

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



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

February 23, 2018

Prepared for: EnPro Industries, Inc.
1020 Highland Colony Parkway, Suite 1400
Ridgeland, MS 39157

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



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

02/23/2018

Mississippi Professional
Engineer No.

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 an 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, November 15, November 29, and December 13, 2017, and January 8, January 12, January 30, and February 14, 2018.

On February 7-8, 2018, 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. The February 7-8, 2018 sampling results for the Maintenance Room (IA-1) were reported in the February 14, 2018 SSDS Progress Report and are included herein for completeness. As discussed in more detail below, all indoor air sampling results for TCE were below the MDEQ action level of 26 µg/m³.

2.0 Indoor Air Monitoring – February 7-8, 2018

2.1 Instrumentation

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

On February 7-8, 2018, First Environment collected four indoor air samples at the four interior rooms of the Plant and one ambient air sample outside the Plant. As reported in the February 14, 2018 SSDS Progress Report, on February 7, 2018 First Environment collected one indoor air sample in the Maintenance Room with the door to the Maintenance Room open, and on February 8, 2018 First Environment collected one indoor air sample in the Maintenance Room

with the door to the Maintenance Room closed. 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 required 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.

As reported in the January 8, 2018 SSDS Progress Report, First Environment sealed the void spaces in the block wall between the sump and the Maintenance Room on December 29, 2017. On January 15, 2018, the sump adjacent to the Maintenance Room was decommissioned. On January 18, 2018, First Environment installed two SSDS extraction points in the block wall between the sump and the Maintenance Room and one SSDS extraction point in the block wall between the sump and the Training Room.

2.3 Results

Table 1 presents the ambient and indoor air sampling results for all TO-15 analytes for the February 7-8, 2018 sampling event. Table 2 presents the results of TCE, cis-DCE, and VC in comparison to all previous rounds of sampling. A copy of the laboratory reports, including the chain-of-custody forms, are attached in Appendices A, B, and C.

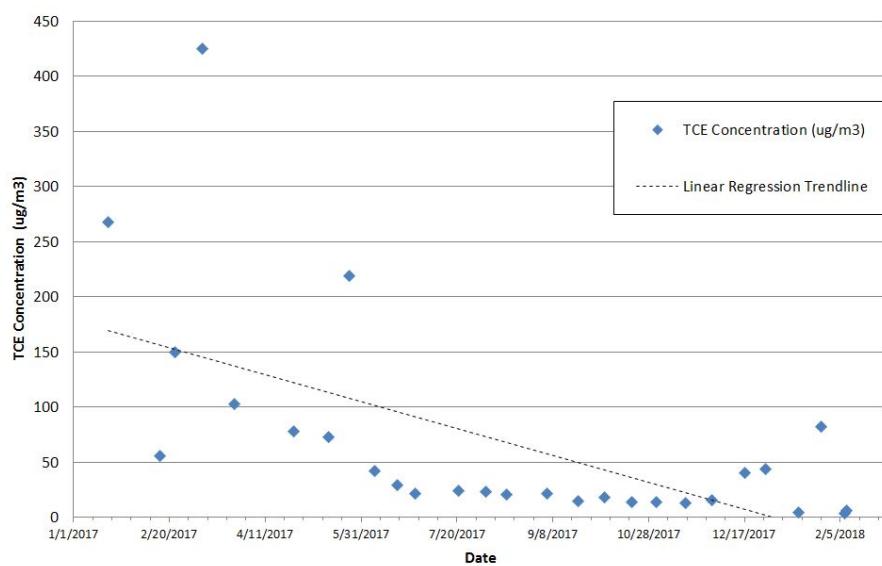
The sample results in the ATS Room were below USEPA’s Vapor Intrusion Screening Level (“VISL”) for TCE of 3 µg/m³. The sample results in the Training Room (3.45 µg/m³) and

Maintenance Room ($3.89 \mu\text{g}/\text{m}^3$, $6.39 \mu\text{g}/\text{m}^3$) were above USEPA's VISL but below the MDEQ action level of $26 \mu\text{g}/\text{m}^3$.

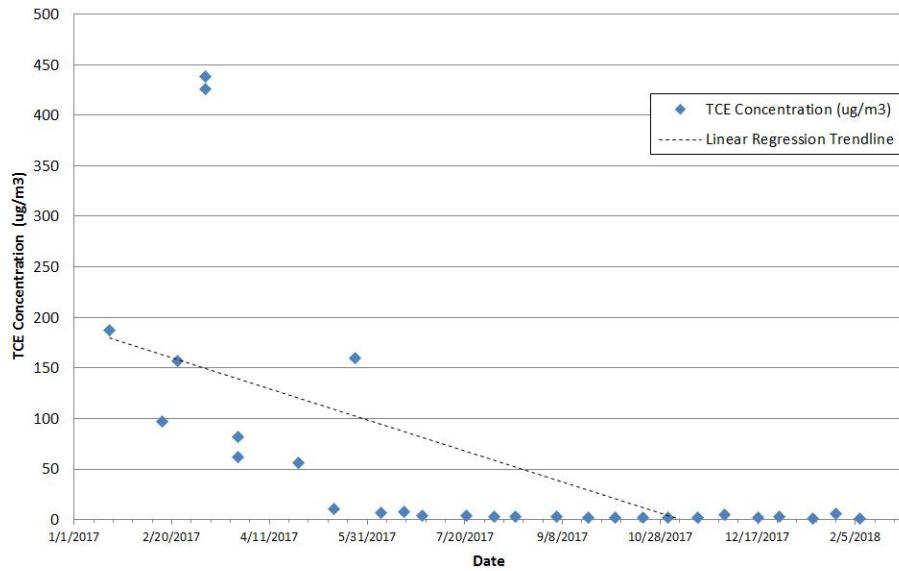
Due to the high levels of acetone and 2-butanone detected in the Cafeteria, the laboratory diluted the sample by a factor of four. The dilution of the sample resulted in a detection limit for TCE of $4.29 \mu\text{g}/\text{m}^3$, which is higher than USEPA's VISL of $3 \mu\text{g}/\text{m}^3$. The sample results were non-detect at $<4.29 \mu\text{g}/\text{m}^3$.

The following figures show the linear regression trendline for the interior rooms.

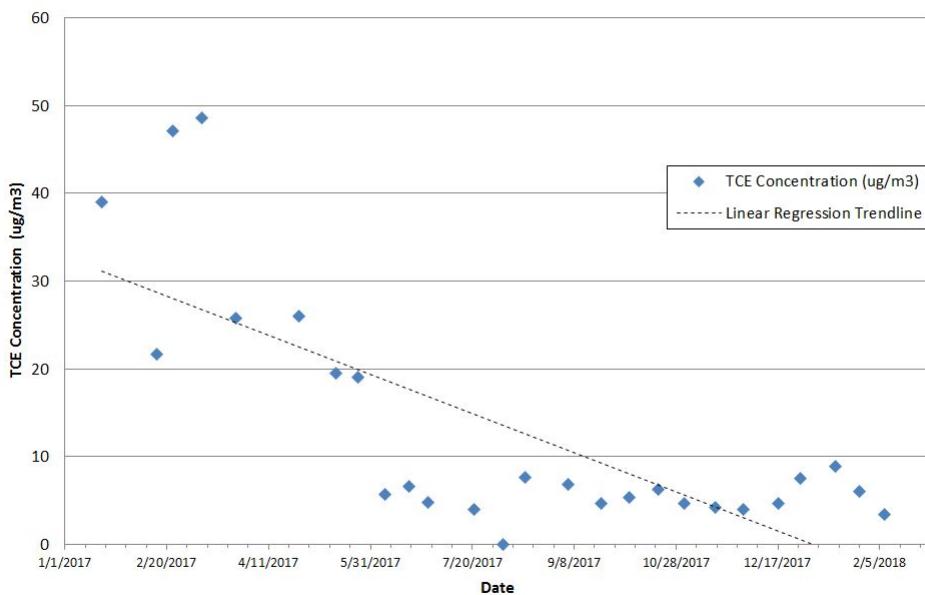
TCE Concentration History at IA-1 (Maintenance Room)



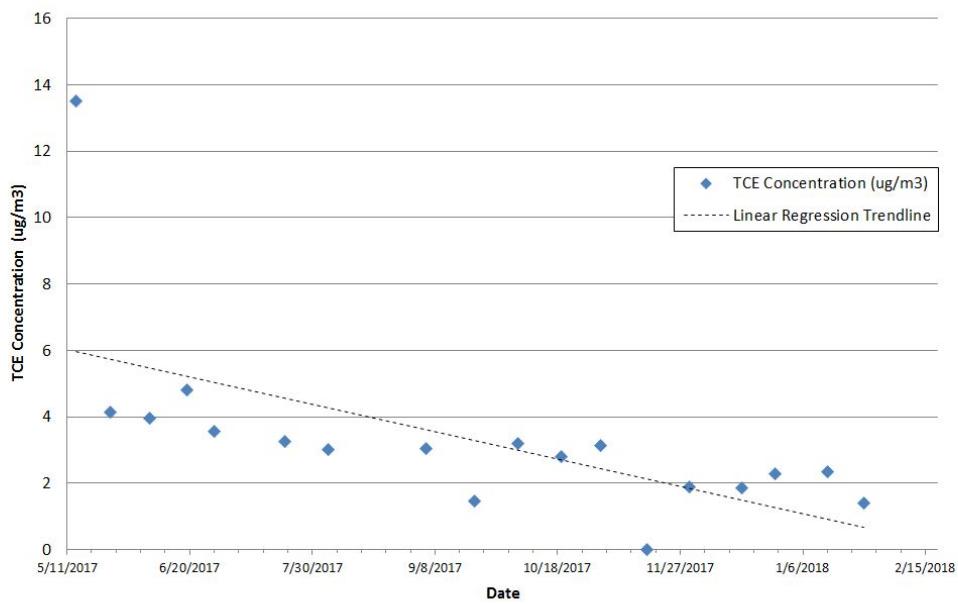
TCE Concentration History at IA-2 (ATS Room)



TCE Concentration History at IA-6 (Training Room)



TCE Concentration History at IA-17 (Cafeteria)



3.0 Summary of Indoor Air Sampling

Since June 2017, the sample results in the ATS Room (IA-2), Training Room (IA-6), and Cafeteria (IA-17) have been below the MDEQ action level of 26 $\mu\text{g}/\text{m}^3$. The elevated concentration of TCE in the Maintenance Room (IA-1) detected on January 25-26, 2018 after First Environment performed additional work in the sump area was reduced to below the MDEQ action level of 26 $\mu\text{g}/\text{m}^3$ within approximately one week, as shown in the attached sample results for February 7-8, 2018.

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 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.

TABLES

TABLE 1
INDOOR AIR SAMPLING RESULTS
FEBRUARY 7-8, 2018
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 02/07/2018 L969021-01	IA-1 02/08/2018 L969370-01	IA-2 02/07/2018 L969030-01	IA-6 02/07/2018 L969030-02	IA-17 02/07/2018 L969030-03	AA-2 02/07/2018 L969030-04
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
ACETONE	180	229	193	179	189	4.92
ALLYL CHLORIDE	<0.626	<0.626	<0.626	<0.626	<2.5	<0.626
BENZENE	0.975	1.21	1.12	1.01	<2.56	<0.639
BENZYL CHLORIDE	<1.04	<1.04	<1.04	<1.04	<4.16	<1.04
BROMODICHLOROMETHANE	<1.34	<1.34	<1.34	<1.34	<5.37	<1.34
BROMOFORM	<6.21	<6.21	<6.21	<6.21	<24.8	<6.21
BROMOMETHANE	<0.776	<0.776	<0.776	<0.776	<3.11	<0.776
1,3-BUTADIENE	<4.43	<4.43	<4.43	<4.43	<17.7	<4.43
CARBON DISULFIDE	<0.622	<0.622	<0.622	<0.622	<2.49	<0.622
CARBON TETRACHLORIDE	<1.26	<1.26	<1.26	<1.26	<5.04	<1.26
CHLOROBENZENE	<0.924	<0.924	<0.924	<0.924	<3.7	<0.924
CHLOROETHANE	<0.528	<0.528	<0.528	<0.528	<2.11	<0.528
CHLOROFORM	<0.973	<0.973	<0.973	<0.973	<3.89	<0.973
CHLOROMETHANE	0.878	1.04	1.03	0.965	<1.65	1.11
2-CHLOROTOLUENE	<1.03	<1.03	<1.03	<1.03	<4.12	<1.03
CYCLOHEXANE	0.821	1.58	0.842	<0.689	<2.76	<0.689
CHLORODIBROMOMETHANE	<1.7	<1.7	<1.7	<1.7	<6.81	<1.7
1,2-DIBROMOETHANE	<1.54	<1.54	<1.54	<1.54	<6.15	<1.54
1,2-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<4.81	<1.2
1,3-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<4.81	<1.2
1,4-DICHLOROBENZENE	<1.2	<1.2	<1.2	<1.2	<4.81	<1.2
1,2-DICHLOROETHANE	<0.81	<0.81	<0.81	<0.81	<3.24	<0.81
1,1-DICHLOROETHANE	<0.802	<0.802	<0.802	<0.802	<3.21	<0.802
1,1-DICHLOROETHENE	<0.793	<0.793	<0.793	<0.793	<3.17	<0.793
CIS-1,2-DICHLOROETHENE	<0.793	1.26	<0.793	2.18	<3.17	<0.793
TRANS-1,2-DICHLOROETHENE	<0.793	<0.793	<0.793	<0.793	<3.17	<0.793
1,2-DICHLOROPROPANE	<0.924	<0.924	<0.924	<0.924	<3.7	<0.924
CIS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<3.63	<0.908
TRANS-1,3-DICHLOROPROPENE	<0.908	<0.908	<0.908	<0.908	<3.63	<0.908
1,4-DIOXANE	<0.721	<0.721	<0.721	<0.721	<2.88	<0.721
ETHANOL	3,590 (E)	2,870 (E)	3930 (E)	3600 (E)	4980 (E)	429 (E)
ETHYLBENZENE	1.5	1.95	1.63	1.27	<3.47	<0.867
4-ETHYLtoluene	<0.982	1.09	<0.982	<0.982	<3.93	<0.982
TRICHLOROFLUOROMETHANE	1.23	1.33	1.28	1.21	<4.5	1.39

TABLE 1
INDOOR AIR SAMPLING RESULTS
FEBRUARY 7-8, 2018
FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
WATER VALLEY, MS

SAMPLE LOCATION: SAMPING DATE: LABORATORY ID:	IA-1 02/07/2018 L969021-01	IA-1 02/08/2018 L969370-01	IA-2 02/07/2018 L969030-01	IA-6 02/07/2018 L969030-02	IA-17 02/07/2018 L969030-03	AA-2 02/07/2018 L969030-04
Analyte	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
DICHLORODIFLUOROMETHANE	1.33	<0.989 (J3)	1.42 (J3)	1.25 (J3)	<3.96 (J3)	1.31 (J3)
1,1,2-TRICHLOROTRIFLUOROETHANE	<1.53	<1.53	<1.53	<1.53	<6.13	<1.53
1,2-DICHLOROTETRAFLUOROETHANE	<1.4	<1.4	<1.4	<1.4	<5.6	<1.4
HEPTANE	11.2	23.6	14.3	11.1	11.7	<0.818
HEXACHLORO-1,3-BUTADIENE	<6.73	<6.73	<6.73	<6.73	<26.9	<6.73
N-HEXANE	7.76	11.4	9.41	7.19	8.93	<0.705
ISOPROPYLBENZENE	<0.983	<0.983	<0.983	<0.983	<3.93	<0.983
METHYLENE CHLORIDE	<0.694	<0.694	<0.694	<0.694	<2.78	<0.694
METHYL BUTYL KETONE	<5.11	<5.11	<5.11	<5.11	<20.4	<5.11
2-BUTANONE (MEK)	374	389	393	375	483	<3.69
4-METHYL-2-PENTANONE (MIBK)	<5.12	<5.12	<5.12	<5.12	<20.5	<5.12
METHYL METHACRYLATE	<0.819	<0.819	<0.819	<0.819	<3.28	<0.819
METHYL TERT-BUTYL ETHER	<0.721	<0.721	<0.721	<0.721	<2.88	<0.721
NAPHTHALENE	<3.3	<3.3	<3.3	<3.3	<13.2	<3.3
2-PROPANOL	3,990 (E)	5,070 (E)	4600 (E)	3900 (E)	4700 (E)	32.4
PROPENE	<0.689	<0.689	<0.689	27.3	<2.76	<0.689
STYRENE	<0.851	<0.851	<0.851	<0.851	<3.4	<0.851
1,1,2,2-TETRACHLOROETHANE	<1.37	<1.37	<1.37	<1.37	<5.5	<1.37
TETRACHLOROETHENE	4.39	<1.36	<1.36	<1.36	<5.43	<1.36
TETRAHYDROFURAN	<0.59	<0.59	<0.59	<0.59	<2.36	<0.59
TOLUENE	3.13	5.39	3.24	2.68	<3.01	<0.753
1,2,4-TRICHLOROBENZENE	<4.66	<4.66	<4.66	<4.66	<18.7	<4.66
1,1,1-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<4.35	<1.09
1,1,2-TRICHLOROETHANE	<1.09	<1.09	<1.09	<1.09	<4.35	<1.09
TRICHLOROETHENE	3.89	6.39	1.6	3.45	<4.29	<1.07
1,2,4-TRIMETHYLBENZENE	2.9	3.45	2.89	2.33	<3.93	<0.982
1,3,5-TRIMETHYLBENZENE	<0.982	1.17	1.07	<0.982	<3.93	<0.982
2,2,4-TRIMETHYLPENTANE	<0.934	1.72	<0.934	<0.934	<3.74	<0.934
VINYL CHLORIDE	<0.511	<0.511	<0.511	<0.511	<2.04	<0.511
VINYL BROMIDE	<0.875	<0.875	<0.875	<0.875	<3.5	<0.875
VINYL ACETATE	<0.704	<0.704	<0.704	<0.704	<2.82	<0.704
M&P-XYLENE	5.8	7.08	5.85	4.42	<6.94	<1.73
O-XYLENE	2.16	2.75	2.28	1.66	<3.47	<0.867
1,4-BROMOFLUOROBENZENE	93.6 97.4	103 95.7	89.4 100	98.1 90.5	90.0 97.2	94

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

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

TABLE 2
INDOOR AIR SAMPLING RESULTS COMPARISON
JANUARY 2017 THROUGH FEBRUARY 2018
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 (Door Open) (Door Closed)	19-Jan-17	L1702183-01	268(D)	63.8	<0.51
	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
	30-Nov-17	L954578-01	15.3	<0.793	<0.511
	17-Dec-17	L958416-01	40	<0.793	<0.511
	28-Dec-17	L960558-01	43.4	4.77	<0.511
	14-Jan-18	L963421-01	4.5	<0.793	<0.511
	25-Jan-18	L966088-01	82.3	<0.793	<0.511
	7-Feb-18	L969021-01	3.89	<0.793	<0.511
	8-Feb-18	L969370-01	6.39	1.26	<0.511
IA-2 IA-2 (2ND CANISTER) IA-2 (DUPLICATE)	19-Jan-17	L1702183-02	187	43.2	<0.51
	15-Feb-17	L890396-02	97.1	<0.793	2.27
	23-Feb-17	L892423-02	157	79.4	1.57
	9-Mar-17	L895061-02	426	86.7	1.18
	9-Mar-17	L895061-04	438	88.7	1.68
	26-Mar-17	L898762-02	61.8	<0.793	<0.511
	26-Mar-17	L898762-04	82.3	<0.793	<0.511
	26-Apr-17	L905292-02	56.6	10.8	<0.511
	14-May-17	L909544-02	10.8	<0.793	<0.511
	25-May-17	L912423-08	160	<0.793	<0.511
	7-Jun-17	L914832-12	6.58	<0.793	<0.511
	19-Jun-17	L917924-12	8.16	1.88	<0.511
	28-Jun-17	L920054-13	4.21	<0.793	<0.511
	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
	30-Nov-17	L954578-02	5.01	<0.793	<0.511
	17-Dec-17	L958416-02	1.98	<0.793	<0.511
	28-Dec-17	L960558-02	2.58	0.823	<0.511
	14-Jan-18	L963421-02	1.21	<0.793	<0.511
	25-Jan-18	L966088-02	6.09	<0.793	<0.511
	7-Feb-18	L969030-01	1.6	<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
	30-Nov-17	L954578-03	4.06	3	<0.511
	17-Dec-17	L958416-03	4.69	<0.793	<0.511
	28-Dec-17	L960558-03	7.53	4.41	<0.511
	14-Jan-18	L963421-03	8.95	<0.793	<0.511
	25-Jan-18	L966088-03	6.12	<0.793	<0.511
	7-Feb-18	L969030-02	3.45	2.18	<0.511

TABLE 2
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JANUARY 2017 THROUGH FEBRUARY 2018
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	<0.511 <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 30-Nov-17 17-Dec-17 28-Dec-17 14-Jan-18 25-Jan-18 7-Feb-18	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 L954578-04 L958416-04 L960558-04 L963421-04 L966088-04 L969030-03	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 1.89 1.86 2.28 2.34 1.42 <4.29	<0.793 <0.793 <0.793 4.48 <0.793 <0.793 <0.793 3.96 5.6 <0.793 <0.793 <0.793 2.33 <0.793 <0.793 3.17	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <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 30-Nov-17	L905292-05 L912423-06 L914832-08 L917924-07 L920054-07 L924410-06 L927407-06 L930026-06 L934535-06 L954578-05	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 30-Nov-17	L912423-11 L914832-02 L917924-02 L920054-02 L924410-09 L927407-11 L930026-11 L934535-11 L954578-07	<1.07 3.31 1.35 <1.07 1.07 <1.07 <1.07 1.17 <1.07	<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-G13	26-Apr-17 14-May-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L905292-06 L909544-04 L912423-06 L914832-06 L917924-06 L920054-06 L924410-07 L927407-07 L930026-07 L934535-07	8.98 4.65 3.88 2.54 2.46 1.41 1.6 1.76 1.25 1.78	<0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511
IA-K8	25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17	L912423-10 L914832-01 L917924-01 L920054-01 L924410-10 L927407-12 L930026-12 L934535-12	1.47 7.86 1.31 <1.07 <1.07 <1.07 <1.07 <1.07	<0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793	<0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511 <0.511
IA-K13	26-Apr-17 25-May-17 7-Jun-17 19-Jun-17 28-Jun-17 21-Jul-17 4-Aug-17 15-Aug-17 5-Sep-17 30-Nov-17	L905292-07 L912423-04 L914832-05 L917924-05 L920054-05 L924410-12 L927407-08 L930026-08 L934535-08 L954578-06	6.53 5.28 1.59 2.2 1.33 1.34 <1.07 <1.07 1.67 <1.07	<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

TABLE 2
INDOOR AIR SAMPLING RESULTS COMPARISON
JANUARY 2017 THROUGH FEBRUARY 2018
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-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 30-Nov-17 17-Dec-17 28-Dec-17 14-Jan-18 25-Jan-18 7-Feb-18	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 L954578-10 L958416-05 L960558-05 L963421-05 L966088-05 L969030-04	0.129 <0.107 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <1.07 <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 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793 <0.793	<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 <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

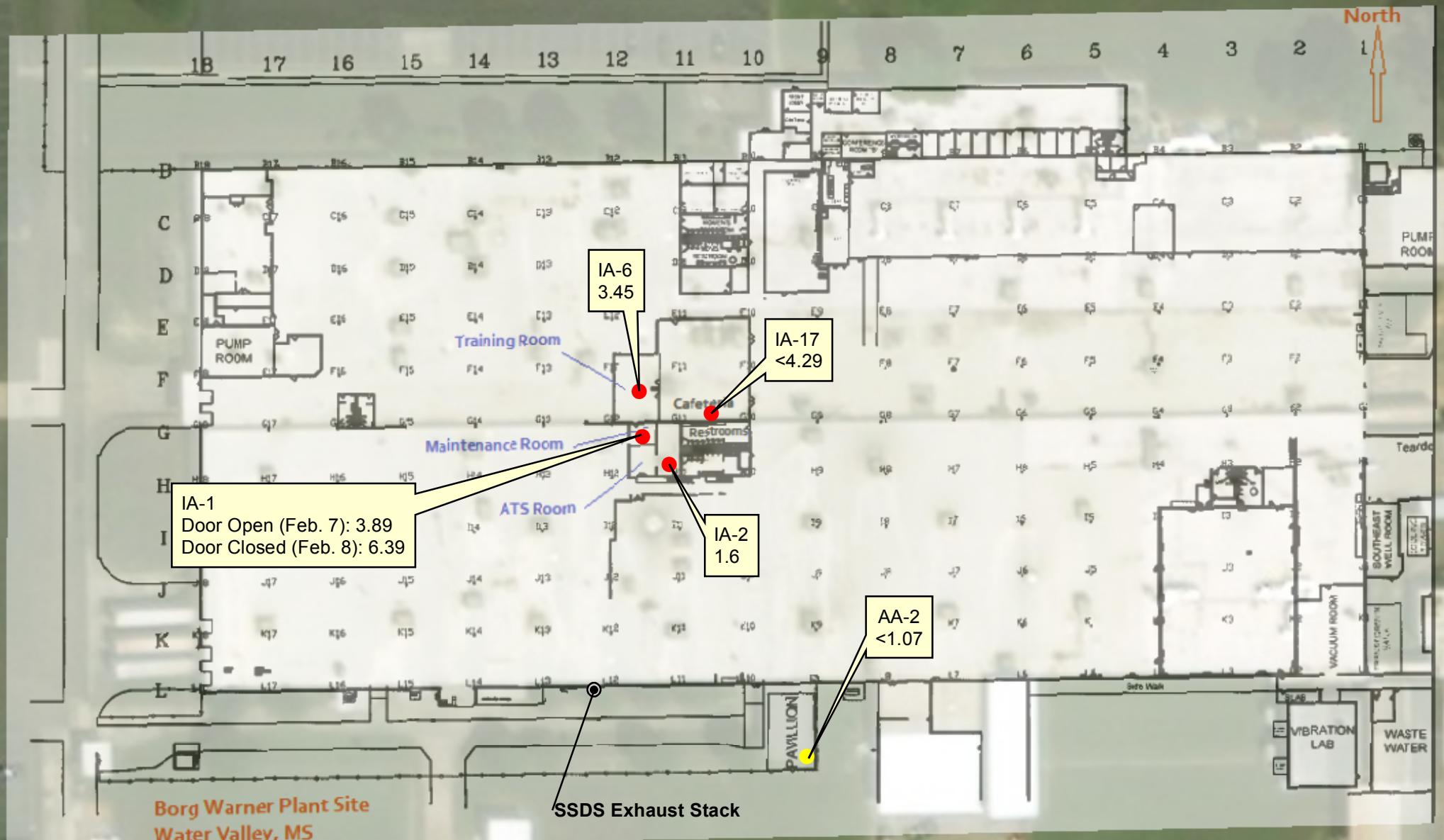
D: Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte

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

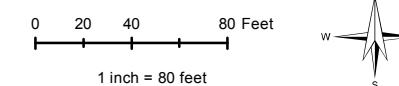
- IA-1: Indoor Air Concentrations in ug/m³
- AA-1: Ambient Air Concentrations in ug/m³
- SSDS Exhaust Stack

USEPA Screening Level for TCE: 3 ug/m³

MDEQ Action Level for TCE: 26 ug/m³

 TCE Level Exceeding the MDEQ Action Level

ND Concentration not detected above laboratory reported limits



**FIRST
ENVIRONMENT**

BORG WARNER FACILITY
600 Highway 32E, Water Valley, MS
FIGURE 1
INDOOR AIR SAMPLING RESULTS
FEBRUARY 7-8 2018

91 Fulton Street Boonton, New Jersey 07005	Revised LS	Drawn NMT	Checked NMT	Approved NMT	Date 2/18/2018
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APPENDIX A

February 09, 2018

First Environment, Inc.

Sample Delivery Group: L969021
Samples Received: 02/09/2018
Project Number: ENPRO002D-VM
Description: EnPro-Coltec-Water Valley (24-hr Indoor Air-BW)
Site: BORG WARNER PLANT SITE
Report To:
Michael T. Slack
91 Fulton Street
Boonton, NJ 07005

Entire Report Reviewed By:



Jason Romer
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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ONE LAB. NATIONWIDE.



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 L969021-01	5	⁶ Qc
Qc: Quality Control Summary	7	⁷ GI
Volatile Organic Compounds (MS) by Method TO-15	7	⁸ Al
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Al: Accreditations & Locations	12	
Sc: Sample Chain of Custody	13	

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



IA-1 L969021-01 Air

			Collected by Michael T. Slack	Collected date/time 02/07/18 11:35	Received date/time 02/09/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1071864	1	02/09/18 12:58	02/09/18 12:58	AMC
Volatile Organic Compounds (MS) by Method TO-15	WG1071864	25	02/09/18 13:40	02/09/18 13:40	AMC

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All 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.

Jason Romer
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	75.8	180		25	WG1071864
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1071864
Benzene	71-43-2	78.10	0.200	0.639	0.305	0.975		1	WG1071864
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1071864
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1071864
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1071864
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1071864
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1071864
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1071864
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1071864
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1071864
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1071864
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1071864
Chloromethane	74-87-3	50.50	0.200	0.413	0.425	0.878		1	WG1071864
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1071864
Cyclohexane	110-82-7	84.20	0.200	0.689	0.238	0.821		1	WG1071864
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1071864
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1071864
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1071864
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1071864
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1071864
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1071864
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1071864
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1071864
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1071864
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1071864
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1071864
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1071864
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1071864
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1071864
Ethanol	64-17-5	46.10	15.8	29.8	1900	3590	E	25	WG1071864
Ethylbenzene	100-41-4	106	0.200	0.867	0.347	1.50		1	WG1071864
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1071864
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.219	1.23		1	WG1071864
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.269	1.33		1	WG1071864
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1071864
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1071864
Heptane	142-82-5	100	0.200	0.818	2.73	11.2		1	WG1071864
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1071864
n-Hexane	110-54-3	86.20	0.200	0.705	2.20	7.76		1	WG1071864
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1071864
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1071864
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1071864
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	127	374		25	WG1071864
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1071864
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1071864
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1071864
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1071864
2-Propanol	67-63-0	60.10	31.2	76.7	1620	3990	E	25	WG1071864
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1071864
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1071864
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1071864
Tetrachloroethylene	127-18-4	166	0.200	1.36	0.647	4.39		1	WG1071864
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1071864
Toluene	108-88-3	92.10	0.200	0.753	0.832	3.13		1	WG1071864
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1071864

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	WG1071864	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1071864	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	0.726	3.89		1	WG1071864	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.590	2.90		1	WG1071864	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1071864	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1071864	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1071864	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1071864	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1071864	
m&p-Xylene	1330-20-7	106	0.400	1.73	1.34	5.80		1	WG1071864	
o-Xylene	95-47-6	106	0.200	0.867	0.497	2.16		1	WG1071864	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		93.6				WG1071864	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.4				WG1071864	



Method Blank (MB)

(MB) R3285292-3 02/09/18 12:09

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	



Method Blank (MB)

(MB) R3285292-3 02/09/18 12:09

Analyte	MB Result ppbv	<u>MB Qualifier</u>	MB MDL ppbv	MB RDL ppbv	¹ Cp
Methylene Chloride	U		0.0465	0.200	
Methyl Butyl Ketone	U		0.0682	1.25	
2-Butanone (MEK)	U		0.0493	1.25	
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25	
Methyl Methacrylate	U		0.0773	0.200	
MTBE	U		0.0505	0.200	
Naphthalene	0.181	J	0.154	0.630	
2-Propanol	U		0.0882	1.25	
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	88.5		60.0-140		

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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

(LCS) R3285292-1 02/09/18 10:39 • (LCSD) R3285292-2 02/09/18 11:24

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	3.15	2.78	84.1	74.2	52.0-158			12.4	25
Propene	3.75	3.04	2.99	80.9	79.8	54.0-155			1.44	25
Dichlorodifluoromethane	3.75	3.23	3.55	86.1	94.7	69.0-143			9.43	25
1,2-Dichlorotetrafluoroethane	3.75	3.32	3.64	88.5	97.0	70.0-130			9.14	25
Chloromethane	3.75	3.11	3.16	82.8	84.1	70.0-130			1.55	25



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

(LCS) R3285292-1 02/09/18 10:39 • (LCSD) R3285292-2 02/09/18 11:24

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	3.31	3.28	88.3	87.6	70.0-130			0.853	25
1,3-Butadiene	3.75	3.25	3.16	86.6	84.4	70.0-130			2.56	25
Bromomethane	3.75	3.73	3.76	99.4	100	70.0-130			0.930	25
Chloroethane	3.75	3.26	3.35	86.8	89.4	70.0-130			2.90	25
Trichlorofluoromethane	3.75	4.02	4.07	107	109	70.0-130			1.26	25
1,1,2-Trichlorotrifluoroethane	3.75	3.86	3.92	103	105	70.0-130			1.62	25
1,1-Dichloroethene	3.75	3.52	3.53	94.0	94.2	70.0-130			0.193	25
1,1-Dichloroethane	3.75	3.43	3.46	91.4	92.4	70.0-130			1.02	25
Acetone	3.75	3.40	3.41	90.5	90.9	70.0-130			0.419	25
2-Propanol	3.75	3.34	3.40	89.2	90.8	66.0-150			1.81	25
Carbon disulfide	3.75	3.36	3.41	89.6	90.8	70.0-130			1.37	25
Methylene Chloride	3.75	3.20	3.32	85.2	88.4	70.0-130			3.69	25
MTBE	3.75	3.60	3.65	95.9	97.3	70.0-130			1.41	25
trans-1,2-Dichloroethene	3.75	3.44	3.47	91.8	92.6	70.0-130			0.896	25
n-Hexane	3.75	3.19	3.22	85.0	85.9	70.0-130			1.05	25
Vinyl acetate	3.75	3.53	3.55	94.0	94.7	70.0-130			0.731	25
Methyl Ethyl Ketone	3.75	3.44	3.65	91.7	97.3	70.0-130			5.94	25
cis-1,2-Dichloroethene	3.75	3.46	3.46	92.2	92.2	70.0-130			0.0319	25
Chloroform	3.75	3.67	3.75	97.9	99.9	70.0-130			2.04	25
Cyclohexane	3.75	3.58	3.62	95.4	96.5	70.0-130			1.19	25
1,1,1-Trichloroethane	3.75	3.94	3.97	105	106	70.0-130			0.649	25
Carbon tetrachloride	3.75	4.07	4.14	109	110	70.0-130			1.63	25
Benzene	3.75	3.59	3.71	95.8	98.9	70.0-130			3.17	25
1,2-Dichloroethane	3.75	3.77	3.85	100	103	70.0-130			2.11	25
Heptane	3.75	3.17	3.25	84.6	86.6	70.0-130			2.26	25
Trichloroethylene	3.75	3.83	3.91	102	104	70.0-130			2.11	25
1,2-Dichloropropane	3.75	3.43	3.50	91.3	93.4	70.0-130			2.24	25
1,4-Dioxane	3.75	3.86	4.03	103	107	70.0-152			4.37	25
Bromodichloromethane	3.75	3.77	3.92	100	104	70.0-130			3.99	25
cis-1,3-Dichloropropene	3.75	3.67	3.79	97.9	101	70.0-130			3.07	25
4-Methyl-2-pentanone (MIBK)	3.75	3.30	3.40	88.0	90.5	70.0-142			2.82	25
Toluene	3.75	3.78	3.88	101	103	70.0-130			2.39	25
trans-1,3-Dichloropropene	3.75	3.66	3.92	97.7	105	70.0-130			6.76	25
1,1,2-Trichloroethane	3.75	3.79	3.94	101	105	70.0-130			3.72	25
Tetrachloroethylene	3.75	4.49	4.59	120	122	70.0-130			2.19	25
Methyl Butyl Ketone	3.75	3.48	3.62	92.7	96.6	70.0-150			4.14	25
Dibromochloromethane	3.75	4.23	4.42	113	118	70.0-130			4.38	25
1,2-Dibromoethane	3.75	4.09	4.27	109	114	70.0-130			4.39	25
Chlorobenzene	3.75	4.08	4.21	109	112	70.0-130			3.22	25
Ethylbenzene	3.75	3.95	4.02	105	107	70.0-130			1.80	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) R3285292-1 02/09/18 10:39 • (LCSD) R3285292-2 02/09/18 11:24

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
m&p-Xylene	7.50	8.14	8.33	109	111	70.0-130			2.31	25
o-Xylene	3.75	4.01	4.09	107	109	70.0-130			1.90	25
Styrene	3.75	4.19	4.25	112	113	70.0-130			1.35	25
Bromoform	3.75	4.60	4.70	123	125	70.0-130			2.19	25
1,1,2,2-Tetrachloroethane	3.75	3.77	3.88	101	104	70.0-130			2.82	25
4-Ethyltoluene	3.75	4.18	4.24	112	113	70.0-130			1.41	25
1,3,5-Trimethylbenzene	3.75	4.17	4.22	111	113	70.0-130			1.19	25
1,2,4-Trimethylbenzene	3.75	4.07	4.08	109	109	70.0-130			0.194	25
1,3-Dichlorobenzene	3.75	4.43	4.52	118	120	70.0-130			1.91	25
1,4-Dichlorobenzene	3.75	4.51	4.60	120	123	70.0-130			1.99	25
Benzyl Chloride	3.75	4.09	4.18	109	112	70.0-144			2.30	25
1,2-Dichlorobenzene	3.75	4.31	4.52	115	120	70.0-130			4.73	25
1,2,4-Trichlorobenzene	3.75	4.79	5.07	128	135	70.0-155			5.69	25
Hexachloro-1,3-butadiene	3.75	4.70	4.82	125	129	70.0-145			2.65	25
Naphthalene	3.75	4.35	4.58	116	122	70.0-155			5.03	25
Allyl Chloride	3.75	3.23	3.24	86.1	86.3	70.0-130			0.219	25
2-Chlorotoluene	3.75	4.39	4.42	117	118	70.0-130			0.660	25
Methyl Methacrylate	3.75	3.34	3.40	89.2	90.6	70.0-130			1.59	25
Tetrahydrofuran	3.75	3.10	3.09	82.7	82.5	70.0-140			0.189	25
2,2,4-Trimethylpentane	3.75	3.25	3.28	86.6	87.6	70.0-130			1.15	25
Vinyl Bromide	3.75	3.89	3.90	104	104	70.0-130			0.231	25
Isopropylbenzene	3.75	4.08	4.11	109	110	70.0-130			0.743	25
(S) 1,4-Bromofluorobenzene			94.1	93.2	60.0-140					

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



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



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
Alaska	UST-080
Arizona	AZ0612
Arkansas	88-0469
California	01157CA
Colorado	TN00003
Connecticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia ¹	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky ¹	90010
Kentucky ²	16
Louisiana	AI30792
Maine	TN0002
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
Nebraska	NE-OS-15-05

Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico	TN00003
New York	11742
North Carolina	Env375
North Carolina ¹	DW21704
North Carolina ²	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	221
South Carolina	84004
South Dakota	n/a
Tennessee ^{1,4}	2006
Texas	T 104704245-07-TX
Texas ⁵	LAB0152
Utah	6157585858
Vermont	VT2006
Virginia	109
Washington	C1915
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

Third Party Federal Accreditations

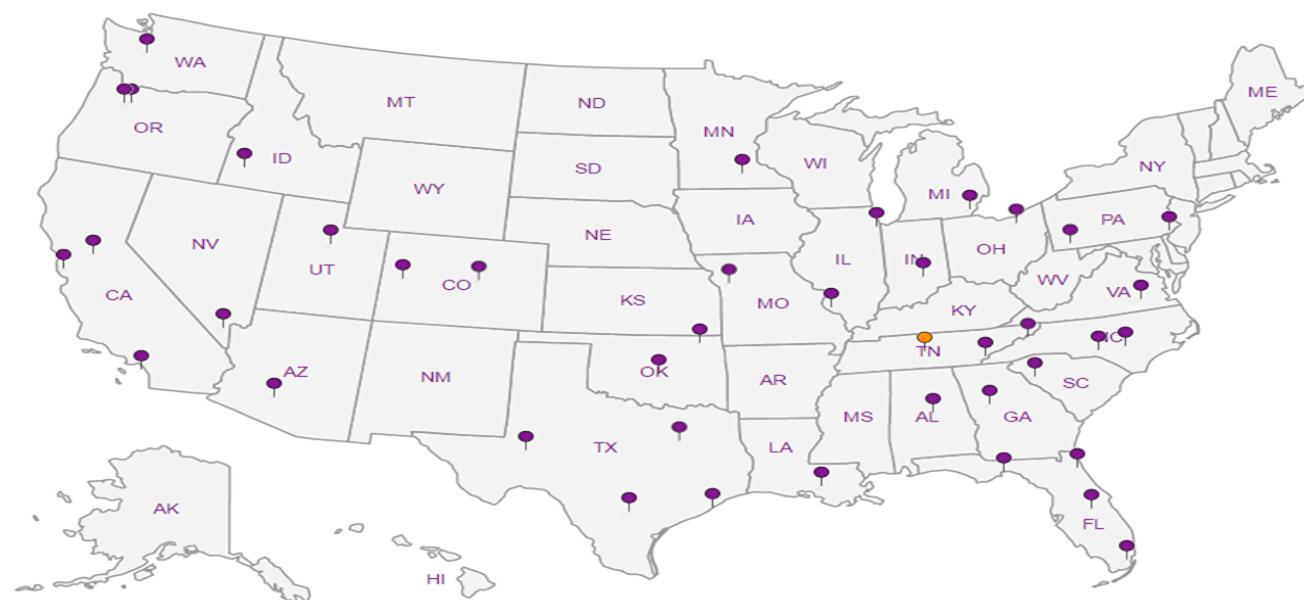
A2LA - ISO 17025	1461.01
A2LA - ISO 17025 ⁵	1461.02
Canada	1461.01
EPA-Crypto	TN00003

AIHA-LAP,LLC	100789
DOD	1461.01
USDA	S-67674

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

Our Locations

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



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

SEPERATE COC FOR IA-1 - RUSH-TURNAROUND REQUESTED

Remarks: Additional Information is depicted in Sample Collection Table

Relinquished by : (Signature)

Date: 2/8/18

Time:
12:0

Received by: (Signature)

Samples returned via: UPS

FedEx Courier _____

***C Bottles Received:**

| Hold t

Condition: _____ (lab use only)

Relinquished by : (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:

九月

Date: _____ Time: _____

COC Seal Intact: Y N NA

pH Checked: NCF:

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client:	F2RENVBNI	SDG#	L969021
Cooler Received/Opened On:	02/9 /18	Temperature:	Amb ^o C
Received by :	Christian Kacar		
Signature:	<i>CHRISTIAN KACAR</i>		
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	/	/	/
COC Signed / Accurate?	/	/	/
Bottles arrive intact?	/	/	/
Correct bottles used?	/	/	/
Sufficient volume sent?			
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

APPENDIX B

February 11, 2018

First Environment, Inc.

Sample Delivery Group: L969370
Samples Received: 02/10/2018
Project Number: ENPRO002D-VM
Description: Butler Snow LLP
Site: BORG WARNER PLANT SITE
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.

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



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Cn: Case Narrative	4	4 Cn
Sr: Sample Results	5	5 Sr
IA-1 L969370-01	5	
Qc: Quality Control Summary	7	7 Qc
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Gl: Glossary of Terms	11	11 Gl
Al: Accreditations & Locations	12	12 Al
Sc: Sample Chain of Custody	13	13 Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



IA-1 L969370-01 Air

			Collected by Michael T. Slack	Collected date/time 02/08/18 16:10	Received date/time 02/10/18 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1072238	1	02/10/18 12:23	02/10/18 12:23	AMC
Volatile Organic Compounds (MS) by Method TO-15	WG1072238	25	02/10/18 13:56	02/10/18 13:56	AMC

- 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. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All 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	96.4	229		25	WG1072238
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1072238
Benzene	71-43-2	78.10	0.200	0.639	0.379	1.21		1	WG1072238
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1072238
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1072238
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1072238
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1072238
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1072238
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1072238
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1072238
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1072238
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1072238
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1072238
Chloromethane	74-87-3	50.50	0.200	0.413	0.502	1.04		1	WG1072238
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1072238
Cyclohexane	110-82-7	84.20	0.200	0.689	0.458	1.58		1	WG1072238
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1072238
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1072238
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1072238
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1072238
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1072238
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1072238
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1072238
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1072238
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	0.318	1.26		1	WG1072238
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1072238
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1072238
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1072238
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1072238
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1072238
Ethanol	64-17-5	46.10	15.8	29.8	1520	2870	E	25	WG1072238
Ethylbenzene	100-41-4	106	0.200	0.867	0.450	1.95		1	WG1072238
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.223	1.09		1	WG1072238
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.237	1.33		1	WG1072238
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	ND	ND	J3	1	WG1072238
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1072238
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1072238
Heptane	142-82-5	100	0.200	0.818	5.77	23.6		1	WG1072238
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1072238
n-Hexane	110-54-3	86.20	0.200	0.705	3.22	11.4		1	WG1072238
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1072238
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1072238
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1072238
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	132	389		25	WG1072238
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1072238
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1072238
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1072238
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1072238
2-Propanol	67-63-0	60.10	31.2	76.7	2060	5070	E	25	WG1072238
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1072238
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1072238
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1072238
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1072238
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1072238
Toluene	108-88-3	92.10	0.200	0.753	1.43	5.39		1	WG1072238
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1072238

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	WG1072238	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1072238	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	1.19	6.39		1	WG1072238	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.702	3.45		1	WG1072238	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.239	1.17		1	WG1072238	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.369	1.72		1	WG1072238	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1072238	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1072238	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1072238	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.63	7.08		1	WG1072238	
o-Xylene	95-47-6	106	0.200	0.867	0.633	2.75		1	WG1072238	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		103				WG1072238	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		95.7				WG1072238	



L969370-01

Method Blank (MB)

(MB) R3285439-3 02/10/18 10:47

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	0.0823	J	0.0598	0.200	⁴ Cn
Bromodichloromethane	U		0.0436	0.200	⁵ Sr
Bromoform	U		0.0786	0.600	⁶ Qc
Bromomethane	U		0.0609	0.200	⁷ Gl
1,3-Butadiene	U		0.0563	2.00	⁸ Al
Carbon disulfide	U		0.0544	0.200	⁹ Sc
Carbon tetrachloride	U		0.0585	0.200	
Chlorobenzene	U		0.0601	0.200	
Chloroethane	U		0.0489	0.200	
Chloroform	U		0.0574	0.200	
Chloromethane	U		0.0544	0.200	
2-Chlorotoluene	U		0.0605	0.200	
Cyclohexane	U		0.0534	0.200	
Dibromochloromethane	U		0.0494	0.200	
1,2-Dibromoethane	U		0.0185	0.200	
1,2-Dichlorobenzene	0.0811	J	0.0603	0.200	
1,3-Dichlorobenzene	U		0.0597	0.200	
1,4-Dichlorobenzene	0.0775	J	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	0.0676	J	0.0656	0.630	
n-Hexane	U		0.0457	0.200	
Isopropylbenzene	U		0.0563	0.200	



L969370-01

Method Blank (MB)

(MB) R3285439-3 02/10/18 10:47

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv								
Methylene Chloride	U		0.0465	0.200								
Methyl Butyl Ketone	U		0.0682	1.25								
2-Butanone (MEK)	U		0.0493	1.25								
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25								
Methyl Methacrylate	U		0.0773	0.200								
MTBE	U		0.0505	0.200								
Naphthalene	0.320	J	0.154	0.630								
2-Propanol	U		0.0882	1.25								
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	0.218	J	0.148	0.630								
1,1,1-Trichloroethane	U		0.0665	0.200								
1,1,2-Trichloroethane	U		0.0287	0.200								
Trichloroethylene	U		0.0545	0.200								
1,2,4-Trimethylbenzene	U		0.0483	0.200								
1,3,5-Trimethylbenzene	U		0.0631	0.200								
2,2,4-Trimethylpentane	U		0.0456	0.200								
Vinyl chloride	U		0.0457	0.200								
Vinyl Bromide	U		0.0727	0.200								
Vinyl acetate	U		0.0639	0.200								
m&p-Xylene	U		0.0946	0.400								
o-Xylene	U		0.0633	0.200								
Ethanol	U		0.0832	0.630								
(S) 1,4-Bromofluorobenzene	90.9			60.0-140								

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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

(LCS) R3285439-1 02/10/18 09:13 • (LCSD) R3285439-2 02/10/18 10:01

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	4.59	4.45	122	119	52.0-158			3.20	25
Propene	3.75	4.08	3.83	109	102	54.0-155			6.28	25
Dichlorodifluoromethane	3.75	2.64	3.69	70.4	98.5	69.0-143	J3		33.3	25
1,2-Dichlorotetrafluoroethane	3.75	3.57	4.35	95.2	116	70.0-130			19.7	25
Chloromethane	3.75	4.11	3.89	110	104	70.0-130			5.55	25



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

(LCS) R3285439-1 02/10/18 09:13 • (LCSD) R3285439-2 02/10/18 10:01

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	4.40	4.06	117	108	70.0-130			7.96	25
1,3-Butadiene	3.75	4.15	3.93	111	105	70.0-130			5.67	25
Bromomethane	3.75	4.53	4.25	121	113	70.0-130			6.22	25
Chloroethane	3.75	4.47	4.20	119	112	70.0-130			6.24	25
Trichlorofluoromethane	3.75	4.53	4.21	121	112	70.0-130			7.11	25
1,1,2-Trichlorotrifluoroethane	3.75	4.47	4.17	119	111	70.0-130			7.11	25
1,1-Dichloroethene	3.75	4.26	4.00	114	107	70.0-130			6.38	25
1,1-Dichloroethane	3.75	4.31	4.04	115	108	70.0-130			6.53	25
Acetone	3.75	4.35	4.07	116	109	70.0-130			6.53	25
2-Propanol	3.75	4.19	3.96	112	106	66.0-150			5.80	25
Carbon disulfide	3.75	4.35	4.07	116	108	70.0-130			6.77	25
Methylene Chloride	3.75	4.13	3.85	110	103	70.0-130			6.85	25
MTBE	3.75	4.39	4.12	117	110	70.0-130			6.50	25
trans-1,2-Dichloroethene	3.75	4.40	4.15	117	111	70.0-130			5.89	25
n-Hexane	3.75	4.25	4.00	113	107	70.0-130			6.09	25
Vinyl acetate	3.75	4.48	4.20	120	112	70.0-130			6.44	25
Methyl Ethyl Ketone	3.75	4.47	4.21	119	112	70.0-130			6.11	25
cis-1,2-Dichloroethene	3.75	4.50	4.21	120	112	70.0-130			6.78	25
Chloroform	3.75	4.45	4.13	119	110	70.0-130			7.52	25
Cyclohexane	3.75	4.34	4.04	116	108	70.0-130			7.31	25
1,1,1-Trichloroethane	3.75	4.44	4.15	118	111	70.0-130			6.73	25
Carbon tetrachloride	3.75	4.47	4.17	119	111	70.0-130			6.91	25
Benzene	3.75	4.38	4.08	117	109	70.0-130			7.02	25
1,2-Dichloroethane	3.75	4.47	4.12	119	110	70.0-130			8.18	25
Heptane	3.75	4.18	3.93	111	105	70.0-130			6.11	25
Trichloroethylene	3.75	4.39	4.16	117	111	70.0-130			5.36	25
1,2-Dichloropropane	3.75	4.33	4.06	115	108	70.0-130			6.49	25
1,4-Dioxane	3.75	4.42	4.33	118	115	70.0-152			2.17	25
Bromodichloromethane	3.75	4.40	4.10	117	109	70.0-130			7.00	25
cis-1,3-Dichloropropene	3.75	4.48	4.22	119	112	70.0-130			5.95	25
4-Methyl-2-pentanone (MIBK)	3.75	4.17	3.94	111	105	70.0-142			5.50	25
Toluene	3.75	4.52	4.27	121	114	70.0-130			5.77	25
trans-1,3-Dichloropropene	3.75	4.45	4.22	119	112	70.0-130			5.40	25
1,1,2-Trichloroethane	3.75	4.54	4.26	121	113	70.0-130			6.48	25
Tetrachloroethylene	3.75	4.50	4.22	120	112	70.0-130			6.65	25
Methyl Butyl Ketone	3.75	4.25	4.03	113	108	70.0-150			5.28	25
Dibromochloromethane	3.75	4.41	4.20	118	112	70.0-130			4.86	25
1,2-Dibromoethane	3.75	4.39	4.22	117	113	70.0-130			3.92	25
Chlorobenzene	3.75	4.41	4.26	118	114	70.0-130			3.48	25
Ethylbenzene	3.75	4.45	4.26	119	114	70.0-130			4.42	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) R3285439-1 02/10/18 09:13 • (LCSD) R3285439-2 02/10/18 10:01

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
m&p-Xylene	7.50	8.82	8.43	118	112	70.0-130			4.51	25
o-Xylene	3.75	4.31	4.23	115	113	70.0-130			1.77	25
Styrene	3.75	4.22	4.17	113	111	70.0-130			1.26	25
Bromoform	3.75	4.17	4.22	111	112	70.0-130			1.06	25
1,1,2,2-Tetrachloroethane	3.75	3.98	4.03	106	107	70.0-130			1.15	25
4-Ethyltoluene	3.75	4.09	4.18	109	112	70.0-130			2.30	25
1,3,5-Trimethylbenzene	3.75	3.97	4.13	106	110	70.0-130			3.83	25
1,2,4-Trimethylbenzene	3.75	3.81	4.06	102	108	70.0-130			6.33	25
1,3-Dichlorobenzene	3.75	3.93	4.20	105	112	70.0-130			6.53	25
1,4-Dichlorobenzene	3.75	3.91	4.14	104	110	70.0-130			5.61	25
Benzyl Chloride	3.75	3.76	4.14	100	110	70.0-144			9.44	25
1,2-Dichlorobenzene	3.75	3.65	4.03	97.2	107	70.0-130			10.0	25
1,2,4-Trichlorobenzene	3.75	3.70	4.16	98.6	111	70.0-155			11.9	25
Hexachloro-1,3-butadiene	3.75	3.72	4.00	99.2	107	70.0-145			7.38	25
Naphthalene	3.75	3.78	4.10	101	109	70.0-155			7.96	25
Allyl Chloride	3.75	4.09	3.87	109	103	70.0-130			5.60	25
2-Chlorotoluene	3.75	4.00	4.14	107	110	70.0-130			3.36	25
Methyl Methacrylate	3.75	4.39	4.12	117	110	70.0-130			6.51	25
Tetrahydrofuran	3.75	4.20	3.96	112	106	70.0-140			5.71	25
2,2,4-Trimethylpentane	3.75	4.31	4.08	115	109	70.0-130			5.31	25
Vinyl Bromide	3.75	4.55	4.26	121	114	70.0-130			6.45	25
Isopropylbenzene	3.75	4.15	4.19	111	112	70.0-130			0.856	25
(S) 1,4-Bromofluorobenzene			94.8	99.3	60.0-140					

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



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).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.



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.

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Kentucky ²	16
Louisiana	AI30792
Maine	TN0002
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
Nebraska	NE-OS-15-05

Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico	TN00003
New York	11742
North Carolina	Env375
North Carolina ¹	DW21704
North Carolina ²	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	221
South Carolina	84004
South Dakota	n/a
Tennessee ^{1,4}	2006
Texas	T 104704245-07-TX
Texas ⁵	LAB0152
Utah	6157585858
Vermont	VT2006
Virginia	109
Washington	C1915
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

Third Party Federal Accreditations

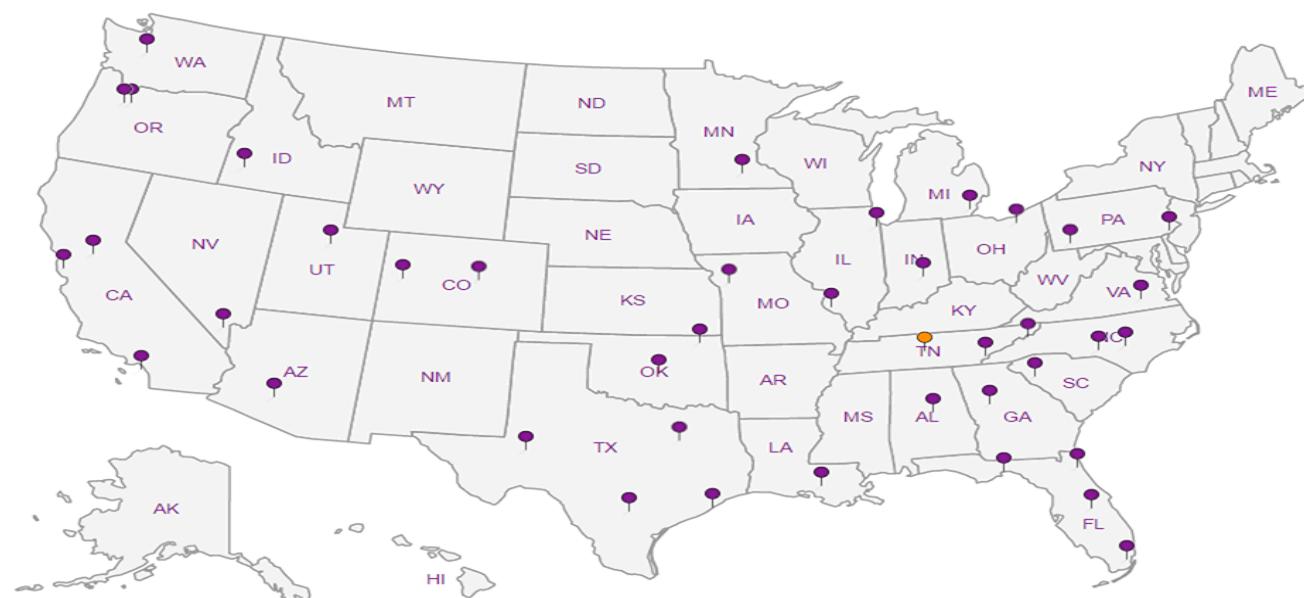
A2LA - ISO 17025	1461.01
A2LA - ISO 17025 ⁵	1461.02
Canada	1461.01
EPA-Crypto	TN00003

AIHA-LAP,LLC	100789
DOD	1461.01
USDA	S-67674

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

Our Locations

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



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

Company Name/Address:

First Environment, Inc.91 Fulton St.
Boonton, NJ 07005

Billing Information:

First Environment, Inc.
 91 Fulton St.
 Boonton NJ 07005
 Attn: Justin Picolo
 JPicolo@firstenvironment.com

Analysis

Chain of Custody Page ____ of ____


 12065 Lebanon Rd.
 Mount Juliet, TN 37122
 Phone: 615-758-5858
 Phone: 800-767-5859
 Fax: 615-758-5859
L# *L969370*

M092

Tat

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Rem./Contaminant Sample # (lab only)

-01

X TO-15 Summa

Report to:
Michael T. Slack (FE)Project Description: **EnPro-Coltec-Water Valley (24-hr Indoor Air-BW)**Phone: **973-334-0003**
Fax: **973-334-0928**Client Project #
EnPro002D-VMEmail To:
MSlack@firstenvironment.comCity/State Collected: **Water Valley, MS (Borg Warner Plant Site)**Lab Project #
FIREN VBNJ-OxfordMSCollected by (print):
Michael T. SlackSite/Facility ID #
Borg Warner Plant SiteP.O. #

Collected by (signature):

M.T.S. Rush? (Lab MUST Be Notified)

<input checked="" type="checkbox"/> Same Day	200%
<input type="checkbox"/> Next Day	100%
<input type="checkbox"/> Two Day	50%
<input type="checkbox"/> Three Day	25%

Date Results Needed
Same DayEmail? No Yes
FAX? No Yes

Canister Pressure/Vacuum

Sample ID

Sample Description

Can #

Date

(INITIAL)

Time

(INITIAL)

Initial

Final

IA-1

Maintenance Room

7307

2/8/18

12:10

3D

5

DOOR CLOSED @ 11:45 (2/8/18) - MAINTENANCE ROOM

738442062112

Remarks: **2nd canister placed in Maintenance after bi-weekly sampling event (Maintenance room door closed)**

Relinquished by: (Signature)

Date:

2/9/18

Time:

1B:15

Received by: (Signature)

Samples returned via: UPS FedEx Courier Condition: (lab use only) *OK*

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:

Amb

1

COC Seal Intact: Y N NA

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date:

2/10/18

Time:

900

pH Checked: NCF:

Indoor Air Monitoring (Bi-Weekly Sampling)

Borg Warner Facility

Water Valley, Yalobusha Co., MS

Feb. 8-9, 2018

Indoor Air (IA), Ambient Air (AA), Air Permit Evaluation (SSD) - Sampling Event

L969320

Weather Conditions (@ time of canister placement):

SUNNY - MID-50's - WINDS S - 3 mph

Michael T. Slack (First Environment)

Weather Conditions during 24-hr sampling period:

CLEAR - WINDS OUT OF SOUTH <5 mph

NS – Not Sampled

ESC LAB SCIENCES
Cooler Receipt Form

Client:	FIRENVBN5	SDG#	1961370
Cooler Received/Opened On:	02/10/18	Temperature:	AMB °C
Received by :	Christian Kacar		
Signature:	dmcarr		
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	-	-	-
COC Signed / Accurate?	-	-	-
Bottles arrive intact?	-	-	-
Correct bottles used?	-	-	-
Sufficient volume sent?	-	-	-
If Applicable	-	-	-
VOA Zero headspace?	-	-	-
Preservation Correct / Checked?	-	-	-

APPENDIX C

February 13, 2018

First Environment, Inc.

Sample Delivery Group: L969030
Samples Received: 02/09/2018
Project Number: ENPRO002D-VM
Description: EnPro-Coltec-Water Valley (24-hour Indoor Air-BW)
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.

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



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-2 L969030-01	5	
IA-6 L969030-02	7	
IA-17 L969030-03	9	
AA-2 L969030-04	11	
Qc: Quality Control Summary	13	 ⁶ Qc
Volatile Organic Compounds (MS) by Method TO-15	13	
Gl: Glossary of Terms	18	 ⁷ Gl
Al: Accreditations & Locations	19	 ⁸ Al
Sc: Sample Chain of Custody	20	 ⁹ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



			Collected by Michael T. Slack	Collected date/time 02/07/18 11:36	Received date/time 02/09/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1072238	1	02/10/18 11:33	02/10/18 11:33	AMC
Volatile Organic Compounds (MS) by Method TO-15	WG1072680	25	02/12/18 14:58	02/12/18 14:58	MBF
IA-6 L969030-02 Air			Collected by Michael T. Slack	Collected date/time 02/07/18 11:41	Received date/time 02/09/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1072238	1	02/10/18 13:11	02/10/18 13:11	AMC
Volatile Organic Compounds (MS) by Method TO-15	WG1072680	25	02/12/18 15:39	02/12/18 15:39	MBF
IA-17 L969030-03 Air			Collected by Michael T. Slack	Collected date/time 02/07/18 11:42	Received date/time 02/09/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1072238	4	02/10/18 14:42	02/10/18 14:42	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1072680	25	02/12/18 16:21	02/12/18 16:21	MBF
AA-2 L969030-04 Air			Collected by Michael T. Slack	Collected date/time 02/07/18 11:44	Received date/time 02/09/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1072238	1	02/10/18 15:28	02/10/18 15:28	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. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All 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	81.2	193		25	WG1072680
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1072238
Benzene	71-43-2	78.10	0.200	0.639	0.350	1.12		1	WG1072238
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1072238
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1072238
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1072238
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1072238
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1072238
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1072238
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1072238
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1072238
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1072238
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1072238
Chloromethane	74-87-3	50.50	0.200	0.413	0.497	1.03		1	WG1072238
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1072238
Cyclohexane	110-82-7	84.20	0.200	0.689	0.245	0.842		1	WG1072238
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1072238
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1072238
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1072238
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1072238
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1072238
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1072238
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1072238
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1072238
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1072238
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1072238
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1072238
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1072238
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1072238
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1072238
Ethanol	64-17-5	46.10	15.8	29.8	2080	3930	E	25	WG1072680
Ethylbenzene	100-41-4	106	0.200	0.867	0.375	1.63		1	WG1072238
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1072238
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.228	1.28		1	WG1072238
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.286	1.42	J3	1	WG1072238
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1072238
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1072238
Heptane	142-82-5	100	0.200	0.818	3.51	14.3		1	WG1072238
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1072238
n-Hexane	110-54-3	86.20	0.200	0.705	2.67	9.41		1	WG1072238
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1072238
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1072238
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1072238
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	133	393		25	WG1072680
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1072238
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1072238
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1072238
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1072238
2-Propanol	67-63-0	60.10	31.2	76.7	1870	4600	E	25	WG1072680
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1072238
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1072238
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1072238
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1072238
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1072238
Toluene	108-88-3	92.10	0.200	0.753	0.861	3.24		1	WG1072238
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1072238

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	WG1072238
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1072238
Trichloroethylene	79-01-6	131	0.200	1.07	0.299	1.60		1	WG1072238
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.590	2.89		1	WG1072238
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	0.218	1.07		1	WG1072238
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1072238
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1072238
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1072238
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1072238
m&p-Xylene	1330-20-7	106	0.400	1.73	1.35	5.85		1	WG1072238
o-Xylene	95-47-6	106	0.200	0.867	0.525	2.28		1	WG1072238
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		89.4				WG1072680
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		100				WG1072238

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	31.2	74.1	75.3	179		25	WG1072680
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1072238
Benzene	71-43-2	78.10	0.200	0.639	0.316	1.01		1	WG1072238
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1072238
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1072238
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1072238
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1072238
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1072238
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1072238
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1072238
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1072238
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1072238
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1072238
Chloromethane	74-87-3	50.50	0.200	0.413	0.467	0.965		1	WG1072238
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1072238
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1072238
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1072238
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1072238
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1072238
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1072238
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1072238
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1072238
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1072238
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1072238
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	0.551	2.18		1	WG1072238
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1072238
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1072238
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1072238
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1072238
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1072238
Ethanol	64-17-5	46.10	15.8	29.8	1910	3600	E	25	WG1072680
Ethylbenzene	100-41-4	106	0.200	0.867	0.294	1.27		1	WG1072238
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1072238
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.216	1.21		1	WG1072238
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.254	1.25	J3	1	WG1072238
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1072238
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1072238
Heptane	142-82-5	100	0.200	0.818	2.72	11.1		1	WG1072238
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1072238
n-Hexane	110-54-3	86.20	0.200	0.705	2.04	7.19		1	WG1072238
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1072238
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1072238
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1072238
2-Butanone (MEK)	78-93-3	72.10	31.2	92.0	127	375		25	WG1072680
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1072238
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1072238
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1072238
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1072238
2-Propanol	67-63-0	60.10	31.2	76.7	1590	3900	E	25	WG1072680
Propene	115-07-1	42.10	0.400	0.689	15.9	27.3		1	WG1072238
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1072238
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1072238
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1072238
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1072238
Toluene	108-88-3	92.10	0.200	0.753	0.712	2.68		1	WG1072238
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1072238

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	WG1072238	¹ Cp
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1072238	² Tc
Trichloroethylene	79-01-6	131	0.200	1.07	0.644	3.45		1	WG1072238	³ Ss
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.474	2.33		1	WG1072238	⁴ Cn
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1072238	⁵ Sr
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1072238	⁶ Qc
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1072238	⁷ Gl
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1072238	⁸ Al
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1072238	⁹ Sc
m&p-Xylene	1330-20-7	106	0.400	1.73	1.02	4.42		1	WG1072238	
o-Xylene	95-47-6	106	0.200	0.867	0.384	1.66		1	WG1072238	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		90.5				WG1072680	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.1				WG1072238	



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	5.00	11.9	79.4	189		4	WG1072238
Allyl chloride	107-05-1	76.53	0.800	2.50	ND	ND		4	WG1072238
Benzene	71-43-2	78.10	0.800	2.56	ND	ND		4	WG1072238
Benzyl Chloride	100-44-7	127	0.800	4.16	ND	ND		4	WG1072238
Bromodichloromethane	75-27-4	164	0.800	5.37	ND	ND		4	WG1072238
Bromoform	75-25-2	253	2.40	24.8	ND	ND		4	WG1072238
Bromomethane	74-83-9	94.90	0.800	3.11	ND	ND		4	WG1072238
1,3-Butadiene	106-99-0	54.10	8.00	17.7	ND	ND		4	WG1072238
Carbon disulfide	75-15-0	76.10	0.800	2.49	ND	ND		4	WG1072238
Carbon tetrachloride	56-23-5	154	0.800	5.04	ND	ND		4	WG1072238
Chlorobenzene	108-90-7	113	0.800	3.70	ND	ND		4	WG1072238
Chloroethane	75-00-3	64.50	0.800	2.11	ND	ND		4	WG1072238
Chloroform	67-66-3	119	0.800	3.89	ND	ND		4	WG1072238
Chloromethane	74-87-3	50.50	0.800	1.65	ND	ND		4	WG1072238
2-Chlorotoluene	95-49-8	126	0.800	4.12	ND	ND		4	WG1072238
Cyclohexane	110-82-7	84.20	0.800	2.76	ND	ND		4	WG1072238
Dibromochloromethane	124-48-1	208	0.800	6.81	ND	ND		4	WG1072238
1,2-Dibromoethane	106-93-4	188	0.800	6.15	ND	ND		4	WG1072238
1,2-Dichlorobenzene	95-50-1	147	0.800	4.81	ND	ND		4	WG1072238
1,3-Dichlorobenzene	541-73-1	147	0.800	4.81	ND	ND		4	WG1072238
1,4-Dichlorobenzene	106-46-7	147	0.800	4.81	ND	ND		4	WG1072238
1,2-Dichloroethane	107-06-2	99	0.800	3.24	ND	ND		4	WG1072238
1,1-Dichloroethane	75-34-3	98	0.800	3.21	ND	ND		4	WG1072238
1,1-Dichloroethene	75-35-4	96.90	0.800	3.17	ND	ND		4	WG1072238
cis-1,2-Dichloroethene	156-59-2	96.90	0.800	3.17	ND	ND		4	WG1072238
trans-1,2-Dichloroethene	156-60-5	96.90	0.800	3.17	ND	ND		4	WG1072238
1,2-Dichloropropane	78-87-5	113	0.800	3.70	ND	ND		4	WG1072238
cis-1,3-Dichloropropene	10061-01-5	111	0.800	3.63	ND	ND		4	WG1072238
trans-1,3-Dichloropropene	10061-02-6	111	0.800	3.63	ND	ND		4	WG1072238
1,4-Dioxane	123-91-1	88.10	0.800	2.88	ND	ND		4	WG1072238
Ethanol	64-17-5	46.10	15.8	29.8	2640	4980	E	25	WG1072680
Ethylbenzene	100-41-4	106	0.800	3.47	ND	ND		4	WG1072238
4-Ethyltoluene	622-96-8	120	0.800	3.93	ND	ND		4	WG1072238
Trichlorofluoromethane	75-69-4	137.40	0.800	4.50	ND	ND		4	WG1072238
Dichlorodifluoromethane	75-71-8	120.92	0.800	3.96	ND	ND	J3	4	WG1072238
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.800	6.13	ND	ND		4	WG1072238
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.800	5.60	ND	ND		4	WG1072238
Heptane	142-82-5	100	0.800	3.27	2.86	11.7		4	WG1072238
Hexachloro-1,3-butadiene	87-68-3	261	2.52	26.9	ND	ND		4	WG1072238
n-Hexane	110-54-3	86.20	0.800	2.82	2.53	8.93		4	WG1072238
Isopropylbenzene	98-82-8	120.20	0.800	3.93	ND	ND		4	WG1072238
Methylene Chloride	75-09-2	84.90	0.800	2.78	ND	ND		4	WG1072238
Methyl Butyl Ketone	591-78-6	100	5.00	20.4	ND	ND		4	WG1072238
2-Butanone (MEK)	78-93-3	72.10	5.00	14.7	164	483		4	WG1072238
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	5.00	20.5	ND	ND		4	WG1072238
Methyl methacrylate	80-62-6	100.12	0.800	3.28	ND	ND		4	WG1072238
MTBE	1634-04-4	88.10	0.800	2.88	ND	ND		4	WG1072238
Naphthalene	91-20-3	128	2.52	13.2	ND	ND		4	WG1072238
2-Propanol	67-63-0	60.10	31.2	76.7	1910	4700	E	25	WG1072680
Propene	115-07-1	42.10	1.60	2.76	ND	ND		4	WG1072238
Styrene	100-42-5	104	0.800	3.40	ND	ND		4	WG1072238
1,1,2-Tetrachloroethane	79-34-5	168	0.800	5.50	ND	ND		4	WG1072238
Tetrachloroethylene	127-18-4	166	0.800	5.43	ND	ND		4	WG1072238
Tetrahydrofuran	109-99-9	72.10	0.800	2.36	ND	ND		4	WG1072238
Toluene	108-88-3	92.10	0.800	3.01	ND	ND		4	WG1072238
1,2,4-Trichlorobenzene	120-82-1	181	2.52	18.7	ND	ND		4	WG1072238

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	0.800	4.35	ND	ND		4	WG1072238
1,1,2-Trichloroethane	79-00-5	133	0.800	4.35	ND	ND		4	WG1072238
Trichloroethylene	79-01-6	131	0.800	4.29	ND	ND		4	WG1072238
1,2,4-Trimethylbenzene	95-63-6	120	0.800	3.93	ND	ND		4	WG1072238
1,3,5-Trimethylbenzene	108-67-8	120	0.800	3.93	ND	ND		4	WG1072238
2,2,4-Trimethylpentane	540-84-1	114.22	0.800	3.74	ND	ND		4	WG1072238
Vinyl chloride	75-01-4	62.50	0.800	2.04	ND	ND		4	WG1072238
Vinyl Bromide	593-60-2	106.95	0.800	3.50	ND	ND		4	WG1072238
Vinyl acetate	108-05-4	86.10	0.800	2.82	ND	ND		4	WG1072238
m&p-Xylene	1330-20-7	106	1.60	6.94	ND	ND		4	WG1072238
o-Xylene	95-47-6	106	0.800	3.47	ND	ND		4	WG1072238
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.2				WG1072238
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		90.0				WG1072680

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	2.07	4.92		1	WG1072238
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1072238
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1072238
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1072238
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1072238
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1072238
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1072238
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1072238
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1072238
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1072238
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1072238
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1072238
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1072238
Chloromethane	74-87-3	50.50	0.200	0.413	0.539	1.11		1	WG1072238
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1072238
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1072238
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1072238
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1072238
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1072238
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1072238
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1072238
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1072238
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1072238
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1072238
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1072238
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1072238
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1072238
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1072238
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1072238
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1072238
Ethanol	64-17-5	46.10	0.630	1.19	228	429	E	1	WG1072238
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1072238
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1072238
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.248	1.39		1	WG1072238
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.265	1.31	J3	1	WG1072238
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1072238
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1072238
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1072238
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1072238
n-Hexane	110-54-3	86.20	0.200	0.705	ND	ND		1	WG1072238
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1072238
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1072238
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1072238
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1072238
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1072238
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1072238
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1072238
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1072238
2-Propanol	67-63-0	60.10	1.25	3.07	13.2	32.4		1	WG1072238
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1072238
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1072238
1,1,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1072238
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1072238
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1072238
Toluene	108-88-3	92.10	0.200	0.753	ND	ND		1	WG1072238
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1072238

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

AA-2

Collected date/time: 02/07/18 11:44

SAMPLE RESULTS - 04

L969030

ONE LAB. NATIONWIDE.



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	WG1072238
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1072238
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1072238
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1072238
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1072238
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1072238
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1072238
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1072238
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1072238
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1072238
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1072238
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		94.0				WG1072238

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ GI⁸ Al⁹ Sc



L969030-01,02,03,04

Method Blank (MB)

(MB) R3285439-3 02/10/18 10:47

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	0.0823	J	0.0598	0.200	⁴ Cn
Bromodichloromethane	U		0.0436	0.200	⁵ Sr
Bromoform	U		0.0786	0.600	⁶ Qc
Bromomethane	U		0.0609	0.200	⁷ Gl
1,3-Butadiene	U		0.0563	2.00	⁸ Al
Carbon disulfide	U		0.0544	0.200	⁹ Sc
Carbon tetrachloride	U		0.0585	0.200	
Chlorobenzene	U		0.0601	0.200	
Chloroethane	U		0.0489	0.200	
Chloroform	U		0.0574	0.200	
Chloromethane	U		0.0544	0.200	
2-Chlorotoluene	U		0.0605	0.200	
Cyclohexane	U		0.0534	0.200	
Dibromochloromethane	U		0.0494	0.200	
1,2-Dibromoethane	U		0.0185	0.200	
1,2-Dichlorobenzene	0.0811	J	0.0603	0.200	
1,3-Dichlorobenzene	U		0.0597	0.200	
1,4-Dichlorobenzene	0.0775	J	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	0.0676	J	0.0656	0.630	
n-Hexane	U		0.0457	0.200	
Isopropylbenzene	U		0.0563	0.200	

L969030-01,02,03,04

Method Blank (MB)

(MB) R3285439-3 02/10/18 10:47

Analyte	MB Result ppbv	<u>MB Qualifier</u>	MB MDL ppbv	MB RDL ppbv								
Methylene Chloride	U		0.0465	0.200								
Methyl Butyl Ketone	U		0.0682	1.25								
2-Butanone (MEK)	U		0.0493	1.25								
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25								
Methyl Methacrylate	U		0.0773	0.200								
MTBE	U		0.0505	0.200								
Naphthalene	0.320	J	0.154	0.630								
2-Propanol	U		0.0882	1.25								
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	0.218	J	0.148	0.630								
1,1,1-Trichloroethane	U		0.0665	0.200								
1,1,2-Trichloroethane	U		0.0287	0.200								
Trichloroethylene	U		0.0545	0.200								
1,2,4-Trimethylbenzene	U		0.0483	0.200								
1,3,5-Trimethylbenzene	U		0.0631	0.200								
2,2,4-Trimethylpentane	U		0.0456	0.200								
Vinyl chloride	U		0.0457	0.200								
Vinyl Bromide	U		0.0727	0.200								
Vinyl acetate	U		0.0639	0.200								
m&p-Xylene	U		0.0946	0.400								
o-Xylene	U		0.0633	0.200								
Ethanol	U		0.0832	0.630								
(S) 1,4-Bromofluorobenzene	90.9			60.0-140								

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

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

(LCS) R3285439-1 02/10/18 09:13 • (LCSD) R3285439-2 02/10/18 10:01

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ethanol	3.75	4.59	4.45	122	119	52.0-158			3.20	25
Propene	3.75	4.08	3.83	109	102	54.0-155			6.28	25
Dichlorodifluoromethane	3.75	2.64	3.69	70.4	98.5	69.0-143	J3		33.3	25
1,2-Dichlorotetrafluoroethane	3.75	3.57	4.35	95.2	116	70.0-130			19.7	25
Chloromethane	3.75	4.11	3.89	110	104	70.0-130			5.55	25



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

(LCS) R3285439-1 02/10/18 09:13 • (LCSD) R3285439-2 02/10/18 10:01

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	4.40	4.06	117	108	70.0-130			7.96	25
1,3-Butadiene	3.75	4.15	3.93	111	105	70.0-130			5.67	25
Bromomethane	3.75	4.53	4.25	121	113	70.0-130			6.22	25
Chloroethane	3.75	4.47	4.20	119	112	70.0-130			6.24	25
Trichlorofluoromethane	3.75	4.53	4.21	121	112	70.0-130			7.11	25
1,1,2-Trichlorotrifluoroethane	3.75	4.47	4.17	119	111	70.0-130			7.11	25
1,1-Dichloroethene	3.75	4.26	4.00	114	107	70.0-130			6.38	25
1,1-Dichloroethane	3.75	4.31	4.04	115	108	70.0-130			6.53	25
Acetone	3.75	4.35	4.07	116	109	70.0-130			6.53	25
2-Propanol	3.75	4.19	3.96	112	106	66.0-150			5.80	25
Carbon disulfide	3.75	4.35	4.07	116	108	70.0-130			6.77	25
Methylene Chloride	3.75	4.13	3.85	110	103	70.0-130			6.85	25
MTBE	3.75	4.39	4.12	117	110	70.0-130			6.50	25
trans-1,2-Dichloroethene	3.75	4.40	4.15	117	111	70.0-130			5.89	25
n-Hexane	3.75	4.25	4.00	113	107	70.0-130			6.09	25
Vinyl acetate	3.75	4.48	4.20	120	112	70.0-130			6.44	25
Methyl Ethyl Ketone	3.75	4.47	4.21	119	112	70.0-130			6.11	25
cis-1,2-Dichloroethene	3.75	4.50	4.21	120	112	70.0-130			6.78	25
Chloroform	3.75	4.45	4.13	119	110	70.0-130			7.52	25
Cyclohexane	3.75	4.34	4.04	116	108	70.0-130			7.31	25
1,1,1-Trichloroethane	3.75	4.44	4.15	118	111	70.0-130			6.73	25
Carbon tetrachloride	3.75	4.47	4.17	119	111	70.0-130			6.91	25
Benzene	3.75	4.38	4.08	117	109	70.0-130			7.02	25
1,2-Dichloroethane	3.75	4.47	4.12	119	110	70.0-130			8.18	25
Heptane	3.75	4.18	3.93	111	105	70.0-130			6.11	25
Trichloroethylene	3.75	4.39	4.16	117	111	70.0-130			5.36	25
1,2-Dichloropropane	3.75	4.33	4.06	115	108	70.0-130			6.49	25
1,4-Dioxane	3.75	4.42	4.33	118	115	70.0-152			2.17	25
Bromodichloromethane	3.75	4.40	4.10	117	109	70.0-130			7.00	25
cis-1,3-Dichloropropene	3.75	4.48	4.22	119	112	70.0-130			5.95	25
4-Methyl-2-pentanone (MIBK)	3.75	4.17	3.94	111	105	70.0-142			5.50	25
Toluene	3.75	4.52	4.27	121	114	70.0-130			5.77	25
trans-1,3-Dichloropropene	3.75	4.45	4.22	119	112	70.0-130			5.40	25
1,1,2-Trichloroethane	3.75	4.54	4.26	121	113	70.0-130			6.48	25
Tetrachloroethylene	3.75	4.50	4.22	120	112	70.0-130			6.65	25
Methyl Butyl Ketone	3.75	4.25	4.03	113	108	70.0-150			5.28	25
Dibromochloromethane	3.75	4.41	4.20	118	112	70.0-130			4.86	25
1,2-Dibromoethane	3.75	4.39	4.22	117	113	70.0-130			3.92	25
Chlorobenzene	3.75	4.41	4.26	118	114	70.0-130			3.48	25
Ethylbenzene	3.75	4.45	4.26	119	114	70.0-130			4.42	25

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



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

(LCS) R3285439-1 02/10/18 09:13 • (LCSD) R3285439-2 02/10/18 10:01

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
m&p-Xylene	7.50	8.82	8.43	118	112	70.0-130			4.51	25
o-Xylene	3.75	4.31	4.23	115	113	70.0-130			1.77	25
Styrene	3.75	4.22	4.17	113	111	70.0-130			1.26	25
Bromoform	3.75	4.17	4.22	111	112	70.0-130			1.06	25
1,1,2,2-Tetrachloroethane	3.75	3.98	4.03	106	107	70.0-130			1.15	25
4-Ethyltoluene	3.75	4.09	4.18	109	112	70.0-130			2.30	25
1,3,5-Trimethylbenzene	3.75	3.97	4.13	106	110	70.0-130			3.83	25
1,2,4-Trimethylbenzene	3.75	3.81	4.06	102	108	70.0-130			6.33	25
1,3-Dichlorobenzene	3.75	3.93	4.20	105	112	70.0-130			6.53	25
1,4-Dichlorobenzene	3.75	3.91	4.14	104	110	70.0-130			5.61	25
Benzyl Chloride	3.75	3.76	4.14	100	110	70.0-144			9.44	25
1,2-Dichlorobenzene	3.75	3.65	4.03	97.2	107	70.0-130			10.0	25
1,2,4-Trichlorobenzene	3.75	3.70	4.16	98.6	111	70.0-155			11.9	25
Hexachloro-1,3-butadiene	3.75	3.72	4.00	99.2	107	70.0-145			7.38	25
Naphthalene	3.75	3.78	4.10	101	109	70.0-155			7.96	25
Allyl Chloride	3.75	4.09	3.87	109	103	70.0-130			5.60	25
2-Chlorotoluene	3.75	4.00	4.14	107	110	70.0-130			3.36	25
Methyl Methacrylate	3.75	4.39	4.12	117	110	70.0-130			6.51	25
Tetrahydrofuran	3.75	4.20	3.96	112	106	70.0-140			5.71	25
2,2,4-Trimethylpentane	3.75	4.31	4.08	115	109	70.0-130			5.31	25
Vinyl Bromide	3.75	4.55	4.26	121	114	70.0-130			6.45	25
Isopropylbenzene	3.75	4.15	4.19	111	112	70.0-130			0.856	25
(S) 1,4-Bromofluorobenzene			94.8	99.3	60.0-140					

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc



L969030-01,02,03

Method Blank (MB)

(MB) R3285653-3 02/12/18 09:55

Analyte	MB Result ppbv	<u>MB Qualifier</u>	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
2-Butanone (MEK)	U		0.0493	1.25
2-Propanol	U		0.0882	1.25
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	89.5			60.0-140

¹Cp²Tc³Ss⁴Cn⁵Sr

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

(LCS) R3285653-1 02/12/18 08:24 • (LCSD) R3285653-2 02/12/18 09:09

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	2.84	3.47	75.8	92.5	52.0-158			19.9	25
Acetone	3.75	3.67	3.71	97.9	98.9	70.0-130			1.03	25
2-Propanol	3.75	3.51	3.69	93.7	98.5	66.0-150			5.06	25
Methyl Ethyl Ketone	3.75	3.86	3.95	103	105	70.0-130			2.18	25
(S) 1,4-Bromofluorobenzene			91.6	92.6	60.0-140					

⁶Qc⁷Gl⁸Al⁹Sc



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.



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.
¹ Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660
Alaska	UST-080
Arizona	AZ0612
Arkansas	88-0469
California	01157CA
Colorado	TN00003
Connecticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia ¹	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky ¹	90010
Kentucky ²	16
Louisiana	AI30792
Maine	TN0002
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
Nebraska	NE-OS-15-05

Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico	TN00003
New York	11742
North Carolina	Env375
North Carolina ¹	DW21704
North Carolina ²	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	221
South Carolina	84004
South Dakota	n/a
Tennessee ^{1,4}	2006
Texas	T 104704245-07-TX
Texas ⁵	LAB0152
Utah	6157585858
Vermont	VT2006
Virginia	109
Washington	C1915
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

Third Party Federal Accreditations

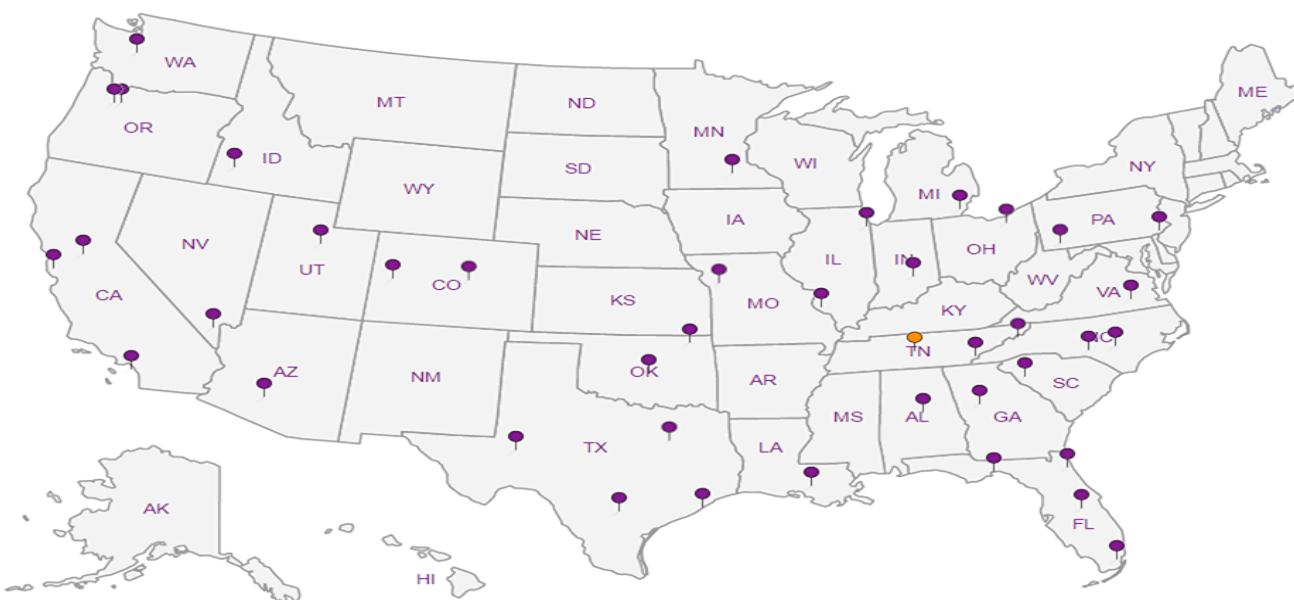
A2LA – ISO 17025	1461.01
A2LA – ISO 17025 ⁵	1461.02
Canada	1461.01
EPA-Crypto	TN00003

AIHA-LAP,LLC	100789
DOD	1461.01
USDA	S-67674

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

Our Locations

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



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

**Indoor Air Monitoring (Bi-Weekly Sampling)
Borg Warner Facility
Water Valley, Yalobusha Co., MS
Feb. 7-8, 2018**

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	5882	6965	6	2/7/18 11:35	30	2/8/18 11:25	10	M. Slack
IA-2	ATS Room	7761	7180	6	2/7/18 11:36	29	2/8/18 11:36	6	M. Slack
IA-6	Training Room	6367	8775	6	2/7/18 11:41	30	2/8/18 11:41	5	M. Slack
IA-17	Cafeteria	8694	7690	6	2/7/18 11:42	30	2/8/18 11:35	2	M. Slack
IA-C16	I-Beam C16	NS							M. Slack
IA-K13	I-Beam K13	NS							M. Slack
IA-G4	I-Beam G4	NS							M. Slack
Inv# : FIRENVBNJ-OXFOR Date : 03Nov17 Customer : P625912 Weight : 10 LBS Phone : (615)758-5858 COD : SAT Del : N DV : 0.00 Total : 0.00 Svcs: STANDARD OVERNIGHT TRCK: 4094 8310 2549					Inv# : FIRENVBNJ-OXFOR Date : 03Nov17 Customer : P625912 Weight : 10 LBS Phone : (615)758-5858 COD : SAT Del : N DV : 0.00 Total : 0.00 Svcs: STANDARD OVERNIGHT TRCK: 4094 8310 2527				
AA-2	Pavilion	7798	6558	6	2/7/18 11:44	23	2/8/18 10:45	2	M. Slack

Weather Conditions (@ time of canister placement)

OVERTCAST - COLD - MID 30's - WINDS FROM NW - 5 mph Michael T. Slack (First Environment)

Weather Conditions during 24-hr sampling period:
NS – Not Sampled

UPPER 30S - LOW 40S - CLEAR - WINDS FROM NORTH < 5 mph

Mtt.dby 2/8/18

ESC LAB SCIENCES
Cooler Receipt Form

Client: FIRENVBNS	SDG#		
Cooler Received/Opened On: 02/9/18	Temperature:	AMB	°C
Received by : Christian Kacar			
Signature: 			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	/		
COC Signed / Accurate?	/		
Bottles arrive intact?	/		
Correct bottles used?	/		
Sufficient volume sent?	/		
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			