

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



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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

Mississippi Professional
Engineer No.

11/29/2017

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, October 9, October 17, November 1, and November 15, 2017. On November 16-17, 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. Additionally, as discussed in more detail below, on November 17, 2017, First Environment resampled the influent and effluent of the SSDS for an air permit evaluation.

2.0 Indoor Air Monitoring – November 16-17, 2017

2.1 Instrumentation

On November 16-17, 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 of 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.

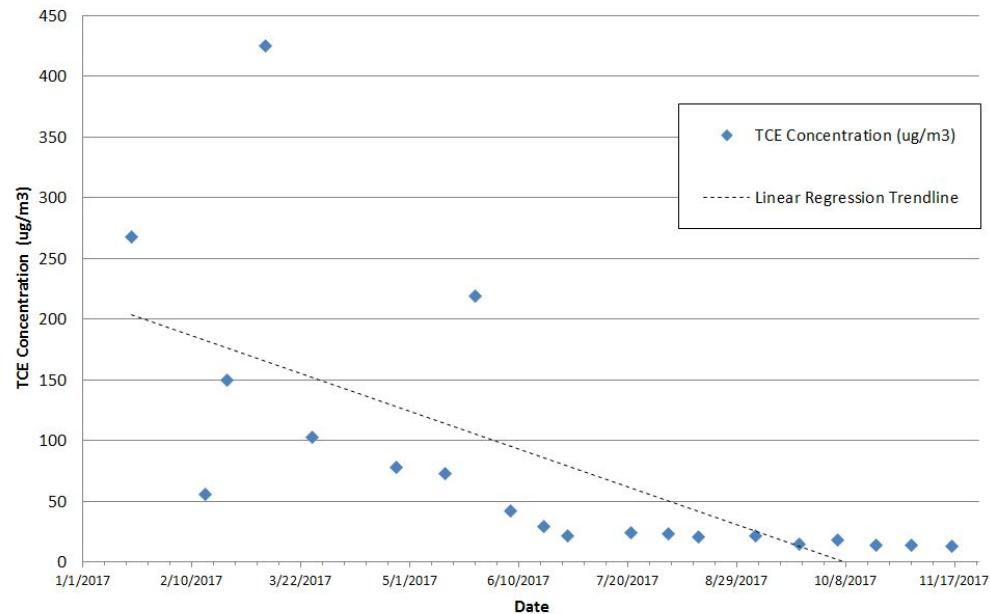
First Environment submitted the samples to ESC Lab Sciences for USEPA TO-15 SIM analysis. The laboratory was responsible for the decontamination of the Summa® canisters and for setting the internal vacuum and calibrating the regulators prior to sample collection.

2.3 Results

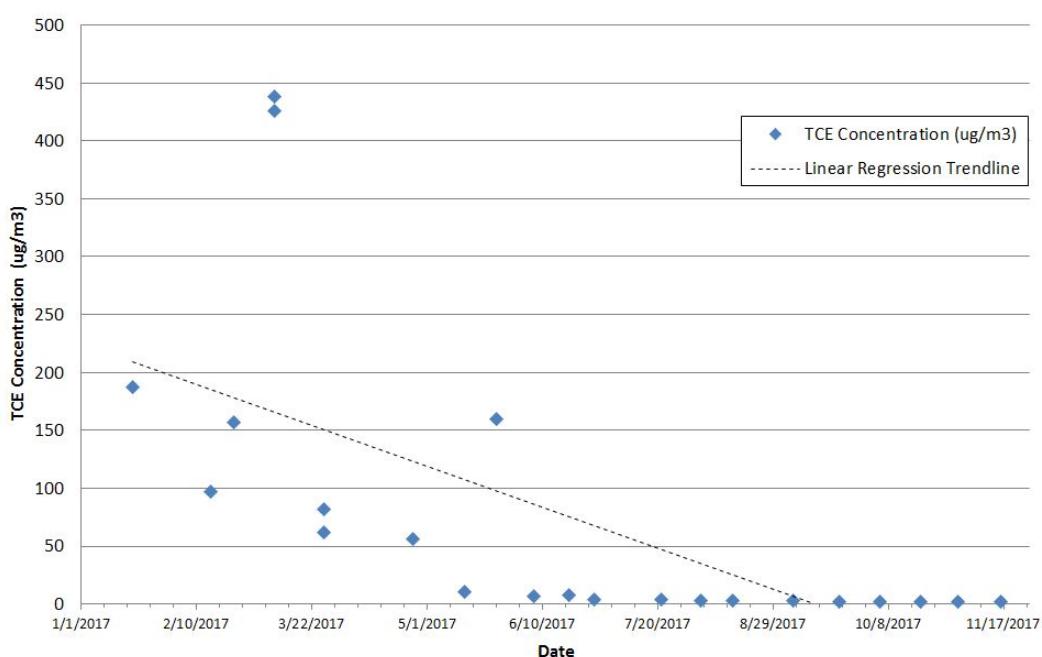
Table 1 presents the ambient and indoor air sampling results for all TO-15 analytes. Table 2 presents the results of TCE, cis-DCE, and VC in comparison of all previous rounds of sampling.

The sample results in the Training Room and Maintenance Room 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 Cafeteria and ATS Room were below USEPA’s VISL. The following figures show the linear regression trendline for the interior rooms.

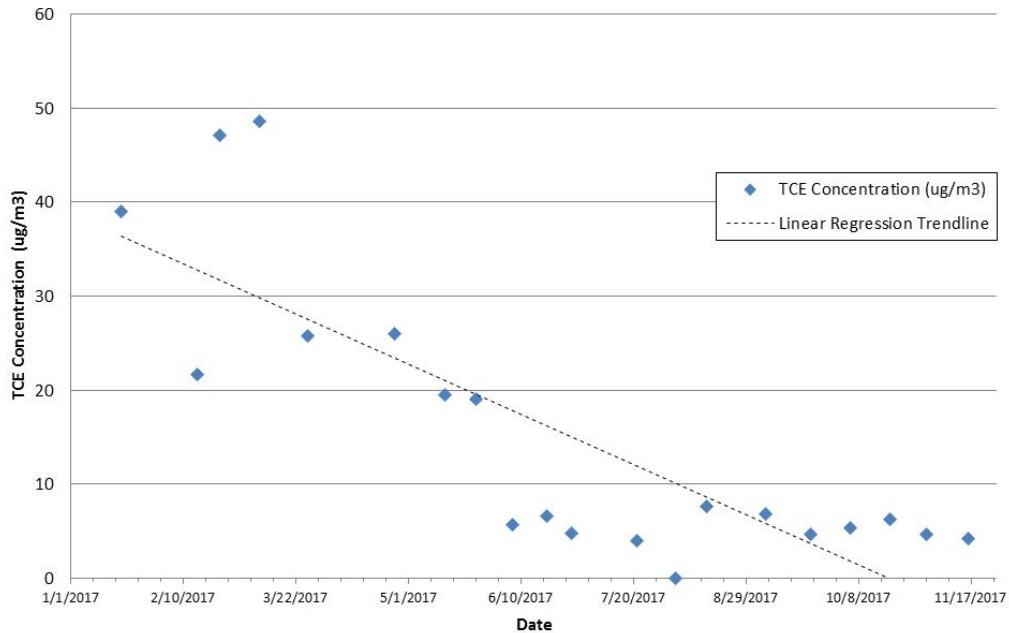
TCE Concentration History at IA-1 (Maintenance Room)



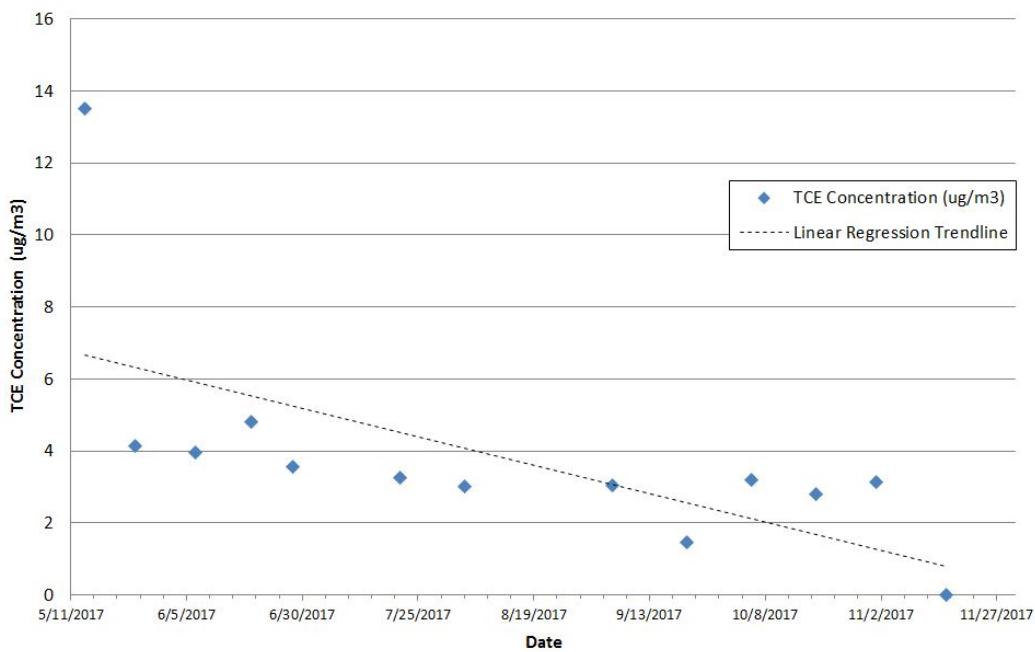
TCE Concentration History at IA-2 (ATS Room)



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 of Indoor Air Sampling

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 indoor air sampling results under the approved sampling schedule will be provided to the MDEQ on an ongoing basis.

4.0 Air Permit Evaluation

As reported in First Environment's June 19, 2017 Vapor Intrusion Investigation and Mitigation Report, based on the June 13, 2017 measurements, the discharge of TCE vapors to the atmosphere were estimated to be approximately 36.4 pounds/year, which is equivalent to approximately 0.02 tons/year. On July 17, 2017, at the request of MDEQ, First Environment resampled the influent and effluent of the SSDS and estimated the discharge of TCE vapors to the atmosphere to be about 2.35×10^{-4} pounds/hour, which is equivalent to approximately 0.001 tons/year. On October 4, 2017, the MDEQ responded that "the results from the analytical sample collected during the evaluation [in July] are promising," but the agency needed additional samples. On October 11, 2017, to address the MDEQ's requests, First Environment proposed four rounds of bi-weekly sampling of the influent and effluent of the SSDS.

On October 20, 2017, First Environment sampled the influent and effluent of the SSDS and estimated the discharge of TCE vapors to the atmosphere to be about 2.37×10^{-3} pounds/hour, which is equivalent to approximately 0.01 tons/year. On November 2, 2017, First Environment sampled the influent and effluent of the SSDS and estimated the discharge of TCE vapors to the atmosphere to be about 2.30×10^{-3} pounds/hour, which is equivalent to approximately 0.01

tons/year. These rounds of sampling were reported in the November 1 and November 15, 2017 SSDS Progress Reports, respectively.

On November 17, 2017, First Environment resampled the influent and effluent of the SSDS. Prior to sampling, First Environment closed the intake control valve on the roof of the Plant so that no outside ambient air would influence the sampling results. As discussed with MDEQ, First Environment left open the ambient air extraction system intake valve located in the ATS room, which is part of the SSDS' treatment system. The discharge flow rate measured at the stack of the SSDS was about 270 cubic feet per minute ("cfm"). The effluent TCE concentration measured at the stack was 2,080 $\mu\text{g}/\text{m}^3$. Based on these measurements, the discharge of TCE vapors to the atmosphere is estimated to be about 2.10×10^{-3} pounds/hour, which is equivalent to approximately 0.009 tons/year.

The remaining round of influent and effluent sampling results under the approved sampling schedule will be provided to the MDEQ in the next SSDS Progress Report.

TABLES

TABLE 1
INDOOR AIR SAMPLING RESULTS
NOVEMBER 16, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 11/16/2017 L952200-01	IA-2 11/16/2017 L952200-02	IA-6 11/16/2017 L952200-03	IA-17 11/16/2017 L952200-04	AA-2 11/16/2017 L952200-05	SSD-EFFLU(S) 11/16/2017 L952200-06	SSD-INFLU-UV(S) 11/16/2017 L952200-07
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
ACETONE	147	180	139	4.24	6.82	244	208
ALLYL CHLORIDE	<0.626	<0.626	<0.626	<0.626	<0.626	<1.25	<1.25
BENZENE	0.877	1	0.984	<0.639	<0.639	<1.28	<1.28
BENZYL CHLORIDE	<1.04	<1.04	<1.04	<1.04	<1.04	<2.08	<2.08
BROMODICHLOROMETHANE	<1.34	<1.34	<1.34	<1.34	<1.34	<2.68	<2.68
BROMOFORM	<6.21	<6.21	<6.21	<6.21	<6.21	<12.4	<12.4
BROMOMETHANE	<0.776 (J4)	<0.776 (J4)	<0.776 (J4)	<0.776 (J4)	<0.776	<1.55	<1.55
1,3-BUTADIENE	<4.43	<4.43	<4.43	<4.43	<4.43	<8.85	<8.85
CARBON DISULFIDE	<0.622	<0.622	<0.622	<0.622	<0.622	<1.24	<1.24
CARBON TETRACHLORIDE	<1.26	<1.26	<1.26	<1.26	<1.26	<2.52	<2.52
CHLOROBENZENE	<0.924	<0.924	<0.924	<0.924	<0.924	<1.85	<1.85
CHLOROETHANE	<0.528	<0.528	<0.528	<0.528	<0.528	<1.06	<1.06
CHLOROFORM	<0.973	<0.973	<0.973	<0.973	<0.973	<1.95	<1.95
CHLOROMETHANE	0.842	0.875	0.851	0.733	0.736	1.39	0.926
2-CHLOROTOLUENE	<1.03	<1.03	<1.03	<1.03	<1.03	<2.06	<2.06
CYCLOHEXANE	2.56	3.45	3.01	<0.689	<0.689	<1.38	<1.38
CHLORODIBROMOMETHANE	<1.7	<1.7	<1.7	<1.7	<1.7	<3.4	<3.4
1,2-DIBROMOETHANE	<1.54	<1.54	<1.54	<1.54	<1.54	<3.08	<3.08
1,2-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<1.2	<2.4	<2.4
1,3-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<1.2	<2.4	<2.4
1,4-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<1.2	<2.4	<2.4
1,2-DICHLOROETHANE	<0.81	<0.81	<0.81	<0.81	<0.81	<1.62	<1.62
1,1-DICHLOROETHANE	<0.802	<0.802	<0.802	<0.802	<0.802	<1.6	<1.6

TABLE 1
INDOOR AIR SAMPLING RESULTS
NOVEMBER 16, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 11/16/2017 L952200-01	IA-2 11/16/2017 L952200-02	IA-6 11/16/2017 L952200-03	IA-17 11/16/2017 L952200-04	AA-2 11/16/2017 L952200-05	SSD-EFFLU(S) 11/16/2017 L952200-06	SSD-INFLU-UV(S) 11/16/2017 L952200-07
Analyte	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	<1.59	1.88
CIS-1,2-DICHLOROETHENE	<0.793	<0.793	<0.793	<0.793	<0.793	994	1310
TRANS-1,2-DICHLOROETHENE	<0.793	<0.793	<0.793	<0.793	<0.793	15	17
1,2-DICHLOROPROPANE	<0.924	<0.924	<0.924	<0.924	<0.924	<1.85	<1.85
CIS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<0.908	<1.82	<1.82
TRANS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<0.908	<1.82	<1.82
1,4-DIOXANE	<0.721	1.31	<0.721	<0.721	<0.721	1.84	1.97
ETHANOL	2,760 (E)	3,390 (E)	2,650 (E)	4.59	42.9	2570	3150
ETHYLBENZENE	1.3	1.5	1.39	<0.867	<0.867	<1.73	<1.73
4-ETHYLtolUENE	<0.982	1.01	<0.982	<0.982	<0.982	<1.96	<1.96
TRICHLOROFUOROMETHANE	1.21	1.33	1.22	<1.12	<1.12	<2.25	<2.25
DICHLORODIFLUOROMETHANE	1.55	1.64	1.5	1.58	1.62	<1.98	<1.98
1,1,2-TRICHLOROTRIFLUOROETHANE	<1.53	<1.53	<1.53	<1.53	<1.53	20	22.5
1,2-DICHLOROTETRAFLUOROETHANE	<1.4	<1.4	<1.4	<1.4	<1.4	<2.8	<2.8
HEPTANE	26.9	32.2	32.5	<0.818	<0.818	5.38	5.82
HEXAChLORO-1,3-BUTADIENE	<6.73	<6.73	<6.73	<6.73	<6.73	<13.5	<13.5
N-HEXANE	1.16	<0.705	0.774	1.15	<0.705	<1.41	<1.41
ISOPROPYLBENZENE	<0.983	<0.983	<0.983	<0.983	<0.983	<1.97	<1.97
METHYLENE CHLORIDE	1.33	<0.694	<0.694	28.5	<0.694	<1.39	<1.39
METHYL BUTYL KETONE	<5.11	<5.11	<5.11	<5.11	<5.11	<10.2	<10.2
2-BUTANONE (MEK)	399	487	373	<3.69	<3.69	433	552
4-METHYL-2-PENTANONE (MIBK)	<5.12	<5.12	<5.12	<5.12	<5.12	<10.2	<10.2
METHYL METHACRYLATE	<0.819	<0.819	<0.819	<0.819	<0.819	<1.64	<1.64
METHYL TERT-BUTYL ETHER	<0.721	<0.721	<0.721	<0.721	<0.721	<1.44	<1.44
NAPHTHALENE	<3.3	<3.3	<3.3	<3.3	<3.3	<6.6	<6.6
2-PROPANOL	3,700 (E)	4,600 (E)	3,130 (E)	<3.07	7.8	2770	3260

TABLE 1
INDOOR AIR SAMPLING RESULTS
NOVEMBER 16, 2017
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 11/16/2017 L952200-01	IA-2 11/16/2017 L952200-02	IA-6 11/16/2017 L952200-03	IA-17 11/16/2017 L952200-04	AA-2 11/16/2017 L952200-05	SSD-EFFLU(S) 11/16/2017 L952200-06	SSD-INFLU-UV(S) 11/16/2017 L952200-07
Analyte	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	<1.38	<1.38
STYRENE	<0.851	<0.851	<0.851	<0.851	<0.851	<1.7	<1.7
1,1,2,2-TETRACHLOROETHANE	<1.37	<1.37	<1.37	<1.37	<1.37	<2.75	<2.75
TETRACHLOROETHENE	<1.36	<1.36	<1.36	<1.36	<1.36	5.96	12.2
TETRAHYDROFURAN	<0.59	<0.59	<0.59	<0.59	<0.59	<1.18	<1.18
TOLUENE	12	10.3	9.16	<0.753	<0.753	3.45	3.81
1,2,4-TRICHLOROBENZENE	<4.66	<4.66	<4.66	<4.66	<4.66	<9.33	<9.33
1,1,1-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<1.09	<2.18	<2.18
1,1,2-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<1.09	<2.18	<2.18
TRICHLOROETHENE	12.7	1.82	4.19	<1.07	<1.07	2080	2750
1,2,4-TRIMETHYLBENZENE	1.47	2.31	1.58	<0.982	<0.982	<1.96	<1.96
1,3,5-TRIMETHYLBENZENE	<0.982	<0.982	<0.982	<0.982	<0.982	<1.96	<1.96
2,2,4-TRIMETHYL PENTANE	2.45	2.95	3.16	<0.934	<0.934	2.95	3.01
VINYL CHLORIDE	<0.511	<0.511	<0.511	<0.511	<0.511	13.3	14.4
VINYL BROMIDE	<0.875	<0.875	<0.875	<0.875	<0.875	<1.75	<1.75
VINYL ACETATE	<0.704	<0.704	<0.704	<0.704	<0.704	<1.41	<1.41
M&P-XYLENE	4.53	5.49	4.75	<1.73	<1.73	4.35	4.76
O-XYLENE	1.47	1.9	1.52	<0.867	<0.867	<1.73	<1.73
1,4-BROMOFLUOROBENZENE	106 97.3	108 95.7	107 97.2	101	99.2	102 96.6	97.6 103

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 NOVEMBER 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
	15-Aug-17	L930026-01	20.6	<0.793	<0.511
	5-Sep-17	L934535-01	21.8	3.17	<0.511
	21-Sep-17	L938896-01	14.7	<0.793	<0.511
	5-Oct-17	L942068-01	18.2	<0.793	<0.511
	19-Oct-17	L945503-01	14.1	<0.793	<0.511
	1-Nov-17	L948263-01	13.5	1.83	<0.511
	16-Nov-17	L952200-01	12.7	<0.793	<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
IA-2 (2ND CANISTER)	9-Mar-17	L895061-04	438	88.7	1.68
IA-2 (DUPLICATE)	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
	21-Jul-17	L924410-02	4.3	<0.793	<0.511
	4-Aug-17	L927407-02	2.94	<0.793	<0.511
	15-Aug-17	L930026-02	2.91	<0.793	<0.511
	5-Sep-17	L934535-02	3.52	0.967	<0.511
	21-Sep-17	L938896-02	2.22	<0.793	<0.511
	5-Oct-17	L942068-02	2.46	<0.793	<0.511
	19-Oct-17	L945503-02	1.87	<0.793	<0.511
	1-Nov-17	L948263-02	1.7	<0.793	<0.511
	16-Nov-17	L952200-02	1.82	<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
	15-Aug-17	L930026-03	7.61	<0.793	<0.511
	5-Sep-17	L934535-03	6.85	5.17	<0.511
	21-Sep-17	L938896-03	4.65	<0.793	<0.511
	5-Oct-17	L942068-03	5.37	<0.793	<0.511
	19-Oct-17	L945503-03	6.31	<0.793	<0.511
	1-Nov-17	L948263-03	4.67	2.89	<0.511
	16-Nov-17	L952200-03	4.19	<0.793	<0.511

TABLE 2
INDOOR AIR SAMPLING RESULTS COMPARISON
JANUARY THROUGH NOVEMBER 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-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 19-Oct-17 1-Nov-17 16-Nov-17	L909544-05 L912423-02 L914832-10 L917924-10 L920054-10 L924410-04 L927407-04 L930026-04 L934535-04 L938896-04 L942068-04 L945503-04 L948263-04 L952200-04	13.5 4.15 3.96 4.82 3.56 3.27 3.02 <5.36 3.04 1.46 3.2 2.79 3.15 <1.07	<0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <3.96 5.6 <0.793 <0.793 <0.793 <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 <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 <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-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 <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-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

TABLE 2
INDOOR AIR SAMPLING RESULTS COMPARISON
JANUARY THROUGH NOVEMBER 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-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 19-Oct-17 1-Nov-17 16-Nov-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 L945503-05 L948263-05 L952200-05	0.129 <0.107 <1.07 <1.07 <1.07 16.7 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <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 <0.793 <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 <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

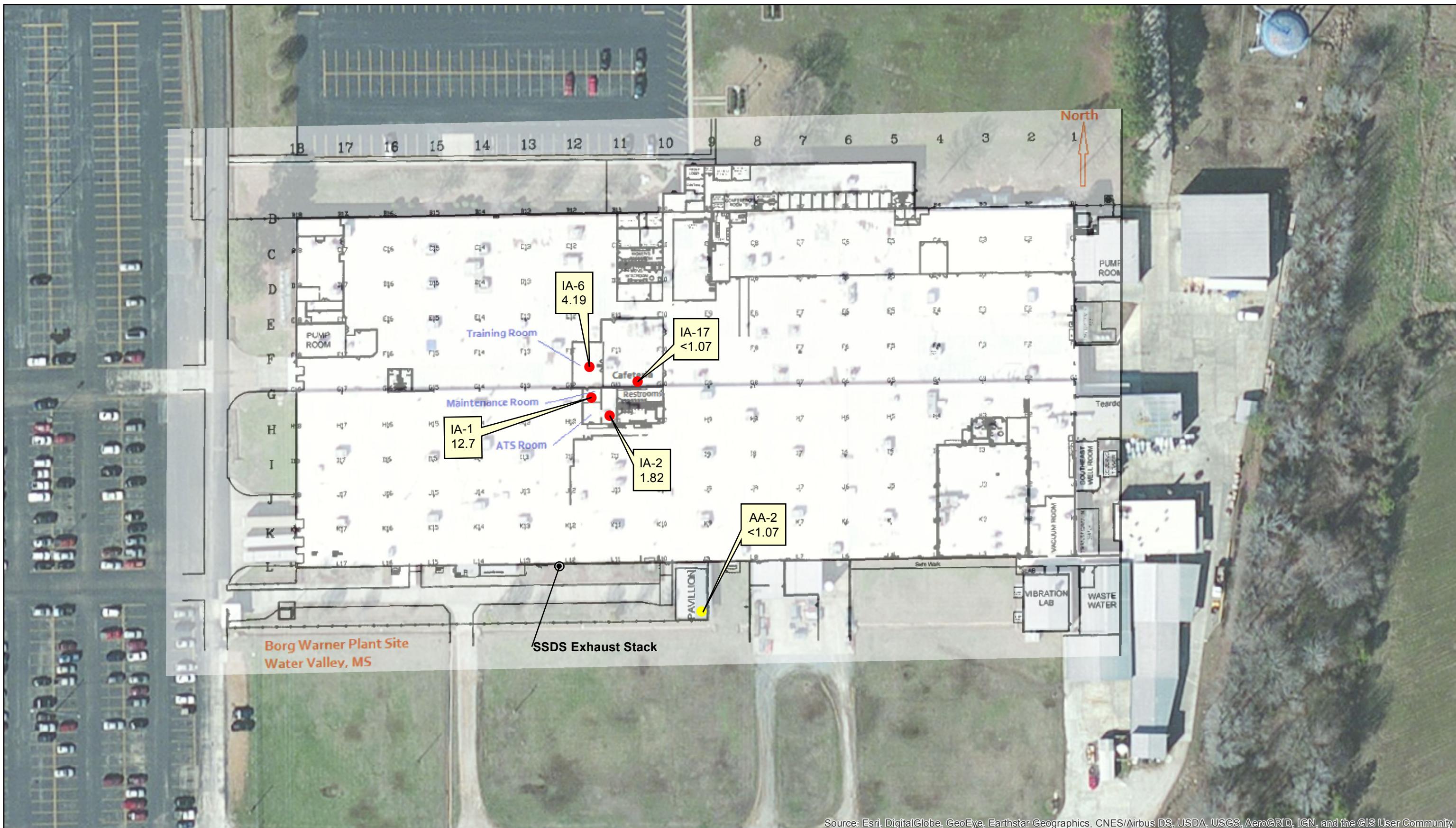
D: Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte

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



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 µg/m³

MDEQ Action Level for TCE: 26 µg/m³

TCE | Level Exceeding the MDEQ Action | level

ND Concentration not detected above laboratory reported limits

A horizontal number line starting at 0 and ending at 80. There are four tick marks between 0 and 80, dividing the segment into five equal parts of length 16. Below the line, the text "1 inch = 80 feet" is written.



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

FIGURE 1
INDOOR AIR SAMPLING RESULTS
NOVEMBER 16, 2017

91 Fulton Street Roseland, New Jersey 07068	Revised LS	Drawn NMT	Checked NMT	Approved NMT	Date 11/27/17
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APPENDIX A

November 28, 2017

First Environment, Inc.

Sample Delivery Group: L952200
Samples Received: 11/18/2017
Project Number: ENPRO 002D-VM
Description: EnPro 002D-VM Borg Warner Plant Site
Site: WATER VALLEY, MS
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	4	4 Cn
Sr: Sample Results	5	5 Sr
IA-1 L952200-01	5	
IA-2 L952200-02	7	
IA-6 L952200-03	9	
IA-17 L952200-04	11	
AA-2 L952200-05	13	
SSD-EFFLU(5) L952200-06	15	
SSD-INFLU-UV(5) L952200-07	17	
Qc: Quality Control Summary	19	
Volatile Organic Compounds (MS) by Method TO-15	19	
Gl: Glossary of Terms	28	
Al: Accreditations & Locations	29	
Sc: Sample Chain of Custody	30	

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



			Collected by Michael T. Slack	Collected date/time 11/16/17 11:37	Received date/time 11/18/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1044371	1	11/18/17 22:33	11/18/17 22:33	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1045171	25	11/21/17 11:38	11/21/17 11:38	MBF
IA-2 L952200-02 Air			Collected by Michael T. Slack	Collected date/time 11/16/17 11:38	Received date/time 11/18/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1044371	1	11/18/17 23:25	11/18/17 23:25	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1045171	25	11/21/17 12:20	11/21/17 12:20	MBF
IA-6 L952200-03 Air			Collected by Michael T. Slack	Collected date/time 11/16/17 11:40	Received date/time 11/18/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1044371	1	11/19/17 00:17	11/19/17 00:17	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1045171	25	11/21/17 13:02	11/21/17 13:02	MBF
IA-17 L952200-04 Air			Collected by Michael T. Slack	Collected date/time 11/16/17 11:41	Received date/time 11/18/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1044371	1	11/19/17 01:07	11/19/17 01:07	MBF
AA-2 L952200-05 Air			Collected by Michael T. Slack	Collected date/time 11/16/17 11:43	Received date/time 11/18/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1044625	1	11/19/17 19:55	11/19/17 19:55	MBF
SSD-EFFLU(5) L952200-06 Air			Collected by Michael T. Slack	Collected date/time 11/16/17 12:39	Received date/time 11/18/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1044625	2	11/19/17 20:41	11/19/17 20:41	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1045171	40	11/21/17 13:49	11/21/17 13:49	MBF
SSD-INFLU-UV(5) L952200-07 Air			Collected by Michael T. Slack	Collected date/time 11/16/17 12:49	Received date/time 11/18/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1044625	2	11/19/17 21:26	11/19/17 21:26	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1045171	40	11/21/17 14:31	11/21/17 14:31	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, unless qualified or notated within the report. 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



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	62.0	147		25	WG1045171
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1044371
Benzene	71-43-2	78.10	0.200	0.639	0.275	0.877		1	WG1044371
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1044371
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1044371
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1044371
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND	J4	1	WG1044371
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1044371
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1044371
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1044371
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1044371
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1044371
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1044371
Chloromethane	74-87-3	50.50	0.200	0.413	0.407	0.842		1	WG1044371
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1044371
Cyclohexane	110-82-7	84.20	0.200	0.689	0.742	2.56		1	WG1044371
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1044371
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1044371
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1044371
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1044371
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1044371
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1044371
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1044371
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1044371
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1044371
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1044371
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1044371
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1044371
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1044371
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1044371
Ethanol	64-17-5	46.10	15.8	29.8	1470	2760	E	25	WG1045171
Ethylbenzene	100-41-4	106	0.200	0.867	0.300	1.30		1	WG1044371
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1044371
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.215	1.21		1	WG1044371
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.314	1.55		1	WG1044371
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1044371
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1044371
Heptane	142-82-5	100	0.200	0.818	6.57	26.9		1	WG1044371
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1044371
n-Hexane	110-54-3	86.20	0.200	0.705	0.329	1.16		1	WG1044371
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1044371
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.384	1.33		1	WG1044371
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1044371
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	135	399		25	WG1045171
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1044371
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1044371
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1044371
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1044371
2-Propanol	67-63-0	60.10	31.2	76.7	1510	3700	E	25	WG1045171
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1044371
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1044371
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1044371
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1044371
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1044371
Toluene	108-88-3	92.10	0.200	0.753	3.19	12.0		1	WG1044371
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1044371

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	<u>Qualifier</u>	Dilution	Batch	1 Cp
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1044371	2 Tc
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1044371	
Trichloroethylene	79-01-6	131	0.200	1.07	2.38	12.7		1	WG1044371	3 Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.299	1.47		1	WG1044371	4 Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1044371	5 Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.524	2.45		1	WG1044371	6 Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1044371	7 GI
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1044371	8 Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1044371	
m&p-Xylene	1330-20-7	106	0.400	1.73	1.04	4.53		1	WG1044371	
o-Xylene	95-47-6	106	0.200	0.867	0.338	1.47		1	WG1044371	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.3				WG1045171	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		106				WG1044371	



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	75.9	180		25	WG1045171
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1044371
Benzene	71-43-2	78.10	0.200	0.639	0.313	1.00		1	WG1044371
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1044371
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1044371
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1044371
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND	J4	1	WG1044371
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1044371
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1044371
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1044371
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1044371
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1044371
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1044371
Chloromethane	74-87-3	50.50	0.200	0.413	0.424	0.875		1	WG1044371
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1044371
Cyclohexane	110-82-7	84.20	0.200	0.689	1.00	3.45		1	WG1044371
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1044371
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1044371
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1044371
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1044371
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1044371
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1044371
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1044371
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1044371
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1044371
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1044371
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1044371
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1044371
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1044371
1,4-Dioxane	123-91-1	88.10	0.200	0.721	0.363	1.31		1	WG1044371
Ethanol	64-17-5	46.10	15.8	29.8	1800	3390	E	25	WG1045171
Ethylbenzene	100-41-4	106	0.200	0.867	0.347	1.50		1	WG1044371
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.206	1.01		1	WG1044371
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.236	1.33		1	WG1044371
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.332	1.64		1	WG1044371
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1044371
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1044371
Heptane	142-82-5	100	0.200	0.818	7.86	32.2		1	WG1044371
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1044371
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1044371
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1044371
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1044371
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1044371
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	165	487		25	WG1045171
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1044371
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1044371
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1044371
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1044371
2-Propanol	67-63-0	60.10	31.2	76.7	1870	4600	E	25	WG1045171
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1044371
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1044371
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1044371
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1044371
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1044371
Toluene	108-88-3	92.10	0.200	0.753	2.74	10.3		1	WG1044371
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1044371

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	1 Cp
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1044371	2 Tc
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1044371	
Trichloroethylene	79-01-6	131	0.200	1.07	0.340	1.82		1	WG1044371	3 Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.471	2.31		1	WG1044371	4 Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1044371	5 Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.631	2.95		1	WG1044371	6 Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1044371	7 GI
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1044371	8 Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1044371	
m&p-Xylene	1330-20-7	106	0.400	1.73	1.27	5.49		1	WG1044371	
o-Xylene	95-47-6	106	0.200	0.867	0.439	1.90		1	WG1044371	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		108				WG1044371	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		95.7				WG1045171	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	58.7	139		25	WG1045171
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1044371
Benzene	71-43-2	78.10	0.200	0.639	0.308	0.984		1	WG1044371
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1044371
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1044371
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1044371
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND	J4	1	WG1044371
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1044371
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1044371
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1044371
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1044371
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1044371
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1044371
Chloromethane	74-87-3	50.50	0.200	0.413	0.412	0.851		1	WG1044371
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1044371
Cyclohexane	110-82-7	84.20	0.200	0.689	0.873	3.01		1	WG1044371
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1044371
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1044371
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1044371
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1044371
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1044371
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1044371
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1044371
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1044371
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1044371
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1044371
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1044371
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1044371
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1044371
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1044371
Ethanol	64-17-5	46.10	15.8	29.8	1410	2650	E	25	WG1045171
Ethylbenzene	100-41-4	106	0.200	0.867	0.320	1.39		1	WG1044371
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1044371
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.218	1.22		1	WG1044371
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.303	1.50		1	WG1044371
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1044371
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1044371
Heptane	142-82-5	100	0.200	0.818	7.95	32.5		1	WG1044371
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1044371
n-Hexane	110-54-3	86.20	0.200	0.705	0.220	0.774		1	WG1044371
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1044371
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1044371
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1044371
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	127	373		25	WG1045171
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1044371
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1044371
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1044371
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1044371
2-Propanol	67-63-0	60.10	31.2	76.7	1270	3130	E	25	WG1045171
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1044371
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1044371
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1044371
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1044371
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1044371
Toluene	108-88-3	92.10	0.200	0.753	2.43	9.16		1	WG1044371
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1044371

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	WG1044371	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1044371	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	0.781	4.19		1	WG1044371	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.322	1.58		1	WG1044371	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1044371	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.676	3.16		1	WG1044371	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1044371	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1044371	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1044371	
m&p-Xylene	1330-20-7	106	0.400	1.73	1.10	4.75		1	WG1044371	
o-Xylene	95-47-6	106	0.200	0.867	0.351	1.52		1	WG1044371	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.2				WG1045171	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		107				WG1044371	



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	1.78	4.24		1	WG1044371
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1044371
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1044371
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1044371
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1044371
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1044371
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND	J4	1	WG1044371
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1044371
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1044371
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1044371
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1044371
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1044371
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1044371
Chloromethane	74-87-3	50.50	0.200	0.413	0.355	0.733		1	WG1044371
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1044371
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1044371
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1044371
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1044371
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1044371
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1044371
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1044371
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1044371
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1044371
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1044371
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1044371
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1044371
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1044371
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1044371
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1044371
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1044371
Ethanol	64-17-5	46.10	0.630	1.19	2.43	4.59		1	WG1044371
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1044371
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1044371
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	ND	ND		1	WG1044371
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.319	1.58		1	WG1044371
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1044371
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1044371
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1044371
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1044371
n-Hexane	110-54-3	86.20	0.200	0.705	0.326	1.15		1	WG1044371
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1044371
Methylene Chloride	75-09-2	84.90	0.200	0.694	8.19	28.5		1	WG1044371
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1044371
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1044371
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1044371
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1044371
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1044371
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1044371
2-Propanol	67-63-0	60.10	1.25	3.07	ND	ND		1	WG1044371
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1044371
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1044371
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1044371
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1044371
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1044371
Toluene	108-88-3	92.10	0.200	0.753	ND	ND		1	WG1044371
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1044371

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	<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	WG1044371
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1044371
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1044371
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1044371
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1044371
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1044371
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1044371
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1044371
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1044371
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1044371
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1044371
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		101				WG1044371

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	1.25	2.97	2.87	6.82		1	WG1044625
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1044625
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1044625
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1044625
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1044625
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1044625
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1044625
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1044625
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1044625
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1044625
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1044625
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1044625
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1044625
Chloromethane	74-87-3	50.50	0.200	0.413	0.356	0.736		1	WG1044625
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1044625
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1044625
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1044625
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1044625
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1044625
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1044625
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1044625
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1044625
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1044625
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1044625
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1044625
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1044625
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1044625
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1044625
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1044625
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1044625
Ethanol	64-17-5	46.10	0.630	1.19	22.7	42.9		1	WG1044625
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1044625
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1044625
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	ND	ND		1	WG1044625
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.327	1.62		1	WG1044625
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1044625
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1044625
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1044625
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1044625
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1044625
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1044625
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1044625
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1044625
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1044625
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1044625
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1044625
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1044625
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1044625
2-Propanol	67-63-0	60.10	1.25	3.07	3.18	7.80		1	WG1044625
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1044625
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1044625
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1044625
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1044625
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1044625
Toluene	108-88-3	92.10	0.200	0.753	ND	ND		1	WG1044625
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1044625

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc

AA-2

Collected date/time: 11/16/17 11:43

SAMPLE RESULTS - 05

L952200

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	1 Cp
			ppbv	ug/m3	ppbv	ug/m3				
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1044625	2 Tc
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1044625	
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1044625	3 Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1044625	4 Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1044625	5 Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1044625	
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1044625	
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1044625	
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1044625	
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1044625	
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1044625	6 Qc
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.2				WG1044625	7 GI

[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 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	50.0	119	103	244		40	WG1045171
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1044625
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1044625
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1044625
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1044625
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1044625
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1044625
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1044625
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1044625
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1044625
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1044625
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1044625
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1044625
Chloromethane	74-87-3	50.50	0.400	0.826	0.673	1.39		2	WG1044625
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1044625
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1044625
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1044625
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1044625
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1044625
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1044625
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1044625
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1044625
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1044625
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1044625
cis-1,2-Dichloroethene	156-59-2	96.90	8.00	31.7	251	994		40	WG1045171
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	3.78	15.0		2	WG1044625
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1044625
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1044625
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1044625
1,4-Dioxane	123-91-1	88.10	0.400	1.44	0.510	1.84		2	WG1044625
Ethanol	64-17-5	46.10	25.2	47.5	1360	2570		40	WG1045171
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1044625
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1044625
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1044625
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1044625
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	2.61	20.0		2	WG1044625
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1044625
Heptane	142-82-5	100	0.400	1.64	1.32	5.38		2	WG1044625
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1044625
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1044625
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1044625
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1044625
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1044625
2-Butanone (MEK)	78-93-3	72.10	50.0	147	147	433		40	WG1045171
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1044625
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1044625
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1044625
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1044625
2-Propanol	67-63-0	60.10	50.0	123	1130	2770		40	WG1045171
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1044625
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1044625
1,1,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1044625
Tetrachloroethylene	127-18-4	166	0.400	2.72	0.878	5.96		2	WG1044625
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1044625
Toluene	108-88-3	92.10	0.400	1.51	0.915	3.45		2	WG1044625
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1044625

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	<u>Batch</u>	1 Cp
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1044625	2 Tc
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1044625	
Trichloroethylene	79-01-6	131	8.00	42.9	388	2080		40	WG1045171	3 Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1044625	4 Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1044625	5 Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	0.631	2.95		2	WG1044625	6 Qc
Vinyl chloride	75-01-4	62.50	0.400	1.02	5.21	13.3		2	WG1044625	7 GI
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1044625	
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1044625	
m&p-Xylene	1330-20-7	106	0.800	3.47	1.00	4.35		2	WG1044625	
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1044625	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		102				WG1044625	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		96.6				WG1045171	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	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	87.5	208		2	WG1044625
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1044625
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1044625
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1044625
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1044625
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1044625
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1044625
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1044625
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1044625
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1044625
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1044625
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1044625
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1044625
Chloromethane	74-87-3	50.50	0.400	0.826	0.448	0.926		2	WG1044625
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1044625
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1044625
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1044625
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1044625
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1044625
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1044625
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1044625
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1044625
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1044625
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	0.475	1.88		2	WG1044625
cis-1,2-Dichloroethene	156-59-2	96.90	8.00	31.7	332	1310		40	WG1045171
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	4.29	17.0		2	WG1044625
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1044625
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1044625
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1044625
1,4-Dioxane	123-91-1	88.10	0.400	1.44	0.546	1.97		2	WG1044625
Ethanol	64-17-5	46.10	25.2	47.5	1670	3150		40	WG1045171
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1044625
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1044625
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1044625
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1044625
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	2.94	22.5		2	WG1044625
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1044625
Heptane	142-82-5	100	0.400	1.64	1.42	5.82		2	WG1044625
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1044625
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1044625
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1044625
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1044625
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1044625
2-Butanone (MEK)	78-93-3	72.10	50.0	147	187	552		40	WG1045171
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1044625
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1044625
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1044625
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1044625
2-Propanol	67-63-0	60.10	50.0	123	1330	3260		40	WG1045171
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1044625
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1044625
1,1,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1044625
Tetrachloroethylene	127-18-4	166	0.400	2.72	1.80	12.2		2	WG1044625
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1044625
Toluene	108-88-3	92.10	0.400	1.51	1.01	3.81		2	WG1044625
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1044625

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ 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	0.400	2.18	ND	ND		2	WG1044625
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1044625
Trichloroethylene	79-01-6	131	8.00	42.9	513	2750		40	WG1045171
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1044625
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1044625
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	0.644	3.01		2	WG1044625
Vinyl chloride	75-01-4	62.50	0.400	1.02	5.63	14.4		2	WG1044625
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1044625
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1044625
m&p-Xylene	1330-20-7	106	0.800	3.47	1.10	4.76		2	WG1044625
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1044625
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.6				WG1045171
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		103				WG1044625

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc



L952200-01,02,03,04

Method Blank (MB)

(MB) R3266974-3 11/18/17 09:23

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	

L952200-01,02,03,04

Method Blank (MB)

(MB) R3266974-3 11/18/17 09:23

Analyte	MB Result ppbv	<u>MB Qualifier</u>	MB MDL ppbv	MB RDL ppbv	¹ Cp
Methylene Chloride	U		0.0465	0.200	² Tc
Methyl Butyl Ketone	U		0.0682	1.25	³ Ss
2-Butanone (MEK)	U		0.0493	1.25	⁴ Cn
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25	⁵ Sr
Methyl Methacrylate	U		0.0773	0.200	⁶ Qc
MTBE	U		0.0505	0.200	⁷ Gl
Naphthalene	U		0.154	0.630	⁸ Al
2-Propanol	U		0.0882	1.25	⁹ Sc
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	
Ethanol	U		0.0832	0.630	
(S) 1,4-Bromofluorobenzene	98.2		60.0-140		

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

(LCS) R3266974-1 11/18/17 07:51 • (LCSD) R3266974-2 11/18/17 08:36

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 %
Ethanol	3.75	3.83	3.86	102	103	52.0-158			0.967	25
Propene	3.75	3.68	3.73	98.2	99.6	54.0-155			1.36	25
Dichlorodifluoromethane	3.75	3.96	3.85	106	103	69.0-143			2.85	25
1,2-Dichlorotetrafluoroethane	3.75	3.84	3.83	102	102	70.0-130			0.410	25
Chloromethane	3.75	3.74	3.74	99.8	99.9	70.0-130			0.0694	25



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

(LCS) R3266974-1 11/18/17 07:51 • (LCSD) R3266974-2 11/18/17 08:36

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Vinyl chloride	3.75	3.53	3.62	94.0	96.6	70.0-130			2.66	25
1,3-Butadiene	3.75	3.42	3.60	91.2	96.0	70.0-130			5.14	25
Bromomethane	3.75	2.49	2.51	66.4	67.0	70.0-130	J4	J4	0.911	25
Chloroethane	3.75	3.67	3.69	97.9	98.4	70.0-130			0.499	25
Trichlorofluoromethane	3.75	3.72	3.73	99.1	99.4	70.0-130			0.302	25
1,1,2-Trichlorotrifluoroethane	3.75	3.71	3.75	99.0	100	70.0-130			1.08	25
1,1-Dichloroethene	3.75	3.72	3.75	99.2	99.9	70.0-130			0.676	25
1,1-Dichloroethane	3.75	3.72	3.75	99.3	100	70.0-130			0.788	25
Acetone	3.75	3.70	3.75	98.6	99.9	70.0-130			1.37	25
2-Propanol	3.75	3.83	3.84	102	102	66.0-150			0.349	25
Carbon disulfide	3.75	3.74	3.76	99.7	100	70.0-130			0.642	25
Methylene Chloride	3.75	3.60	3.65	96.1	97.3	70.0-130			1.28	25
MTBE	3.75	3.74	3.77	99.8	101	70.0-130			0.816	25
trans-1,2-Dichloroethene	3.75	3.73	3.77	99.4	101	70.0-130			1.15	25
n-Hexane	3.75	3.73	3.78	99.6	101	70.0-130			1.14	25
Vinyl acetate	3.75	4.00	4.05	107	108	70.0-130			1.31	25
Methyl Ethyl Ketone	3.75	3.77	3.79	100	101	70.0-130			0.694	25
cis-1,2-Dichloroethene	3.75	3.76	3.80	100	101	70.0-130			1.12	25
Chloroform	3.75	3.71	3.73	98.8	99.5	70.0-130			0.627	25
Cyclohexane	3.75	3.76	3.79	100	101	70.0-130			0.672	25
1,1,1-Trichloroethane	3.75	3.73	3.76	99.5	100	70.0-130			0.742	25
Carbon tetrachloride	3.75	3.73	3.74	99.5	99.7	70.0-130			0.156	25
Benzene	3.75	3.74	3.77	99.7	101	70.0-130			0.851	25
1,2-Dichloroethane	3.75	3.75	3.74	99.9	99.8	70.0-130			0.0830	25
Heptane	3.75	3.82	3.87	102	103	70.0-130			1.49	25
Trichloroethylene	3.75	3.74	3.75	99.8	100	70.0-130			0.333	25
1,2-Dichloropropane	3.75	3.76	3.79	100	101	70.0-130			0.837	25
1,4-Dioxane	3.75	3.79	3.81	101	102	70.0-152			0.520	25
Bromodichloromethane	3.75	3.77	3.80	101	101	70.0-130			0.732	25
cis-1,3-Dichloropropene	3.75	3.82	3.86	102	103	70.0-130			1.21	25
4-Methyl-2-pentanone (MIBK)	3.75	3.86	3.88	103	103	70.0-142			0.522	25
Toluene	3.75	3.80	3.82	101	102	70.0-130			0.598	25
trans-1,3-Dichloropropene	3.75	3.89	3.86	104	103	70.0-130			0.594	25
1,1,2-Trichloroethane	3.75	3.77	3.78	101	101	70.0-130			0.205	25
Tetrachloroethylene	3.75	3.78	3.82	101	102	70.0-130			1.09	25
Methyl Butyl Ketone	3.75	3.90	3.96	104	106	70.0-150			1.60	25
Dibromochloromethane	3.75	3.87	3.90	103	104	70.0-130			0.858	25
1,2-Dibromoethane	3.75	3.83	3.84	102	102	70.0-130			0.381	25
Chlorobenzene	3.75	3.76	3.78	100	101	70.0-130			0.655	25
Ethylbenzene	3.75	3.86	3.90	103	104	70.0-130			1.16	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) R3266974-1 11/18/17 07:51 • (LCSD) R3266974-2 11/18/17 08:36

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 %
m&p-Xylene	7.50	7.59	7.69	101	103	70.0-130			1.32	25
o-Xylene	3.75	3.88	3.93	103	105	70.0-130			1.33	25
Styrene	3.75	4.00	4.07	107	108	70.0-130			1.64	25
Bromoform	3.75	4.01	4.08	107	109	70.0-130			1.77	25
1,1,2,2-Tetrachloroethane	3.75	3.83	3.89	102	104	70.0-130			1.34	25
4-Ethyltoluene	3.75	3.98	3.97	106	106	70.0-130			0.251	25
1,3,5-Trimethylbenzene	3.75	3.94	3.98	105	106	70.0-130			1.04	25
1,2,4-Trimethylbenzene	3.75	3.91	3.96	104	106	70.0-130			1.27	25
1,3-Dichlorobenzene	3.75	4.00	4.00	107	107	70.0-130			0.0129	25
1,4-Dichlorobenzene	3.75	3.99	4.04	107	108	70.0-130			1.25	25
Benzyl Chloride	3.75	4.12	4.20	110	112	70.0-144			1.79	25
1,2-Dichlorobenzene	3.75	3.90	3.97	104	106	70.0-130			1.68	25
1,2,4-Trichlorobenzene	3.75	4.13	4.36	110	116	70.0-155			5.29	25
Hexachloro-1,3-butadiene	3.75	4.09	4.19	109	112	70.0-145			2.39	25
Naphthalene	3.75	4.11	4.27	109	114	70.0-155			3.86	25
Allyl Chloride	3.75	3.78	3.81	101	102	70.0-130			0.862	25
2-Chlorotoluene	3.75	3.90	3.94	104	105	70.0-130			1.15	25
Methyl Methacrylate	3.75	3.80	3.83	101	102	70.0-130			0.849	25
Tetrahydrofuran	3.75	3.75	3.79	100	101	70.0-140			0.972	25
2,2,4-Trimethylpentane	3.75	3.79	3.80	101	101	70.0-130			0.108	25
Vinyl Bromide	3.75	3.71	3.74	98.9	99.6	70.0-130			0.708	25
Isopropylbenzene	3.75	3.84	3.90	102	104	70.0-130			1.57	25
(S) 1,4-Bromofluorobenzene			99.0	100	60.0-140					

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



L952200-05,06,07

Method Blank (MB)

(MB) R3267235-3 11/19/17 09:07

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	



L952200-05,06,07

Method Blank (MB)

(MB) R3267235-3 11/19/17 09:07

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) R3267235-1 11/19/17 07:37 • (LCSD) R3267235-2 11/19/17 08:21

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	3.80	3.85	101	103	52.0-158			1.37	25
Propene	3.75	3.70	3.71	98.7	99.0	54.0-155			0.237	25
Dichlorodifluoromethane	3.75	3.79	3.83	101	102	69.0-143			1.19	25
1,2-Dichlorotetrafluoroethane	3.75	3.82	3.85	102	103	70.0-130			0.641	25
Chloromethane	3.75	3.42	3.39	91.2	90.4	70.0-130			0.882	25



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

(LCS) R3267235-1 11/19/17 07:37 • (LCSD) R3267235-2 11/19/17 08:21

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	3.54	3.55	94.3	94.7	70.0-130			0.423	25
1,3-Butadiene	3.75	3.59	3.58	95.7	95.4	70.0-130			0.302	25
Bromomethane	3.75	3.97	3.98	106	106	70.0-130			0.142	25
Chloroethane	3.75	3.77	3.71	101	99.0	70.0-130			1.65	25
Trichlorofluoromethane	3.75	3.74	3.75	99.8	100	70.0-130			0.171	25
1,1,2-Trichlorotrifluoroethane	3.75	3.74	3.79	99.8	101	70.0-130			1.23	25
1,1-Dichloroethene	3.75	3.74	3.76	99.7	100	70.0-130			0.435	25
1,1-Dichloroethane	3.75	3.75	3.78	99.9	101	70.0-130			0.876	25
Acetone	3.75	3.65	3.71	97.3	98.9	70.0-130			1.65	25
2-Propanol	3.75	3.81	3.79	102	101	66.0-150			0.464	25
Carbon disulfide	3.75	3.73	3.76	99.6	100	70.0-130			0.702	25
Methylene Chloride	3.75	3.63	3.65	96.7	97.3	70.0-130			0.563	25
MTBE	3.75	3.77	3.82	101	102	70.0-130			1.38	25
trans-1,2-Dichloroethene	3.75	3.75	3.76	100	100	70.0-130			0.231	25
n-Hexane	3.75	3.78	3.74	101	99.7	70.0-130			1.16	25
Vinyl acetate	3.75	4.02	4.02	107	107	70.0-130			0.128	25
Methyl Ethyl Ketone	3.75	3.83	3.85	102	103	70.0-130			0.374	25
cis-1,2-Dichloroethene	3.75	3.80	3.81	101	102	70.0-130			0.377	25
Chloroform	3.75	3.74	3.75	99.7	100	70.0-130			0.386	25
Cyclohexane	3.75	3.80	3.82	101	102	70.0-130			0.499	25
1,1,1-Trichloroethane	3.75	3.77	3.78	101	101	70.0-130			0.243	25
Carbon tetrachloride	3.75	3.77	3.79	100	101	70.0-130			0.750	25
Benzene	3.75	3.77	3.75	101	100	70.0-130			0.520	25
1,2-Dichloroethane	3.75	3.77	3.77	101	100	70.0-130			0.205	25
Heptane	3.75	3.81	3.83	102	102	70.0-130			0.548	25
Trichloroethylene	3.75	3.76	3.75	100	100	70.0-130			0.228	25
1,2-Dichloropropane	3.75	3.76	3.78	100	101	70.0-130			0.376	25
1,4-Dioxane	3.75	3.77	3.77	101	101	70.0-152			0.00803	25
Bromodichloromethane	3.75	3.80	3.79	101	101	70.0-130			0.299	25
cis-1,3-Dichloropropene	3.75	3.87	3.86	103	103	70.0-130			0.415	25
4-Methyl-2-pentanone (MIBK)	3.75	3.85	3.85	103	103	70.0-142			0.108	25
Toluene	3.75	3.84	3.83	103	102	70.0-130			0.418	25
trans-1,3-Dichloropropene	3.75	3.86	3.86	103	103	70.0-130			0.0635	25
1,1,2-Trichloroethane	3.75	3.79	3.79	101	101	70.0-130			0.206	25
Tetrachloroethylene	3.75	3.84	3.83	102	102	70.0-130			0.373	25
Methyl Butyl Ketone	3.75	3.92	3.92	105	104	70.0-150			0.177	25
Dibromochloromethane	3.75	3.88	3.89	103	104	70.0-130			0.281	25
1,2-Dibromoethane	3.75	3.83	3.83	102	102	70.0-130			0.0185	25
Chlorobenzene	3.75	3.77	3.77	100	101	70.0-130			0.214	25
Ethylbenzene	3.75	3.90	3.91	104	104	70.0-130			0.283	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) R3267235-1 11/19/17 07:37 • (LCSD) R3267235-2 11/19/17 08:21

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	7.71	7.75	103	103	70.0-130			0.435	25
o-Xylene	3.75	3.95	3.98	105	106	70.0-130			0.611	25
Styrene	3.75	4.07	4.08	109	109	70.0-130			0.224	25
Bromoform	3.75	4.07	4.10	109	109	70.0-130			0.552	25
1,1,2,2-Tetrachloroethane	3.75	3.90	3.93	104	105	70.0-130			0.955	25
4-Ethyltoluene	3.75	4.01	4.03	107	107	70.0-130			0.574	25
1,3,5-Trimethylbenzene	3.75	4.03	4.05	107	108	70.0-130			0.612	25
1,2,4-Trimethylbenzene	3.75	3.98	4.01	106	107	70.0-130			0.807	25
1,3-Dichlorobenzene	3.75	4.03	4.06	107	108	70.0-130			0.830	25
1,4-Dichlorobenzene	3.75	4.08	4.12	109	110	70.0-130			1.10	25
Benzyl Chloride	3.75	4.26	4.25	114	113	70.0-144			0.300	25
1,2-Dichlorobenzene	3.75	3.97	3.99	106	107	70.0-130			0.535	25
1,2,4-Trichlorobenzene	3.75	4.35	4.39	116	117	70.0-155			0.826	25
Hexachloro-1,3-butadiene	3.75	4.16	4.25	111	113	70.0-145			2.04	25
Naphthalene	3.75	4.34	4.29	116	114	70.0-155			1.03	25
Allyl Chloride	3.75	3.79	3.81	101	102	70.0-130			0.571	25
2-Chlorotoluene	3.75	3.98	4.00	106	107	70.0-130			0.347	25
Methyl Methacrylate	3.75	3.84	3.84	102	102	70.0-130			0.0988	25
Tetrahydrofuran	3.75	3.76	3.80	100	101	70.0-140			0.944	25
2,2,4-Trimethylpentane	3.75	3.82	3.83	102	102	70.0-130			0.220	25
Vinyl Bromide	3.75	3.75	3.76	100	100	70.0-130			0.0976	25
Isopropylbenzene	3.75	3.91	3.95	104	105	70.0-130			0.966	25
(S) 1,4-Bromofluorobenzene			99.9	101		60.0-140				

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

L952200-01,02,03,06,07

Method Blank (MB)

(MB) R3267409-3 11/21/17 09:13

Analyte	MB Result ppbv	<u>MB Qualifier</u>	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
cis-1,2-Dichloroethene	U		0.0389	0.200
2-Butanone (MEK)	U		0.0493	1.25
2-Propanol	U		0.0882	1.25
Trichloroethylene	U		0.0545	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	97.6		60.0-140	

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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

(LCS) R3267409-1 11/21/17 07:42 • (LCSD) R3267409-2 11/21/17 08:26

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	3.85	3.79	103	101	52.0-158			1.56	25
Acetone	3.75	3.71	3.63	99.0	96.9	70.0-130			2.15	25
2-Propanol	3.75	3.85	3.81	103	102	66.0-150			0.872	25
Methyl Ethyl Ketone	3.75	3.93	3.84	105	102	70.0-130			2.44	25
cis-1,2-Dichloroethene	3.75	3.90	3.82	104	102	70.0-130			2.10	25
Trichloroethylene	3.75	3.89	3.80	104	101	70.0-130			2.54	25
(S) 1,4-Bromofluorobenzene			98.7	101	101	60.0-140				



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).
J4	The associated batch QC was outside the established quality control range for accuracy.



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		

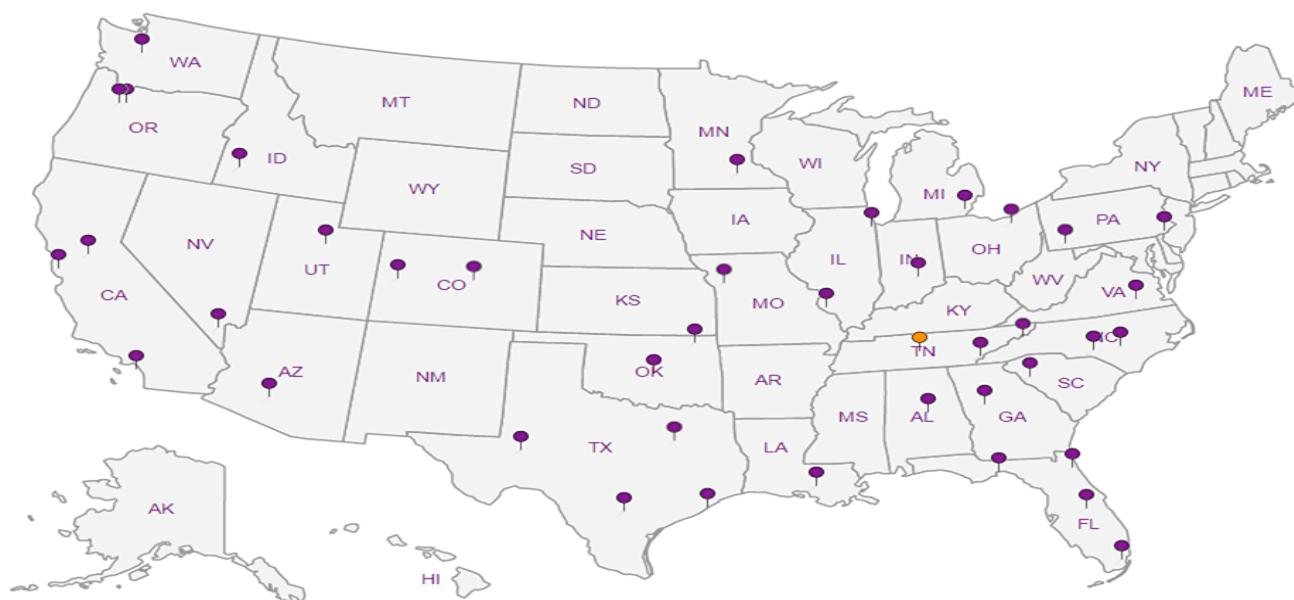
Third Party & Federal Accreditations

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 GI
- ⁸ Al
- ⁹ Sc

Company Name/Address: FIRST ENVIRONMENT 91 FULTON ST. BOONTON, NJ 07005		Billing Information: PROJECT: ENPRO002D - VM FIRST ENVIRONMENT INC. 91 FULTON ST. BOONTON NJ 07005 ATTN: JUSTIN PICOLI JPICOLI@FIRSTENVIRONMENT.COM		Analysis		Chain of Custody	Page ____ of ____	
Report to: MICHAEL T. SLACK (FE)		Email To: MSLACK@FIRSTENVIRONMENT.COM				 YOUR LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859 L# 952206 M223 Acctnum: FIRENVBN Template: TI20396 Prelogin: P626741 TSR: John V. Hawken Cooler: BP 11/13/17 Shipped Via: Ground Rem /Contaminant Sample # (lab only)		
Project: ENPRO - COLTEC - WATER VALLEY, MS Description: BORG WARNER PLANT SITE - INDOOR AIR Phone: 973-334-0093 Fax: 973-334-0928		City/State: WATER VALLEY, MS Collected: BORG WARNER PLANT SITE		Lab Project # FIRENVBNJ - OXFORDMS				
Collected by (print): MICHAEL T. SLACK	Site/Facility ID # BORG WARNER PLANT SITE	P.O. # —		Date Results Needed STANDARD 5-DAY TURNAROUND TIME				
Collected by (signature): Michael T. Slack	Rush? (Lab MUST Be Notified) Same Day 200% Next Day 100% Two Day 50% Three Day 25%	Email? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes FAX? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		Canister Pressure/Vacuum				
Sample ID	Sample Description	Can #	START Date 11/16/17	START Time 11:37	Initial 30	Final 5		
IA-1	MAINTENANCE ROOM	60002	11/16/17	11:37	30	5	-01	
IA-2	ATS ROOM	7550	11/16/17	11:38	30	6	-02	
IA-6	TRAINING ROOM	8376	11/16/17	11:40	29	5	-03	
IA-17	CAFETERIA	7819	11/16/17	11:41	29	4	-04	
AA-2	PAVILLION - AMBIENT AIR	6049	11/16/17	11:43	29	2	-05	
SSD-EFLU(5)	EFFLUENT - STACK	8038	11/17/17	12:39	30	1	-06	
SSD-INFLU-UV(5)	INFLUENT - PRE-CONTROL	8538	11/17/17	12:49	29	1	-07	
SEE SAMPLE TABLE FOR ADDITIONAL INFO.								
Remarks: 1-LITER CANISTER COLLECTION. WINDS OUT OF SW - 5-10 mph (SSD-EFLU(5)) - 70°F S								
Relinquished by : (Signature) Michael T. Slack	Date: 11/17/17	Time: 15:20	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>	Hold #			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Amalg	Bottles Received: 7	Condition: (lab use only)		
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) John V. Hawken	Date: 11/18/17	Time: 8:46	CDC Seal Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA	pH Checked:	NCF:

Indoor Air Monitoring (Bi-Weekly Sampling)
 Borg Warner Facility
 Water Valley, Yalobusha Co., MS
 November 16-17, 2017
 Indoor Air (IA), Ambient Air (AA), Air Permit Evaluation (SSD) - 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	6002	6606	6	11/16/17 11:37	30	11/17/17 11:40	5	M. Slack
IA-2	ATS Room	7550	7618	6	11/16/17 11:38	30	11/17/17 11:41	4	M. Slack
IA-6	Training Room	6376	5755	6	11/16/17 11:40	29	11/17/17 11:43	5	M. Slack
IA-17	Cafeteria	7819	7263	6	11/16/17 11:41	28	11/17/17 11:44	4	M. Slack
AA-2	Pavilion	6049	5078	6	11/16/17 11:43	29	11/17/17 11:50	2	M. Slack
SSD-EFFLU(5)	SSDS - Effluent Stack	7124	8038	1	11/17/17 12:39	30	11/17/17 12:44	1	M. Slack
SSD-INFLU-UV(5)	SSDS - Influent Control Unit	6737 6736 "11/17/17 11/17/17"	8532	1	11/17/17 12:49	29	11/17/17 12:54	1	M. Slack

Invo: FIRENVBNJ-OXFOR Date : 13Nov17
 Customer : P626741 Weight : 10 LBS
 Phone : (615)758-5858 COD :
 SAT Del : Y DV : 0.00 Total : 0.00
 Svc: PRIORITY OVERNIGHT
 TRCK: 4094 8311 4678

Invo: FIRENVBNJ-OXFOR Date : 13Nov17
 Customer : P626741 Weight : 10 LBS
 Phone : (615)758-5858 COD :
 SAT Del : Y DV : 0.00 Total : 0.00
 Svc: PRIORITY OVERNIGHT
 TRCK: 4094 8311 4667

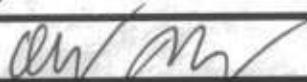
Weather Conditions (@ time of canister placement): 65° F - SUNNY - HUMIDITY 72%
SW WINDS - 2 mph (GUSTS TO 6 mph)

Invo: FIRENVBNJ-OXFOR Date : 13Nov17
 Customer : P626741 Weight : 10 LBS
 Phone : (615)758-5858 COD :
 SAT Del : Y DV : 0.00 Total : 0.00
 Svc: PRIORITY OVERNIGHT
 TRCK: 4094 8311 4666

Michael T. Slack (First Environment)

Michael T. Slack
 11/16/17

ESC LAB SCIENCES
Cooler Receipt Form

Client: FIREN VBNJ	SDG#		
Cooler Received/Opened On: 11/18 /17	Temperature:	AmP	
Received by :Christian Kacar			
Signature: 			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	X	/	/
COC Signed / Accurate?	/	/	/
Bottles arrive intact?	/	/	/
Correct bottles used?	/	/	/
Sufficient volume sent?	/	/	/
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Company Name/Address: FIRST ENVIRONMENT 91 FULTON ST. BOONTON, NJ 07005		Billing Information: PROJECT: ENPro D02D - VM FIRST ENVIRONMENT INC. 91 FULTON ST. BOONTON NJ 07005 ATTN: JUSTIN PICOLI JPICOLI@FIRSTENVIRONMENT.COM		Analysis	Chain of Custody	Page ____ of ____
Report to: MICHAEL T. SLACK (PE)		Email To: M.SLACK@FIRSTENVIRONMENT.COM				
Project: ENPro - COLTEC - WATER VALLEY, MS Description: BORG WARNER PLANTSITE - INDOOR AIR		City/State: WATER VALLEY, MS Collected: BORG WARNER PLANT SITE				
Phone: 973-334-0003 Fax: 973-334-0928	Client Project # EnPro D02D - VM	Lab Project # FIRENVBNJ - OXFORDMS				
Collected by (print): MICHAEL T. SLACK	Site/Facility ID # BORG WARNER PLANT SITE	P.O. # —				
Collected by (signature): Michael T. Slack	Rush? (Lab MUST Be Notified) Same Day 200% Next Day 100% Two Day 50% Three Day 25%	STANDARD 5-DAY TURNAROUND TIME Email? <input checked="" type="checkbox"/> Yes Canister Pressure/Vacuum FAX? <input checked="" type="checkbox"/> No Yes				
Sample ID	Sample Description 11/16/17 11:30 AM FLOW REG	START Date 11/16/17	START Time 11:30	Initial 30	Final 5	
IA-1	MAINTENANCE ROOM	6002	11/16/17 11:37	30	5	6006
IA-2	ATS ROOM	7550	11/16/17 11:38	30	6	7618
IA-6	TRAINING ROOM	8376	11/16/17 11:40	29	5	5755
IA-17	CAFFETERIA	7819	11/16/17 11:41	28	4	7263
AA-2	PAVILLION - AMBIENT AIR	6049	11/16/17 11:43	29	2	5078
SSD-EFFLU(S)	EFFLUENT - STACK	7124	11/16/17 12:39	30	1	8038
SSD-INFLU-UV(S)	INFLUENT - PRE-CONTROL	8536	11/16/17 12:49	29	1	8538
		6731	11/16/17			
SEE SAMPLE TABLE FOR ADDITIONAL INFO. SSD-EFFLU(S) & SSD-INFLU(S) - 1-LITER SUMMA CANISTERS - 5-MIN GRAB SAMPLE Remarks: 1-LITER CANISTER COLLECTION: WINDS OUT OF SW - 5-10 mph (SSD-EFFLU(S)) - 70°F S						
Relinquished by: (Signature) Michael T. Slack	Date: 11/16/17	Time: 15:20	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>	Hold #	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: *C Bottles Received: 7 Ames	Condition: (lab use only)	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) John V. Hawken	Date: 11/18/17 Time: 8:45	CDC Seal Intact: Y N X	pH Checked: NCF: ✓