

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



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October 19, 2017

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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

Mississippi Professional
Engineer No.

10/19/2017

Date



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

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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 to 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”) No. 3. First Environment submitted SSDS Progress Reports on subsequent rounds of ambient and indoor air sampling on July 17, August 7, August 21, September 11, October 2, and October 9, 2017. On October 5-6, 2017, First Environment collected a round of ambient and indoor air samples from the four interior rooms at the Plant—the Training Room, ATS Room, Maintenance Room, and Cafeteria. 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 – October 5-6, 2017

2.1 Instrumentation

On October 5-6, 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 four indoor air samples at the four interior rooms at the Plant, 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.

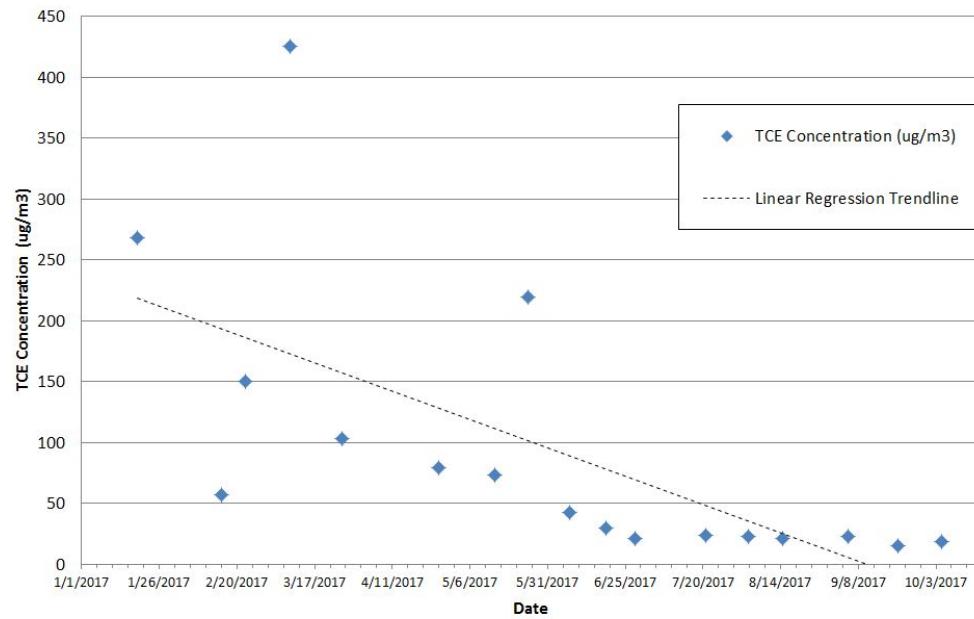
First Environment submitted the samples to ESC Lab Sciences for USEPA TO-15 SIM analysis. The laboratory was responsible for the decontamination of the Summa® canisters and for setting the internal vacuum and calibrating the regulators prior to sample collection.

2.3 Results

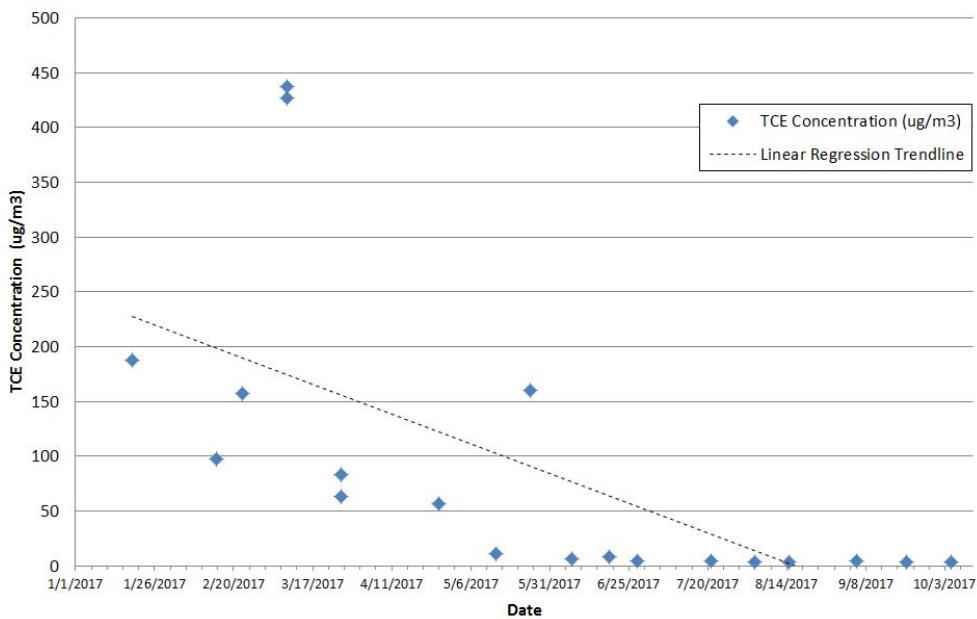
Table 1 presents the ambient and indoor air sampling results for all TO-15 analytes. Table 2 presents the results of TCE, cis-DCE, and VC in comparison of all previous rounds of sampling.

The sample results in the Training Room, 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 sample results in the ATS Room were below USEPA's VISL. The following figures show the linear regression trendline for the interior rooms.

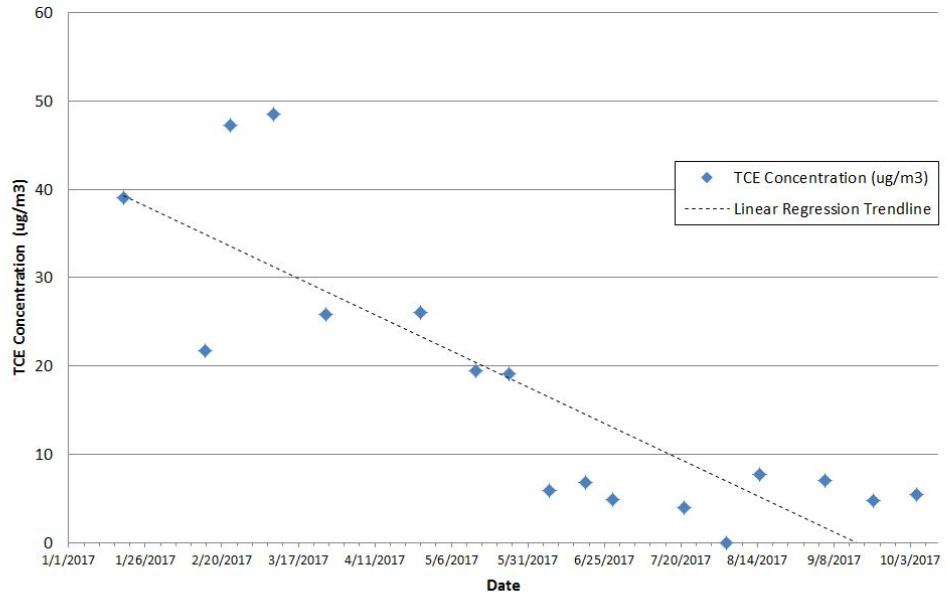
TCE Concentration History at IA-1 (Maintenance Room)



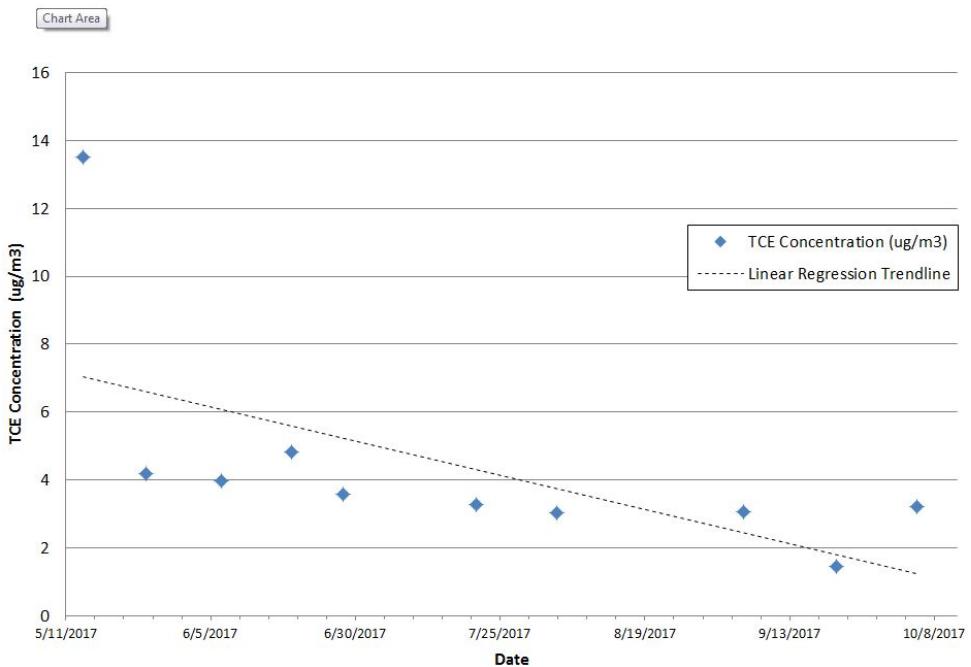
TCE Concentration History at IA-2 (ATS Room)



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.

3.0 Summary

Since June 2017, the sample results in the Maintenance Room (IA-1), ATS Room (IA-2), Training Room (IA-6), and Cafeteria (IA-17) have been below the MDEQ action level of 26 $\mu\text{g}/\text{m}^3$.

On September 20, 2017, First Environment, on behalf of EnPro, submitted a letter request to the MDEQ for modification to the indoor air sampling program pursuant to Section 3.A. of the Agreed Order. The revised indoor air sampling schedule provides for bi-weekly sampling for the four interior room indoor air sampling locations (IA-1, IA-2, IA-6, & IA-17) and semi-annual sampling of three locations at the west, center, and east areas of the Plant (IA-C16, IA-K13, and IA-G4). On September 28, 2017, the MDEQ approved the sampling schedule with a request that IA-C16, IA-K13, and IA-G4 be sampled on a quarterly basis. Accordingly, IA-C16, IA-K13, and IA-G4 will be sampled quarterly. Subsequent sampling results under the approved sampling schedule will be provided to the MDEQ on an ongoing basis.

TABLES

TABLE 1
INDOOR AIR SAMPLING RESULTS
OCTOBER 5, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 10/05/2017 L942068-01	IA-2 10/05/2017 L942068-02	IA-6 10/05/2017 L942068-03	IA-17 10/05/2017 L942068-04	AA-2 10/05/2017 L942068-05
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
ACETONE	263	187	208	310	14
ALLYL CHLORIDE	<0.626	<0.626	<0.626	<0.626	<0.626
BENZENE	2.56	1.03	1.59	0.915	<0.639
BENZYL CHLORIDE	<1.04	<1.04	<1.04	<1.04	<1.04
BROMODICHLOROMETHANE	<1.34	<1.34	<1.34	<1.34	<1.34
BROMOFORM	<6.21	<6.21	<6.21	<6.21	<6.21
BROMOMETHANE	<0.776	<0.776	<0.776	<0.776	<0.776
1,3-BUTADIENE	<4.43	<4.43	<4.43	<4.43	<4.43
CARBON DISULFIDE	<0.622	<0.622	<0.622	<0.622	<0.622
CARBON TETRACHLORIDE	<1.26	<1.26	<1.26	<1.26	<1.26
CHLOROBENZENE	<0.924	<0.924	<0.924	<0.924	<0.924
CHLOROETHANE	<0.528	<0.528	<0.528	<0.528	<0.528
CHLOROFORM	<0.973	<0.973	<0.973	<0.973	<0.973
CHLOROMETHANE	1.03	0.942	0.968	0.937	0.888
2-CHLOROTOLUENE	<1.03	<1.03	<1.03	<1.03	<1.03
CYCLOHEXANE	<0.689	<0.689	5.18	5.06	<0.689
CHLORODIBROMOMETHANE	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-DIBROMOETHANE	<1.54	<1.54	<1.54	<1.54	<1.54
1,2-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<1.2
1,3-DICHLOROBENZENE	<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-DICHLOROETHANE	<0.81	<0.81	0.915	<0.81	0.892
1,1-DICHLOROETHANE	<0.802	<0.802	<0.802	<0.802	<0.802

TABLE 1
INDOOR AIR SAMPLING RESULTS
OCTOBER 5, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 10/05/2017 L942068-01	IA-2 10/05/2017 L942068-02	IA-6 10/05/2017 L942068-03	IA-17 10/05/2017 L942068-04	AA-2 10/05/2017 L942068-05
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
1,1-DICHLOROETHENE	<0.793	<0.793	<0.793	<0.793	<0.793
CIS-1,2-DICHLOROETHENE	<0.793	<0.793	<0.793	<0.793	<0.793
TRANS-1,2-DICHLOROETHENE	0.882	0.872	0.863	1.1	<0.793
1,2-DICHLOROPROPANE	<0.924	<0.924	<0.924	<0.924	<0.924
CIS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<0.908
TRANS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<0.908
1,4-DIOXANE	0.996	<0.721	<0.721	<0.721	<0.721
ETHANOL	5,010 (E)	3,770 (E)	3,920 (E)	7,530 (E)	89.3
ETHYLBENZENE	2.66	2.37	1.57	1.77	<0.867
4-ETHYLtolUENE	<0.982	<0.982	<0.982	<0.982	<0.982
TRICHLOROFUOROMETHANE	1.59	1.49	1.33	1.31	1.17
DICHLORODIFLUOROMETHANE	1.72	1.8	1.69	1.62	1.76
1,1,2-TRICHLOROTRIFLUOROETHANE	<1.53	<1.53	<1.53	<1.53	<1.53
1,2-DICHLOROTETRAFLUOROETHANE	<1.4	<1.4	<1.4	<1.4	<1.4
HEPTANE	55.9	53.9	45.9	45.6	<0.818
HEXAChLORO-1,3-BUTADIENE	<6.73	<6.73	<6.73	<6.73	<6.73
N-HEXANE	1.09	0.838	3.24	0.894	<0.705
ISOPROPYLBENZENE	<0.983	<0.983	<0.983	<0.983	<0.983
METHYLENE CHLORIDE	<0.694	<0.694	<0.694	<0.694	<0.694
METHYL BUTYL KETONE	<5.11	<5.11	<5.11	<5.11	<5.11
2-BUTANONE (MEK)	590	437	437	794	<3.69
4-METHYL-2-PENTANONE (MIBK)	<5.12	<5.12	<5.12	<5.12	<5.12
METHYL METHACRYLATE	<0.819	<0.819	<0.819	<0.819	<0.819
METHYL TERT-BUTYL ETHER	<0.721	<0.721	<0.721	<0.721	<0.721
NAPHTHALENE	<3.3	<3.3	<3.3	<3.3	<3.3
2-PROPANOL	6,520 (E)	4,850 (E)	4,110 (E)	7,410 (E)	9.8

TABLE 1
INDOOR AIR SAMPLING RESULTS
OCTOBER 5, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 10/05/2017 L942068-01	IA-2 10/05/2017 L942068-02	IA-6 10/05/2017 L942068-03	IA-17 10/05/2017 L942068-04	AA-2 10/05/2017 L942068-05
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
PROPENE	<0.689	<0.689	<0.689	<0.689	<0.689
STYRENE	<0.851	<0.851	0.908	1.29	<0.851
1,1,2,2-TETRACHLOROETHANE	<1.37	<1.37	<1.37	<1.37	<1.37
TETRACHLOROETHENE	<1.36	<1.36	<1.36	<1.36	<1.36
TETRAHYDROFURAN	<0.59	<0.59	<0.59	<0.59	<0.59
TOLUENE	28	6.81	5.73	5.71	1.58
1,2,4-TRICHLOROBENZENE	<4.66	<4.66	<4.66	<4.66	<4.66
1,1,1-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<1.09
1,1,2-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<1.09
TRICHLOROETHENE	18.2	2.46	5.37	3.2	<1.07
1,2,4-TRIMETHYLBENZENE	3.15	3.15	2.31	2.77	<0.982
1,3,5-TRIMETHYLBENZENE	<0.982	<0.982	<0.982	<0.982	<0.982
2,2,4-TRIMETHYL PENTANE	7.39	7.59	6.3	6.53	<0.934
VINYL CHLORIDE	<0.511	<0.511	<0.511	<0.511	<0.511
VINYL BROMIDE	<0.875	<0.875	<0.875	<0.875	<0.875
VINYL ACETATE	<0.704	<0.704	<0.704	<0.704	<0.704
M&P-XYLENE	8.79	7.46	5.53	5.78	<1.73
O-XYLENE	2.54	2.19	1.48	1.6	<0.867
1,4-BROMOFLUOROBENZENE	121 98.4	98.9 123	98.2 110	115 99.3	102

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 OCTOBER 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 15-Feb-17 23-Feb-17 9-Mar-17 26-Mar-17 26-Apr-17 14-May-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17 21-Sep-17 5-Oct-17	L1702183-01 L890396-01 L892423-01 L895061-01 L898762-01 L905292-01 L909544-01 L912423-03 L914832-13 L917924-13 L920054-12 L924410-01 L927407-01 L930026-01 L934535-01 L938896-01 L942068-01	268(D) 55.8 150 425 103 78.3 72.7 219 41.7 29.4 21.4 23.8 22.9 20.6 21.8 14.7 18.2	63.8 <0.793 82.1 97.9 11.4 <0.793 14 <0.793 <0.793 3.68 <0.793 <0.793 2.85 <0.793 3.17 <0.793 <0.793	<0.051 2.51 1.68 2.47 0.604 0.712 <0.511 0.526 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511
IA-2	19-Jan-17 15-Feb-17 23-Feb-17 9-Mar-17 26-Mar-17 26-Apr-17 14-May-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17 21-Sep-17 5-Oct-17	L1702183-02 L890396-02 L892423-02 L895061-02 L895061-04 L898762-02 L898762-04 L905292-02 L909544-02 L912423-08 L914832-12 L917924-12 L920054-13 L924410-02 L927407-02 L930026-02 L934535-02 L938896-02 L942068-02	187 97.1 157 426 438 61.8 82.3 56.6 10.8 160 6.58 8.16 4.21 4.3 2.94 2.91 3.52 2.22 2.46	43.2 <0.793 79.4 86.7 88.7 <0.793 <0.793 10.8 <0.793 <0.793 <0.793 1.88 <0.793 <0.793 <0.793 <0.793 0.967 <0.793 <0.793	<0.051 2.27 1.57 1.18 1.68 <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
IA-2 (2ND CANISTER)					
IA-2 (DUPLICATE)					
IA-6	19-Jan-17 15-Feb-17 23-Feb-17 9-Mar-17 26-Mar-17 26-Apr-17 14-May-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17 21-Sep-17 5-Oct-17	L1702183-06 L890396-03 L892423-03 L895061-03 L898762-03 L905292-03 L909544-03 L912423-01 L914832-11 L917924-11 L920054-11 L924410-03 L927407-03 <1.07 L930026-03 L934535-03 L938896-03 L942068-03	39 21.7 47.1 48.6 25.8 26 19.5 19.1 5.75 6.67 4.84 4 <1.07 7.61 6.85 4.65 5.37	12.8 <0.793 14.2 12.3 <0.793 9.12 <0.793 <0.793 <0.793 4.14 <0.793 <0.793 <0.793 <0.793 5.17 <0.793 <0.793	0.585 0.57 <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 <0.511
IA-14	19-Jan-17 23-Feb-17	L1702183-14 L892423-04	3.07 3.32	0.928 <0.793	<0.051 <0.511
IA-17	14-May-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17 21-Sep-17 5-Oct-17	L909544-05 L912423-02 L914832-10 L917924-10 L920054-10 L924410-04 L927407-04 L930026-04 L934535-04 L938896-04 L942068-04	13.5 4.15 3.96 4.82 3.56 3.27 3.02 <5.36 3.04 1.46 3.2	<0.793 <0.793 <0.793 4.48 <0.793 <0.793 <0.793 <3.96 5.6 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <2.56 <0.511 <0.511 <0.511
IA-B12	26-Apr-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L905292-04 L912423-05 L914832-07 L917924-09 L920054-08 L924410-05 L927407-05 L930026-05 L934535-05	6.54 3.08 1.64 1.66 <1.07 1.08 <1.07 <1.07 <1.07	1.77 <0.793 <0.793 <0.793 4.48 <0.793 <0.793 <0.793 <3.96 5.6 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511
IA-C16	26-Apr-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L905292-05 L912423-06 L914832-08 L917924-07 L920054-07 L924410-06 L927407-06 L930026-06 L934535-06	6.48 3.88 1.55 2 1.22 1.08 1.25 <1.07 <1.07	1.82 <0.793 <0.793 <0.793 2 <0.793 <0.793 <0.793 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511

TABLE 2
INDOOR AIR SAMPLING RESULTS COMPARISON
JANUARY THROUGH OCTOBER 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-D5	25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L912423-12 L914832-03 L917924-03 L920054-03 L924410-08 L927407-10 L930026-10 L934535-10	<1.07 1.47 1.66 <1.07 <1.07 <1.07 <1.07 1.3	<0.793 <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 <0.511
IA-G4	25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L912423-11 L914832-02 L917924-02 L920054-02 L924410-09 L927407-11 L930026-11 L934535-11	<1.07 3.31 1.35 <1.07 <1.07 <1.07 <1.07 1.17	<0.793 <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 <0.511
IA-G13	26-Apr-17 14-May-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L905292-06 L909544-04 L912423-06 L914832-06 L917924-06 L920054-06 L924410-07 L927407-07 L930026-07 L934535-07	8.98 4.65 3.88 2.54 2.46 1.41 1.6 1.76 1.25 1.78	<0.793 <0.793 <0.793 <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 <0.511 <0.511 <0.511
IA-K8	25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L912423-10 L914832-01 L917924-01 L920054-01 L924410-10 L927407-12 L930026-12 L934535-12	1.47 7.86 1.31 <1.07 <1.07 <1.07 <1.07 <1.07	<0.793 <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 <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 15-Aug-17 5-Sep-17	L905292-07 L912423-04 L914832-05 L917924-05 L920054-05 L924410-12 L927407-08 L930026-08 L934535-08	6.53 5.28 1.59 2.2 1.33 1.34 <1.07 <1.07 1.67	<0.793 <0.793 <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 <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 15-Aug-17 5-Sep-17	L905292-08 L914832-04 L912423-09 L917924-04 L920054-04 L924410-11 L927407-09 L930026-09 L934535-09	5.77 2.09 1.36 2.81 1.32 1.18 <1.07 1.13 1.14	1.75 <0.793 <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 <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 15-Aug-17 5-Sep-17 21-Sep-17 5-Oct-17	L1702183-18 L905292-09 L912423-13 L914832-09 L917924-08 L920054-09 L924410-13 L927407-13 L930026-13 L934535-13 L938896-05 L942068-05	0.129 <0.107 <1.07 <1.07 <1.07 16.7 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07	<0.079 <0.793 <0.793 <0.793 <0.793 <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 <0.511 <0.511 <0.511 <0.511
IA-ATS-2ND F	15-Aug-17	L930026-14	1.86	<0.793	<0.511
IA-OFFICE 2ND F	15-Aug-17	L930026-15	<1.07	<0.793	<0.511

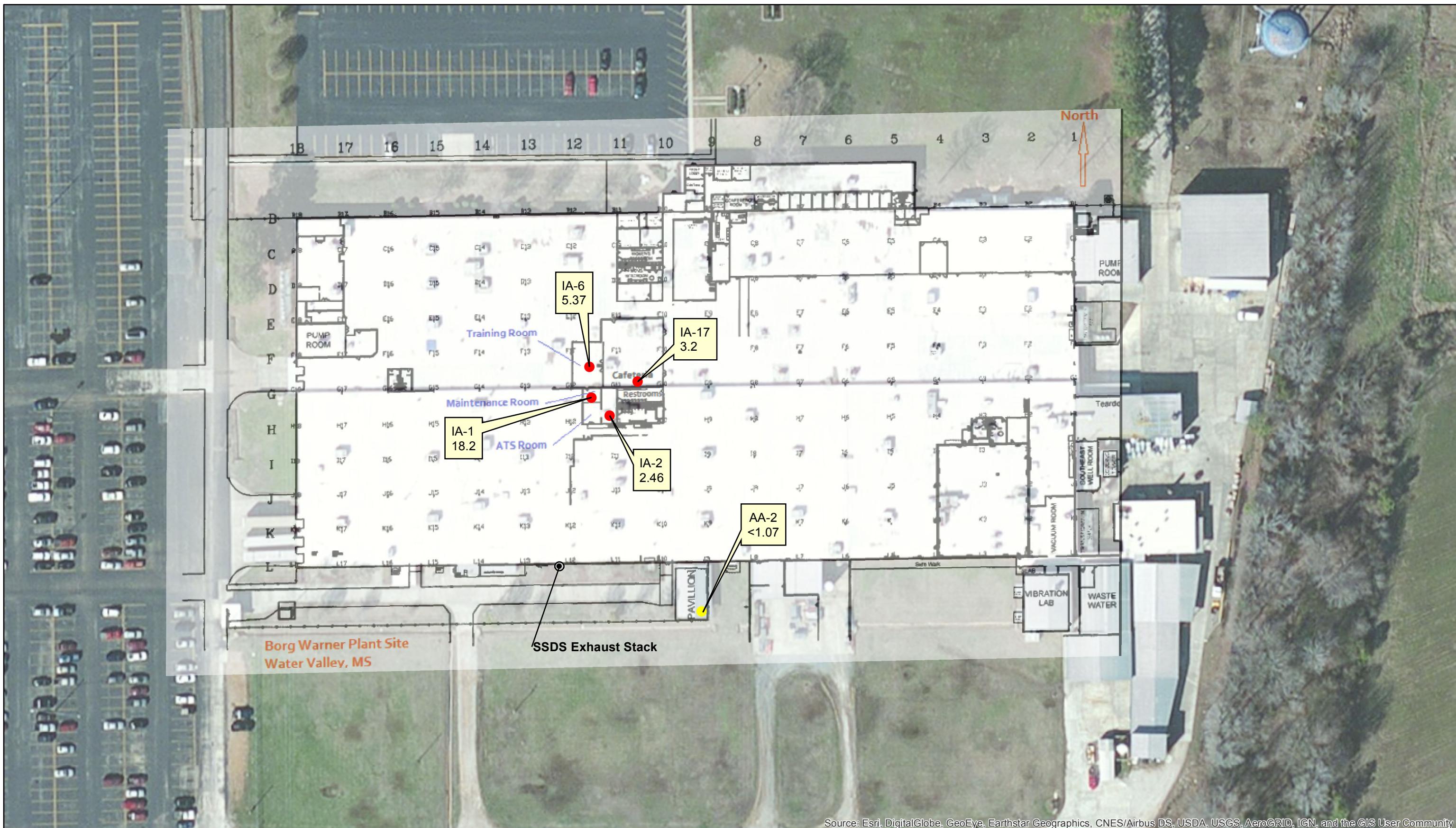
D: Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

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



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

FIGURE 1
INDOOR AIR SAMPLING RESULTS
OCTOBER 5, 2017

91 Fulton Street Boonton, New Jersey 07005	Revised LS	Drawn NMT	Checked NMT	Approved NMT	Date 10/12/17
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APPENDIX A

October 10, 2017

First Environment, Inc.

Sample Delivery Group: L942068
Samples Received: 10/07/2017
Project Number: ENPRO 002D-VM
Description: EnPro 002B-Coltec, Water Valley, MS Butler Snow LLP
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.

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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



		Collected by Michael Slack	Collected date/time 10/05/17 11:50	Received date/time 10/07/17 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1029077	1	10/08/17 15:50	10/08/17 15:50	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1029269	25	10/09/17 10:43	10/09/17 10:43	AMC
IA-2 L942068-02 Air		Collected by Michael Slack	Collected date/time 10/05/17 11:51	Received date/time 10/07/17 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1029077	1	10/08/17 16:36	10/08/17 16:36	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1029269	25	10/09/17 11:26	10/09/17 11:26	AMC
IA-6 L942068-03 Air		Collected by Michael Slack	Collected date/time 10/05/17 11:53	Received date/time 10/07/17 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1029078	1	10/08/17 10:45	10/08/17 10:45	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1029269	25	10/09/17 12:09	10/09/17 12:09	AMC
IA-17 L942068-04 Air		Collected by Michael Slack	Collected date/time 10/05/17 11:54	Received date/time 10/07/17 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1029078	1	10/08/17 11:31	10/08/17 11:31	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1029269	25	10/09/17 12:52	10/09/17 12:52	AMC
AA-2 L942068-05 Air		Collected by Michael Slack	Collected date/time 10/05/17 11:56	Received date/time 10/07/17 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1029078	1	10/08/17 12:16	10/08/17 12:16	MBF

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



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Technical Service Representative

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



L942068

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	111	263		25	WG1029269
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1029077
Benzene	71-43-2	78.10	0.200	0.639	0.801	2.56		1	WG1029077
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1029077
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1029077
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1029077
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1029077
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1029077
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1029077
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1029077
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1029077
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1029077
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1029077
Chloromethane	74-87-3	50.50	0.200	0.413	0.497	1.03		1	WG1029077
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1029077
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1029077
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1029077
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1029077
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1029077
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1029077
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1029077
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1029077
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1029077
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1029077
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1029077
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.223	0.882		1	WG1029077
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1029077
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1029077
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1029077
1,4-Dioxane	123-91-1	88.10	0.200	0.721	0.276	0.996		1	WG1029077
Ethanol	64-17-5	46.10	15.8	29.8	2660	5010	E	25	WG1029269
Ethylbenzene	100-41-4	106	0.200	0.867	0.613	2.66		1	WG1029077
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1029077
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.283	1.59		1	WG1029077
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.348	1.72		1	WG1029077
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1029077
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1029077
Heptane	142-82-5	100	0.200	0.818	13.7	55.9		1	WG1029077
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1029077
n-Hexane	110-54-3	86.20	0.200	0.705	0.308	1.09		1	WG1029077
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1029077
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1029077
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1029077
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	200	590		25	WG1029269
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1029077
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1029077
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1029077
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1029077
2-Propanol	67-63-0	60.10	31.2	76.7	2650	6520	E	25	WG1029269
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1029077
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1029077
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1029077
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1029077
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1029077
Toluene	108-88-3	92.10	0.200	0.753	7.44	28.0		1	WG1029077
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1029077

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

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	WG1029077	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1029077	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	3.40	18.2		1	WG1029077	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.642	3.15		1	WG1029077	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1029077	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.58	7.39		1	WG1029077	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1029077	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1029077	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1029077	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	2.03	8.79		1	WG1029077	
o-Xylene	95-47-6	106	0.200	0.867	0.586	2.54		1	WG1029077	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		121				WG1029077	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.4				WG1029269	



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	78.8	187		25	WG1029269
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1029077
Benzene	71-43-2	78.10	0.200	0.639	0.322	1.03		1	WG1029077
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1029077
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1029077
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1029077
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1029077
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1029077
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1029077
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1029077
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1029077
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1029077
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1029077
Chloromethane	74-87-3	50.50	0.200	0.413	0.456	0.942		1	WG1029077
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1029077
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1029077
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1029077
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1029077
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1029077
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1029077
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1029077
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1029077
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1029077
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1029077
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1029077
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.220	0.872		1	WG1029077
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1029077
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1029077
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1029077
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1029077
Ethanol	64-17-5	46.10	15.8	29.8	2000	3770	E	25	WG1029269
Ethylbenzene	100-41-4	106	0.200	0.867	0.546	2.37		1	WG1029077
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1029077
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.265	1.49		1	WG1029077
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.364	1.80		1	WG1029077
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1029077
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1029077
Heptane	142-82-5	100	0.200	0.818	13.2	53.9		1	WG1029077
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1029077
n-Hexane	110-54-3	86.20	0.200	0.705	0.238	0.838		1	WG1029077
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1029077
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1029077
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1029077
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	148	437		25	WG1029269
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1029077
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1029077
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1029077
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1029077
2-Propanol	67-63-0	60.10	31.2	76.7	1970	4850	E	25	WG1029269
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1029077
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1029077
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1029077
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1029077
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1029077
Toluene	108-88-3	92.10	0.200	0.753	1.81	6.81		1	WG1029077
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1029077

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	<u>Qualifier</u>	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1029077
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1029077
Trichloroethylene	79-01-6	131	0.200	1.07	0.460	2.46		1	WG1029077
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.641	3.15		1	WG1029077
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1029077
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.62	7.59		1	WG1029077
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1029077
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1029077
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1029077
m&p-Xylene	1330-20-7	106	0.400	1.73	1.72	7.46		1	WG1029077
o-Xylene	95-47-6	106	0.200	0.867	0.505	2.19		1	WG1029077
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		123				WG1029077
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.9				WG1029269

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	1 Cp
Acetone	67-64-1	58.10	31.2	74.1	87.4	208		25	WG1029269	1 Cp
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1029078	2 Tc
Benzene	71-43-2	78.10	0.200	0.639	0.498	1.59		1	WG1029078	3 Ss
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1029078	4 Cn
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1029078	5 Sr
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1029078	6 Qc
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1029078	7 GI
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1029078	8 Al
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1029078	9 Sc
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1029078	
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1029078	
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1029078	
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1029078	
Chloromethane	74-87-3	50.50	0.200	0.413	0.469	0.968		1	WG1029078	
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1029078	
Cyclohexane	110-82-7	84.20	0.200	0.689	1.50	5.18		1	WG1029078	
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1029078	
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1029078	
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1029078	
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1029078	
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1029078	
1,2-Dichloroethane	107-06-2	99	0.200	0.810	0.226	0.915		1	WG1029078	
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1029078	
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1029078	
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1029078	
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.218	0.863		1	WG1029078	
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1029078	
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1029078	
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1029078	
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1029078	
Ethanol	64-17-5	46.10	15.8	29.8	2080	3920	E	25	WG1029269	
Ethylbenzene	100-41-4	106	0.200	0.867	0.362	1.57		1	WG1029078	
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1029078	
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.237	1.33		1	WG1029078	
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.342	1.69		1	WG1029078	
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1029078	
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1029078	
Heptane	142-82-5	100	0.200	0.818	11.2	45.9		1	WG1029078	
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1029078	
n-Hexane	110-54-3	86.20	0.200	0.705	0.920	3.24		1	WG1029078	
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1029078	
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1029078	
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1029078	
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	148	437		25	WG1029269	
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1029078	
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1029078	
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1029078	
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1029078	
2-Propanol	67-63-0	60.10	31.2	76.7	1670	4110	E	25	WG1029269	
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1029078	
Styrene	100-42-5	104	0.200	0.851	0.213	0.908		1	WG1029078	
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1029078	
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1029078	
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1029078	
Toluene	108-88-3	92.10	0.200	0.753	1.52	5.73		1	WG1029078	
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1029078	



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	WG1029078	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1029078	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	1.00	5.37		1	WG1029078	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.470	2.31		1	WG1029078	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1029078	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.35	6.30		1	WG1029078	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1029078	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1029078	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1029078	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.28	5.53		1	WG1029078	
o-Xylene	95-47-6	106	0.200	0.867	0.341	1.48		1	WG1029078	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.2				WG1029269	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		110				WG1029078	



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	130	310		25	WG1029269
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1029078
Benzene	71-43-2	78.10	0.200	0.639	0.287	0.915		1	WG1029078
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1029078
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1029078
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1029078
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1029078
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1029078
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1029078
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1029078
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1029078
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1029078
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1029078
Chloromethane	74-87-3	50.50	0.200	0.413	0.454	0.937		1	WG1029078
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1029078
Cyclohexane	110-82-7	84.20	0.200	0.689	1.47	5.06		1	WG1029078
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1029078
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1029078
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1029078
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1029078
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1029078
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1029078
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1029078
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1029078
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1029078
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	0.277	1.10		1	WG1029078
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1029078
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1029078
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1029078
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1029078
Ethanol	64-17-5	46.10	15.8	29.8	3990	7530	E	25	WG1029269
Ethylbenzene	100-41-4	106	0.200	0.867	0.408	1.77		1	WG1029078
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1029078
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.234	1.31		1	WG1029078
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.328	1.62		1	WG1029078
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1029078
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1029078
Heptane	142-82-5	100	0.200	0.818	11.2	45.6		1	WG1029078
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1029078
n-Hexane	110-54-3	86.20	0.200	0.705	0.253	0.894		1	WG1029078
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1029078
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1029078
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1029078
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	269	794		25	WG1029269
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1029078
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1029078
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1029078
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1029078
2-Propanol	67-63-0	60.10	31.2	76.7	3020	7410	E	25	WG1029269
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1029078
Styrene	100-42-5	104	0.200	0.851	0.304	1.29		1	WG1029078
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1029078
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1029078
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1029078
Toluene	108-88-3	92.10	0.200	0.753	1.52	5.71		1	WG1029078
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1029078

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	WG1029078	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1029078	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	0.597	3.20		1	WG1029078	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.565	2.77		1	WG1029078	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1029078	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.40	6.53		1	WG1029078	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1029078	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1029078	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1029078	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.33	5.78		1	WG1029078	
o-Xylene	95-47-6	106	0.200	0.867	0.369	1.60		1	WG1029078	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.3				WG1029269	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		115				WG1029078	



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	5.90	14.0		1	WG1029078
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1029078
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1029078
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1029078
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1029078
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1029078
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1029078
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1029078
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1029078
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1029078
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1029078
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1029078
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1029078
Chloromethane	74-87-3	50.50	0.200	0.413	0.430	0.888		1	WG1029078
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1029078
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1029078
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1029078
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1029078
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1029078
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1029078
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1029078
1,2-Dichloroethane	107-06-2	99	0.200	0.810	0.220	0.892		1	WG1029078
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1029078
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1029078
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1029078
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1029078
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1029078
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1029078
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1029078
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1029078
Ethanol	64-17-5	46.10	0.630	1.19	47.3	89.3		1	WG1029078
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1029078
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1029078
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.208	1.17		1	WG1029078
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.355	1.76		1	WG1029078
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1029078
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1029078
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1029078
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1029078
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1029078
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1029078
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1029078
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1029078
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1029078
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1029078
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1029078
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1029078
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1029078
2-Propanol	67-63-0	60.10	1.25	3.07	3.99	9.80		1	WG1029078
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1029078
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1029078
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1029078
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1029078
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1029078
Toluene	108-88-3	92.10	0.200	0.753	0.418	1.58		1	WG1029078
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1029078

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	WG1029078
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1029078
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1029078
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1029078
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1029078
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1029078
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1029078
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1029078
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1029078
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1029078
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1029078
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		102				WG1029078

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



Method Blank (MB)

(MB) R3255741-3 10/08/17 08:48

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv	
Allyl Chloride	U		0.0546	0.200	¹ Cp
Benzene	U		0.0460	0.200	² Tc
Benzyl Chloride	U		0.0598	0.200	³ Ss
Bromodichloromethane	U		0.0436	0.200	⁴ Cn
Bromoform	U		0.0786	0.600	⁵ Sr
Bromomethane	U		0.0609	0.200	⁶ Qc
1,3-Butadiene	U		0.0563	2.00	⁷ Gl
Carbon disulfide	U		0.0544	0.200	⁸ Al
Carbon tetrachloride	U		0.0585	0.200	⁹ Sc
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	U		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	
Methylene Chloride	U		0.0465	0.200	



L942068-01,02

Method Blank (MB)

(MB) R3255741-3 10/08/17 08:48

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv									
Methyl Butyl Ketone	U		0.0682	1.25									
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25									
Methyl Methacrylate	U		0.0773	0.200									
MTBE	U		0.0505	0.200									
Naphthalene	U		0.154	0.630									
Propene	U		0.0932	0.400									
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	U		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	96.1			60.0-140									

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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

(LCS) R3255741-1 10/08/17 07:25 • (LCSD) R3255741-2 10/08/17 08:06

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	3.62	3.82	96.5	102	54.0-155			5.39	25
Dichlorodifluoromethane	3.75	3.70	3.91	98.6	104	69.0-143			5.65	25
1,2-Dichlorotetrafluoroethane	3.75	3.73	3.91	99.5	104	70.0-130			4.67	25
Chloromethane	3.75	3.56	3.72	94.9	99.1	70.0-130			4.35	25
Vinyl chloride	3.75	3.97	4.05	106	108	70.0-130			2.13	25
1,3-Butadiene	3.75	3.66	3.70	97.6	98.8	70.0-130			1.24	25
Bromomethane	3.75	4.13	4.23	110	113	70.0-130			2.53	25
Chloroethane	3.75	4.06	4.28	108	114	70.0-130			5.34	25
Trichlorofluoromethane	3.75	3.85	4.03	103	108	70.0-130			4.58	25



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

(LCS) R3255741-1 10/08/17 07:25 • (LCSD) R3255741-2 10/08/17 08:06

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 %
1,1,2-Trichlorotrifluoroethane	3.75	4.12	4.24	110	113	70.0-130			2.99	25
1,1-Dichloroethene	3.75	3.84	4.02	103	107	70.0-130			4.53	25
1,1-Dichloroethane	3.75	3.93	4.04	105	108	70.0-130			2.67	25
Carbon disulfide	3.75	4.02	4.24	107	113	70.0-130			5.33	25
Methylene Chloride	3.75	3.75	3.92	100	104	70.0-130			4.28	25
MTBE	3.75	3.85	3.99	103	106	70.0-130			3.61	25
trans-1,2-Dichloroethene	3.75	3.94	4.07	105	108	70.0-130			3.16	25
n-Hexane	3.75	3.97	4.05	106	108	70.0-130			2.02	25
Vinyl acetate	3.75	3.83	3.91	102	104	70.0-130			2.09	25
cis-1,2-Dichloroethene	3.75	4.09	4.21	109	112	70.0-130			2.82	25
Chloroform	3.75	3.94	4.03	105	107	70.0-130			2.33	25
Cyclohexane	3.75	4.05	4.15	108	111	70.0-130			2.38	25
1,1,1-Trichloroethane	3.75	3.89	4.02	104	107	70.0-130			3.09	25
Carbon tetrachloride	3.75	3.96	4.03	106	108	70.0-130			1.85	25
Benzene	3.75	4.11	4.14	110	111	70.0-130			0.740	25
1,2-Dichloroethane	3.75	3.86	3.93	103	105	70.0-130			1.69	25
Heptane	3.75	3.91	4.02	104	107	70.0-130			2.61	25
Trichloroethylene	3.75	4.12	4.15	110	111	70.0-130			0.840	25
1,2-Dichloropropane	3.75	4.02	4.01	107	107	70.0-130			0.250	25
1,4-Dioxane	3.75	4.23	4.32	113	115	70.0-152			2.07	25
Bromodichloromethane	3.75	3.96	4.05	106	108	70.0-130			2.18	25
cis-1,3-Dichloropropene	3.75	4.07	4.10	109	109	70.0-130			0.830	25
4-Methyl-2-pentanone (MIBK)	3.75	3.79	3.83	101	102	70.0-142			1.06	25
Toluene	3.75	4.20	4.20	112	112	70.0-130			0.0100	25
trans-1,3-Dichloropropene	3.75	4.11	4.12	110	110	70.0-130			0.310	25
1,1,2-Trichloroethane	3.75	4.18	4.14	112	110	70.0-130			1.04	25
Tetrachloroethylene	3.75	4.21	4.22	112	113	70.0-130			0.320	25
Methyl Butyl Ketone	3.75	3.96	4.00	106	107	70.0-150			0.800	25
Dibromochloromethane	3.75	4.11	4.14	110	110	70.0-130			0.700	25
1,2-Dibromoethane	3.75	4.19	4.15	112	111	70.0-130			0.830	25
Chlorobenzene	3.75	4.18	4.17	111	111	70.0-130			0.100	25
Ethylbenzene	3.75	4.19	4.20	112	112	70.0-130			0.260	25
m&p-Xylene	7.50	8.43	8.45	112	113	70.0-130			0.240	25
o-Xylene	3.75	4.15	4.17	111	111	70.0-130			0.400	25
Styrene	3.75	4.30	4.28	115	114	70.0-130			0.440	25
Bromoform	3.75	4.24	4.24	113	113	70.0-130			0.0200	25
1,1,2,2-Tetrachloroethane	3.75	4.14	4.13	110	110	70.0-130			0.350	25
4-Ethyltoluene	3.75	4.25	4.27	113	114	70.0-130			0.540	25
1,3,5-Trimethylbenzene	3.75	4.16	4.18	111	112	70.0-130			0.660	25
1,2,4-Trimethylbenzene	3.75	4.09	4.14	109	110	70.0-130			1.27	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) R3255741-1 10/08/17 07:25 • (LCSD) R3255741-2 10/08/17 08:06

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 %
1,3-Dichlorobenzene	3.75	4.19	4.23	112	113	70.0-130			0.830	25
1,4-Dichlorobenzene	3.75	4.18	4.22	112	112	70.0-130			0.810	25
Benzyl Chloride	3.75	4.15	4.18	111	111	70.0-144			0.670	25
1,2-Dichlorobenzene	3.75	4.11	4.13	109	110	70.0-130			0.520	25
1,2,4-Trichlorobenzene	3.75	4.16	4.23	111	113	70.0-155			1.70	25
Hexachloro-1,3-butadiene	3.75	3.96	4.05	106	108	70.0-145			2.22	25
Naphthalene	3.75	4.14	4.22	111	113	70.0-155			1.90	25
Allyl Chloride	3.75	3.82	3.91	102	104	70.0-130			2.34	25
2-Chlorotoluene	3.75	4.26	4.25	114	113	70.0-130			0.270	25
Methyl Methacrylate	3.75	3.99	3.99	106	107	70.0-130			0.170	25
Tetrahydrofuran	3.75	3.75	3.90	99.9	104	70.0-140			4.05	25
2,2,4-Trimethylpentane	3.75	4.02	4.17	107	111	70.0-130			3.53	25
Vinyl Bromide	3.75	4.25	4.34	113	116	70.0-130			2.00	25
Isopropylbenzene	3.75	4.15	4.18	111	112	70.0-130			0.730	25
(S) 1,4-Bromofluorobenzene			97.9	97.0	60.0-140					

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



L942068-03,04,05

Method Blank (MB)

(MB) R3255719-3 10/08/17 08:57

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	U		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	



L942068-03,04,05

Method Blank (MB)

(MB) R3255719-3 10/08/17 08:57

Analyte	MB Result ppbv	<u>MB Qualifier</u>	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	U		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								
Ethanol	U		0.0832	0.630								
(S) 1,4-Bromofluorobenzene	98.5			60.0-140								

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

(LCS) R3255719-1 10/08/17 07:29 • (LCSD) R3255719-2 10/08/17 08:12

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	3.45	3.39	91.9	90.3	52.0-158			1.79	25
Propene	3.75	3.31	3.19	88.1	85.0	54.0-155			3.65	25
Dichlorodifluoromethane	3.75	3.55	3.22	94.7	85.9	69.0-143			9.75	25
1,2-Dichlorotetrafluoroethane	3.75	3.96	3.56	106	94.9	70.0-130			10.7	25
Chloromethane	3.75	3.52	3.48	93.9	92.7	70.0-130			1.26	25



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

(LCS) R3255719-1 10/08/17 07:29 • (LCSD) R3255719-2 10/08/17 08:12

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 %
Vinyl chloride	3.75	3.43	3.39	91.4	90.4	70.0-130			1.14	25
1,3-Butadiene	3.75	3.17	3.07	84.6	81.9	70.0-130			3.28	25
Bromomethane	3.75	3.99	3.99	107	106	70.0-130			0.120	25
Chloroethane	3.75	3.93	3.85	105	103	70.0-130			1.83	25
Trichlorofluoromethane	3.75	3.96	3.90	106	104	70.0-130			1.62	25
1,1,2-Trichlorotrifluoroethane	3.75	4.00	3.98	107	106	70.0-130			0.320	25
1,1-Dichloroethene	3.75	3.73	3.74	99.5	99.7	70.0-130			0.220	25
1,1-Dichloroethane	3.75	3.74	3.68	99.9	98.2	70.0-130			1.70	25
Acetone	3.75	3.41	3.44	90.8	91.8	70.0-130			1.00	25
2-Propanol	3.75	3.76	3.72	100	99.1	66.0-150			1.06	25
Carbon disulfide	3.75	3.87	3.83	103	102	70.0-130			1.03	25
Methylene Chloride	3.75	3.64	3.57	97.2	95.1	70.0-130			2.16	25
MTBE	3.75	3.77	3.79	101	101	70.0-130			0.430	25
trans-1,2-Dichloroethene	3.75	3.83	3.76	102	100	70.0-130			1.77	25
n-Hexane	3.75	3.71	3.68	99.0	98.2	70.0-130			0.760	25
Vinyl acetate	3.75	3.69	3.58	98.4	95.5	70.0-130			2.98	25
Methyl Ethyl Ketone	3.75	4.12	4.09	110	109	70.0-130			0.680	25
cis-1,2-Dichloroethene	3.75	3.88	3.84	103	102	70.0-130			0.830	25
Chloroform	3.75	3.92	3.88	105	103	70.0-130			1.09	25
Cyclohexane	3.75	3.91	3.89	104	104	70.0-130			0.570	25
1,1,1-Trichloroethane	3.75	3.89	3.88	104	103	70.0-130			0.200	25
Carbon tetrachloride	3.75	3.88	3.90	103	104	70.0-130			0.580	25
Benzene	3.75	3.99	3.92	106	104	70.0-130			1.87	25
1,2-Dichloroethane	3.75	3.76	3.67	100	97.9	70.0-130			2.47	25
Heptane	3.75	3.53	3.45	94.1	92.0	70.0-130			2.28	25
Trichloroethylene	3.75	3.92	3.90	105	104	70.0-130			0.380	25
1,2-Dichloropropane	3.75	3.84	3.80	102	101	70.0-130			1.04	25
1,4-Dioxane	3.75	4.60	4.42	123	118	70.0-152			4.10	25
Bromodichloromethane	3.75	3.94	3.87	105	103	70.0-130			1.79	25
cis-1,3-Dichloropropene	3.75	4.00	3.98	107	106	70.0-130			0.510	25
4-Methyl-2-pentanone (MIBK)	3.75	3.65	3.55	97.4	94.8	70.0-142			2.73	25
Toluene	3.75	3.85	3.80	103	101	70.0-130			1.33	25
trans-1,3-Dichloropropene	3.75	3.99	3.91	106	104	70.0-130			2.04	25
1,1,2-Trichloroethane	3.75	3.97	3.96	106	106	70.0-130			0.0700	25
Tetrachloroethylene	3.75	3.82	3.83	102	102	70.0-130			0.360	25
Methyl Butyl Ketone	3.75	4.25	4.15	113	111	70.0-150			2.32	25
Dibromochloromethane	3.75	4.04	3.96	108	106	70.0-130			2.02	25
1,2-Dibromoethane	3.75	4.06	4.02	108	107	70.0-130			0.930	25
Chlorobenzene	3.75	3.90	3.87	104	103	70.0-130			0.660	25
Ethylbenzene	3.75	4.07	4.09	109	109	70.0-130			0.380	25

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



L942068-03,04,05

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

(LCS) R3255719-1 10/08/17 07:29 • (LCSD) R3255719-2 10/08/17 08:12

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 %
m&p-Xylene	7.50	8.39	8.25	112	110	70.0-130			1.64	25
o-Xylene	3.75	4.03	4.04	108	108	70.0-130			0.190	25
Styrene	3.75	3.94	3.93	105	105	70.0-130			0.210	25
Bromoform	3.75	4.12	4.10	110	109	70.0-130			0.480	25
1,1,2,2-Tetrachloroethane	3.75	4.21	4.16	112	111	70.0-130			1.20	25
4-Ethyltoluene	3.75	4.05	4.05	108	108	70.0-130			0.0800	25
1,3,5-Trimethylbenzene	3.75	4.14	4.06	111	108	70.0-130			2.13	25
1,2,4-Trimethylbenzene	3.75	4.04	4.03	108	107	70.0-130			0.250	25
1,3-Dichlorobenzene	3.75	4.06	4.00	108	107	70.0-130			1.47	25
1,4-Dichlorobenzene	3.75	4.22	4.19	113	112	70.0-130			0.640	25
Benzyl Chloride	3.75	4.30	4.08	115	109	70.0-144			5.20	25
1,2-Dichlorobenzene	3.75	4.02	4.02	107	107	70.0-130			0.0100	25
1,2,4-Trichlorobenzene	3.75	4.14	4.15	110	111	70.0-155			0.250	25
Hexachloro-1,3-butadiene	3.75	3.81	3.66	101	97.6	70.0-145			3.92	25
Naphthalene	3.75	4.24	4.09	113	109	70.0-155			3.69	25
Allyl Chloride	3.75	3.45	3.41	91.9	91.0	70.0-130			1.00	25
2-Chlorotoluene	3.75	4.11	4.03	110	108	70.0-130			1.79	25
Methyl Methacrylate	3.75	3.51	3.45	93.7	91.9	70.0-130			1.91	25
Tetrahydrofuran	3.75	3.55	3.48	94.6	92.8	70.0-140			1.91	25
2,2,4-Trimethylpentane	3.75	3.72	3.67	99.1	97.8	70.0-130			1.38	25
Vinyl Bromide	3.75	3.98	3.91	106	104	70.0-130			1.93	25
Isopropylbenzene	3.75	4.02	4.03	107	108	70.0-130			0.200	25
(S) 1,4-Bromofluorobenzene				100	100	60.0-140				

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

L942068-01,02,03,04

Method Blank (MB)

(MB) R3255941-3 10/09/17 09:43

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	97.7			60.0-140

¹Cp²Tc³Ss⁴Cn⁵Sr

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

(LCS) R3255941-1 10/09/17 08:12 • (LCSD) R3255941-2 10/09/17 08:57

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	4.68	4.71	125	126	52.0-158			0.640	25
Acetone	3.75	4.19	4.26	112	114	70.0-130			1.64	25
2-Propanol	3.75	4.31	4.36	115	116	66.0-150			1.06	25
Methyl Ethyl Ketone	3.75	4.24	4.27	113	114	70.0-130			0.560	25
(S) 1,4-Bromofluorobenzene			101	101		60.0-140				

⁶Qc⁷Gl⁸Al⁹Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.	¹ Cp
ND	Not detected at the Reporting Limit (or MDL where applicable).	² Tc
RDL	Reported Detection Limit.	³ Ss
Rec.	Recovery.	⁴ Cn
RPD	Relative Percent Difference.	⁵ Sr
SDG	Sample Delivery Group.	⁶ Qc
(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.	⁷ GI
U	Not detected at the Reporting Limit (or MDL where applicable).	⁸ AI
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.	⁹ SC
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.	
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.	
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.	
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.	
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.	
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.	
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.	
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.	
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.	

Qualifier Description

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

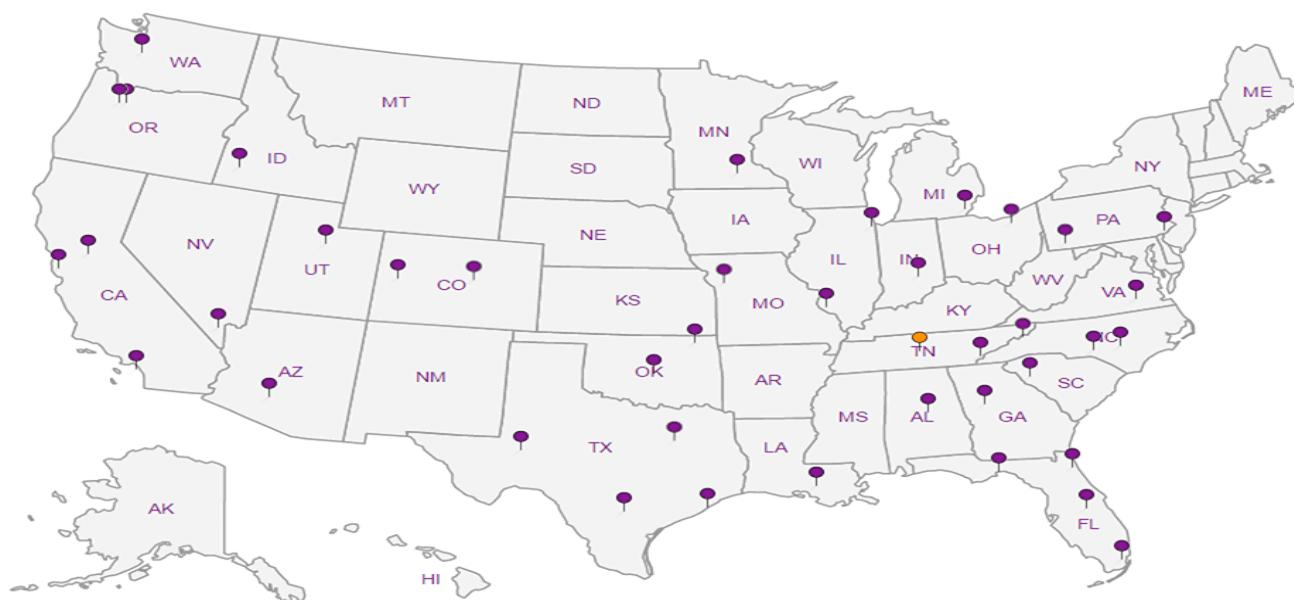
Third Party & Federal Accreditations

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

First Environment, Inc.		Billing Information:		Pres Chk	Analysis / Container / Preservative						Chain of Custody Page ___ of ___				
		Project: EnPro 001 91 Fulton Street Boonton, NJ 07005 JUSTIN PICCOLO ATTENTION JPICCOLO@FIRSTENVIRONMENT.COM													
91 Fulton Street Boonton, NJ 07005		Report to: Michael T. Slack		Email To: mslack@firstenvironment.com								 ESCI LAB SCIENCES YOUR LAB OF CHOICE 12065 Lebanon Rd. Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5858 Fax: 615-758-5859 L# (942068) M061 Acctnum: FIRENVBNJ Template: T120396 Prelogin: P600724 TSR: 341 - John Hawkins PB: L 5/8 Shipped Via: FedEx Ground Remarks Sample # (lab only)			
Project: EnPro - COLTEC, WATER VALLEY, MS Description: Butler Snow LLP		Client Project #: ENPRO 0025 D-VM		Lab Project #: FIRENVBNJ-OXFORDMS											
Phone: 973-334-0003 Fax: 973-334-0928		Site/Facility ID #: BOE WEAVER OXFORD, MS - WATER VALLEY		P.O. #											
Collected by (print): <i>Michael Slack</i>		Collected by (signature): <i>M. Slack</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 <input checked="" type="checkbox"/> Five Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> 10 Day (Rad Only)		Quote #									
Immediately		Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>		Date Results Needed STANDARD TURNAROUND		No. of Cntrs									
Sample ID	Comp/Grab	Matrix *	Depth	Date START	Time START	TO-15 Summary									
IA-1	COMP	Air	—	10/5/17	11:50	1	X							MAINT.	-01
IA-2	COMP	Air	—	10/5/17	11:51	1	X							ATS	-01
IA-6	COMP	AIR	—	10/5/17	11:53	1	X							TRAINING	-03
IA-17	COMP	AIR	—	10/5/17	11:54	1	X							CAFETERIA	-04
AA-2	COMP	AIR	—	10/5/17	11:56	1	X							PAVILION AMBIENT	-05
Remarks: 12 6l cans, 12 24 hour flow controllers, 12 4 feet sections of teflon tubing with swagelock fittings, 12 in line filters														Sample Receipt Checklist	
ADDITIONAL INFO PROVIDED IN ENCLOSED SAMPLE TABLE														COC Seal Present/Intact: <input checked="" type="checkbox"/> NP <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 type="checkbox"/> Y <input checked="" type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
* Matrix: SS - Soil <input checked="" type="checkbox"/> AIR - Air <input type="checkbox"/> F - Filter GW - Groundwater <input type="checkbox"/> B - Bioassay WW - WasteWater DW - Drinking Water OT - Other _____		Samples returned via: UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier _____		Tracking # 7466 1468 6820/6793		pH _____ Temp _____		Flow _____ Other _____							
Relinquished by : (Signature) <i>M. Slack</i>		Date: 10/6/17 Time: 15:20		Received by: (Signature)		Trip Blank Received: Yes / No HCl / MeOH TBR									
Relinquished by : (Signature)		Date: _____ Time: _____		Received by: (Signature)		Temp: °C Bottles Received: _____		If preservation required by Login: Date/Time _____							
Relinquished by : (Signature)		Date: _____ Time: _____		Received for lab by: (Signature) <i>Don Slack</i>		Date: 10/7/17 Time: 0845		Hold: _____		Condition: NCF / <input checked="" type="checkbox"/>					

**Vapor Intrusion Investigation
Borg Warner Facility
Water Valley, Yalobusha Co., MS
October 5-6, 2017**

1942068

Weather Conditions (@ time of canister placement):

SUNNY; 82°F - WINDS FROM SE 5-10 mph
HUMIDITY: 45%

Michael T. Slack (First Environment)

ng : 0.00

Invo: FIRENBNJ-0XFOR Date : 11Sep17
Customer : P618238 Weight : 10 LBS
Phone : (615)758-5858 COD :
SAT Del : Y DV :

Sys: PRIORITY OVERNIGHT
TRCK: 7466 1458 6820

Invo: FIRENBNJ-0XFOR Date : 11Sep17
Customer : P618238 Weight : 10 LBS
Phone : (615)758-5858 COD :
SAT Del : Y DV :

Syob: PRIORITY OVERNIGHT
Truck: 7466 1468 679