane	ND		0.500	1	03/28/2019 19:40	WG1257024
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	03/28/2019 19:40	WG1257024
Tetrachloroethene	ND		0.500	1	03/28/2019 19:40	WG1257024
Toluene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,2,3-Trichlorobenzene	ND		0.500	1	03/28/2019 19:40	WG1257024

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 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,1,1-Trichloroethane	ND		0.500	1	03/28/2019 19:40	WG1257024
1,1,2-Trichloroethane	ND		0.500	1	03/28/2019 19:40	WG1257024
Trichloroethene	ND		0.500	1	03/28/2019 19:40	WG1257024
Trichlorofluoromethane	ND		2.50	1	03/28/2019 19:40	WG1257024
1,2,3-Trichloropropane	ND		2.50	1	03/28/2019 19:40	WG1257024
1,2,4-Trimethylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,2,3-Trimethylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
1,3,5-Trimethylbenzene	ND		0.500	1	03/28/2019 19:40	WG1257024
Vinyl chloride	ND		0.500	1	03/28/2019 19:40	WG1257024
Xylenes, Total	ND		1.50	1	03/28/2019 19:40	WG1257024
(S) Toluene-d8	107		80.0-120		03/28/2019 19:40	WG1257024
(S) 4-Bromofluorobenzene	101		77.0-126		03/28/2019 19:40	WG1257024
(S) 1,2-Dichloroethane-d4	97.6		70.0-130		03/28/2019 19:40	WG1257024

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3396514-2 03/28/19 12:16

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
Carbon disulfide	U		0.101	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-1,2-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) R3396514-2 03/28/19 12:16

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
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
Methylene Chloride	U		1.07	2.50
n-Propylbenzene	U		0.162	0.500
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
1,1,1,2-Tetrachloroethane	U		0.120	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
Styrene	U		0.117	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	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
1,1,1-Trichloroethane	U		0.0940	0.500
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,1,2-Trichloroethane	U		0.186	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Trichloroethene	U		0.153	0.500
Vinyl chloride	U		0.118	0.500
Xylenes, Total	U		0.316	1.50
(S) Toluene-d8	107			80.0-120
(S) 4-Bromofluorobenzene	97.7			77.0-126
(S) 1,2-Dichloroethane-d4	97.7			70.0-130

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS)

(LCS) R3396514-1 03/28/19 11:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acrolein	125	136	109	10.0-160	
Acrylonitrile	125	144	115	55.0-149	
Bromobenzene	25.0	24.8	99.4	73.0-121	



Laboratory Control Sample (LCS)

(LCS) R3396514-1 03/28/19 11:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
n-Butylbenzene	25.0	24.5	98.1	73.0-125	
sec-Butylbenzene	25.0	25.5	102	75.0-125	
tert-Butylbenzene	25.0	25.5	102	76.0-124	
Acetone	125	144	116	19.0-160	
Benzene	25.0	26.5	106	70.0-123	
Bromodichloromethane	25.0	25.2	101	75.0-120	
2-Chlorotoluene	25.0	24.8	99.1	76.0-123	
4-Chlorotoluene	25.0	25.4	102	75.0-122	
Bromoform	25.0	25.3	101	68.0-132	
1,2-Dibromo-3-Chloropropane	25.0	23.1	92.5	58.0-134	
Bromomethane	25.0	19.3	77.3	10.0-160	
1,2-Dibromoethane	25.0	26.2	105	80.0-122	
Dibromomethane	25.0	25.8	103	80.0-120	
1,2-Dichlorobenzene	25.0	24.3	97.3	79.0-121	
1,3-Dichlorobenzene	25.0	26.4	105	79.0-120	
Carbon disulfide	25.0	27.1	108	61.0-128	
1,4-Dichlorobenzene	25.0	24.7	99.0	79.0-120	
Carbon tetrachloride	25.0	26.8	107	68.0-126	
Chlorobenzene	25.0	26.6	107	80.0-121	
Dichlorodifluoromethane	25.0	31.9	127	51.0-149	
Chlorodibromomethane	25.0	25.3	101	77.0-125	
Chloroethane	25.0	23.3	93.1	47.0-150	
Chloroform	25.0	26.4	106	73.0-120	
Chloromethane	25.0	27.4	109	41.0-142	
1,1-Dichloropropene	25.0	27.9	112	74.0-126	
1,3-Dichloropropane	25.0	25.9	103	80.0-120	
2,2-Dichloropropane	25.0	25.5	102	58.0-130	
Di-isopropyl ether	25.0	29.2	117	58.0-138	
1,1-Dichloroethane	25.0	27.8	111	70.0-126	
Hexachloro-1,3-butadiene	25.0	26.8	107	54.0-138	
1,2-Dichloroethane	25.0	24.8	99.2	70.0-128	
1,1-Dichloroethene	25.0	27.8	111	71.0-124	
cis-1,2-Dichloroethene	25.0	27.3	109	73.0-120	
Isopropylbenzene	25.0	26.2	105	76.0-127	
trans-1,2-Dichloroethene	25.0	26.9	108	73.0-120	
1,2-Dichloropropane	25.0	28.0	112	77.0-125	
p-Isopropyltoluene	25.0	26.1	104	76.0-125	
cis-1,3-Dichloropropene	25.0	25.7	103	80.0-123	
Methyl tert-butyl ether	25.0	24.7	98.6	68.0-125	
trans-1,3-Dichloropropene	25.0	25.9	104	78.0-124	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Laboratory Control Sample (LCS)

(LCS) R3396514-1 03/28/19 11:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Naphthalene	25.0	24.3	97.0	54.0-135	
n-Propylbenzene	25.0	27.5	110	77.0-124	
1,1,1,2-Tetrachloroethane	25.0	25.7	103	75.0-125	
Ethylbenzene	25.0	26.3	105	79.0-123	
1,1,2-Trichlorotrifluoroethane	25.0	27.6	110	69.0-132	
1,2,3-Trichlorobenzene	25.0	26.4	106	50.0-138	
1,2,4-Trichlorobenzene	25.0	26.5	106	57.0-137	
2-Butanone (MEK)	125	151	120	44.0-160	
Methylene Chloride	25.0	25.4	102	67.0-120	
4-Methyl-2-pentanone (MIBK)	125	140	112	68.0-142	
Trichlorofluoromethane	25.0	26.1	104	59.0-147	
1,2,3-Trichloropropane	25.0	26.2	105	73.0-130	
1,2,4-Trimethylbenzene	25.0	25.9	104	76.0-121	
1,2,3-Trimethylbenzene	25.0	25.6	102	77.0-120	
1,3,5-Trimethylbenzene	25.0	25.1	101	76.0-122	
Styrene	25.0	27.1	108	73.0-130	
1,1,2,2-Tetrachloroethane	25.0	26.3	105	65.0-130	
Tetrachloroethene	25.0	26.7	107	72.0-132	
Toluene	25.0	25.4	102	79.0-120	
1,1,1-Trichloroethane	25.0	26.3	105	73.0-124	
1,1,2-Trichloroethane	25.0	26.0	104	80.0-120	
Trichloroethene	25.0	28.3	113	78.0-124	
Vinyl chloride	25.0	28.1	113	67.0-131	
Xylenes, Total	75.0	79.8	106	79.0-123	
(S) Toluene-d8			102	80.0-120	
(S) 4-Bromofluorobenzene			98.8	77.0-126	
(S) 1,2-Dichloroethane-d4			107	70.0-130	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3396910-3 03/29/19 19:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
2-Butanone (MEK)	U		1.28	5.00
(S) Toluene-d8	106			80.0-120
(S) 4-Bromofluorobenzene	104			77.0-126
(S) 1,2-Dichloroethane-d4	104			70.0-130

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

(LCS) R3396910-1 03/29/19 18:12 • (LCSD) R3396910-2 03/29/19 18:32

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	146	149	117	119	44.0-160			2.13	20
(S) Toluene-d8				104	103	80.0-120				
(S) 4-Bromofluorobenzene				104	106	77.0-126				
(S) 1,2-Dichloroethane-d4				99.0	101	70.0-130				

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.
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.

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

Qualifier Description

J0	J0: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration method criteria.
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Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

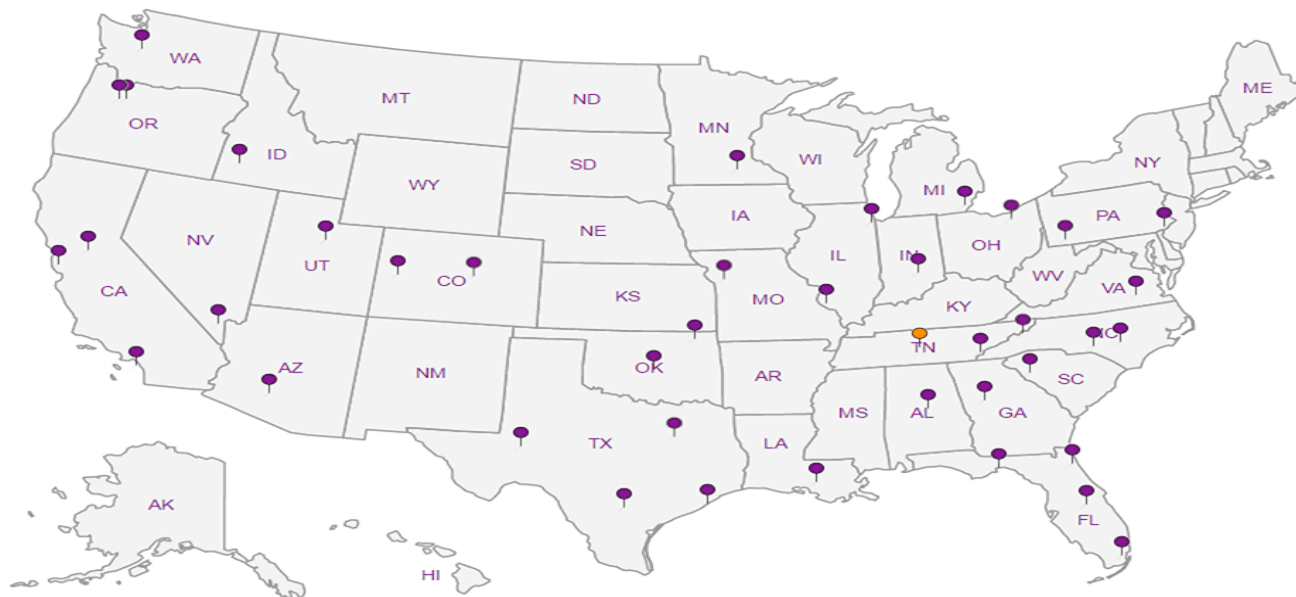
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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

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



Report to:
Cindy Bartlett

Email To: CBartlett@Geosyntec.com

Project Description: **Cascade T SA**

City/State Collected: **Fairview OR.**

Phone: 503-669-6286
Fax:

Client Project #

Lab Project #
CASCORFOR-PNG0564

Collected by (print):
PAT YADON / Dietrich Tieser

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**

No.
of
Cnt's

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnt's	Remarks
VMW-H-032519		GW		3/25/19	12:35	3	X
VMW-C-032519		GW		3/25/19	13:10	3	X
VMW-G-032519		GW		3/25/19	15:15	3	X
VMW-F-032519		GW		3/25/19	15:45	3	X
VMW-E-032519		GW		3/25/19	16:00	3	X
TRIP Blank Lot # 370		#20		3/25/19	NA	1	X

VOCs (V8260LLC) 40mlAmb-HCl

L# **MS 3/27**
4082903

E143
4082939

Acctnum: **CASCORFOR**
Template: **T147173**
Prelogin: **P698281**
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:

Samples returned via:
___ UPS ___ FedEx ___ Courier

Tracking # **4686 6470 2132**

pH ___ Temp ___
Flow ___ Other ___

Sample Receipt Checklist	
COC Seal Present/Intact:	NP <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>
If Applicable	
VOA Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>

Relinquished by: (Signature)

Date: **3/25/19**

Time: **17:35**

Received by: (Signature) **FED EX**

Trip Blank Received: Yes/No
 HCl/MeOH
 TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C **0.7 to 0.1 = 0.8**
Bottles Received: **PO ALL 15 + 1 TB**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: **3/27/19** Time: **8:45**

Hold:

Condition:
NCF / OK