

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

INTEROFFICE COMMUNICATION

TO: File

FROM: Susan Kilmer, Air Monitoring Unit Supervisor

DATE: December 10, 2019

SUBJECT: AQD's Ambient Air Sampling for TCE in Howell, MI

Overview

The Diamond Chrome Plating (DCP) facility in Howell, Michigan has been identified as a likely source of trichloroethylene (TCE). TCE is a carcinogen and has a low risk screening level of 2.0 micrograms per cubic meter (ug/m³). DCP operates a degreaser unit that utilizes TCE. The facility cleans metal parts in the degreaser before the chrome plating process.

On November 4, 2019, EGLE's Remediation and Redevelopment Division (RRD) collected 9 outdoor air grab samples using bottle vacs north of the Diamond Chrome Plating facility while investigating a different source. The samples were analyzed by the EGLE Environmental Laboratory. Results showed some of the samples were above the 2.0 ug/m³ risk screening level.

On Monday November 18, 2019, the Livingston County Health Department issued an [order](#) to DCP to stop emitting TCE from the facility. The degreaser was placed in chill mode to prevent TCE from emitting from the facility. The Air Quality Division (AQD) in collaboration with and the US Environmental Protection Agency (EPA) conducted 24-hour ambient (outdoor) air sampling using summa canisters at 19 location on November 19-20, 2019. The results of that sampling are described in a [separate memo](#). DCP discontinued the use of TCE and it removed it from the degreaser in late November 2019.

Sampling Details

An additional round of ambient air sampling was done after the TCE was removed from the degreaser. On Thursday December 5, 2019 a total of 5 summa canisters were deployed to 4 downwind and one upwind location. Ambient air monitoring for TCE was accomplished using the EPA TO-15 summa canister method. The AQD used 6-liter evacuated summa canisters which were sampled for 24 hours using fixed orifice regulators. The samples were secured to stop signs or street signs in the city right of way. On Friday December 6, 2019 the samples were retrieved and submitted to the EGLE laboratory for analysis. The wind speed during the sampling period was 5-10 MPH with winds primarily from the west and southwest changing to northwest towards the end of the sampling period.

Results

All 5 samples were non-detect for TCE.

09 December 2019

Work Order: 1912041

Price: \$4,100.00

Susan Kilmer
EGLE-AQD-LANSING
525 W. ALLEGAN
LANSING, MI 48909-7760
RE: DIAMOND CHROME

This is the official environmental laboratory report for testing conducted by the Michigan Department of Environment, Great Lakes, and Energy. Analyses performed by the laboratory were conducted using methods published by the U.S. Environmental Protection Agency, Standard Methods for the Examination of Water and Wastewater, ASTM, or other published or approved reference methods.

Kirby Shane
Laboratory Director



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EGLE-AQD-LANSING
525 W. ALLEGAN
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Project: DIAMOND CHROME
Site Code: LB042073
Project Manager: Susan Kilmer

Reported:
12/09/2019

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
BENNETT FIELD	1912041-01	Air	12/05/2019	12/06/2019	
MIDDLE OF LIVINGSTON	1912041-02	Air	12/05/2019	12/06/2019	
MICHIGAN AVE.	1912041-03	Air	12/05/2019	12/06/2019	
LIVINGSTON & FLEMING	1912041-04	Air	12/05/2019	12/06/2019	
UPWIND:END OF ISABEL	1912041-05	Air	12/05/2019	12/06/2019	

Notes and Definitions

- Y11 Unidentified peaks present in sample.
- X1 Method TO-15 is used for the analysis of volatile organic compounds in air. Naphthalene and 2-Methylnaphthalene are semi volatile compounds and results should be considered estimated.
- T Reported value is less than the reporting limit (RL). Result is estimated.
- ND Indicates compound analyzed for but not detected at or above the reporting limit (RL).
- RL Reporting Limit
- NA Not Applicable

Case Narrative

Priority Samples



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P.O. Box 30270
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Client ID: BENNETT FIELD

Lab ID: 1912041-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	ug/m3	1	12/06/19	B9L0915	TO-15	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-34-3	1,1-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
75-35-4	1,1-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
87-61-6	1,2,3-Trichlorobenzene	ND	7.5	ug/m3	1	12/06/19	B9L0915	TO-15	
96-18-4	1,2,3-Trichloropropane	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
526-73-8	1,2,3-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
120-82-1	1,2,4-Trichlorobenzene	ND	3.7	ug/m3	1	12/06/19	B9L0915	TO-15	
95-63-6	1,2,4-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-93-4	1,2-Dibromoethane	ND	2.3	ug/m3	1	12/06/19	B9L0915	TO-15	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
107-06-2	1,2-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
78-87-5	1,2-Dichloropropane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
108-67-8	1,3,5-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-99-0	1,3-Butadiene	ND	0.67	ug/m3	1	12/06/19	B9L0915	TO-15	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
540-84-1	2,2,4-Trimethylpentane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
78-93-3	2-Butanone (MEK)	ND	15	ug/m3	1	12/06/19	B9L0915	TO-15	
91-57-6	2-Methylnaphthalene	ND	29	ug/m3	1	12/06/19	B9L0915	TO-15	X1
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	4.1	ug/m3	1	12/06/19	B9L0915	TO-15	
75-05-8	Acetonitrile	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
107-13-1	Acrylonitrile	ND	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
71-43-2	Benzene	1.0	0.97	ug/m3	1	12/06/19	B9L0915	TO-15	
75-27-4	Bromodichloromethane	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
75-25-2	Bromoform	ND	3.1	ug/m3	1	12/06/19	B9L0915	TO-15	
74-83-9	Bromomethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
56-23-5	Carbon tetrachloride	ND	1.9	ug/m3	1	12/06/19	B9L0915	TO-15	
108-90-7	Chlorobenzene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
75-00-3	Chloroethane	ND	0.80	ug/m3	1	12/06/19	B9L0915	TO-15	
67-66-3	Chloroform	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
74-87-3	Chloromethane	0.58	0.62	ug/m3	1	12/06/19	B9L0915	TO-15	T
156-59-2	cis-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
110-82-7	Cyclohexane	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
124-48-1	Dibromochloromethane	ND	2.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-71-8	Dichlorodifluoromethane	2.3	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
100-41-4	Ethylbenzene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
110-54-3	Hexane	ND	3.6	ug/m3	1	12/06/19	B9L0915	TO-15	



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Client ID: BENNETT FIELD

Lab ID: 1912041-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
98-82-8	Isopropylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
1330-20-7	m & p - Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
75-09-2	Methylene chloride	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
1634-04-4	Methyltertiarybutylether	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
91-20-3	Naphthalene	ND	26	ug/m3	1	12/06/19	B9L0915	TO-15	X1
104-51-8	n-Butylbenzene	ND	5.5	ug/m3	1	12/06/19	B9L0915	TO-15	
103-65-1	n-Propylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
95-47-6	o-Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
135-98-8	sec-Butylbenzene	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
100-42-5	Styrene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
127-18-4	Tetrachloroethylene	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
108-88-3	Toluene	2.1	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
156-60-5	trans-1,2-Dichloroethylene	1.5	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
79-01-6	Trichloroethylene	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-69-4	Trichlorofluoromethane	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
75-01-4	Vinyl chloride	ND	0.77	ug/m3	1	12/06/19	B9L0915	TO-15	
<i>Surrogate: Bromofluorobenzene</i>			<i>111 %</i>	<i>70-130</i>		<i>12/06/19</i>	<i>B9L0915</i>	<i>TO-15</i>	



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Client ID: MIDDLE OF LIVINGSTON

Lab ID: 1912041-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	ug/m3	1	12/06/19	B9L0915	TO-15	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-34-3	1,1-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
75-35-4	1,1-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
87-61-6	1,2,3-Trichlorobenzene	ND	7.5	ug/m3	1	12/06/19	B9L0915	TO-15	
96-18-4	1,2,3-Trichloropropane	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
526-73-8	1,2,3-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
120-82-1	1,2,4-Trichlorobenzene	ND	3.7	ug/m3	1	12/06/19	B9L0915	TO-15	
95-63-6	1,2,4-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-93-4	1,2-Dibromoethane	ND	2.3	ug/m3	1	12/06/19	B9L0915	TO-15	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
107-06-2	1,2-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
78-87-5	1,2-Dichloropropane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
108-67-8	1,3,5-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-99-0	1,3-Butadiene	ND	0.67	ug/m3	1	12/06/19	B9L0915	TO-15	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
540-84-1	2,2,4-Trimethylpentane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
78-93-3	2-Butanone (MEK)	ND	15	ug/m3	1	12/06/19	B9L0915	TO-15	
91-57-6	2-Methylnaphthalene	ND	29	ug/m3	1	12/06/19	B9L0915	TO-15	X1
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	4.1	ug/m3	1	12/06/19	B9L0915	TO-15	
75-05-8	Acetonitrile	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
107-13-1	Acrylonitrile	ND	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
71-43-2	Benzene	1.0	0.97	ug/m3	1	12/06/19	B9L0915	TO-15	
75-27-4	Bromodichloromethane	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
75-25-2	Bromoform	ND	3.1	ug/m3	1	12/06/19	B9L0915	TO-15	
74-83-9	Bromomethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
56-23-5	Carbon tetrachloride	ND	1.9	ug/m3	1	12/06/19	B9L0915	TO-15	
108-90-7	Chlorobenzene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
75-00-3	Chloroethane	ND	0.80	ug/m3	1	12/06/19	B9L0915	TO-15	
67-66-3	Chloroform	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
74-87-3	Chloromethane	0.60	0.62	ug/m3	1	12/06/19	B9L0915	TO-15	T
156-59-2	cis-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
110-82-7	Cyclohexane	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
124-48-1	Dibromochloromethane	ND	2.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-71-8	Dichlorodifluoromethane	2.3	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
100-41-4	Ethylbenzene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
110-54-3	Hexane	ND	3.6	ug/m3	1	12/06/19	B9L0915	TO-15	



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Client ID: MIDDLE OF LIVINGSTON

Lab ID: 1912041-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
98-82-8	Isopropylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
1330-20-7	m & p - Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
75-09-2	Methylene chloride	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
1634-04-4	Methyltertiarybutylether	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
91-20-3	Naphthalene	ND	26	ug/m3	1	12/06/19	B9L0915	TO-15	X1
104-51-8	n-Butylbenzene	ND	5.5	ug/m3	1	12/06/19	B9L0915	TO-15	
103-65-1	n-Propylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
95-47-6	o-Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
135-98-8	sec-Butylbenzene	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
100-42-5	Styrene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
127-18-4	Tetrachloroethylene	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
108-88-3	Toluene	1.6	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
156-60-5	trans-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
79-01-6	Trichloroethylene	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-69-4	Trichlorofluoromethane	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
75-01-4	Vinyl chloride	ND	0.77	ug/m3	1	12/06/19	B9L0915	TO-15	
<i>Surrogate: Bromofluorobenzene</i>			<i>112 %</i>	<i>70-130</i>		<i>12/06/19</i>	<i>B9L0915</i>	<i>TO-15</i>	



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Client ID: MICHIGAN AVE.

Lab ID: 1912041-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	ug/m3	1	12/06/19	B9L0915	TO-15	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-34-3	1,1-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
75-35-4	1,1-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
87-61-6	1,2,3-Trichlorobenzene	ND	7.5	ug/m3	1	12/06/19	B9L0915	TO-15	
96-18-4	1,2,3-Trichloropropane	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
526-73-8	1,2,3-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
120-82-1	1,2,4-Trichlorobenzene	ND	3.7	ug/m3	1	12/06/19	B9L0915	TO-15	
95-63-6	1,2,4-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-93-4	1,2-Dibromoethane	ND	2.3	ug/m3	1	12/06/19	B9L0915	TO-15	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
107-06-2	1,2-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
78-87-5	1,2-Dichloropropane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
108-67-8	1,3,5-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-99-0	1,3-Butadiene	ND	0.67	ug/m3	1	12/06/19	B9L0915	TO-15	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
540-84-1	2,2,4-Trimethylpentane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
78-93-3	2-Butanone (MEK)	ND	15	ug/m3	1	12/06/19	B9L0915	TO-15	
91-57-6	2-Methylnaphthalene	ND	29	ug/m3	1	12/06/19	B9L0915	TO-15	X1
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	4.1	ug/m3	1	12/06/19	B9L0915	TO-15	
75-05-8	Acetonitrile	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
107-13-1	Acrylonitrile	ND	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
71-43-2	Benzene	1.0	0.97	ug/m3	1	12/06/19	B9L0915	TO-15	
75-27-4	Bromodichloromethane	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
75-25-2	Bromoform	ND	3.1	ug/m3	1	12/06/19	B9L0915	TO-15	
74-83-9	Bromomethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
56-23-5	Carbon tetrachloride	ND	1.9	ug/m3	1	12/06/19	B9L0915	TO-15	
108-90-7	Chlorobenzene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
75-00-3	Chloroethane	ND	0.80	ug/m3	1	12/06/19	B9L0915	TO-15	
67-66-3	Chloroform	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
74-87-3	Chloromethane	0.63	0.62	ug/m3	1	12/06/19	B9L0915	TO-15	
156-59-2	cis-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
110-82-7	Cyclohexane	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
124-48-1	Dibromochloromethane	ND	2.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-71-8	Dichlorodifluoromethane	2.3	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
100-41-4	Ethylbenzene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
110-54-3	Hexane	ND	3.6	ug/m3	1	12/06/19	B9L0915	TO-15	



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: MICHIGAN AVE.

Lab ID: 1912041-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
98-82-8	Isopropylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
1330-20-7	m & p - Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
75-09-2	Methylene chloride	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
1634-04-4	Methyltertiarybutylether	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
91-20-3	Naphthalene	ND	26	ug/m3	1	12/06/19	B9L0915	TO-15	X1
104-51-8	n-Butylbenzene	ND	5.5	ug/m3	1	12/06/19	B9L0915	TO-15	
103-65-1	n-Propylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
95-47-6	o-Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
135-98-8	sec-Butylbenzene	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
100-42-5	Styrene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
127-18-4	Tetrachloroethylene	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
108-88-3	Toluene	4.1	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
156-60-5	trans-1,2-Dichloroethylene	1.2	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
79-01-6	Trichloroethylene	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-69-4	Trichlorofluoromethane	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
75-01-4	Vinyl chloride	ND	0.77	ug/m3	1	12/06/19	B9L0915	TO-15	
Surrogate: Bromofluorobenzene			112 %	70-130		12/06/19	B9L0915	TO-15	



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MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: LIVINGSTON & FLEMING

Lab ID: 1912041-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	ug/m3	1	12/06/19	B9L0915	TO-15	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-34-3	1,1-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
75-35-4	1,1-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
87-61-6	1,2,3-Trichlorobenzene	ND	7.5	ug/m3	1	12/06/19	B9L0915	TO-15	
96-18-4	1,2,3-Trichloropropane	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
526-73-8	1,2,3-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
120-82-1	1,2,4-Trichlorobenzene	ND	3.7	ug/m3	1	12/06/19	B9L0915	TO-15	
95-63-6	1,2,4-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-93-4	1,2-Dibromoethane	ND	2.3	ug/m3	1	12/06/19	B9L0915	TO-15	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
107-06-2	1,2-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
78-87-5	1,2-Dichloropropane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
108-67-8	1,3,5-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-99-0	1,3-Butadiene	ND	0.67	ug/m3	1	12/06/19	B9L0915	TO-15	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
540-84-1	2,2,4-Trimethylpentane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
78-93-3	2-Butanone (MEK)	ND	15	ug/m3	1	12/06/19	B9L0915	TO-15	
91-57-6	2-Methylnaphthalene	ND	29	ug/m3	1	12/06/19	B9L0915	TO-15	X1
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	4.1	ug/m3	1	12/06/19	B9L0915	TO-15	
75-05-8	Acetonitrile	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
107-13-1	Acrylonitrile	ND	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
71-43-2	Benzene	0.97	0.97	ug/m3	1	12/06/19	B9L0915	TO-15	
75-27-4	Bromodichloromethane	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
75-25-2	Bromoform	ND	3.1	ug/m3	1	12/06/19	B9L0915	TO-15	
74-83-9	Bromomethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
56-23-5	Carbon tetrachloride	ND	1.9	ug/m3	1	12/06/19	B9L0915	TO-15	
108-90-7	Chlorobenzene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
75-00-3	Chloroethane	ND	0.80	ug/m3	1	12/06/19	B9L0915	TO-15	
67-66-3	Chloroform	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
74-87-3	Chloromethane	0.62	0.62	ug/m3	1	12/06/19	B9L0915	TO-15	
156-59-2	cis-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
110-82-7	Cyclohexane	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
124-48-1	Dibromochloromethane	ND	2.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-71-8	Dichlorodifluoromethane	2.3	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
100-41-4	Ethylbenzene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
110-54-3	Hexane	ND	3.6	ug/m3	1	12/06/19	B9L0915	TO-15	



MICHIGAN DEPARTMENT OF
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: LIVINGSTON & FLEMING

Lab ID: 1912041-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
98-82-8	Isopropylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
1330-20-7	m & p - Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
75-09-2	Methylene chloride	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
1634-04-4	Methyltertiarybutylether	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
91-20-3	Naphthalene	ND	26	ug/m3	1	12/06/19	B9L0915	TO-15	X1
104-51-8	n-Butylbenzene	ND	5.5	ug/m3	1	12/06/19	B9L0915	TO-15	
103-65-1	n-Propylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
95-47-6	o-Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
135-98-8	sec-Butylbenzene	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
100-42-5	Styrene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
127-18-4	Tetrachloroethylene	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
108-88-3	Toluene	1.8	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
156-60-5	trans-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
79-01-6	Trichloroethylene	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-69-4	Trichlorofluoromethane	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
75-01-4	Vinyl chloride	ND	0.77	ug/m3	1	12/06/19	B9L0915	TO-15	
<i>Surrogate: Bromofluorobenzene</i>			<i>112 %</i>	<i>70-130</i>		<i>12/06/19</i>	<i>B9L0915</i>	<i>TO-15</i>	



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: UPWIND:END OF ISABEL

Lab ID: 1912041-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	ug/m3	1	12/06/19	B9L0915	TO-15	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-34-3	1,1-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
75-35-4	1,1-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
87-61-6	1,2,3-Trichlorobenzene	ND	7.5	ug/m3	1	12/06/19	B9L0915	TO-15	
96-18-4	1,2,3-Trichloropropane	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
526-73-8	1,2,3-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
120-82-1	1,2,4-Trichlorobenzene	ND	3.7	ug/m3	1	12/06/19	B9L0915	TO-15	
95-63-6	1,2,4-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-93-4	1,2-Dibromoethane	ND	2.3	ug/m3	1	12/06/19	B9L0915	TO-15	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
107-06-2	1,2-Dichloroethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
78-87-5	1,2-Dichloropropane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
108-67-8	1,3,5-Trimethylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
106-99-0	1,3-Butadiene	ND	0.67	ug/m3	1	12/06/19	B9L0915	TO-15	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
540-84-1	2,2,4-Trimethylpentane	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
78-93-3	2-Butanone (MEK)	ND	15	ug/m3	1	12/06/19	B9L0915	TO-15	
91-57-6	2-Methylnaphthalene	ND	29	ug/m3	1	12/06/19	B9L0915	TO-15	X1
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	4.1	ug/m3	1	12/06/19	B9L0915	TO-15	
75-05-8	Acetonitrile	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
107-13-1	Acrylonitrile	ND	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
71-43-2	Benzene	0.96	0.97	ug/m3	1	12/06/19	B9L0915	TO-15	T
75-27-4	Bromodichloromethane	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
75-25-2	Bromoform	ND	3.1	ug/m3	1	12/06/19	B9L0915	TO-15	
74-83-9	Bromomethane	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
56-23-5	Carbon tetrachloride	ND	1.9	ug/m3	1	12/06/19	B9L0915	TO-15	
108-90-7	Chlorobenzene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
75-00-3	Chloroethane	ND	0.80	ug/m3	1	12/06/19	B9L0915	TO-15	
67-66-3	Chloroform	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
74-87-3	Chloromethane	0.63	0.62	ug/m3	1	12/06/19	B9L0915	TO-15	
156-59-2	cis-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
110-82-7	Cyclohexane	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
124-48-1	Dibromochloromethane	ND	2.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-71-8	Dichlorodifluoromethane	2.3	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
100-41-4	Ethylbenzene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
110-54-3	Hexane	ND	3.6	ug/m3	1	12/06/19	B9L0915	TO-15	



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: UPWIND:END OF ISABEL

Lab ID: 1912041-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
98-82-8	Isopropylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
1330-20-7	m & p - Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
75-09-2	Methylene chloride	ND	1.0	ug/m3	1	12/06/19	B9L0915	TO-15	
1634-04-4	Methyltertiarybutylether	ND	1.8	ug/m3	1	12/06/19	B9L0915	TO-15	
91-20-3	Naphthalene	ND	26	ug/m3	1	12/06/19	B9L0915	TO-15	X1
104-51-8	n-Butylbenzene	ND	5.5	ug/m3	1	12/06/19	B9L0915	TO-15	
103-65-1	n-Propylbenzene	ND	1.5	ug/m3	1	12/06/19	B9L0915	TO-15	
95-47-6	o-Xylene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
135-98-8	sec-Butylbenzene	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
100-42-5	Styrene	ND	1.3	ug/m3	1	12/06/19	B9L0915	TO-15	
127-18-4	Tetrachloroethylene	ND	2.0	ug/m3	1	12/06/19	B9L0915	TO-15	
108-88-3	Toluene	1.6	1.1	ug/m3	1	12/06/19	B9L0915	TO-15	
156-60-5	trans-1,2-Dichloroethylene	ND	1.2	ug/m3	1	12/06/19	B9L0915	TO-15	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.4	ug/m3	1	12/06/19	B9L0915	TO-15	
79-01-6	Trichloroethylene	ND	1.6	ug/m3	1	12/06/19	B9L0915	TO-15	
75-69-4	Trichlorofluoromethane	ND	1.7	ug/m3	1	12/06/19	B9L0915	TO-15	
75-01-4	Vinyl chloride	ND	0.77	ug/m3	1	12/06/19	B9L0915	TO-15	
<i>Surrogate: Bromofluorobenzene</i>			<i>112 %</i>	<i>70-130</i>		<i>12/06/19</i>	<i>B9L0915</i>	<i>TO-15</i>	

Lab Work Order Number

Project Name

Matrix

1912041

HOWELL - DIAMOND CHROME

AIR

Location ID

Program

CC Email 1

Project TAT Days
24 hrs

Sample Collector
DAN LING

Dept-Division-District
EGLE - AOD

Activity

CC Email 2

Project Due Date

Sample Collector Phone
517-204-1707

State Project Manager
SUSAN KILMER

Funding Source

CC Email 3

Accept Analysis hold time codes

Contract Firm

State Project Manager Email
KILMERS

Location Code

Overflow Lab Choice 1

Contract Firm Primary Contact

State Project Manager Phone
517-242-2655

SUD Location Code

Overflow Lab Choice 2

Primary Contact Phone

Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments	Regulator ID	Canister/Bottle Vac Number
1	01 BENNETT FIELD	12/5-6/19	11:22		-28.0	85	218
2	02 MIDDLE OF LIVINGSTON	12/5-6/19	11:30		-28.5	91	122
3	03 MICHIGAN AVE.	12/5-6/19	11:52		-29.0	100	151
4	04 LIVINGSTON & FLEMING	12/5-6/19	11:42		-28.5	103	110
5	05 UPWIND: END OF ISABEL	12/5-6/19	11:08		-28.5	95	101
6							
7							
8							
9							
10							

ORGANIC CHEMISTRY

VOA - Volatile Organic Analysis
 Bottlevac 1 2 3 4 5 6 7 8 9 10
 Canister - AQD 1 2 3 4 5 6 7 8 9 10
 Canister - RRD 1 2 3 4 5 6 7 8 9 10
 Tedlar - Volatiles 1 2 3 4 5 6 7 8 9 10

METH - Methane, Ethane, Ethene
 Methane, Ethane, Ethene 1 2 3 4 5 6 7 8 9 10

Chain of Custody	Relinquished by	Received By	Date / Time
	Print Name & Org. DAN LING - EGLE	Heather White	12/6/19 12/6/19
	Signature: [Signature]	[Signature]	11:33 11:35
	Print Name & Org.		
Print Name & Org.			
Print Name & Org.			