

Sub-Slab Depressurization System Progress Report for the Former Holley Automotive/ Coltec Industries Facility Water Valley, Mississippi



Bernard T. Delaney, Ph.D., P.E., BCEE

August 21, 2017

Prepared for: Butler Snow, LLP
1020 Highland Colony Parkway, Suite 1400
Ridgeland, MS 39157

Prepared by: First Environment, Inc.
91 Fulton Street
Boonton, New Jersey 07005

EnPro002-D-08072017



CERTIFICATION STATEMENT

I, Bernard T. Delaney, Ph.D., P.E., BCEE, certify that I am currently a registered professional engineer in the State of Mississippi and had primary direct responsibility for the implementation of the subject interim remedial measure activities. I certify that this Sub-Slab Depressurization System Progress Report was completed in conformance with the laws and regulations of the State of Mississippi. I certify that all information and statements in this certification form are true.

11041

08/21/2017

Mississippi Professional
Engineer No.

Date



B. Tod Delaney, Ph.D., P.E., BCEE

TABLE OF CONTENTS

1.0	Introduction.....	1
2.0	Indoor Air Monitoring – August 4-5, 2017	1
2.1	Instrumentation	1
2.2	Methodology	1
2.3	Results.....	2
3.0	MDEQ's August 8, 2017 Letter.....	4
4.0	Summary	4

TABLES

Table 1 – Indoor Air Sampling Results – August 4, 2017

Table 2 – Indoor Air Sampling Results Comparison – January through August 2017

FIGURES

Figure 1 – Indoor Air Sampling Results – August 4, 2017

APPENDIX

Appendix A – Analytical Report

1.0 Introduction

This Sub-Slab Depressurization System (“SSDS”) Progress Report has been prepared by First Environment, Inc. (“First Environment”) on behalf of EnPro Industries, Inc. (“EnPro”) with respect to the former Holley Automotive/Coltec Industries Facility (hereinafter referred as the Plant”). The Plant is located at 600 State Highway 32 in Water Valley, Yalobusha County, Mississippi.

On June 19, 2017, First Environment submitted a VI Investigation and Mitigation Report (the “Initial SSDS Report”), which included a description of the SSDS and indoor air sampling data through June 7, 2017. On July 3, 2017, First Environment submitted a SSDS Progress Report on the June 19-20, 2017 ambient and indoor air sampling results and the installation of extraction point (“EP”) #3. First Environment submitted SSDS Progress Reports on subsequent rounds of ambient and indoor air sampling on July 17 and August 7, 2017. On August 4-5, 2017, First Environment collected another round of ambient and indoor air samples. As discussed in more detail below, all sampling results for TCE were below the MDEQ action level of 26 µg/m³.

2.0 Indoor Air Monitoring – August 4-5, 2017

2.1 Instrumentation

On August 4-5, 2017, First Environment collected ambient and indoor air samples by placing laboratory provided 6-liter capacity 24-hour Summa® canisters, equipped with flow regulators calibrated to 24 hours.

2.2 Methodology

First Environment collected 12 indoor air samples at various locations within the Plant including the Maintenance Room, the ATS Room, and the Training Room; and one ambient air sample outside the Plant. Standard chain-of-custody procedures were implemented for the sampling, including signing the sample lot in and out from the facility to the laboratory on a chain-of-custody sheet and dating the start and end dates/times of sample collection. First Environment also followed standard indoor air sampling techniques to collect the indoor air samples at the locations depicted in Figure 1. Wherever possible, First Environment mounted the Summa® canisters on columns or secured them in an area above the floor at or near the “breathing

space.” The vacuum measurements in Summa® canisters were noted before and after sampling to ensure that the flow regulator at each canister was working properly.

The sampling requires the Summa® canisters to be left in place for 24 hours and they are monitored by Plant security for that period of time. First Environment personnel, Borg Warner representatives, and Plant employees had access to the Summa® canisters during the 24-hour sampling period.

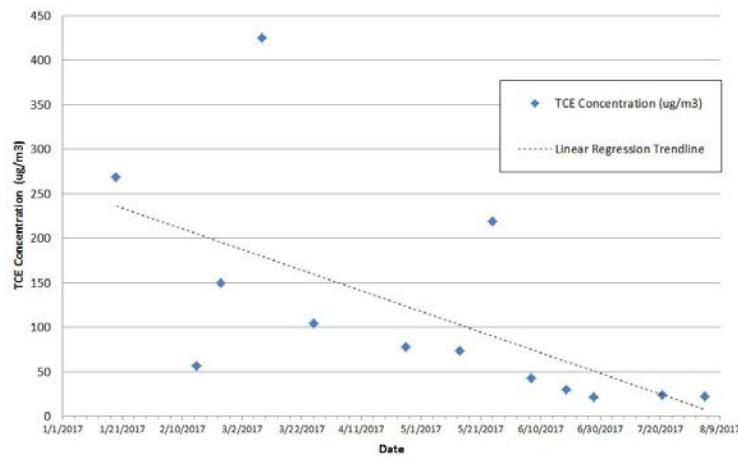
First Environment submitted the samples to ESC Lab Sciences for USEPA TO-15 SIM analysis. The laboratory was responsible for the decontamination of the Summa® canisters and for setting the internal vacuum and calibrating the regulators prior to sample collection.

2.3 Results

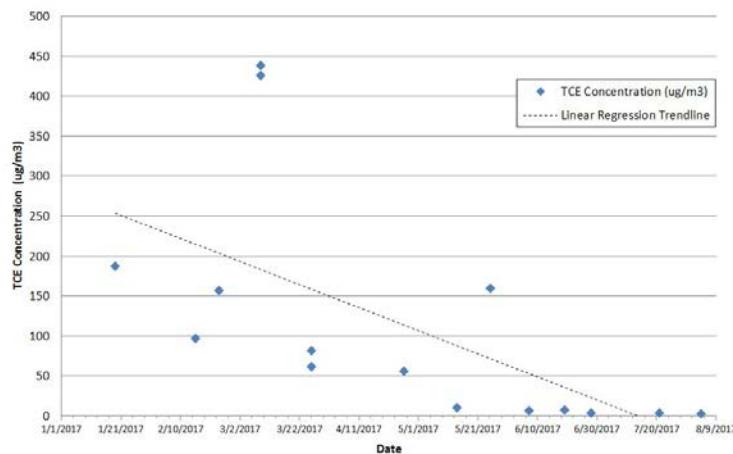
Table 1 presents the ambient and indoor air sampling results for all TO-15 analytes. Table 2 presents the results of TCE, cis-DCE, and VC in comparison of all previous rounds of sampling.

The sample results in the Maintenance Room and Cafeteria were above USEPA’s Vapor Intrusion Screening Level (“VISL”) for TCE of 3 $\mu\text{g}/\text{m}^3$ but below the MDEQ action level of 26 $\mu\text{g}/\text{m}^3$. The remaining sample results were below USEPA’s VISL. As shown in the following figures, the results show a continued decreasing trend.

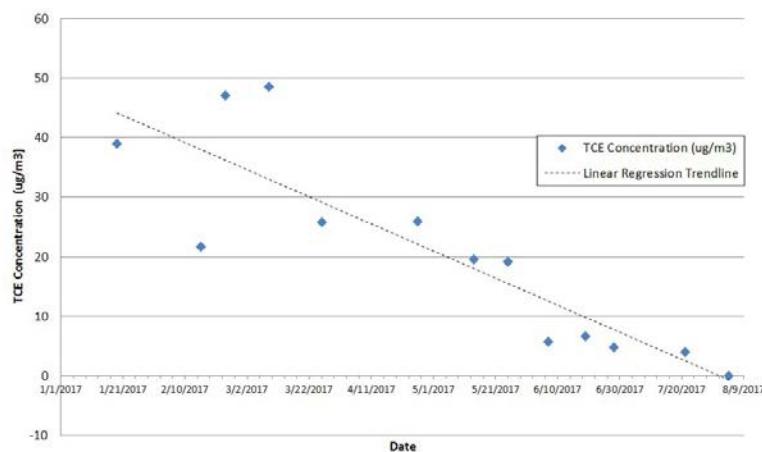
TCE Concentration History at IA-1 (Maintenance Room)



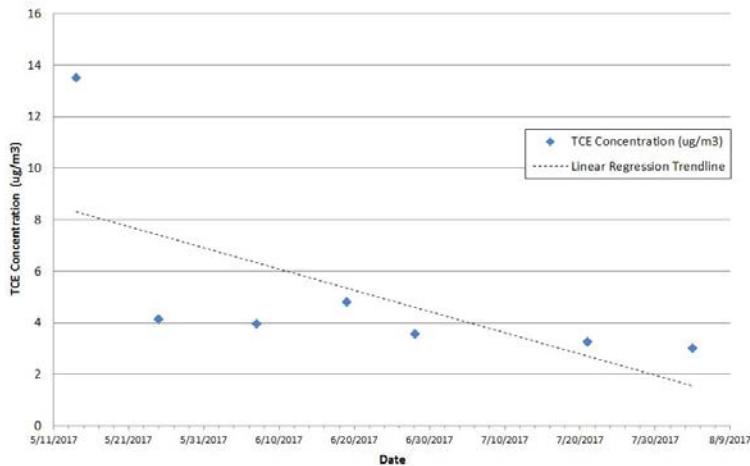
TCE Concentration History at IA-2 (ATS Room)



TCE Concentration History at IA-6 (Training Room)



TCE Concentration History at IA-17 (Cafeteria)



A copy of the laboratory report, including the chain-of-custody forms, is attached in Appendix A. However, it should be noted that First Environment is currently conducting QA/QC and data validation on this report.

3.0 MDEQ's August 8, 2017 Letter

On August 8, 2017, MDEQ sent a letter advising First Environment to not allow the Summa® canisters to reach 0-in. vacuum readings. First Environment's procedure for collecting the Summa® canisters has been consistent since January of this year. Upon receipt of MDEQ's letter, First Environment immediately contacted ESC Lab Sciences regarding the flow regulators. First Environment will endeavor to collect all canisters as close to the 24-hour time period as is possible. However, please note that it takes approximately one hour to collect all 13 canisters from the Plant.

4.0 Summary

Subsequent sampling results will be provided to the MDEQ on an ongoing basis.

TABLES

TABLE 1
INDOOR AIR SAMPLING RESULTS
AUGUST 4, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 08/04/2017 L927407-01	IA-2 08/04/2017 L927407-02	IA-6 08/04/2017 L927407-03	IA-17 08/04/2017 L927407-04	IA-B12 08/04/2017 L927407-05	IA-C16 08/04/2017 L927407-06	IA-G13 08/04/2017 L927407-07	IA-K13 08/04/2017 L927407-08	IA-L16 08/04/2017 L927407-09	IA-D5 08/04/2017 L927407-10	IA-G4 08/04/2017 L927407-11	IA-K8 08/04/2017 L927407-12	AA-2 08/04/2017 L927407-13
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
ACETONE	792	620	109	924	1090	374	404	274	346	621	368	684	60.4
ALLYL CHLORIDE	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626
BENZENE	0.753	0.975	1.5	0.749	0.875	0.746	<0.639	0.874	<0.639	0.877	1.07	0.98	<0.639
BENZYL CHLORIDE	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04
BROMODICHLOROMETHANE	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34
BROMOFORM	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21
BROMOMETHANE	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776
1,3-BUTADIENE	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43	<4.43
CARBON DISULFIDE	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622
CARBON TETRACHLORIDE	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26
CHLOROBENZENE	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924
CHLOROETHANE	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528
CHLOROFORM	<0.973	<0.973	0.997	<0.973	<0.973	<0.973	<0.973	<0.973	<0.973	<0.973	<0.973	<0.973	<0.973
CHLOROMETHANE	1.15	1.2	1.59	1.15	1.13	1.06	1.1	1.3	1.18	1.16	1.54	1.05	1.37
2-CHLOROTOLUENE	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03	<1.03
CYCLOHEXANE	<0.689	<0.689	4.91	<0.689	<0.689	<0.689	<0.689	3.07	<0.689	<0.689	2.56	<0.689	1.3
CHLORODIBROMOMETHANE	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-DIBROMOETHANE	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54
1,2-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,3-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,4-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-DICHLOROETHANE	<0.81	<0.81	4.69	<0.81	<0.81	<0.81	<0.81	<0.81	3.23	1.12	<0.81	3.32	<0.81
1,1-DICHLOROETHANE	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802	<0.802

TABLE 1
INDOOR AIR SAMPLING RESULTS
AUGUST 4, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 08/04/2017 L927407-01	IA-2 08/04/2017 L927407-02	IA-6 08/04/2017 L927407-03	IA-17 08/04/2017 L927407-04	IA-B12 08/04/2017 L927407-05	IA-C16 08/04/2017 L927407-06	IA-G13 08/04/2017 L927407-07	IA-K13 08/04/2017 L927407-08	IA-L16 08/04/2017 L927407-09	IA-D5 08/04/2017 L927407-10	IA-G4 08/04/2017 L927407-11	IA-K8 08/04/2017 L927407-12	AA-2 08/04/2017 L927407-13
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
1,1-DICHLOROETHENE	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793
CIS-1,2-DICHLOROETHENE	2.85	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793
TRANS-1,2-DICHLOROETHENE	0.841	1.38	2.61	1.01	1.12	1.28	1.55	2.09	1.44	2.95	4.43	3.09	<0.793
1,2-DICHLOROPROPANE	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924
CIS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908
TRANS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908
1,4-DIOXANE	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721
ETHANOL	6,390 (E)	7,950 (E)	844	6,170 (E)	8,060 (E)	4,260 (E)	4,750 (E)	2,660 (E)	3,520 (E)	4,360 (E)	2160	6380 (E)	294
ETHYLBENZENE	2.02	2.06	4.25	2	2.22	2.12	2.4	2.59	2.11	2.43	2.27	2.52	0.948
4-ETHYLtolUENE	<0.982	1.06	<0.982	0.988	<0.982	<0.982	1.01	<0.982	<0.982	1.14	<0.982	2.11	<0.982
TRICHLOROFUOROMETHANE	1.49	1.52	13.9	1.69	1.74	1.65	1.61	1.62	1.8	2.24	1.71	1.67	1.54
DICHLORODIFLUOROMETHANE	1.45	2.09	<0.989	1.51	1.35	1.34	1.37	<0.989	<0.989	<0.989	<0.989	1.5	<0.989
1,1,2-TRICHLOROTRIFLUOROETHANE	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53
1,2-DICHLOROTETRAFLUOROETHANE	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
HEPTANE	33.4	53.3	4.31	38.9	36	55.9	35.2	23.4	29.6	16.3	9.59	20.7	1.25
HEXAChLORO-1,3-BUTADIENE	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73
N-HEXANE	1	0.979	2.71	0.798	0.835	<0.705	<0.705	1.52	<0.705	<0.705	1.73	0.859	0.994
ISOPROPYLBENZENE	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983	<0.983
METHYLENE CHLORIDE	<0.694	0.773	3.79	<0.694	<0.694	<0.694	<0.694	<0.694	1.24	0.813	<0.694	1.55	<0.694
METHYL BUTYL KETONE	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11
2-BUTANONE (MEK)	672	793	21.4	723	977	681	814	306	576	999	355	1500	5.76
4-METHYL-2-PENTANONE (MIBK)	<5.12	<5.12	11	<5.12	6.87	<5.12	<5.12	5.85	<5.12	<5.12	6.22	<5.12	<5.12
METHYL METHACRYLATE	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819
METHYL TERT-BUTYL ETHER	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721
NAPHTHALENE	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3
2-PROPANOL	5,830 (E)	7,290 (E)	258	6,190 (E)	8,220 (E)	5710	8,440 (E)	5,360 (E)	5,920 (E)	18,800 (E)	4,680 (E)	11,500 (E)	44

TABLE 1
INDOOR AIR SAMPLING RESULTS
AUGUST 4, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 08/04/2017 L927407-01	IA-2 08/04/2017 L927407-02	IA-6 08/04/2017 L927407-03	IA-17 08/04/2017 L927407-04	IA-B12 08/04/2017 L927407-05	IA-C16 08/04/2017 L927407-06	IA-G13 08/04/2017 L927407-07	IA-K13 08/04/2017 L927407-08	IA-L16 08/04/2017 L927407-09	IA-D5 08/04/2017 L927407-10	IA-G4 08/04/2017 L927407-11	IA-K8 08/04/2017 L927407-12	AA-2 08/04/2017 L927407-13
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
PROPENE	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689	<0.689
STYRENE	<0.851	<0.851	4.96	<0.851	<0.851	<0.851	<0.851	2.41	1.37	1.84	2.22	1.38	1.2
1,1,2,2-TETRACHLOROETHANE	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37
TETRACHLOROETHENE	<1.36	<1.36	2.67	<1.36	<1.36	<1.36	<1.36	1.84	<1.36	<1.36	1.46	<1.36	<1.36
TETRAHYDROFURAN	3.49	<0.59	0.656	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
TOLUENE	11.2	13.4	86.8	9.08	8.13	13.2	9.49	34	16.9	10.7	30.8	7.36	20.4
1,2,4-TRICHLOROBENZENE	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66
1,1,1-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09
1,1,2-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09
TRICHLOROETHENE	22.9	2.94	<1.07	3.02	<1.07	1.25	1.76	<1.07	<1.07	<1.07	<1.07	<1.07	<1.07
1,2,4-TRIMETHYLBENZENE	4.04	4.82	2.96	4.06	4.64	3.66	4.41	3.08	3.21	4.94	3.55	9.25	<0.982
1,3,5-TRIMETHYLBENZENE	1.24	1.49	<0.982	1.46	1.62	1.09	1.41	<0.982	1.09	1.65	<0.982	2.91	<0.982
2,2,4-TRIMETHYL PENTANE	13.5	11.6	0.949	11	11.5	9.32	13.6	6.22	7.58	8.38	4.57	8.07	<0.934
VINYL CHLORIDE	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511
VINYL BROMIDE	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875	<0.875
VINYL ACETATE	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704
M&P-XYLENE	6.7	6.84	11.4	6.68	7.63	7.26	8.07	7.73	6.93	8.16	6.86	8.8	2.65
O-XYLENE	2.14	2.18	3.74	2.17	2.4	2.63	2.65	2.46	2.26	2.66	2.27	2.99	0.937
1,4-BROMOFLUOROBENZENE	102 96.1	102 95.3	93.1 97.6	94.3 102	95.2 103	91.7 102 95.5	96.0 103	93.6 99.4	10096.0	95.9 103	99.1 93.2	107 95.8	93.0 92.4

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

TABLE 2
INDOOR AIR SAMPLING RESULTS COMPARISON
JANUARY THROUGH AUGUST 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE ID	SAMPLING DATE	LABORATORY ID	CoC Concentrations ($\mu\text{g}/\text{m}^3$)		
			Trichloroethene	cis-1,2-Dichloroethene	Vinyl chloride
USEPA Vapor Intrusion Screening Level (VISL):			3	NA	2.8
IA-1	19-Jan-17	L1702183-01	268(D)	63.8	<0.051
	15-Feb-17	L890396-01	55.8	<0.793	2.51
	23-Feb-17	L892423-01	150	82.1	1.68
	9-Mar-17	L895061-01	425	97.9	2.47
	26-Mar-17	L898762-01	103	11.4	0.604
	26-Apr-17	L905292-01	78.3	<0.793	0.712
	14-May-17	L909544-01	72.7	14	<0.511
	25-May-17	L912423-03	219	<0.793	0.526
	7-Jun-17	L914832-13	41.7	<0.793	<0.511
	19-Jun-17	L917924-13	29.4	3.68	<0.511
	28-Jun-17	L920054-12	21.4	<0.793	<0.511
	21-Jul-17	L924410-01	23.8	<0.793	<0.511
	4-Aug-17	L927407-01	22.9	2.85	<0.511
IA-2	19-Jan-17	L1702183-02	187	43.2	<0.051
	15-Feb-17	L890396-02	97.1	<0.793	2.27
	23-Feb-17	L892423-02	157	79.4	1.57
	9-Mar-17	L895061-02	426	86.7	1.18
	9-Mar-17	L895061-04	438	88.7	1.68
	26-Mar-17	L898762-02	61.8	<0.793	<0.511
	26-Mar-17	L898762-04	82.3	<0.793	<0.511
	26-Apr-17	L905292-02	56.6	10.8	<0.511
	14-May-17	L909544-02	10.8	<0.793	<0.511
	25-May-17	L912423-08	160	<0.793	<0.511
	7-Jun-17	L914832-12	6.58	<0.793	<0.511
	19-Jun-17	L917924-12	8.16	1.88	<0.511
	28-Jun-17	L920054-13	4.21	<0.793	<0.511
IA-2 (2ND CANISTER)	21-Jul-17	L924410-02	4.3	<0.793	<0.511
	4-Aug-17	L927407-02	2.94	<0.793	<0.511
IA-6	19-Jan-17	L1702183-06	39	12.8	0.585
	15-Feb-17	L890396-03	21.7	<0.793	0.57
	23-Feb-17	L892423-03	47.1	14.2	<0.511
	9-Mar-17	L895061-03	48.6	12.3	0.511
	26-Mar-17	L898762-03	25.8	<0.793	<0.511
	26-Apr-17	L905292-03	26	9.12	<0.511
	14-May-17	L909544-03	19.5	<0.793	<0.511
	25-May-17	L912423-01	19.1	<0.793	<0.511
	7-Jun-17	L914832-11	5.75	<0.793	<0.511
	19-Jun-17	L917924-11	6.67	4.14	<0.511
	28-Jun-17	L920054-11	4.84	<0.793	<0.511
	21-Jul-17	L924410-03	4	<0.793	<0.511
	4-Aug-17	L927407-03	<1.07	<0.793	<0.511
IA-14	19-Jan-17	L1702183-14	3.07	0.928	<0.051
	23-Feb-17	L892423-04	3.32	<0.793	<0.511
IA-17	14-May-17	L909544-05	13.5	<0.793	<0.511
	25-May-17	L912423-02	4.15	<0.793	<0.511
	7-Jun-17	L914832-10	3.96	<0.793	<0.511
	19-Jun-17	L917924-10	4.82	4.48	<0.511
	28-Jun-17	L920054-10	3.56	<0.793	<0.511
	21-Jul-17	L924410-04	3.27	<0.793	<0.511
	4-Aug-17	L927407-04	3.02	<0.793	<0.511
IA-B12	26-Apr-17	L905292-04	6.54	1.77	<0.511
	25-May-17	L912423-05	3.08	<0.793	<0.511
	7-Jun-17	L914832-07	1.64	<0.793	<0.511
	19-Jun-17	L917924-09	1.66	<0.793	<0.511
	28-Jun-17	L920054-08	<1.07	<0.793	<0.511
	21-Jul-17	L924410-05	1.08	<0.793	<0.511
	4-Aug-17	L927407-05	<1.07	<0.793	<0.511
IA-C16	26-Apr-17	L905292-05	6.48	1.82	<0.511
	25-May-17	L912423-06	3.88	<0.793	<0.511
	7-Jun-17	L914832-08	1.55	<0.793	<0.511
	19-Jun-17	L917924-07	2	<0.793	<0.511
	28-Jun-17	L920054-07	1.22	<0.793	<0.511
	21-Jul-17	L924410-06	1.08	<0.793	<0.511
	4-Aug-17	L927407-06	1.25	<0.793	<0.511
IA-D5	25-May-17	L912423-12	<1.07	<0.793	<0.511
	7-Jun-17	L914832-03	1.47	<0.793	<0.511
	19-Jun-17	L917924-03	1.66	<0.793	<0.511
	28-Jun-17	L920054-03	<1.07	<0.793	<0.511
	21-Jul-17	L924410-08	<1.07	<0.793	<0.511
	4-Aug-17	L927407-10	<1.07	<0.793	<0.511
	25-May-17	L912423-11	<1.07	<0.793	<0.511
IA-G4	7-Jun-17	L914832-02	3.31	<0.793	<0.511
	19-Jun-17	L917924-02	1.35	<0.793	<0.511
	28-Jun-17	L920054-02	<1.07	<0.793	<0.511
	21-Jul-17	L924410-09	<1.07	<0.793	<0.511
	4-Aug-17	L927407-11	<1.07	<0.793	<0.511
	26-Apr-17	L905292-06	8.98	<0.793	<0.511
	14-May-17	L909544-04	4.65	<0.793	<0.511
IA-G13	25-May-17	L912423-06	3.88	<0.793	<0.511
	7-Jun-17	L914832-06	2.54	<0.793	<0.511
	19-Jun-17	L917924-06	2.46	<0.793	<0.511
	28-Jun-17	L920054-06	1.41	<0.793	<0.511
	21-Jul-17	L924410-07	1.6	<0.793	<0.511
	4-Aug-17	L927407-07	1.76	<0.793	<0.511

TABLE 2
INDOOR AIR SAMPLING RESULTS COMPARISON
JANUARY THROUGH AUGUST 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE ID	SAMPLING DATE	LABORATORY ID	CoC Concentrations ($\mu\text{g}/\text{m}^3$)		
			Trichloroethene	cis-1,2-Dichloroethene	Vinyl chloride
	USEPA Vapor Intrusion Screening Level (VISL):		3	NA	2.8
IA-K8	25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17	L912423-10 L914832-01 L917924-01 L920054-01 L924410-10 L927407-12	1.47 7.86 1.31 <1.07 <1.07 <1.07	<0.793 <0.793 <0.793 <0.793 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511
IA-K13	26-Apr-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17	L905292-07 L912423-04 L914832-05 L917924-05 L920054-05 L924410-12 L927407-08	6.53 5.28 1.59 2.2 1.33 1.34 <1.07	<0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511
IA-L16	26-Apr-17 7-Jun-17 25-May-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17	L905292-08 L914832-04 L912423-09 L917924-04 L920054-04 L924410-11 L927407-09	5.77 2.09 1.36 2.81 1.32 1.18 <1.07	1.75 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511
EP-1	14-May-17	L909544-06	1420000	361000	46300
EP-2	14-May-17	L909544-07	2820000	560000	13200
IA-SUMP-DUP	25-May-17	L912423-15	83.1	<0.793	<0.511
IA-SUMP	19-Jun-17 28-Jun-17	L917924-14 L920054-14	5.33 3.75	1.19 <0.793	<0.511 <0.511
AA-1	19-Jan-17	L1702183-17	<0.107	<0.079	<0.051
AA-2	19-Jan-17 26-Apr-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17	L1702183-18 L905292-09 L912423-13 L914832-09 L917924-08 L920054-09 L924410-13 L927407-13	0.129 <0.107 <1.07 <1.07 <1.07 16.7 <1.07 <1.07	<0.079 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793	<0.051 <0.051 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511

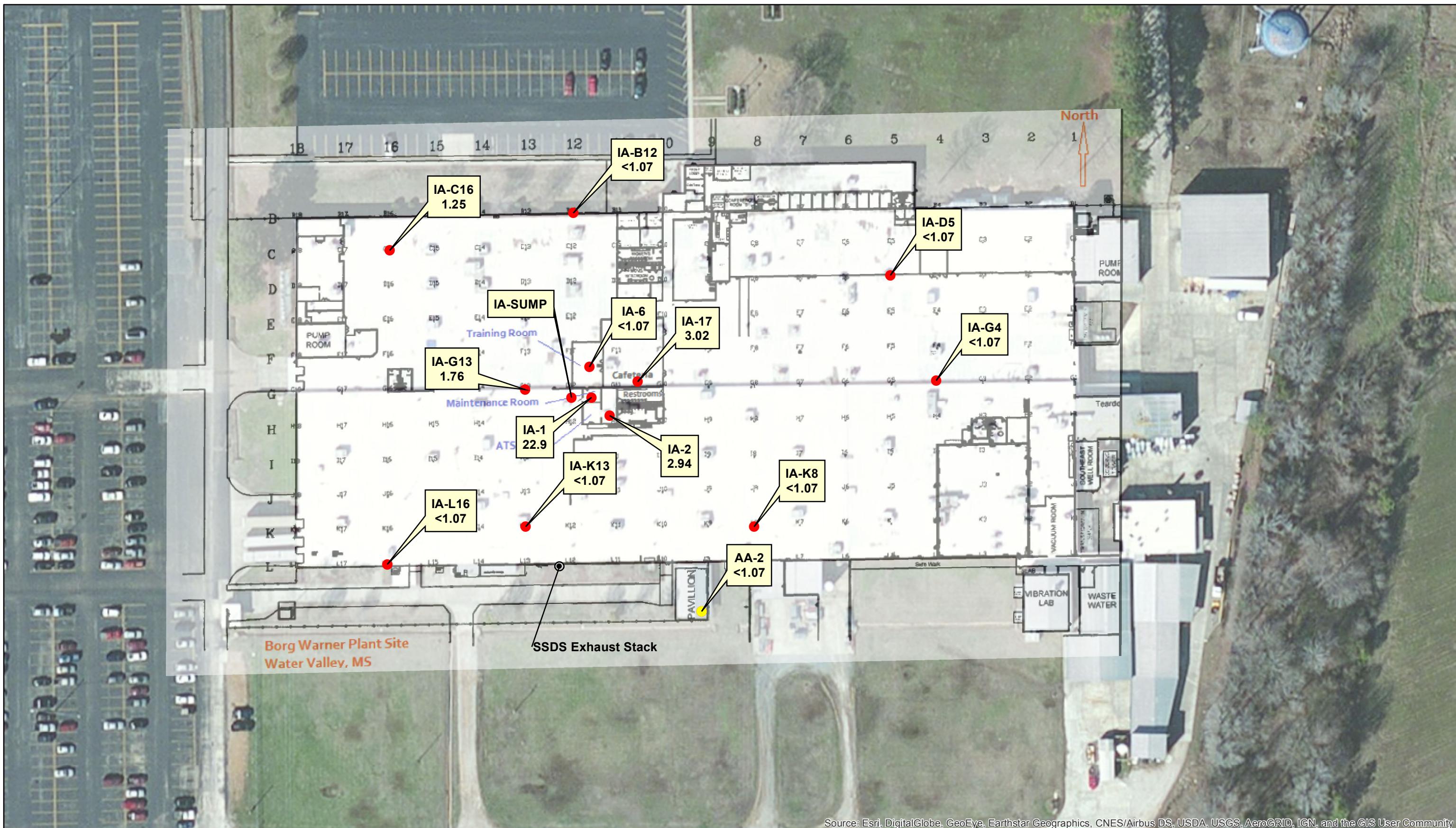
D: Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte

VISL: Calculated based on USEPA's OSWER Vapor Intrusion Assessment VISL Calculator Version 3.4, November 2015 RSLs for Target Indoor Air Concentration @ TCR=1E-6 or THQ=1

TCR: Target Carcinogen Risk

THQ: Target Hazard Quotient for Non-Carcinogens

FIGURE



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

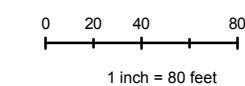
- IA-1: Indoor Air Concentrations in ug/m³
- AA-1: Ambient Air Concentrations in ug/m³
- SSDS Exhaust Stack

USEPA Screening Level for TCE: 3 ug/m³

MDEQ Action Level for TCE: 26 ug/m³

 TCE Level Exceeding the MDEQ Action Level

ND Concentration not detected above laboratory reported limits



**FIRST
ENVIRONMENT**

BORG WARNER FACILITY
600 Highway 32E, Water Valley, MS

FIGURE 1
INDOOR AIR SAMPLING RESULTS
AUGUST 4 2017

91 Fulton Street Boonton, New Jersey 07005	Revised LS	Drawn NMT	Checked NMT	Approved NMT	Date 8/16/17
---	---------------	--------------	----------------	-----------------	-----------------

APPENDIX A

August 16, 2017

First Environment, Inc.

Sample Delivery Group: L927407
Samples Received: 08/07/2017
Project Number: ENPRO 002D
Description: Water Valley MS - Coltec Site
Site: BORG WARNER WATER VALLEY
Report To: Michael T. Slack
91 Fulton Street
Boonton, NJ 07005

Entire Report Reviewed By:



John Hawkins
Technical Service Representative

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 ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	1 Cp
Tc: Table of Contents	2	2 Tc
Ss: Sample Summary	3	3 Ss
Cn: Case Narrative	5	4 Cn
Sr: Sample Results	6	5 Sr
IA-1 L927407-01	6	
IA-2 L927407-02	8	
IA-6 L927407-03	10	
IA-17 L927407-04	12	
IA-B12 L927407-05	14	6 Qc
IA-C16 L927407-06	16	
IA-G13 L927407-07	18	7 Gl
IA-K13 L927407-08	20	
IA-L16 L927407-09	22	8 Al
IA-D5 L927407-10	24	
IA-G4 L927407-11	26	
IA-K8 L927407-12	28	
AA-2 L927407-13	30	
Qc: Quality Control Summary	32	
Volatile Organic Compounds (MS) by Method TO-15	32	
Gl: Glossary of Terms	38	
Al: Accreditations & Locations	39	
Sc: Chain of Custody	40	

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



			Collected by Michael Slack	Collected date/time 08/04/17 09:42	Received date/time 08/07/17 09:15
IA-1 L927407-01 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 17:15	08/09/17 17:15
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 15:27	08/11/17 15:27
IA-2 L927407-02 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 18:06	08/09/17 18:06
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 16:11	08/11/17 16:11
IA-6 L927407-03 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 18:57	08/09/17 18:57
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 16:56	08/11/17 16:56
IA-17 L927407-04 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 19:47	08/09/17 19:47
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 17:39	08/11/17 17:39
IA-B12 L927407-05 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 20:37	08/09/17 20:37
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 18:22	08/11/17 18:22
IA-C16 L927407-06 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 21:29	08/09/17 21:29
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 19:06	08/11/17 19:06
	Volatile Organic Compounds (MS) by Method TO-15	WG1009014	200	08/12/17 12:50	08/12/17 12:50
IA-G13 L927407-07 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 22:21	08/09/17 22:21
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 19:49	08/11/17 19:49

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

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



			Collected by Michael Slack	Collected date/time 08/04/17 09:55	Received date/time 08/07/17 09:15
IA-K13 L927407-08 Air	Method	Batch	Dilution	Preparation date/time	Analysis date/time
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/09/17 23:12	08/09/17 23:12
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 20:33	08/11/17 20:33
IA-L16 L927407-09 Air	Method	Batch	Dilution	Collected by Michael Slack	Collected date/time 08/04/17 10:25
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/10/17 00:03	08/10/17 00:03
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 21:15	08/11/17 21:15
IA-D5 L927407-10 Air	Method	Batch	Dilution	Collected by Michael Slack	Collected date/time 08/04/17 10:00
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/10/17 00:55	08/10/17 00:55
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 21:57	08/11/17 21:57
IA-G4 L927407-11 Air	Method	Batch	Dilution	Collected by Michael Slack	Collected date/time 08/04/17 09:58
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/10/17 01:45	08/10/17 01:45
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 22:41	08/11/17 22:41
IA-K8 L927407-12 Air	Method	Batch	Dilution	Collected by Michael Slack	Collected date/time 08/04/17 09:57
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/10/17 02:40	08/10/17 02:40
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/11/17 23:25	08/11/17 23:25
AA-2 L927407-13 Air	Method	Batch	Dilution	Collected by Michael Slack	Collected date/time 08/04/17 10:03
	Volatile Organic Compounds (MS) by Method TO-15	WG1007584	1	08/10/17 03:30	08/10/17 03:30
	Volatile Organic Compounds (MS) by Method TO-15	WG1008562	25	08/12/17 00:07	08/12/17 00:07





All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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.

John Hawkins
Technical Service Representative

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



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	333	792		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.236	0.753		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.558	1.15		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	0.719	2.85		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.212	0.841		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	3390	6390	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.465	2.02		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.265	1.49		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.294	1.45		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	8.17	33.4		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.284	1.00		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	228	672		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	2370	5830	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	1.18	3.49		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	2.96	11.2		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	4.28	22.9		1	WG1007584	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.823	4.04		1	WG1007584	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.253	1.24		1	WG1007584	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	2.89	13.5		1	WG1007584	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.55	6.70		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.494	2.14		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		102				WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		96.1				WG1008562	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	261	620		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.305	0.975		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.581	1.20		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.347	1.38		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	4220	7950	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.475	2.06		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.216	1.06		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.271	1.52		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.423	2.09		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	13.0	53.3		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.278	0.979		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.223	0.773		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	269	793		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	2970	7290	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	3.56	13.4		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584
Trichloroethylene	79-01-6	131	0.200	1.07	0.549	2.94		1	WG1007584
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.982	4.82		1	WG1007584
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.304	1.49		1	WG1007584
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	2.49	11.6		1	WG1007584
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584
m&p-Xylene	1330-20-7	106	0.400	1.73	1.58	6.84		1	WG1007584
o-Xylene	95-47-6	106	0.200	0.867	0.503	2.18		1	WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		102				WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		95.3				WG1008562

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	45.8	109		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.471	1.50		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	0.205	0.997		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.769	1.59		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	1.43	4.91		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	1.16	4.69		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.658	2.61		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	448	844		25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.980	4.25		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	2.47	13.9		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	ND	ND		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	1.05	4.31		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.769	2.71		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	1.09	3.79		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	7.25	21.4		1	WG1007584
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	2.69	11.0		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	105	258		25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	1.17	4.96		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	0.394	2.67		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	0.223	0.656		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	23.0	86.8		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.604	2.96		1	WG1007584
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1007584
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.203	0.949		1	WG1007584
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584
m&p-Xylene	1330-20-7	106	0.400	1.73	2.64	11.4		1	WG1007584
o-Xylene	95-47-6	106	0.200	0.867	0.862	3.74		1	WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		93.1				WG1008562
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.6				WG1007584

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	389	924		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.234	0.749		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.557	1.15		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.255	1.01		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	3270	6170	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.462	2.00		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.201	0.988		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.301	1.69		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.305	1.51		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	9.52	38.9		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.226	0.798		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	245	723		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	2520	6190	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	2.41	9.08		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	0.564	3.02		1	WG1007584	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.827	4.06		1	WG1007584	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.298	1.46		1	WG1007584	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	2.35	11.0		1	WG1007584	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.54	6.68		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.501	2.17		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		94.3				WG1008562	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		102				WG1007584	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	460	1090		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.274	0.875		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.547	1.13		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.282	1.12		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	4280	8060	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.513	2.22		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.310	1.74		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.274	1.35		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	8.81	36.0		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.237	0.835		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	331	977		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	1.68	6.87		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	3340	8220	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	2.16	8.13		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.946	4.64		1	WG1007584
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.331	1.62		1	WG1007584
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	2.45	11.5		1	WG1007584
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584
m&p-Xylene	1330-20-7	106	0.400	1.73	1.76	7.63		1	WG1007584
o-Xylene	95-47-6	106	0.200	0.867	0.554	2.40		1	WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		103				WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		95.2				WG1008562

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	158	374		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.234	0.746		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.513	1.06		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.323	1.28		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	2260	4260	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.490	2.12		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.293	1.65		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.271	1.34		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	13.7	55.9		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	231	681		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	250	615	2320	5710		200	WG1009014
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	3.51	13.2		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	0.234	1.25		1	WG1007584	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.745	3.66		1	WG1007584	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.222	1.09		1	WG1007584	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.99	9.32		1	WG1007584	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.68	7.26		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.607	2.63		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		95.5				WG1008562	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		102				WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		91.7				WG1009014	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	170	404		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.533	1.10		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.391	1.55		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	2520	4750	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.554	2.40		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.206	1.01		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.287	1.61		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.278	1.37		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	8.60	35.2		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	276	814		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	3440	8440	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	2.52	9.49		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	<u>Qualifier</u>	Dilution	Batch	1 Cp
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	2 Tc
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	3 Ss
Trichloroethylene	79-01-6	131	0.200	1.07	0.329	1.76		1	WG1007584	4 Cn
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.899	4.41		1	WG1007584	5 Sr
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.287	1.41		1	WG1007584	6 Qc
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	2.92	13.6		1	WG1007584	7 GI
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	8 Al
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	
m&p-Xylene	1330-20-7	106	0.400	1.73	1.86	8.07		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.611	2.65		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		96.0				WG1008562	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		103				WG1007584	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	115	274		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.274	0.874		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.632	1.30		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	0.892	3.07		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	0.799	3.23		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.528	2.09		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	1410	2660	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.598	2.59		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.289	1.62		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	ND	ND		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	5.72	23.4		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.432	1.52		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.356	1.24		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	104	306		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	1.43	5.85		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	2180	5360	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	0.568	2.41		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	0.272	1.84		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	9.04	34.0		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.627	3.08		1	WG1007584	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1007584	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.33	6.22		1	WG1007584	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.78	7.73		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.568	2.46		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.4				WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		93.6				WG1008562	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	146	346		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.570	1.18		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	0.277	1.12		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.364	1.44		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	1870	3520	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.486	2.11		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.320	1.80		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	ND	ND		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	7.23	29.6		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.234	0.813		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	195	576		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	2410	5920	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	0.322	1.37		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	4.49	16.9		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.654	3.21		1	WG1007584
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.223	1.09		1	WG1007584
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.62	7.58		1	WG1007584
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584
m&p-Xylene	1330-20-7	106	0.400	1.73	1.60	6.93		1	WG1007584
o-Xylene	95-47-6	106	0.200	0.867	0.520	2.26		1	WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		100				WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		96.0				WG1008562

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	261	621		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.275	0.877		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.560	1.16		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.745	2.95		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	2310	4360	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.561	2.43		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.233	1.14		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.399	2.24		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	ND	ND		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	3.98	16.3		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	339	999		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	7650	18800	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	0.432	1.84		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	2.85	10.7		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	1.01	4.94		1	WG1007584	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.336	1.65		1	WG1007584	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.79	8.38		1	WG1007584	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.88	8.16		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.613	2.66		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		103				WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		95.9				WG1008562	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	155	368		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.336	1.07		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.744	1.54		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	0.743	2.56		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	0.819	3.32		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	1.12	4.43		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	1150	2160		25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.524	2.27		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.304	1.71		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	ND	ND		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	2.35	9.59		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.492	1.73		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.445	1.55		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	121	355		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	1.52	6.22		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	1900	4680	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	0.522	2.22		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	0.215	1.46		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	8.19	30.8		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.723	3.55		1	WG1007584
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1007584
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.979	4.57		1	WG1007584
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584
m&p-Xylene	1330-20-7	106	0.400	1.73	1.58	6.86		1	WG1007584
o-Xylene	95-47-6	106	0.200	0.867	0.524	2.27		1	WG1007584
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		93.2				WG1008562
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.1				WG1007584

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	288	684		25	WG1008562
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1007584
Benzene	71-43-2	78.10	0.200	0.639	0.307	0.980		1	WG1007584
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1007584
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1007584
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1007584
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1007584
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1007584
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1007584
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1007584
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1007584
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1007584
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1007584
Chloromethane	74-87-3	50.50	0.200	0.413	0.509	1.05		1	WG1007584
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1007584
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1007584
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1007584
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1007584
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1007584
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1007584
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1007584
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1007584
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1007584
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1007584
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1007584
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.779	3.09		1	WG1007584
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1007584
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1007584
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1007584
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1007584
Ethanol	64-17-5	46.10	15.8	29.8	3390	6380	E	25	WG1008562
Ethylbenzene	100-41-4	106	0.200	0.867	0.582	2.52		1	WG1007584
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.429	2.11		1	WG1007584
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.297	1.67		1	WG1007584
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.303	1.50		1	WG1007584
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1007584
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1007584
Heptane	142-82-5	100	0.200	0.818	5.06	20.7		1	WG1007584
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1007584
n-Hexane	110-54-3	86.20	0.200	0.705	0.244	0.859		1	WG1007584
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1007584
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1007584
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1007584
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	509	1500		25	WG1008562
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1007584
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1007584
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1007584
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1007584
2-Propanol	67-63-0	60.10	31.2	76.7	4670	11500	E	25	WG1008562
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1007584
Styrene	100-42-5	104	0.200	0.851	0.323	1.38		1	WG1007584
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1007584
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1007584
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1007584
Toluene	108-88-3	92.10	0.200	0.753	1.95	7.36		1	WG1007584
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1007584

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	1.88	9.25		1	WG1007584	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.593	2.91		1	WG1007584	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.73	8.07		1	WG1007584	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	2.03	8.80		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.690	2.99		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		95.8				WG1008562	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		107				WG1007584	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	25.4	60.4	1	WG1007584	1 Cp
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND	1	WG1007584	2 Tc
Benzene	71-43-2	78.10	0.200	0.639	ND	ND	1	WG1007584	3 Ss
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND	1	WG1007584	4 Cn
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND	1	WG1007584	5 Sr
Bromoform	75-25-2	253	0.600	6.21	ND	ND	1	WG1007584	6 Qc
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND	1	WG1007584	7 GI
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND	1	WG1007584	8 Al
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND	1	WG1007584	9 Sc
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND	1	WG1007584	
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND	1	WG1007584	
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND	1	WG1007584	
Chloroform	67-66-3	119	0.200	0.973	ND	ND	1	WG1007584	
Chloromethane	74-87-3	50.50	0.200	0.413	0.665	1.37	1	WG1007584	
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND	1	WG1007584	
Cyclohexane	110-82-7	84.20	0.200	0.689	0.378	1.30	1	WG1007584	
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND	1	WG1007584	
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND	1	WG1007584	
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND	1	WG1007584	
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND	1	WG1007584	
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND	1	WG1007584	
1,2-Dichloroethane	107-06-2	99	0.200	0.810	0.585	2.37	1	WG1007584	
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND	1	WG1007584	
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND	1	WG1007584	
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND	1	WG1007584	
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND	1	WG1007584	
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND	1	WG1007584	
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND	1	WG1007584	
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND	1	WG1007584	
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND	1	WG1007584	
Ethanol	64-17-5	46.10	15.8	29.8	156	294	25	WG1008562	
Ethylbenzene	100-41-4	106	0.200	0.867	0.219	0.948	1	WG1007584	
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND	1	WG1007584	
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.274	1.54	1	WG1007584	
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	ND	ND	1	WG1007584	
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND	1	WG1007584	
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND	1	WG1007584	
Heptane	142-82-5	100	0.200	0.818	0.305	1.25	1	WG1007584	
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND	1	WG1007584	
n-Hexane	110-54-3	86.20	0.200	0.705	0.282	0.994	1	WG1007584	
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND	1	WG1007584	
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.252	0.876	1	WG1007584	
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND	1	WG1007584	
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	1.95	5.76	1	WG1007584	
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND	1	WG1007584	
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND	1	WG1007584	
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND	1	WG1007584	
Naphthalene	91-20-3	128	0.630	3.30	ND	ND	1	WG1007584	
2-Propanol	67-63-0	60.10	1.25	3.07	17.9	44.0	1	WG1007584	
Propene	115-07-1	42.10	0.400	0.689	ND	ND	1	WG1007584	
Styrene	100-42-5	104	0.200	0.851	0.281	1.20	1	WG1007584	
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND	1	WG1007584	
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND	1	WG1007584	
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND	1	WG1007584	
Toluene	108-88-3	92.10	0.200	0.753	5.41	20.4	1	WG1007584	
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND	1	WG1007584	



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1007584	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1007584	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1007584	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1007584	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1007584	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1007584	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1007584	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1007584	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1007584	
m&p-Xylene	1330-20-7	106	0.400	1.73	0.610	2.65		1	WG1007584	
o-Xylene	95-47-6	106	0.200	0.867	0.216	0.937		1	WG1007584	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		92.4				WG1008562	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		93.0				WG1007584	

L927407-01,02,03,04,05,06,07,08,09,10,11,12,13

Method Blank (MB)

(MB) R3240064-3 08/09/17 10:26

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv	
Acetone	U		0.0569	1.25	¹ Cp
Allyl Chloride	U		0.0546	0.200	² Tc
Benzene	U		0.0460	0.200	³ Ss
Benzyl Chloride	U		0.0598	0.200	⁴ Cn
Bromodichloromethane	U		0.0436	0.200	⁵ Sr
Bromoform	U		0.0786	0.600	⁶ Qc
Bromomethane	U		0.0609	0.200	⁷ Gl
1,3-Butadiene	U		0.0563	2.00	⁸ Al
Carbon disulfide	U		0.0544	0.200	⁹ Sc
Carbon tetrachloride	U		0.0585	0.200	
Chlorobenzene	U		0.0601	0.200	
Chloroethane	U		0.0489	0.200	
Chloroform	U		0.0574	0.200	
Chloromethane	U		0.0544	0.200	
2-Chlorotoluene	U		0.0605	0.200	
Cyclohexane	U		0.0534	0.200	
Dibromochloromethane	U		0.0494	0.200	
1,2-Dibromoethane	U		0.0185	0.200	
1,2-Dichlorobenzene	0.0648	J	0.0603	0.200	
1,3-Dichlorobenzene	U		0.0597	0.200	
1,4-Dichlorobenzene	U		0.0557	0.200	
1,2-Dichloroethane	U		0.0616	0.200	
1,1-Dichloroethane	U		0.0514	0.200	
1,1-Dichloroethene	U		0.0490	0.200	
cis-1,2-Dichloroethene	U		0.0389	0.200	
trans-1,2-Dichloroethene	U		0.0464	0.200	
1,2-Dichloropropane	U		0.0599	0.200	
cis-1,3-Dichloropropene	U		0.0588	0.200	
trans-1,3-Dichloropropene	U		0.0435	0.200	
1,4-Dioxane	U		0.0554	0.200	
Ethylbenzene	U		0.0506	0.200	
4-Ethyltoluene	U		0.0666	0.200	
Trichlorofluoromethane	U		0.0673	0.200	
Dichlorodifluoromethane	U		0.0601	0.200	
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200	
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200	
Heptane	U		0.0626	0.200	
Hexachloro-1,3-butadiene	U		0.0656	0.630	
n-Hexane	U		0.0457	0.200	
Isopropylbenzene	U		0.0563	0.200	



Method Blank (MB)

(MB) R3240064-3 08/09/17 10:26

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv															
Methylene Chloride	U		0.0465	0.200															¹ Cp
Methyl Butyl Ketone	U		0.0682	1.25															² Tc
2-Butanone (MEK)	U		0.0493	1.25															³ Ss
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25															⁴ Cn
Methyl Methacrylate	U		0.0773	0.200															⁵ Sr
MTBE	U		0.0505	0.200															⁶ Qc
Naphthalene	U		0.154	0.630															⁷ Gl
2-Propanol	U		0.0882	1.25															⁸ Al
Propene	U		0.0932	0.400															⁹ Sc
Styrene	U		0.0465	0.200															
1,1,2,2-Tetrachloroethane	U		0.0576	0.200															
Tetrachloroethylene	U		0.0497	0.200															
Tetrahydrofuran	U		0.0508	0.200															
Toluene	U		0.0499	0.200															
1,2,4-Trichlorobenzene	0.179	J	0.148	0.630															
1,1,1-Trichloroethane	U		0.0665	0.200															
1,1,2-Trichloroethane	U		0.0287	0.200															
Trichloroethylene	U		0.0545	0.200															
1,2,4-Trimethylbenzene	U		0.0483	0.200															
1,3,5-Trimethylbenzene	U		0.0631	0.200															
2,2,4-Trimethylpentane	U		0.0456	0.200															
Vinyl chloride	U		0.0457	0.200															
Vinyl Bromide	U		0.0727	0.200															
Vinyl acetate	U		0.0639	0.200															
m&p-Xylene	U		0.0946	0.400															
o-Xylene	U		0.0633	0.200															
(S) 1,4-Bromofluorobenzene	86.1			60.0-140															

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

(LCS) R3240064-1 08/09/17 08:48 • (LCSD) R3240064-2 08/09/17 09:36

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Propene	3.75	4.22	4.18	112	112	54.0-155			0.790	25
Dichlorodifluoromethane	3.75	3.88	3.86	104	103	69.0-143			0.510	25
1,2-Dichlorotetrafluoroethane	3.75	4.59	4.54	123	121	70.0-130			1.23	25
Chloromethane	3.75	4.18	4.16	112	111	70.0-130			0.510	25
Vinyl chloride	3.75	4.24	4.19	113	112	70.0-130			1.22	25
1,3-Butadiene	3.75	3.96	3.94	106	105	70.0-130			0.530	25



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

(LCS) R3240064-1 08/09/17 08:48 • (LCSD) R3240064-2 08/09/17 09:36

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Bromomethane	3.75	4.70	4.68	125	125	70.0-130			0.490	25
Chloroethane	3.75	4.40	4.31	117	115	70.0-130			2.13	25
Trichlorofluoromethane	3.75	4.43	4.37	118	116	70.0-130			1.36	25
1,1,2-Trichlorotrifluoroethane	3.75	4.60	4.49	123	120	70.0-130			2.36	25
1,1-Dichloroethene	3.75	4.21	4.16	112	111	70.0-130			1.29	25
1,1-Dichloroethane	3.75	4.34	4.27	116	114	70.0-130			1.66	25
Acetone	3.75	4.26	4.23	114	113	70.0-130			0.600	25
2-Propanol	3.75	4.35	4.28	116	114	66.0-150			1.56	25
Carbon disulfide	3.75	4.54	4.47	121	119	70.0-130			1.57	25
Methylene Chloride	3.75	4.06	4.09	108	109	70.0-130			0.610	25
MTBE	3.75	4.38	4.32	117	115	70.0-130			1.56	25
trans-1,2-Dichloroethene	3.75	4.59	4.53	122	121	70.0-130			1.41	25
n-Hexane	3.75	4.34	4.28	116	114	70.0-130			1.29	25
Vinyl acetate	3.75	4.58	4.50	122	120	70.0-130			1.63	25
Methyl Ethyl Ketone	3.75	4.48	4.51	120	120	70.0-130			0.590	25
cis-1,2-Dichloroethene	3.75	4.51	4.43	120	118	70.0-130			1.83	25
Chloroform	3.75	4.36	4.26	116	114	70.0-130			2.37	25
Cyclohexane	3.75	4.36	4.25	116	113	70.0-130			2.53	25
1,1,1-Trichloroethane	3.75	4.20	4.12	112	110	70.0-130			1.83	25
Carbon tetrachloride	3.75	4.25	4.14	113	110	70.0-130			2.45	25
Benzene	3.75	4.41	4.34	118	116	70.0-130			1.68	25
1,2-Dichloroethane	3.75	4.27	4.14	114	110	70.0-130			3.27	25
Heptane	3.75	4.15	4.12	111	110	70.0-130			0.910	25
Trichloroethylene	3.75	4.44	4.41	118	118	70.0-130			0.770	25
1,2-Dichloropropane	3.75	4.21	4.21	112	112	70.0-130			0.0600	25
1,4-Dioxane	3.75	4.77	4.79	127	128	70.0-152			0.380	25
Bromodichloromethane	3.75	4.34	4.26	116	114	70.0-130			1.79	25
cis-1,3-Dichloropropene	3.75	4.39	4.33	117	115	70.0-130			1.33	25
4-Methyl-2-pentanone (MIBK)	3.75	4.27	4.26	114	114	70.0-142			0.260	25
Toluene	3.75	4.31	4.21	115	112	70.0-130			2.38	25
trans-1,3-Dichloropropene	3.75	4.32	4.26	115	114	70.0-130			1.23	25
1,1,2-Trichloroethane	3.75	4.34	4.26	116	114	70.0-130			1.94	25
Tetrachloroethylene	3.75	4.29	4.20	114	112	70.0-130			1.90	25
Methyl Butyl Ketone	3.75	4.59	4.53	122	121	70.0-150			1.18	25
Dibromochloromethane	3.75	4.27	4.24	114	113	70.0-130			0.640	25
1,2-Dibromoethane	3.75	4.32	4.26	115	114	70.0-130			1.48	25
Chlorobenzene	3.75	4.16	4.03	111	108	70.0-130			3.04	25
Ethylbenzene	3.75	4.33	4.24	115	113	70.0-130			2.11	25
m&p-Xylene	7.50	8.36	8.17	112	109	70.0-130			2.38	25
o-Xylene	3.75	4.16	4.09	111	109	70.0-130			1.62	25

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

(LCS) R3240064-1 08/09/17 08:48 • (LCSD) R3240064-2 08/09/17 09:36

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Styrene	3.75	4.33	4.27	115	114	70.0-130			1.29	25
Bromoform	3.75	4.41	4.39	118	117	70.0-130			0.370	25
1,1,2,2-Tetrachloroethane	3.75	3.94	3.87	105	103	70.0-130			1.73	25
4-Ethyltoluene	3.75	3.99	3.88	106	104	70.0-130			2.70	25
1,3,5-Trimethylbenzene	3.75	3.89	3.72	104	99.3	70.0-130			4.38	25
1,2,4-Trimethylbenzene	3.75	3.69	3.67	98.3	97.7	70.0-130			0.550	25
1,3-Dichlorobenzene	3.75	3.99	3.96	106	105	70.0-130			0.860	25
1,4-Dichlorobenzene	3.75	3.86	3.86	103	103	70.0-130			0.220	25
Benzyl Chloride	3.75	3.67	3.64	97.8	97.0	70.0-144			0.750	25
1,2-Dichlorobenzene	3.75	3.68	3.67	98.2	98.0	70.0-130			0.200	25
1,2,4-Trichlorobenzene	3.75	4.15	4.22	111	113	70.0-155			1.77	25
Hexachloro-1,3-butadiene	3.75	4.49	4.46	120	119	70.0-145			0.610	25
Naphthalene	3.75	4.27	4.31	114	115	70.0-155			0.780	25
Allyl Chloride	3.75	4.22	4.18	113	112	70.0-130			0.970	25
2-Chlorotoluene	3.75	3.83	3.75	102	100	70.0-130			2.19	25
Methyl Methacrylate	3.75	4.41	4.33	118	115	70.0-130			1.95	25
Tetrahydrofuran	3.75	4.17	4.12	111	110	70.0-140			1.38	25
2,2,4-Trimethylpentane	3.75	4.38	4.33	117	115	70.0-130			1.26	25
Vinyl Bromide	3.75	4.82	4.71	128	126	70.0-130			2.25	25
Isopropylbenzene	3.75	4.09	4.01	109	107	70.0-130			2.02	25
(S) 1,4-Bromofluorobenzene				93.3	94.1	60.0-140				

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



Method Blank (MB)

(MB) R3240500-3 08/11/17 10:31

Analyte	MB Result ppbv	<u>MB Qualifier</u>	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
2-Butanone (MEK)	U		0.0493	1.25
2-Propanol	U		0.0882	1.25
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	94.7			60.0-140

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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

(LCS) R3240500-1 08/11/17 08:58 • (LCSD) R3240500-2 08/11/17 09:44

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ethanol	3.75	4.23	4.33	113	116	52.0-158			2.40	25
Acetone	3.75	4.27	4.30	114	115	70.0-130			0.540	25
2-Propanol	3.75	4.35	4.38	116	117	66.0-150			0.770	25
Methyl Ethyl Ketone	3.75	4.35	4.36	116	116	70.0-130			0.190	25
(S) 1,4-Bromofluorobenzene			102	102		60.0-140				



Method Blank (MB)

(MB) R3240722-3 08/12/17 09:12

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
2-Propanol	U		0.0882	1.25
(S) 1,4-Bromofluorobenzene	84.1		60.0-140	

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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

(LCS) R3240722-1 08/12/17 07:33 • (LCSD) R3240722-2 08/12/17 08:22

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits %
2-Propanol	3.75	4.23	4.34	113	116	66.0-150			2.44	25
(S) 1,4-Bromofluorobenzene			93.0	93.6	93.6	60.0-140				



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(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.
Rec.	Recovery.

Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ GI
- ⁸ AI
- ⁹ SC



ESC Lab Sciences 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.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey—NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio—VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

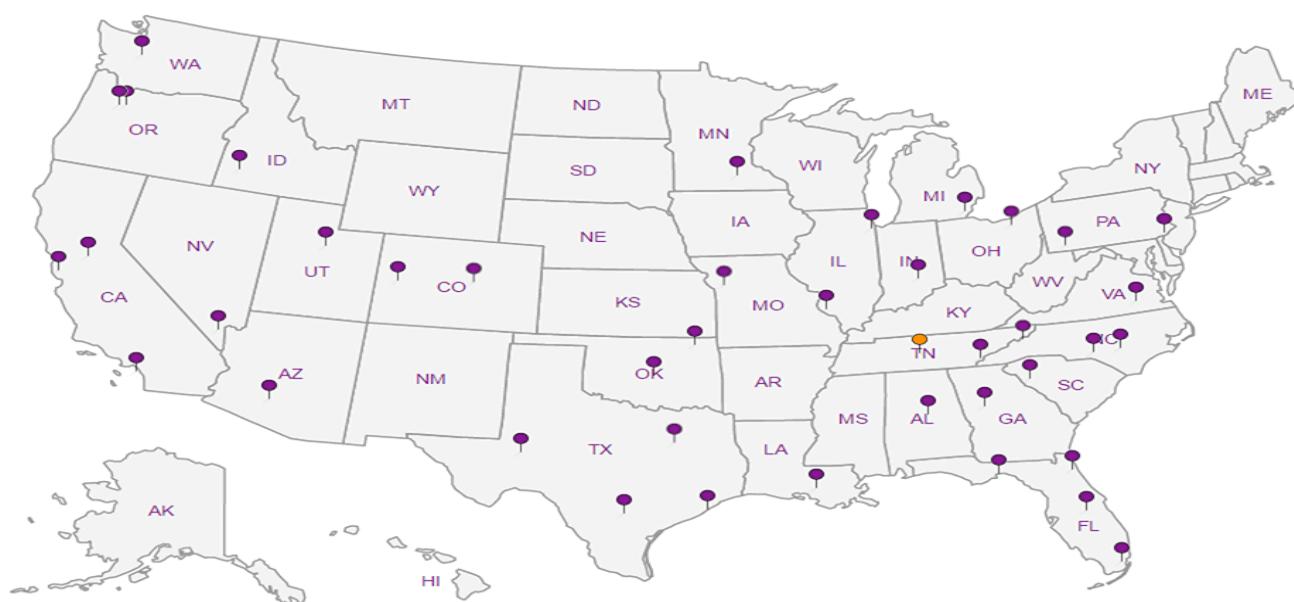
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

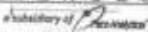
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences 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. **ESC Lab Sciences performs all testing at our central laboratory.**

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

First Environment, Inc.			Billing Information:			Analysis / Container / Preservative						Chain of Custody	Page ___ of ___		
91 Fulton Street Boonton, NJ 07005			Project: EnPro 001 91 Fulton Street Boonton, NJ 07005 ATTN. JUSTIN PICCOLO J.PICCOLO@FIRSTENVIRONMENT.COM			Pres Chk								ESC	LAB SCIENCES
Report to: Michael T. Slack			Email To: mslack@firstenvironment.com; icaldwell@firstenvir											12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Project WATER VALLEY, MS - COLTEC SITE Description: Butler Snow LLP			City/State WATER VALLEY, MS Collected: BORG WARNER PLANT SITE											L# L927407 B131	
Phone: 973-334-0003 Fax: 973-334-0928	Client Project # ENPRO 0026 D		Lab Project # FIRENVBNJ-OXFORDMS											Acctnum: FIRENVBNJ Template: T120396 Prelogin: P610926 TSR: 341 - John Hawkins PB: TG 7-26-17	
Collected by (print): <i>Michael Slack</i>	Site/Facility ID # BORG WARNER OXFORD, MS - WATER VALLEY		P.O. #											Shipped Via: FedEx Ground	
Collected by (signature): <i>Matty</i>	Rush? (Lab MUST Be Notified) <input checked="" type="checkbox"/> Same Day <input type="checkbox"/> Next Day <input type="checkbox"/> Two Day <input type="checkbox"/> Three Day		Quote #											Remarks Sample # (lab only)	
Immediately Packed on Ice N <input checked="" type="checkbox"/> Y <input type="checkbox"/>			Date Results Needed START			No. of Cans									
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time										
IA-1	COMP	Air	—	8/4/17	09:42	1	X							MAINT. -01	
IA-2	COMP	Air	—	8/4/17	09:45	1	X							ATS 02	
IA-6	COMP	Air	—	8/4/17	10:45	1	X							TRAINING 03	
IA-17	COMP	Air	—	8/4/17	09:43	1	X							CATERINA 04	
IA-B12	COMP	Air	—	8/4/17	09:49	1	X							BIZ 05	
IA-C16	COMP	Air	—	8/4/17	09:50	1	X							C16 06	
IA-G13	COMP	Air	—	8/4/17	09:46	1	X							G13 07	
IA-K13	COMP	Air	—	8/4/17	09:55	1	X							K13 08	
IA-L16	COMP	Air	—	8/4/17	10:25	1	X							L16 09	
IA-D5	COMP	Air	—	8/4/17	10:00	1	X							D5 10	
* Matrix: SS - Soil <input checked="" type="checkbox"/> AIR - Air F - Filter GW - Groundwater <input type="checkbox"/> B - Bioassay WW - WasteWater DW - Drinking Water OT - Other _____	Remarks: 16 6L cans, 16 24 hour flow controllers, 16 4 feet sections of teflon tubing with swagelock fittings, SEE SAMPLE TABLE FOR ADDITIONAL INFO (E.G., PRESSURE READINGS, TIMES)						pH _____	Temp _____	Flow _____	Other _____	Sample Receipt Checklist				
											COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	If Applicable			
											CCD Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			
											Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			
											Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N				
											Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N				
Relinquished by : (Signature)	Date: 8/5/17	Time: 13:30	Received by: (Signature)			Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> HCl / MeOH TBR	If preservation required by Login: Date/Time								
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)			Temp: °C Bottles Received: amb 13									
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)			Date: 8-7-17 Time: 0915	Hold:	Condition: NCF 162							

First Environment, Inc.		Billing Information:			Pris Chk	Analysis / Container / Preservative						Chain of Custody	
91 Fulton Street Boonton, NJ 07005		Project: EnPro 001 91 Fulton Street Boonton, NJ 07005 ATTN. JUSTIN PICCOLO JPICCOLO@FIRSTENVIRONMENT.COM										ESC L-A-B S-C-I-E-N-C-E-S a subsidiary of 	
Report to: Michael T. Slack		Email To: mslack@firstenvironment.com;icaldwell@firstenvir										12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Project WATER VALLEY, MS - COLTEC SITE Description: Butler Snow LLP		City/State WATER VALLEY, MS Collected: BORG WARNER PLANT SITE										L# 1927Y07	
Phone: 973-334-0003 Fax: 973-334-0928	Client Project # ENPRO 0028D	Lab Project # FIRENVBNJ-OXFORDMS										Table #	
Collected by (print): MICHAEL SLACK	Site/Facility ID # BORG WARNER OXFORD, MS WATER VALLEY	P.O. # —										Acctnum: FIRENVBNJ	
Collected by (signature): MTS	Rush? (Lab MUST Be Notified) <input checked="" type="checkbox"/> Same Day <input checked="" type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day	Quote # —										Template: T120396	
Immediately Packed on Ice N ✓ Y		Date Results Needed:			No. of Entrs							Prelogin: P610926	
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time							TSR: 341 - John Hawkins	
IA-G4	Comp	Air	—	8/4/17	09:58	1	X					PB: JF 7-26-17	
IA-K8	Comp	Air	—	8/4/17	09:57	1	X					Shipped Via: FedEX Ground	
AA-2	Comp	Air	—	8/4/17	10:03	1	X					Remarks Sample # (lab only)	
		<u>Air</u>				1	X					G4 11	
		<u>Air</u>				1	X					K8 12	
												Pavillion 13	
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay	Remarks: 16 6l cans, 16 24 hour flow controllers, 16 4 feet sections of teflon tubing with swagelock fittings, SEE SAMPLE TABLE FOR ADDITIONAL INFO. (e.g. PRESSURES, TIME, ETC.)										Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient Volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
Relinquished by : (Signature)	Date: 8/5/17	Time: 13:30	Received by: (Signature)			Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> HCl/MeeH TBR			If preservation required by Login: Date/Time				
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)			Temp: °C	Bottles Received: anb 13						
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)			Date: 8-7-17	Time: 0915	Hold:		Condition: NCF 16X			

Vapor Intrusion Investigation
 Borg Warner Facility
 Water Valley, Yalobusha Co., MS
 August 4-5, 2017
 Indoor Air (IA) and Ambient Air (AA) Sampling Event

Sample ID	Sample Location	Flow Controller ID	Canister ID	Canister Size (liters)	Initial Date/time	Vacuum ("Hg")	Final Date/time	Vacuum ("Hg")	Sampler
IA-1	Maintenance Room	005567	005746	6	8/4/17 09:42	30	8/5/17 09:14	/	M. Slack
IA-2	ATS Room	005295	008481	6	8/4/17 09:45	28	8/5/17 09:15	/	M. Slack
IA-6	Training Room	006507	007683	6	8/4/17 10:45	15	8/5/17 09:45	0	M. Slack
IA-17	Cafeteria	0058910	007240	6	8/4/17 09:43	27	8/5/17 09:16	/	M. Slack
IA-B12	I-Beam B12	006693	007311	6	8/4/17 09:49	27	8/5/17 09:12	/	M. Slack
IA-C16	I-Beam C16	005699	005820	6	8/4/17 09:50	30	8/5/17 09:10	/	M. Slack
IA-G13	I-Beam G13	007090	005322	6	8/4/17 09:46	29	8/5/17 10:10	3	M. Slack
IA-K13	I-Beam K13	006046	007620	6	8/4/17 09:55	15	8/5/17 09:05	MTD 8/5/17	M. Slack
IA-L16	I-Beam L16	005895	006147	6	8/4/17 10:25	23	8/5/17 10:20	0	M. Slack
IA-D5	I-Beam D5	007431	008525	6	8/4/17 10:00	27	8/5/17 10:28	MTD 8/5/17	M. Slack
IA-G4	I-Beam G4	005376	005668	6	8/4/17 09:58	12	8/5/17 09:26	0	M. Slack
IA-K8	I-Beam K8	007829	005826	6	8/4/17 09:57	30	8/5/17 10:25	9	M. Slack
AA-2	Pavilion	005279	005118	6	8/4/17 10:03	18	8/5/17 09:30	0	M. Slack

Weather Conditions (@ time of canister placement): SUNNY - CALM WINDS - 75°F
 FORECAST - UPPER 80's - SUNNY
 CALM TO LIGHT WINDS - VARIABLE

Michael T. Slack (First Environment)

MTT-slack 8/5/17