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MEMO

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Client	**Racer Trust**
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Version	**1**
To	**Jacob Runge**
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Date July 1, 2021

Vapor Intrusion Sampling – 2nd Quarterly Sampling Event - May 2021 (Spring) Sampling

Ramboll Americas Engineering Solutions (Ramboll), on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) is providing this technical memorandum to summarize the results of the vapor probe sampling collected on May 27, 2021 in relation to the RACER Trust Coldwater Road Facility (Site) located in Flint, Michigan (**Figure 1**).

The sampling was performed in response to the Michigan Department of Environment, Great Lakes, and Energy's (EGLE's) December 23, 2020 letter titled, *Review: Vapor Intrusion Technical Memo* and the subsequent January 14, 2021 response letter prepared by Ramboll regarding *Comments on Vapor Intrusion Technical Memo-Letter Dated December 23, 2020* to further evaluate potential volatilization to indoor air pathway concerns.

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1 Sampling & Analysis

Sample collection activities were completed on May 27, 2021 in accordance with the EGLE approved scope of work in the Ramboll response letter.

Soil gas grab samples were attempted from vapor probes VP-1S, VP-1D, VP-2S, VP-2D, VP-3S, VP-3M, VP-3D, VP-5S, VP-5M, VP-5D, VP-6S, VP-6M, and VP-6D. See **Figure 2** for soil gas probe locations and **Figure 3** for geologic cross-sections of the area.

Successful soil gas grab samples were collected from vapor probes VP-1S, VP-2D, and VP-6M.

Groundwater samples for VOCs were collected in lieu of vapor samples when groundwater was encountered in any of the soil gas probes. Groundwater samples were collected at vapor probes VP-1D, VP-2S, VP-3S, VP-5S, VP-5M, VP-5D, and VP-6S.

A groundwater sample was collected from VP-3M but there was only enough volume purged to fill one vial, and unfortunately the vial was dropped and broken while leaving the vapor probe location. There was groundwater purged from VP-3D but not at a volume to submit a sample to the laboratory. A second attempt to collect groundwater from VP-3M and VP-3D at the end of the day and no additional groundwater was purged.

While attempting to collect a soil gas grab sample from VP-6D, the first grab sample attempt stalled due to interference from groundwater and no sample was collected. As recommended in the work plan, a second soil gas sample was attempted using a flow controller calibrated to a lower flow rate of 8-hour sample time or 2 milliliters per minute flow rate. No sample was collected from the 8-hour sample attempt as the pressure only dropped 2 pounds per square inch (PSI) over the eight hours. A groundwater sample was attempted twice from VP-6D, but no sample could be collected.

1.1 Sample Procedure

Prior to the collection of the soil vapor samples, the sample tubing was purged of ambient air. A minimum of three volumes of air within the sample probe and tubing were purged prior to sample collection. In addition, helium tracer gas screening was used during sampling of the soil vapor probes to evaluate the adequacy of the sampling technique and identify potential short-circuiting from the ground surface during sample collection.

A MGD 2002 gas leak detector was used to screen the extracted vapor stream for helium prior to and after sample collection. No olfactory observations were recognized during probe sampling. Short-circuiting was not observed during initial or final screening. See **Appendix A** for Soil Vapor (Bottle Vac®) Sample Collection Field Forms.

The soil gas samples were collected in Bottle Vacs® and transported to the laboratory under appropriate chain-of-custody (COC) protocols. The soil gas samples were submitted to Merit Laboratories in East Lansing, Michigan a National Environmental Laboratory Accreditation Conference (NELAC)-certified laboratory for analysis by USEPA Method TO-15. For quality control purposes, a field duplicate sample (DUP-1) was collected from the VP-1S vapor probe location.

1.2 Analytical Results

The analytical results for the samples collected at the Coldwater Road Landfill facility are presented in **Table 1** and **Table 2** and discussed below. The complete analytical laboratory report is contained in **Appendix B**.

To establish a more accurate criteria for comparison at the Site, a site-specific volatilization to indoor air criteria (SSVIAC) under Part 201 or site-specific screening levels (SSTLs) under Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451 as amended were calculated and provided by EGLE in a October 22, 2020 email. The site-specific criteria and transmittal letter are provided in **Appendix C**.

During this sampling event benzene was detected at a concentration of 13 micrograms per cubic meter (µg/m^3) at VP-2D, which is above the most stringent EGLE Residential SSVIAC Criteria - Table 1 (crawlspace with a dirt floor) criteria of 3.3 µg/m^3.

The three remaining vapor (i.e., soil gas) samples from VP-1S, DUP-052721 from VP-1S, and VP-6M either had detections below EGLE Residential SSVIAC Criteria - Table 1 (crawlspace with a dirt floor) criteria or no VOCs were detected above the laboratory reporting limit.

From the seven groundwater samples collected (VP-1D, VP-2S, VP-3S, VP-5S, VP-5M, VP-5D, and VP-6S) no VOCs were detected above the laboratory reporting limit. See **Table 2** for groundwater VOCs analytical results.

2 Summary

During this sampling event VOC concentrations were generally comparable to past results for the soil gas samples that were able to be collected. Benzene was detected above the SSVIAC criteria at VP-2D and there were some exceedances of SSVIAC criteria during previous sampling events, but even these exceedances have not been consistently detected. The groundwater VOC results from flooded vapor probes continue to not identify detections above the laboratory reporting limit.

The existing vapor probes will be re-sampled during the next sampling event currently scheduled to occur in August 2021 to evaluate whether transient and environmental influences significantly affect subsurface VOC concentrations.

If you have any questions regarding this technical memorandum, please contact Cliff Yantz at (313) 333-0211.

Very truly yours,

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

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Tables

Table 1 – Vapor Intrusion Analytical Results – December 2017, June 2018, October 2018, November 2019, February 2021, May 2021
Table 2 – Groundwater VOCs Analytical Results – November 2019, February 2021, May 2021

Figures

Figure 1 – Site Location Map
Figure 2 – Sample Location Map
Figure 3 – Cross Sections

Appendices

Appendix A – Soil Vapor (Bottle Vac®) Sample Collection Field Forms
Appendix B – Analytical Laboratory Results
Appendix C – Site-specific VIAC Criteria & Transmittal Letter

TABLES

TABLE 1
RACER Trust - Coldwater Road
Vapor Intrusion Sampling - Detections
Soil Vapor Results December 2017 through May 2021

Compound / Sample ID: / Units: / Sample Date:	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 1 (crawlspace with a dirt floor) µg/m³	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 2 & 3 (slab-on-grade & basement) µg/m³	VP-1S µg/m³ 12/8/2017	VP-1S µg/m³ 6/29/2018	VP-1S (DUP-1) µg/m³ 6/29/2018	VP-1S µg/m³ 11/19/2019	VP-1S (VP-DUP-1) µg/m³ 11/19/2019	VP-1S µg/m³ 5/27/2021	VP-1S (DUP-052721) µg/m³ 5/27/2021	VP-1D µg/m³ 12/8/2017	VP-2S µg/m³ 12/8/2017	VP-2S (VP-DUP-1) µg/m³ 12/8/2017	VP-2S µg/m³ 6/29/2018	VP-2S µg/m³ 11/18/2019
Acetone	NA	NA	<48	**48**	<48	<48	<48	**95**	**95**	**95**	<48	<48	<48	<48
Benzene	3.3 ca	110 ca	<6.4	**9.6**	<6.4	<6.4	<6.4	<6.4	<6.4	**13**	<6.4	<6.4	<6.4	<6.4
Carbon Disulfide	NA	NA	<16	**37**	**22**	<16	<16	<16	<16	<16	<16	<16	<16	<16
Chloroform	NA	NA	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8
Cyclohexane	6,300 nc	2.1E+05 nc	<6.9	**14**	**10**	<6.9	<6.9	<6.9	<6.9	**17**	<6.9	<6.9	<6.9	<6.9
1,2-Dichloroethane	0.98 ca	33 ca	**85**	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	**130**	**8.1**	**12**	<8.1	<8.1
Ethanol	19,000 (EE) st	6.3E+05 (EE) st	<64 X	<57 X	<47	<47	<47	**140**	**150**	<130 X	<47	<47	<47	<47
Ethylbenzene	10 ca	340 ca	<8.7	**13**	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	**8.7**	<8.7
Heptane	3,700 nc	1.2E+05 nc	<8.2	**25**	<8.2	<8.2	<8.2	<8.2	<8.2	**12**	<8.2	<8.2	**12**	<8.2
Hexane	730 nc	24,000 nc	**56**	**74**	**49**	**11**	**7**	<7.0	<7.0	**130**	<7.0	<7.0	**14**	<7.0
Isopropyl Alcohol	210 nc	7,000 nc	**370**	<49	<49	<49	<49	<49	<49	**590**	**49**	**74**	<49	<49
Methylene Chloride	NA	NA	<17	<17	<17	<17	<17	<17	<17	<17	<17	<17	<17	<17
2-Butanone (MEK)	5,000 (DD) dev	1.7E+05 (DD) dev	<29	<29	<29	<29	<29	<59	<59	<29	<29	<29	<29	<29
Propylene	NA	NA	**618**	<262 X	<186 X	<6.9 X	<6.9 X	<170	<170	**303**	<3.4	<3.4	<3.4	<3.4
1,2,4-Trimethylbenzene	63 (JT) nc	2,100 (JT) nc	<37	**25**	**15**	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	**15**	<9.8
2,2,4-Trimethylpentane	3,700 nc	1.2E+05 nc	**9.3**	**47**	**28**	<9.3	<9.3	<9.3	<9.3	**37**	<9.3	<9.3	**14**	<9.3
Tert-butyl Alcohol	NA	NA	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Tetrachloroethene	41 (EE) st	1,400 (EE) st	**27**	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14
Tetrahydrofuran	2,100 nc	70,000 nc	<5.9	**27**	**18**	**8.8**	**8.8**	**38**	**35**	<5.9	<5.9	<5.9	**24**	**18**
Toluene	5,200 nc	1.7E+05 nc	**34**	**57**	**41**	**11**	**11**	**7.5**	**7.5**	**57**	<7.5	<7.5	**41**	<7.5
Trichloroethene	2.0 (DD) dev	67 (DD) dev	<11	**43**	**91**	<11	<11	<11	<11	<11	<11	<11	**32**	<11
p,m-Xylene	NA	NA	<17	**39**	**22**	<17	<17	<17	<17	**22**	<17	<17	**30**	<17
o-Xylene	NA	NA	<8.7	**17**	**8.7**	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	**13**	<8.7
Total Xylene	230 (J)	7,600 (J) nc	<26	**56**	**30**	<26	<26	<26	<26	<26	<26	<26	**43**	<26

Notes on Page 4

TABLE 1
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Compound / Sample ID: / Units: / Sample Date:	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 1 (crawlspace with a dirt floor) µg/m³	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 2 & 3 (slab-on-grade & basement) µg/m³	VP-2D µg/m³ 11/18/2019	VP-2D µg/m³ 2/22/2021	VP-2D µg/m³ 5/27/2021	VP-3S µg/m³ 6/29/2018	VP-3S µg/m³ 11/19/2019	VP-3S µg/m³ 2/22/2021	VP-3S (DUP-1) µg/m³ 2/22/2021	VP-3D µg/m³ 6/29/2018	VP-5S µg/m3 10/25/2018	VP-5S (DUP-1) µg/m³ 10/25/2018	VP-5S µg/m3 11/18/2019	VP-5S µg/m³ 2/22/2021
Acetone	NA	NA	<48	<48	**120**	**48**	<48	<48	<48	**570**	<48	<48	**71**	<48
Benzene	3.3 ca	110 ca	<6.4	**9.6**	**13**	**16**	<6.4	<6.4	<6.4	**16**	<6.4	<6.4	<6.4	<6.4
Carbon Disulfide	NA	NA	<16	<16	<16	**56**	<16	<16	<16	**40**	**75**	**78**	<16	<16
Chloroform	NA	NA	<9.8	<9.8	<9.8	**15**	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8
Cyclohexane	6,300 nc	2.1E+05 nc	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9	**6.9**	<6.9	<6.9	<6.9	<6.9
1,2-Dichloroethane	0.98 ca	33 ca	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1
Ethanol	19,000 (EE) st	6.3E+05 (EE) st	<47	<230	**110**	<47	<47	<230	<230	**2,116 E**	<47	<47	**89**	<230
Ethylbenzene	10 ca	340 ca	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	**130**	<8.7	<8.7	<8.7	<8.7
Heptane	3,700 nc	1.2E+05 nc	<8.2	<8.2	<8.2	**16**	<8.2	<8.2	<8.2	**25**	<8.2	<8.2	<8.2	<8.2
Hexane	730 nc	24,000 nc	<7.0	<7.0	<7.0	**25**	<7.0	<7.0	<7.0	**63**	**7.0**	**7.0**	<7.0	<7.0
Isopropyl Alcohol	210 nc	7,000 nc	<49	<49	<49	<49	<49	<49	<49	**170**	<49	<49	<49	<49
Methylene Chloride	NA	NA	<17	<17	<17	<17	<17	<17	<17	<17	<17	<17	<17	<17
2-Butanone (MEK)	5,000 (DD) dev	1.7E+05 (DD) dev	<29	<59	<59	<29	<29	<59	<59	**59**	<29	<29	<29	<59
Propylene	NA	NA	<3.4	<170	<170	<21 X	<3.4	<170	<170	**1,800 E**	<8.6 X	<6.9 X	<91 X	<170
1,2,4-Trimethylbenzene	63 (JT) nc	2,100 (JT) nc	<9.8	<9.8	<9.8	**15**	<9.8	<9.8	<9.8	<37	<9.8	<9.8	<9.8	<9.8
2,2,4-Trimethylpentane	3,700 nc	1.2E+05 nc	<9.3	<9.3	<9.3	**14**	<9.3	<9.3	<9.3	**28**	<9.3	<9.3	<9.3	<9.3
Tert-butyl Alcohol	NA	NA	<30	<30	<30	<30	<30	<30	<30	**120**	<30	<30	<30	<30
Tetrachloroethene	41 (EE) st	1,400 (EE) st	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14
Tetrahydrofuran	2,100 nc	70,000 nc	**12**	**21**	**21**	**15**	**8.8**	**12**	**12**	**8.8**	**12**	**12**	**44**	<5.9
Toluene	5,200 nc	1.7E+05 nc	<7.5	<7.5	<7.5	**49**	**11**	<7.5	<7.5	**60**	**38**	**38**	**11**	<7.5
Trichloroethene	2.0 (DD) dev	67 (DD) dev	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11
p,m-Xylene	NA	NA	<17	<17	<17	**30**	<17	<17	<17	**380**	<17	<17	<17	<17
o-Xylene	NA	NA	<8.7	<8.7	<8.7	**13**	<8.7	<8.7	<8.7	**96**	<8.7	<8.7	<8.7	<8.7
Total Xylene	230 (J)	7,600 (J) nc	<26	<26	<26	**43**	<26	<26	<26	**480**	<26	<26	<26	<26

Notes on Page 4

TABLE 1
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Vapor Intrusion Sampling - Detections
Soil Vapor Results December 2017 through May 2021

Compound / Sample ID: / Units: / Sample Date:	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 1 (crawlspace with a dirt floor) µg/m³	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 2 & 3 (slab-on-grade & basement) µg/m³	VP-5M µg/m³ 10/25/2018	VP-5M µg/m³ 11/18/2019	VP-5M µg/m³ 2/22/2021	VP-5D µg/m³ 11/18/2019	VP-5D µg/m³ 2/22/2021	VP-6S µg/m³ 10/25/2018	VP-6M µg/m³ 10/25/2018	VP-6M µg/m³ 5/27/2021	VP-6D µg/m³ 10/25/2018	VP-6D µg/m³ 11/18/2019
Acetone	NA	NA	<48	<48	<48	<48	<48	<48	<48	**71**	<48	**95**
Benzene	3.3 ca	110 ca	**9.6**	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Carbon Disulfide	NA	NA	**290**	<16	<16	<16	<16	**140**	**250**	<16	<16	<16
Chloroform	NA	NA	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8
Cyclohexane	6,300 nc	2.1E+05 nc	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9
1,2-Dichloroethane	0.98 ca	33 ca	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1	<8.1
Ethanol	19,000 (EE) st	6.3E+05 (EE) st	<47	<47	<230	<47	<230	<47	<47	**55**	<47	**85**
Ethylbenzene	10 ca	340 ca	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7
Heptane	3,700 nc	1.2E+05 nc	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2
Hexane	730 nc	24,000 nc	**18**	<7.0	<7.0	<7.0	<7.0	**11**	<7.0	<7.0	<7.0	**49**
Isopropyl Alcohol	210 nc	7,000 nc	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49
Methylene Chloride	NA	NA	<17	<17	<17	<17	<17	<17	<17	<17	<17	**28**
2-Butanone (MEK)	5,000 (DD) dev	1.7E+05 (DD) dev	<29	<29	<59	<29	<59	<29	<29	<59	<29	<29
Propylene	NA	NA	<62 X	<6.9 X	<170	<3.4	<170	<15 X	<12 X	<170	<3.9	**12**
1,2,4-Trimethylbenzene	63 (JT) nc	2,100 (JT) nc	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8
2,2,4-Trimethylpentane	3,700 nc	1.2E+05 nc	**14**	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3
Tert-butyl Alcohol	NA	NA	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Tetrachloroethene	41 (EE) st	1,400 (EE) st	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14
Tetrahydrofuran	2,100 nc	70,000 nc	**15**	**27**	<5.9	**15**	**8.8**	**12**	**8.8**	**24**	**5.9**	**29**
Toluene	5,200 nc	1.7E+05 nc	**45**	<7.5	<7.5	<7.5	<7.5	**19**	**15**	**30**	**11**	**23**
Trichloroethene	2.0 (DD) dev	67 (DD) dev	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11
p,m-Xylene	NA	NA	**22**	<17	<17	<17	<17	<17	<17	**17**	<17	<17
o-Xylene	NA	NA	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7
Total Xylene	230 (J)	7,600 (J) nc	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26

Notes on Page 4

TABLE 1
RACER Trust - Coldwater Road
Vapor Intrusion Sampling - Detections
Soil Vapor Results December 2017 through February 2021

Notes
1) Concentrations above the EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria Table 1 (crawlspace with a dirt floor) are highlighted in yellow.
2) Concentrations above both the EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria Table 1 (crawlspace with a dirt floor) and Table 2 & 3 (slab-on-grade & basement) are highlighted in orange.
3) Concentrations in $\mu g/m^3$ as noted
4) Detections highlighted in bold.
5) < = Not detected at specified reporting limit.
6) DUP = Duplicate sample.
7) NA = means not available.
8) Light gray header is most recent sampling event result.
9) Acceptable Air Values (AAV) endpoint basis used for site-specific criterion: (ca) = Carcinogenetic; (nc) = Non-Carcinogenetic; (dev) = Developmental; (mut) = Mutagenic cancer; (st) = Short-term (i.e., less than chronic exposure): Agency for Toxic Substances and Disease Registry Inhalation Minimum Risk Level for Acute Inhalation or Intermediate Inhalation exposure durations; U.S. Environmental Protection Agency Integrated Risk Information System Reference Concentration for short-term exposure; of Air Quality Division Acute Initial Threshold Screening Level.
10) DD = 'Hazardous substance causes developmental effects. Residential SSVIAC are protective of both prenatal exposure using a pregnant female receptor and postnatal exposure using a child receptor. Nonresidential SSVIAC are protective of prenatal exposure using a pregnant female receptor. Prenatal developmental effects may occur after an acute (i.e. short-term) or full-term exposure.
11) E = Concentration exceeds calibration range.
12) EE = The acceptable air concentration (AAC) for the volatile hazardous substances is not derived using standard equations. The hazardous substance may cause adverse human health effects for less than chronic exposures (i.e. short-term or acute). The AAC for these hazardous substances is the acute or intermediate minimum risk level (MRL) developed by the Agency for Toxic Substances and Disease Registry (ATSDR), a United States Environmental Protection Agency Integrated Risk Information System (IRIS) acute reference concentration, or an acute initial threshold screening level (ITSL) by the EGLE's Air Quality Division.
13) J = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.
14) JT = Hazardous substance may be present in several isomer forms. The health-based SSVIAC may be used for the individual isomer provided that it is the sole isomer detected; however, when multiple isomers are detected in a medium, the isomer-specific concentrations must be added together and compared to the most restrictive health-based SSVIAC of the detected isomers.
15) X = Elevated reporting limit due to matrix interference.
16) Sample was not collected during 12/8/17 event from vapor point VP-2D due to interference with groundwater.
17) Samples were not collected during 6/29/18 event from vapor points VP-1D, VP-2D, and VP-3M due to interference with groundwater.
18) Samples were not collected during 10/25/18 event from vapor points VP-4S, VP-4M, VP-4D, and VP-5D due to interference with groundwater.
19) During the 11/18/19 event groundwater samples were collected from (VP-1D, VP-3M, VP-3D, VP-4S, VP-4M, VP-4D, VP-6S, & VP-6M) where groundwater interference was encountered.
20) During the 2/22/21 & 2/23/21 event goundwater samples were collected from (VP-1S, VP-1D, VP-2S, VP-3M, VP-3D, VP-6S, & VP-6M) where groundwater interference was encountered.
21) During the 5/27/21 event goundwater samples were collected from (VP-1D, VP-2S, VP-3S, VP-5S, VP-5M, VP-5D, & VP-6S) where groundwater interference was encountered.

TABLE 2
RACER Trust - Coldwater Road
Volatile Organics (VOCs) Groundwater Analytical Results
Collected from Vapor Probes - November 2019 through May 2021

Well ID	VP-1S	VP-1D	VP-1D	VP-1D	VP-2S	VP-2S	VP-3S	VP-3M	VP-3M
Sample Date	*2/23/2021*	*11/19/2019*	*2/23/2021*	*5/27/2021*	*2/23/2021*	*5/27/2021*	*5/27/2021*	*11/19/2019*	*2/22/2021*
Diethyl ether	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	<50	<50	<50	<50	<50	<50	<50	<50	<50
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Disulfide	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Methyl butyl ether (MTBE)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<2	<2	<2	<2	<2	<2	<2	<2	<2
2-Butanone	<25	<25	<25	<25	<25	<25	<25	<25	<25
Dichlorodifluoromethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloromethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrahydrofuran	<90	<90	<90	<90	<90	<90	<90	<90	<90
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<50	<50	<50	<50	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50	<50
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,4-Dichloro-2-butene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
p,m-Xylene	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachloroethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Napthalene	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylnapthalene	<5	<5	<5	<5	<5	<5	<5	<5	<5

Notes:
EPA Method 8260 used for analysis.
Dup- Duplicate analysis
Analysis in µg/L

TABLE 2
RACER Trust - Coldwater Road
Volatile Organics (VOCs) Groundwater Analytical Results
Collected from Vapor Probes - November 2019 through May 2021

Well ID	VP-3D	VP-3D	VP-4S	VP-4M	VP-4D	VP-5S	VP-5M	VP-5D
Sample Date	*11/19/2019*	*2/22/2021*	*11/19/2019*	*11/19/2019*	*11/19/2019*	*5/27/2021*	*5/27/2021*	*5/27/2021*
Diethyl ether	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	<50	<50	<50	<50	<50	<50	<50	<50
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Disulfide	<5	<5	<5	<5	<5	<5	<5	<5
tert-Methyl butyl ether (MTBE)	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<2	<2	<2	<2	<2	<2	<2	<2
2-Butanone	<25	<25	<25	<25	<25	<25	<25	<25
Dichlorodifluoromethane	<5	<5	<5	<5	<5	<5	<5	<5
Chloromethane	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Tetrahydrofuran	<90	<90	<90	<90	<90	<90	<90	<90
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<50	<50	<50	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,4-Dichloro-2-butene	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
p,m-Xylene	<2	<2	<2	<2	<2	<2	<2	<2
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
Hexachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
Napthalene	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylnapthalene	<5	<5	<5	<5	<5	<5	<5	<5

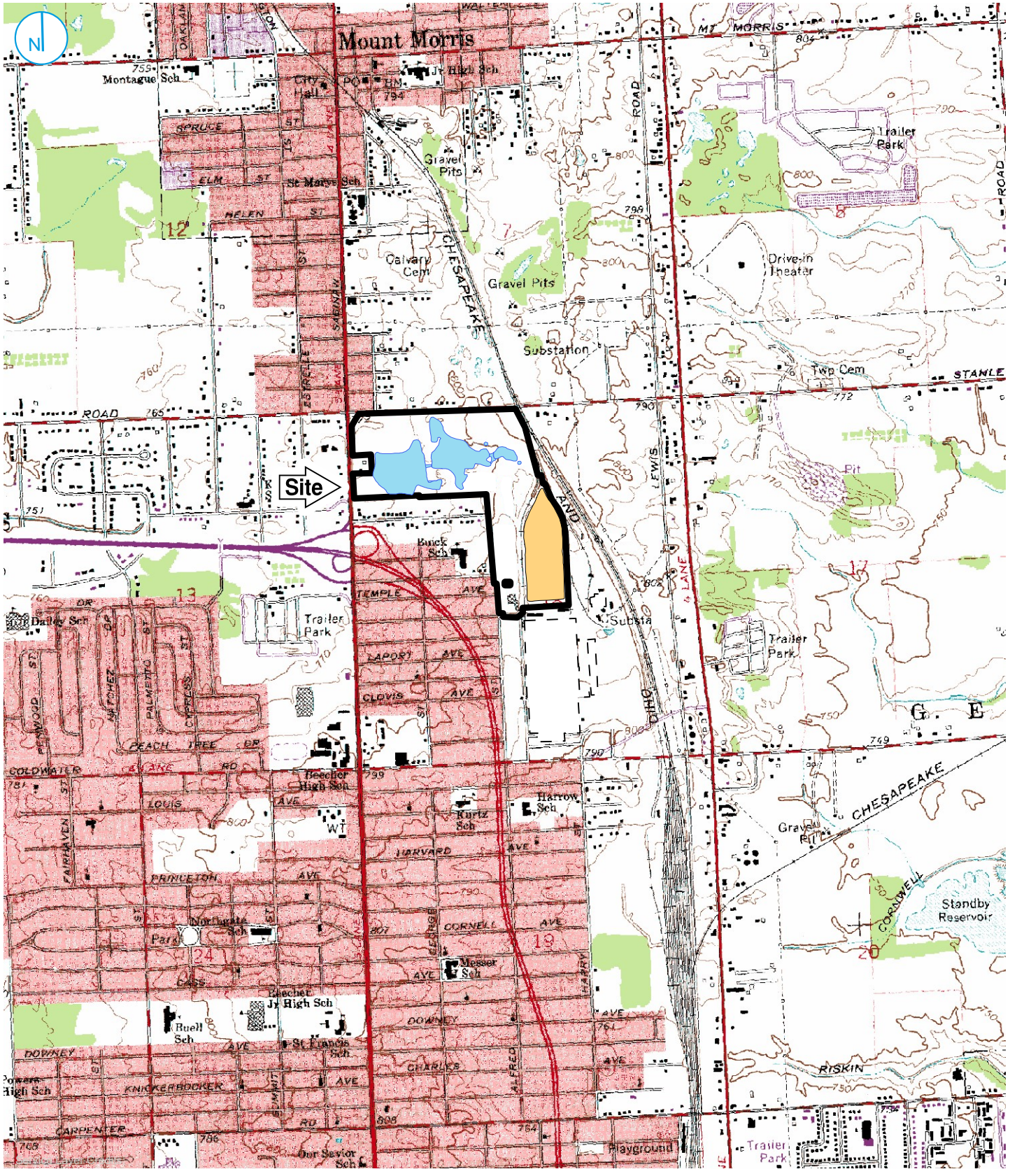
Notes:
EPA Method 8260 used for analysis.
Dup- Duplicate analysis
Analysis in µg/L

TABLE 2
RACER Trust - Coldwater Road
Volatile Organics (VOCs) Groundwater Analytical Results
Collected from Vapor Probes - November 2019 through May 2021

Well ID	VP-6S	VP-6S	VP-6S	VP-6M	VP-6M	Trip Blank-111919	Trip Blank-022321	Trip Blank-052721
Sample Date	*11/18/2019*	*2/22/2021*	*5/27/2021*	*11/18/2019*	*2/22/2021*	*11/19/2019*	*2/23/2021*	*5/27/2021*
Diethyl ether	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	<50	<50	<50	<50	<50	<50	<50	<50
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Disulfide	<5	<5	<5	<5	<5	<5	<5	<5
tert-Methyl butyl ether (MTBE)	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<2	<2	<2	<2	<2	<2	<2	<2
2-Butanone	<25	<25	<25	<25	<25	<25	<25	<25
Dichlorodifluoromethane	<5	<5	<5	<5	<5	<5	<5	<5
Chloromethane	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Tetrahydrofuran	<90	<90	<90	<90	<90	<90	<90	<90
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<50	<50	<50	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,4-Dichloro-2-butene	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
p,m-Xylene	<2	<2	<2	<2	<2	<2	<2	<2
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
Hexachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
Napthalene	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylnapthalene	<5	<5	<5	<5	<5	<5	<5	<5

Notes:
EPA Method 8260 used for analysis.
Dup- Duplicate analysis
Analysis in µg/L

FIGURES



KEY MAP

Map Scale: 1:1:24,000;
Map Center: 83°41'9"W 43°5'51"N

0 1,000 2,000 Feet

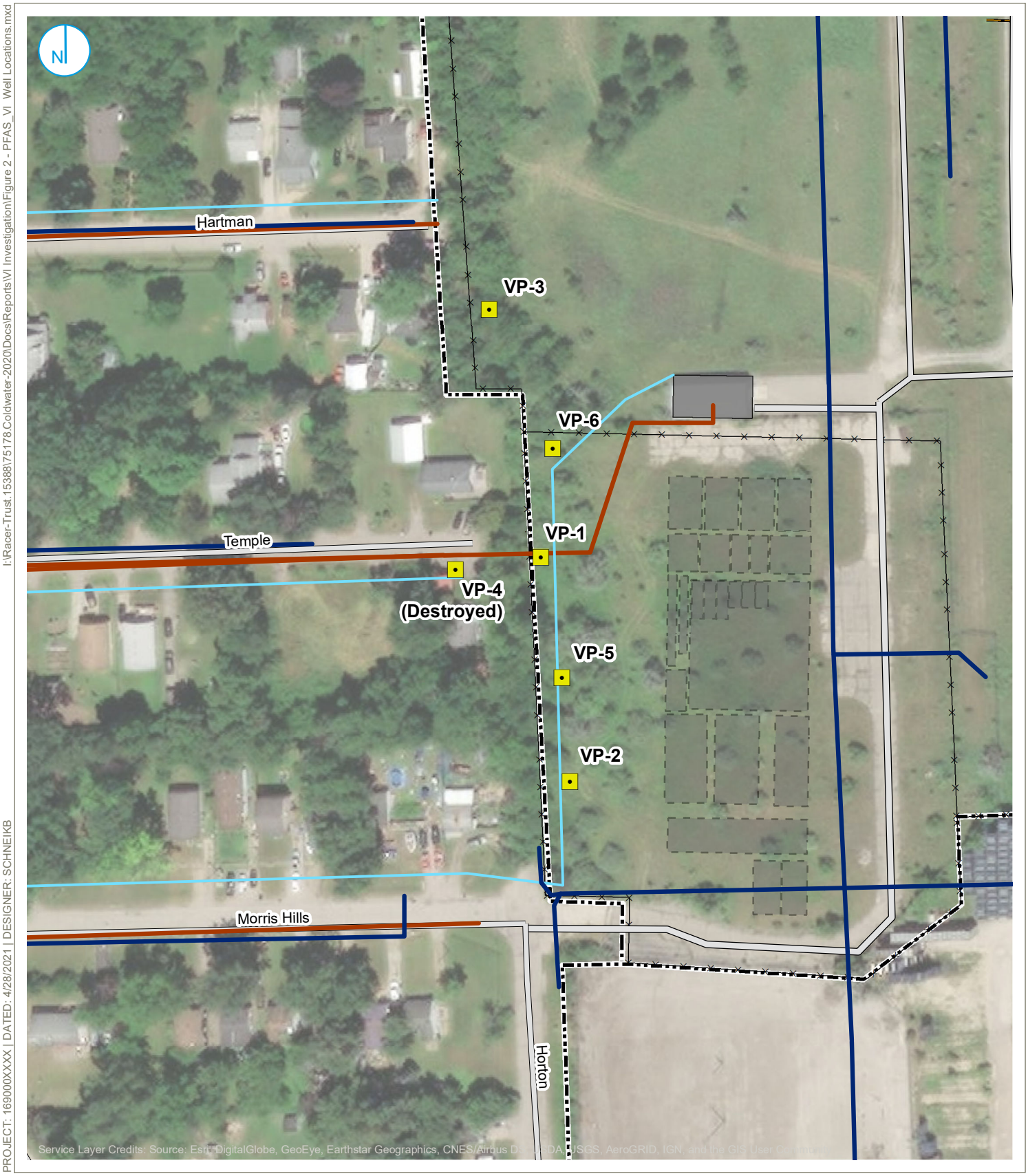
SITE LOCATION

Racer Trust
Coldwater Road Landfill Facility
Flint, Michigan

FIGURE 01

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL



I:\Racer-Trust.15388\75178.Coldwater-2020\Docs\Reports\VI Investigation\Figure 2 - PFAS_VI Well Locations.mxd

PROJECT: 169000XXXX | DATED: 4/28/2021 | DESIGNER: SCHNEIKB

LEGEND

- VAPOR POINT LOCATION
- FORMER BUILDING
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- PROPERTY BOUNDARY

0 50 100 Feet

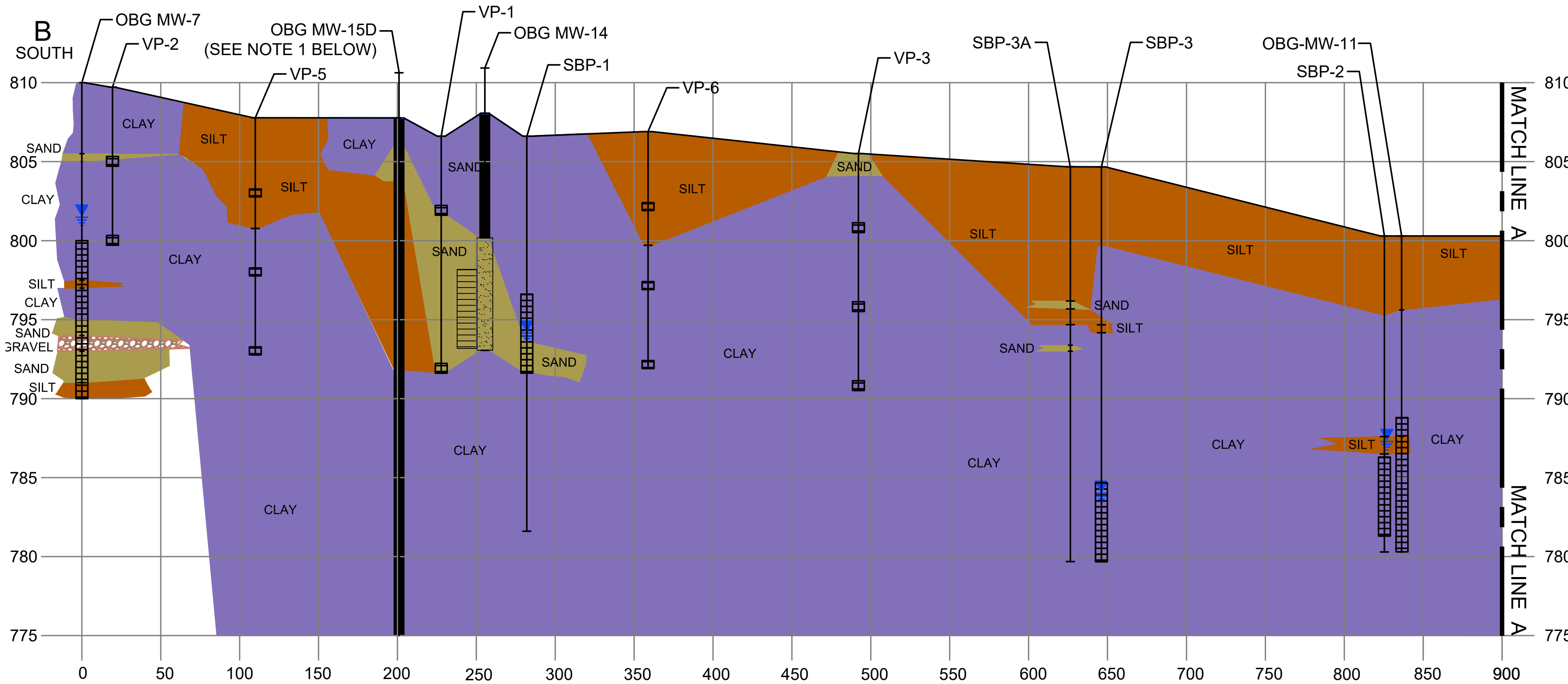
VAPOR POINT LOCATIONS

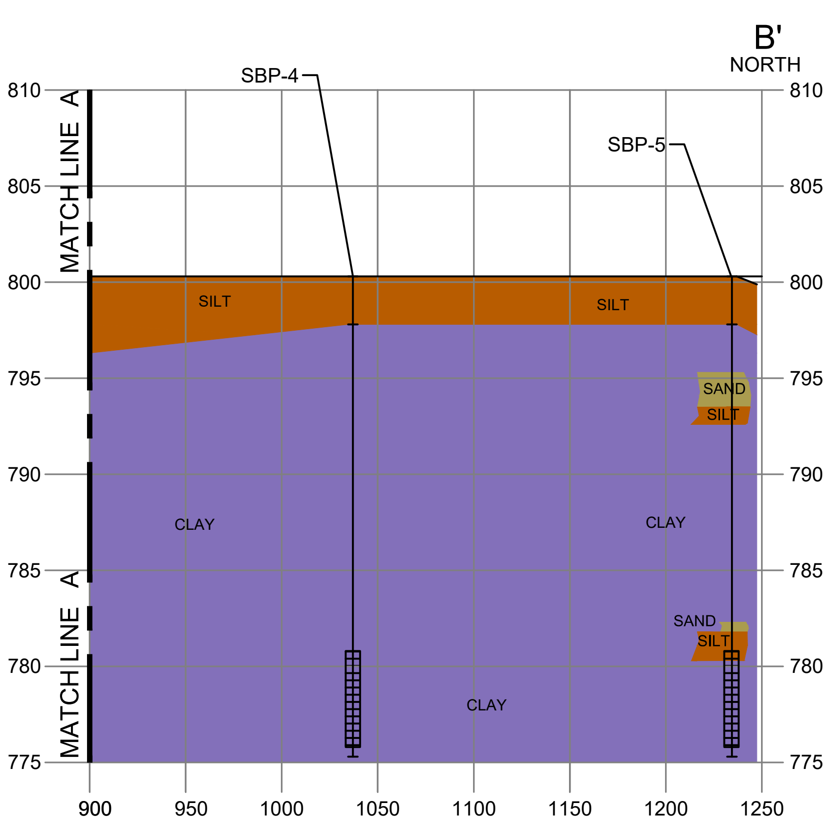
RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

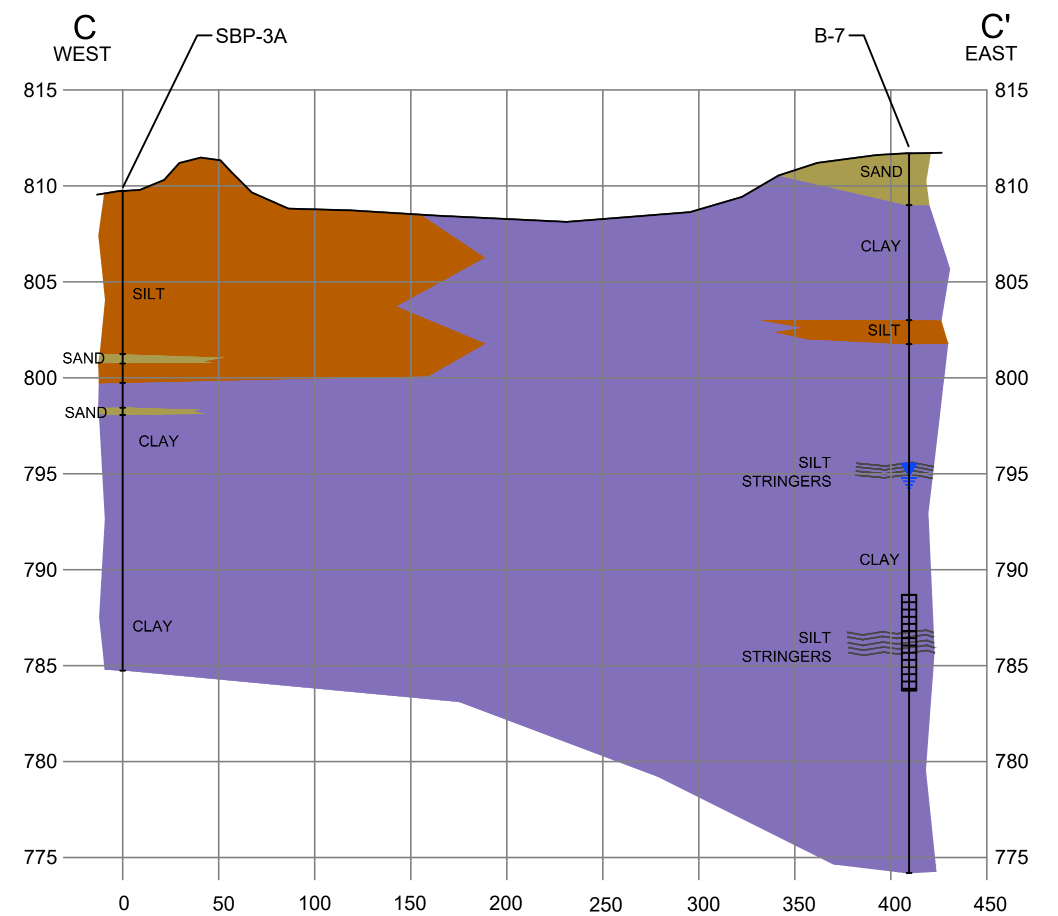
FIGURE 02

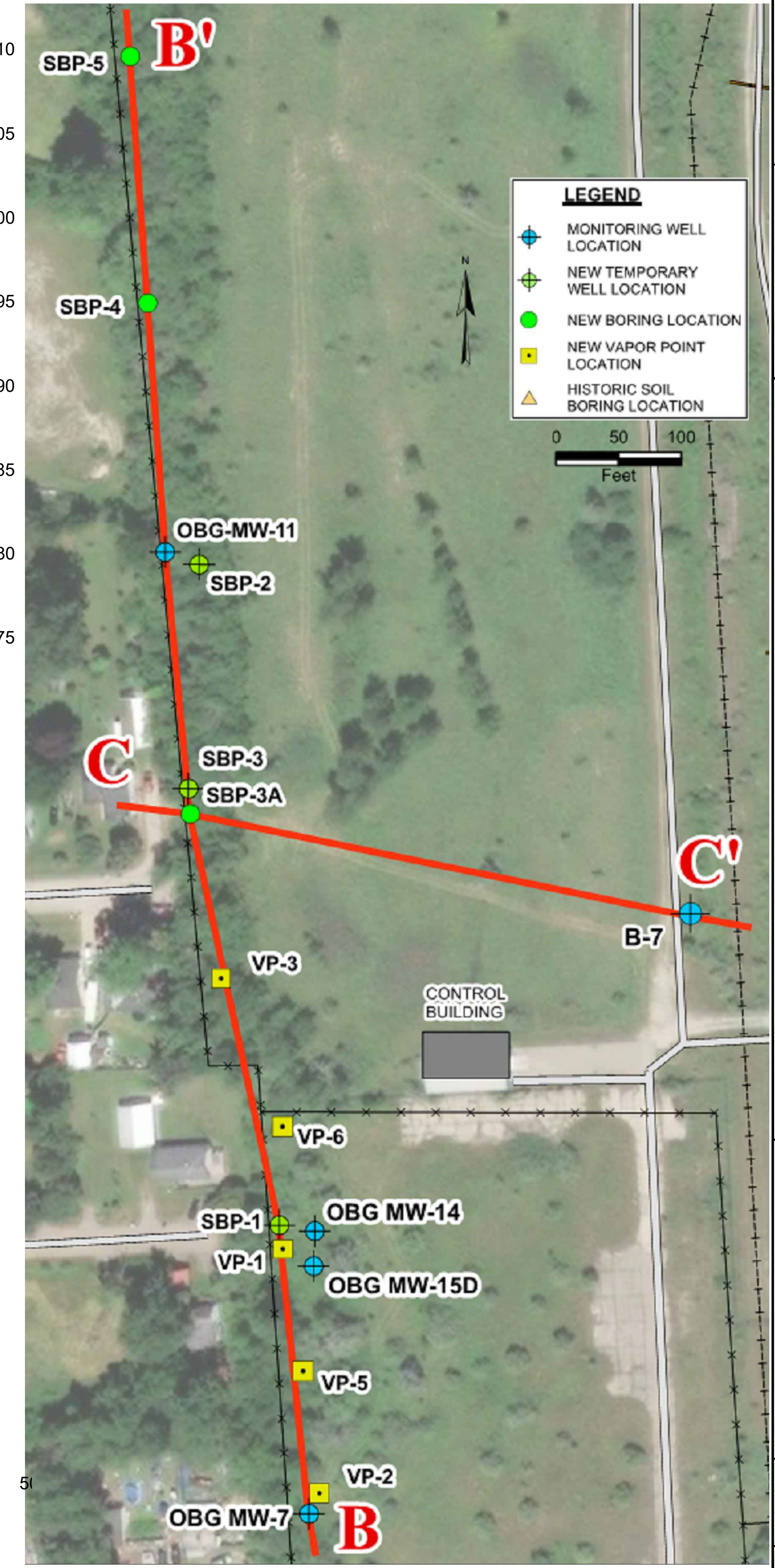
RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL









GRAVEL
SAND
SILT
CLAY
WELL SCREEN
WATER LEVEL AT TIME OF SAMPLING

VERTICAL SCALE IN FEET 10
HORIZONTAL SCALE IN FEET 100
VERTICAL EXAGGERATION =10

NOTE:

1. INFORMATION SHOWN BELOW 775 FT MSL IS NOT PROVIDED AS IT IS NOT PERTINENT TO THE VI STUDY.

DRAWN BY: JMO	DATE: 01/16/2018	
CHECKED BY: CSY	DATE: 01/16/2018	
APPROVED BY: CSY	DATE: 01/16/2018	
DRAWING NO:		
REFERENCE: .		

GEOLOGIC CROSS-SECTION B-B'
GEOLOGIC CROSS-SECTION C-C'

RACER
COLDWATER ROAD LANDFILL SITE
FLINT, MICHIGAN

RAMBOLL

PROJECT NO.
68545

FIGURE NO.
03

Aug 08, 2019 3:31pm PLOTTED BY: JOHNSOSL SAVED BY: JOHNSOSL Geologic Cross-Section B-B'-C-C'.dwg Layout1
I:\Racer-Trust.15388\68545.Coldwater-Rd-Lf\N-D\Cross Sections\Figure 5 -
IMAGES:
XREFS:

APPENDIX A
Soil Vapor (Bottle Vac®) Sample Collection Field Forms

RAMBOLL

Soil Vapor (Bottle Vac®) Sample Collection Field Form

Project # 1940100783 | Date 5/27/21

Project Name RACER colowater | Collector KBS

Sample ID	VP-1S	VP-1D	WATER
Start Date/Time	5/27 1332	1334	
End Date/Time	5/27 1355	1344	
Canister ID	12425 ~~28915~~	13734	
Flow controller ID	183 2116	162	
Associated ambient air sample ID	N/A		
Analytical method required	TO-15		

	VP-1S	VP-1D	WATER
Vacuum gauge "zero" ("Hg)	Yes	Yes	
Start Pressure ("Hg)	-29	-29	
End Pressure ("Hg)	-2	-27	
End pressure > "zero"?	Yes	No	
Sampling duration (intended)	10 minutes		
Depth of sample point	5 fbg	~~10~~ 15 fbg	15 fbg
Laboratory used	Merit Laboratories		

Tubing type used 1/4 I.D. 3/8 O.D. | Length of tubing S 8 / M ~~13~~ / D 18 cm | Tubing volume S 77 / M ~~125~~ / D 173 cc

Volume purged S 231 / M 375 / D 519 cc @ 0.1 l/min (100cc/min) | 3 volumes purged @ < 200cc/min? Yes

Shroud tracer gas conc. Beginning: 43.8% | End of purging: | End of sampling: 12.3%

	Before: S	M	D	After: S	M	D	Before: S	M	D	After: S	M	D
Helium Short Circuiting	0		0	0		water						
PID reading (ppmv)							0		0	0		water

Gas Analyzer Readings $\%O_2$ N/A $\%CO_2$ N/A $\%CH_4$ N/A

Noticeable odor No | Soil type clayey

Weather Conditions during Probe Installation:

Air temperature (°F) | Rainfall | Wind direction

Barometric pressure | Wind speed (mph)

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) 61 | Rainfall No | Wind direction NE

Barometric pressure ~~30.35~~ | Wind speed (mph) 6 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs: Rain 5/26/21 6-8 pm

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: DUP-052721 collected @ VP-1S DUP tee # 7

VP-1D stalled NO vapor sample Collected water sample 3 vocs

water in line H08

DUP canister 28915

RAMBOLL

Soil Vapor (Bottle Vac®) Sample Collection Field Form

Project #	1940100783	Date	5/27/21
Project Name	RACER Coldwater	Collector	KBS

Sample ID	WATER VP-2S	VP-2D			WATER VP-2S	VP-2D	
Start Date/Time	5/27 1611	1612		Vacuum gauge "zero" ("Hg)	-2	Yes	
End Date/Time	5/27	1624		Start Pressure ("Hg)	-30	-29	
Canister ID	18354	26924		End Pressure ("Hg)		-2	
Flow controller ID	230	114		End pressure > "zero"?		-2	
Associated ambient air sample ID	N/A			Sampling duration (intended)	10 minutes		
Analytical method required	TO-15			Depth of sample point	5 fbg	10 fbg	15 fbg
				Laboratory used	Merit Laboratories		

		S	M	D		S	M	D	
Tubing type used	1/4 I.D. 3/8 O.D.	Length of tubing	8	13	18	cm	Tubing volume	77	125	173	cc

	S	M	D			
Volume purged	231	375	519	cc @ 0.1 l/min (100cc/min)	3 volumes purged @ < 200cc/min?	Yes

Shroud tracer gas conc. Beginning: 40.2% End of purging: _____ End of sampling: 25.7%

		S	M	D		S	M	D
Helium Short Circuiting	Before:	0		0	After: (water)	0		0
PID reading	Before:	0		0	(ppmv) After: (water)				(ppmv)

Gas Analyzer Readings %O_2 N/A %CO_2 N/A %CH_4 N/A

Noticeable odor _____ Soil type _____

Weather Conditions during Probe Installation:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) 61 Rainfall No Wind direction N

Barometric pressure 29.31 Wind speed (mph) 10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs: Rain 5/26/21 6-8 am

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: VP-2S water in line collected water sample 3 vols 1640

RAMBOLL

Soil Vapor (Bottle Vac®) Sample Collection Field Form

Project # 1940100783

Project Name RACER Coldwater

Date 5/27/21

Collector KBS

Sample ID	VP-3S (WATER)	VP-3M (WATER NO SAMPLE)	VP-3D (WATER NO SAMPLE)
Start Date/Time	5/27	1136	1138
End Date/Time	5/27	1150	1154
Canister ID		27403	27405
Flow controller ID		206	211
Associated ambient air sample ID		N/A	
Analytical method required		TO-15	

	VP-3S (WATER)	VP-3M	VP-3D
Vacuum gauge "zero" ("Hg)		-2	0
Start Pressure ("Hg)		-30	-26
End Pressure ("Hg)		-28	-26
End pressure > "zero"?		-2	YES
Sampling duration (intended)	10 minutes		
Depth of sample point	5 fbg	10 fbg	15 fbg
Laboratory used	Merit Laboratories		

	S	M	D
Length of tubing	8	13	18 cm
Tubing volume	77	125	173 cc

Tubing type used 1/4 I.D. 3/8 O.D.

Volume purged	S	M	D
	231	375	519

cc @ 0.1 l/min (100cc/min)

3 volumes purged @ < 200cc/min? Yes

Shroud tracer gas conc. Beginning: 48.1% End of purging: _____ End of sampling: 32%

Helium Short Circuiting	Before: S	M	D	After: S	M	D
		0	0			

PID reading	Before: S	M	D	After: S	M	D
		0	0 (ppmv)			(ppmv)

Gas Analyzer Readings $\%O_2$ N/A $\%CO_2$ N/A $\%CH_4$ N/A

Noticeable odor NONE

Soil type clayey

Weather Conditions during Probe Installation:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments:

- VP-3S water in line during purging collected water sample 2 voas
- VP-3M water in line. Collected water sample 1½ voas full voa broke during transport and no sample sent to lab
- VP-3D water in line. collected water sample ½ voa No sample sent to lab not enough volume

RAMBOLL

Soil Vapor (Bottle Vac®) Sample Collection Field Form

Project # 1940100783 Date 5/27/21

Project Name RACER coldwater Collector KBS

Sample ID	VP-5S (water)	VP-5M (WATER)	VP-5D (WATER)
Start Date/Time	5/27 1518	1519	1520
End Date/Time	5/27 1530	1537	
Canister ID	28917	12449	12414
Flow controller ID	220	24	229

Associated ambient air sample ID: N/A

Analytical method required: TO-15

	VP-5S	VP-5M	VP-5D
Vacuum gauge "zero" ("Hg)	Yes	Yes	Yes
Start Pressure ("Hg)	-29	-28	-29
End Pressure ("Hg)	-28	-26	
End pressure > "zero"?			

Sampling duration (intended): 10 minutes

Depth of sample point: 5 fbg | 10 fbg | 15 fbg

Laboratory used: Merit Laboratories

	S	M	D
Tubing type used	1/4 I.D. 3/8 O.D.		
Length of tubing	8	13	18 cm
Tubing volume	77	125	173 cc
Volume purged	231	375	519 cc @ 0.1 l/min (100cc/min)

3 volumes purged @ < 200cc/min? Yes

Shroud tracer gas conc. Beginning: 42.1% End of purging: ____ End of sampling: 22.5%

	Before: S	M	D	After: S	M	D
Helium Short Circuiting	0	0	0	0	0	0
PID reading (ppmv)	0	0	0	0	0	0

Gas Analyzer Readings $\%O_2$ N/A $\%CO_2$ N/A $\%CH_4$ N/A

Noticeable odor MD Soil type clayey

Weather Conditions during Probe Installation:

Air temperature (°F) ____ Rainfall ____ Wind direction ____

Barometric pressure ____ Wind speed (mph) ____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

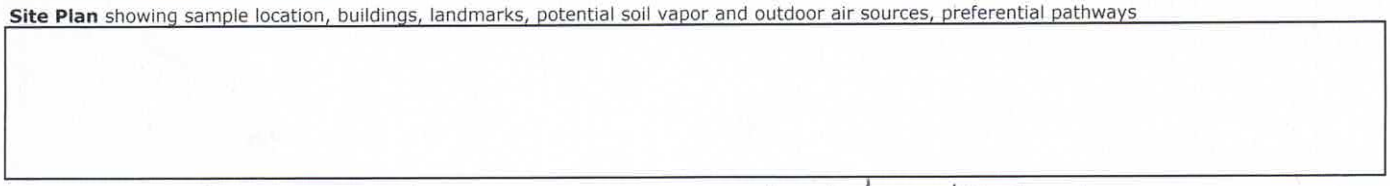
Weather Conditions at Start of Sampling:

Air temperature (°F) ____ Rainfall ____ Wind direction ____

Barometric pressure ____ Wind speed (mph) ____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments:
- VP-5S water in line collected water sample 2 vocs
- VP-5M water in line collected water sample 2 vocs
- VP-5D water in line collected water sample 2 vocs

RAMBOLL

Soil Vapor (Bottle Vac®) Sample Collection Field Form

Project # 1940100783 Date 5/27/21

Project Name RALER coldwater Rd Collector KBS

Sample ID	VP-6S (WATER)	VP-6M	VP-6D
Start Date/Time	5/27 936	939	~~1020~~ 941
End Date/Time	5/27 950	945	~~1020~~ 951
Canister ID	28472	27402	13712
Flow controller ID	216	221	208882

Associated ambient air sample ID N/A

Analytical method required TO-15

	VP-6S (WATER)	VP-6M	VP-6D
Vacuum gauge "zero" ("Hg)	Yes	Yes	Yes
Start Pressure ("Hg)	-28	-26	-28
End Pressure ("Hg)	-28	0	-28
End pressure > "zero"?		Yes	
Sampling duration (intended)	10 minutes		
Depth of sample point	5 fbg	10 fbg	15 fbg

Laboratory used Merit Laboratories

	S	M	D
Length of tubing	8	13	18 cm
Tubing volume	77	125	173 cc

Tubing type used 1/4 I.D. 3/8 O.D.

Volume purged	S	M	D
	231	375	519

cc @ 0.1 l/min (100cc/min) 3 volumes purged @ < 200cc/min? Yes

Shroud tracer gas conc. Beginning: 45% End of purging: _____ End of sampling: _____

Helium Short Circuiting	Before: S	M	D	After: S	M	D
	0	0			0	

PID reading (ppmv)	Before: S	M	D	After: S	M	D
	0	0			0	

Gas Analyzer Readings $\%O_2$ N/A $\%CO_2$ N/A $\%CH_4$ N/A

Noticeable odor No Soil type clayey

Weather Conditions during Probe Installation:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) 51 Rainfall No Wind direction NE

Barometric pressure 29.38 Wind speed (mph) 6

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs: Rain 5/26/21 6-8 am

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: VP-6S water in line collected water sample 3 VOAs

VP-6D Regulator vapor sample stalled attempted 8 hour sample

RAMBOLL

Soil Vapor (Bottle Vac®) Sample Collection Field Form

Project # 1940100783 Date 5/27/21

Project Name RALER Coldwater Rd Collector KBS

Sample ID	VP-6D			Vacuum gauge "zero" ("Hg)	VP-6D KBS		
Start Date/Time	1020			Start Pressure ("Hg)	-26		
End Date/Time	1820			End Pressure ("Hg)	-24		
Canister ID	13712			End pressure > "zero"?			
Flow controller ID	802			Sampling duration (intended)	10 minutes		
Associated ambient air sample ID	N/A			Depth of sample point	5 fbg	10 fbg	15 fbg
Analytical method required	TO-15			Laboratory used	Merit Laboratories		

	S	M	D		S	M	D
Tubing type used 1/4 I.D. 3/8 O.D.	Length of tubing	8	13	18 cm	Tubing volume	77	125	173 cc

	S	M	D
Volume purged	231	375	519

cc @ 0.1 l/min (100cc/min) 3 volumes purged @ < 200cc/min? Yes

Shroud tracer gas conc. Beginning: 45 End of purging: _____ End of sampling: 0

	Before: S	M	D	After: S	M	D	Before: S	M	D	After: S	M	D
Helium Short Circuiting			0			0	PID reading			0			0
											(ppmv)		(ppmv)

Gas Analyzer Readings %O_2 N/A %CO_2 N/A %CH_4 N/A

Noticeable odor No Soil type clayey

Weather Conditions during Probe Installation:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) 51 Rainfall No Wind direction NE

Barometric pressure 29.38 Wind speed (mph) 6

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs: Rain 5/26/21 6-8 am

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: VP-6D No vapor sample after 8 hours. Attempted to collect ground water and no water was collected

Time	Pressure change	Time	Pressure
1020	-26	1430	-24
1100	-25	1545	-24
1230	-24	1630	-24
1340	-24	1730	-24

APPENDIX B
Analytical Laboratory Report

Analytical Laboratory Report

Report ID: S24728.01(01)
Generated on 06/07/2021

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Addtional Contacts: Kevin Schneider

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S24728.01-S24728.04
Project: RACER Coldwater Road
Collected Date(s): 05/27/2021
Submitted Date/Time: 05/28/2021 09:00
Sampled by: Kevin Schneider
P.O. #: 1940002628

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
TO-15	EPA TO-15 Second Edition January 1999

Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S24728.01	VP-6M	Air	05/27/21 09:39 - 05/27/21 09:45
S24728.02	VP-1S	Air	05/27/21 13:32 - 05/27/21 13:55
S24728.03	VP-2D	Air	05/27/21 16:12 - 05/27/21 16:24
S24728.04	DUP-052721	Air	05/27/21 00:01 - 05/27/21 00:02

Lab Sample ID: S24728.01
Sample Tag: VP-6M
Collected Date/Time: 05/27/2021 09:39 - 05/27/2021 09:45
Matrix: Air
COC Reference: A4974

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	Air Canister	None	No	RT	n/a

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Pressure check for TO-15*	-2.5	N/A	05/28/21 13:30	KAG	

Organics - Volatiles

TO-15, Method: TO-15, Run Date: 06/03/21 19:46, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	30	20		ppbv	10	67-64-1	
1,3-Butadiene	Not detected	10		ppbv	10	106-99-0	
Benzene	Not detected	2		ppbv	10	71-43-2	
Bromodichloromethane	Not detected	2		ppbv	10	75-27-4	
Bromoform	Not detected	2		ppbv	10	75-25-2	
Bromomethane	Not detected	2		ppbv	10	74-83-9	
Vinyl bromide	Not detected	2		ppbv	10	593-60-2	
Benzyl chloride	Not detected	2		ppbv	10	100-44-7	
Carbon disulfide	Not detected	5		ppbv	10	75-15-0	
Chlorobenzene	Not detected	2		ppbv	10	108-90-7	
Chloroethane	Not detected	20		ppbv	10	75-00-3	
Chloroform	Not detected	2		ppbv	10	67-66-3	
Chloromethane	Not detected	20		ppbv	10	74-87-3	
3-Chloropropene	Not detected	2		ppbv	10	107-05-1	
2-Chlorotoluene	Not detected	2		ppbv	10	95-49-8	
Carbon tetrachloride	Not detected	2		ppbv	10	56-23-5	
Cyclohexane	Not detected	2		ppbv	10	110-82-7	
1,1-Dichloroethane	Not detected	2		ppbv	10	75-34-3	
1,1-Dichloroethene	Not detected	2		ppbv	10	75-35-4	
1,2-Dibromoethane	Not detected	2		ppbv	10	106-93-4	
1,2-Dichloroethane	Not detected	2		ppbv	10	107-06-2	
1,2-Dichloropropane	Not detected	2		ppbv	10	78-87-5	
1,4-Dioxane	Not detected	25		ppbv	10	123-91-1	
Dichlorodifluoromethane	Not detected	2		ppbv	10	75-71-8	
Dibromochloromethane	Not detected	2		ppbv	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	2		ppbv	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	2		ppbv	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	2		ppbv	10	541-73-1	
1,2-Dichlorobenzene	Not detected	2		ppbv	10	95-50-1	
1,4-Dichlorobenzene	Not detected	2		ppbv	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-02-6	
Ethanol*	29	25		ppbv	10	64-17-5	
Ethylbenzene	Not detected	2		ppbv	10	100-41-4	
Ethyl Acetate*	Not detected	20		ppbv	10	141-78-6	
4-Ethyltoluene	Not detected	2		ppbv	10	622-96-8	
Freon 113	Not detected	2		ppbv	10	76-13-1	

Lab Sample ID: S24728.01 (continued)
Sample Tag: VP-6M

TO-15, Method: TO-15, Run Date: 06/03/21 19:46, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Freon 114	Not detected	2		ppbv	10	76-14-2	
Heptane	Not detected	2		ppbv	10	142-82-5	
Hexachlorobutadiene	Not detected	2		ppbv	10	87-68-3	
Hexane	Not detected	2		ppbv	10	110-54-3	
2-Hexanone*	Not detected	5		ppbv	10	591-78-6	
Isopropyl Alcohol*	Not detected	20		ppbv	10	67-63-0	
Methylene chloride	Not detected	5		ppbv	10	75-09-2	
2-Butanone (MEK)	Not detected	20		ppbv	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	5		ppbv	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	2		ppbv	10	1634-04-4	
Methyl methacrylate	Not detected	2		ppbv	10	80-62-6	
Naphthalene	Not detected	2		ppbv	10	91-20-3	
Propylene*	Not detected	100		ppbv	10	115-07-1	
Styrene	Not detected	2		ppbv	10	100-42-5	
1,1,1-Trichloroethane	Not detected	2		ppbv	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	2		ppbv	10	79-34-5	
1,1,2-Trichloroethane	Not detected	2		ppbv	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	5		ppbv	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	2		ppbv	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	2		ppbv	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	2		ppbv	10	540-84-1	
Tert-butyl Alcohol	Not detected	10		ppbv	10	75-65-0	
Tetrachloroethene	Not detected	2		ppbv	10	127-18-4	
Tetrahydrofuran*	8	2		ppbv	10	109-99-9	
Toluene	8	2		ppbv	10	108-88-3	
Trichloroethene	Not detected	2		ppbv	10	79-01-6	
Trichlorofluoromethane	Not detected	2		ppbv	10	75-69-4	
Vinyl chloride	Not detected	2		ppbv	10	75-01-4	
Vinyl acetate	Not detected	2		ppbv	10	108-05-4	
p,m-Xylene	4	4		ppbv	10		
o-Xylene	Not detected	2		ppbv	10	95-47-6	
Total Xylenes	Not detected	6		ppbv	10	1330-20-7	

TO-15, Method: TO-15, Run Date: 06/03/21 19:46, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	71	48		ug/m3	10	67-64-1	
1,3-Butadiene	Not detected	22		ug/m3	10	106-99-0	
Benzene	Not detected	6.4		ug/m3	10	71-43-2	
Bromodichloromethane	Not detected	13		ug/m3	10	75-27-4	
Bromoform	Not detected	21		ug/m3	10	75-25-2	
Bromomethane	Not detected	7.8		ug/m3	10	74-83-9	
Vinyl bromide	Not detected	8.7		ug/m3	10	593-60-2	
Benzyl chloride	Not detected	10		ug/m3	10	100-44-7	
Carbon disulfide	Not detected	16		ug/m3	10	75-15-0	
Chlorobenzene	Not detected	9.2		ug/m3	10	108-90-7	
Chloroethane	Not detected	53		ug/m3	10	75-00-3	
Chloroform	Not detected	9.8		ug/m3	10	67-66-3	
Chloromethane	Not detected	41		ug/m3	10	74-87-3	
3-Chloropropene	Not detected	6.3		ug/m3	10	107-05-1	
2-Chlorotoluene	Not detected	10		ug/m3	10	95-49-8	

Lab Sample ID: S24728.01 (continued)
Sample Tag: VP-6M

TO-15, Method: TO-15, Run Date: 06/03/21 19:46, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Carbon tetrachloride	Not detected	13		ug/m3	10	56-23-5	
Cyclohexane	Not detected	6.9		ug/m3	10	110-82-7	
1,1-Dichloroethane	Not detected	8.1		ug/m3	10	75-34-3	
1,1-Dichloroethene	Not detected	7.9		ug/m3	10	75-35-4	
1,2-Dibromoethane	Not detected	15		ug/m3	10	106-93-4	
1,2-Dichloroethane	Not detected	8.1		ug/m3	10	107-06-2	
1,2-Dichloropropane	Not detected	9.2		ug/m3	10	78-87-5	
1,4-Dioxane	Not detected	90		ug/m3	10	123-91-1	
Dichlorodifluoromethane	Not detected	9.9		ug/m3	10	75-71-8	
Dibromochloromethane	Not detected	17		ug/m3	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	12		ug/m3	10	541-73-1	
1,2-Dichlorobenzene	Not detected	12		ug/m3	10	95-50-1	
1,4-Dichlorobenzene	Not detected	12		ug/m3	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-02-6	
Ethanol*	55	47		ug/m3	10	64-17-5	
Ethylbenzene	Not detected	8.7		ug/m3	10	100-41-4	
Ethyl Acetate*	Not detected	72		ug/m3	10	141-78-6	
4-Ethyltoluene	Not detected	9.8		ug/m3	10	622-96-8	
Freon 113	Not detected	15		ug/m3	10	76-13-1	
Freon 114	Not detected	14		ug/m3	10	76-14-2	
Heptane	Not detected	8.2		ug/m3	10	142-82-5	
Hexachlorobutadiene	Not detected	21		ug/m3	10	87-68-3	
Hexane	Not detected	7.0		ug/m3	10	110-54-3	
2-Hexanone*	Not detected	20		ug/m3	10	591-78-6	
Isopropyl Alcohol*	Not detected	49		ug/m3	10	67-63-0	
Methylene chloride	Not detected	17		ug/m3	10	75-09-2	
2-Butanone (MEK)	Not detected	59		ug/m3	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	20		ug/m3	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	7.2		ug/m3	10	1634-04-4	
Methyl methacrylate	Not detected	8.2		ug/m3	10	80-62-6	
Naphthalene	Not detected	10		ug/m3	10	91-20-3	
Propylene*	Not detected	170		ug/m3	10	115-07-1	
Styrene	Not detected	8.5		ug/m3	10	100-42-5	
1,1,1-Trichloroethane	Not detected	11		ug/m3	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	14		ug/m3	10	79-34-5	
1,1,2-Trichloroethane	Not detected	11		ug/m3	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	37		ug/m3	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	9.8		ug/m3	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	9.8		ug/m3	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	9.3		ug/m3	10	540-84-1	
Tert-butyl Alcohol	Not detected	30		ug/m3	10	75-65-0	
Tetrachloroethene	Not detected	14		ug/m3	10	127-18-4	
Tetrahydrofuran*	24	5.9		ug/m3	10	109-99-9	
Toluene	30	7.5		ug/m3	10	108-88-3	
Trichloroethene	Not detected	11		ug/m3	10	79-01-6	
Trichlorofluoromethane	Not detected	11		ug/m3	10	75-69-4	
Vinyl chloride	Not detected	5.1		ug/m3	10	75-01-4	

Lab Sample ID: S24728.01 (continued)
Sample Tag: VP-6M

TO-15, Method: TO-15, Run Date: 06/03/21 19:46, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vinyl acetate	Not detected	7.0		ug/m3	10	108-05-4	
p,m-Xylene	17	17		ug/m3	10		
o-Xylene	Not detected	8.7		ug/m3	10	95-47-6	
Total Xylenes	Not detected	26		ug/m3	10	1330-20-7	

Lab Sample ID: S24728.02
Sample Tag: VP-1S
Collected Date/Time: 05/27/2021 13:32 - 05/27/2021 13:55
Matrix: Air
COC Reference: A4974

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	Air Canister	None	No	RT	n/a

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Pressure check for TO-15*	-2	N/A	05/28/21 13:30	KAG	

Organics - Volatiles

TO-15, Method: TO-15, Run Date: 06/03/21 20:18, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	40	20		ppbv	10	67-64-1	
1,3-Butadiene	Not detected	10		ppbv	10	106-99-0	
Benzene	Not detected	2		ppbv	10	71-43-2	
Bromodichloromethane	Not detected	2		ppbv	10	75-27-4	
Bromoform	Not detected	2		ppbv	10	75-25-2	
Bromomethane	Not detected	2		ppbv	10	74-83-9	
Vinyl bromide	Not detected	2		ppbv	10	593-60-2	
Benzyl chloride	Not detected	2		ppbv	10	100-44-7	
Carbon disulfide	Not detected	5		ppbv	10	75-15-0	
Chlorobenzene	Not detected	2		ppbv	10	108-90-7	
Chloroethane	Not detected	20		ppbv	10	75-00-3	
Chloroform	Not detected	2		ppbv	10	67-66-3	
Chloromethane	Not detected	20		ppbv	10	74-87-3	
3-Chloropropene	Not detected	2		ppbv	10	107-05-1	
2-Chlorotoluene	Not detected	2		ppbv	10	95-49-8	
Carbon tetrachloride	Not detected	2		ppbv	10	56-23-5	
Cyclohexane	Not detected	2		ppbv	10	110-82-7	
1,1-Dichloroethane	Not detected	2		ppbv	10	75-34-3	
1,1-Dichloroethene	Not detected	2		ppbv	10	75-35-4	
1,2-Dibromoethane	Not detected	2		ppbv	10	106-93-4	
1,2-Dichloroethane	Not detected	2		ppbv	10	107-06-2	
1,2-Dichloropropane	Not detected	2		ppbv	10	78-87-5	
1,4-Dioxane	Not detected	25		ppbv	10	123-91-1	
Dichlorodifluoromethane	Not detected	2		ppbv	10	75-71-8	
Dibromochloromethane	Not detected	2		ppbv	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	2		ppbv	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	2		ppbv	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	2		ppbv	10	541-73-1	
1,2-Dichlorobenzene	Not detected	2		ppbv	10	95-50-1	
1,4-Dichlorobenzene	Not detected	2		ppbv	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-02-6	
Ethanol*	72	25		ppbv	10	64-17-5	
Ethylbenzene	Not detected	2		ppbv	10	100-41-4	
Ethyl Acetate*	Not detected	20		ppbv	10	141-78-6	
4-Ethyltoluene	Not detected	2		ppbv	10	622-96-8	
Freon 113	Not detected	2		ppbv	10	76-13-1	

Lab Sample ID: S24728.02 (continued)
Sample Tag: VP-1S

TO-15, Method: TO-15, Run Date: 06/03/21 20:18, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Freon 114	Not detected	2		ppbv	10	76-14-2	
Heptane	Not detected	2		ppbv	10	142-82-5	
Hexachlorobutadiene	Not detected	2		ppbv	10	87-68-3	
Hexane	Not detected	2		ppbv	10	110-54-3	
2-Hexanone*	Not detected	5		ppbv	10	591-78-6	
Isopropyl Alcohol*	Not detected	20		ppbv	10	67-63-0	
Methylene chloride	Not detected	5		ppbv	10	75-09-2	
2-Butanone (MEK)	Not detected	20		ppbv	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	5		ppbv	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	2		ppbv	10	1634-04-4	
Methyl methacrylate	Not detected	2		ppbv	10	80-62-6	
Naphthalene	Not detected	2		ppbv	10	91-20-3	
Propylene*	Not detected	100		ppbv	10	115-07-1	
Styrene	Not detected	2		ppbv	10	100-42-5	
1,1,1-Trichloroethane	Not detected	2		ppbv	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	2		ppbv	10	79-34-5	
1,1,2-Trichloroethane	Not detected	2		ppbv	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	5		ppbv	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	2		ppbv	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	2		ppbv	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	2		ppbv	10	540-84-1	
Tert-butyl Alcohol	Not detected	10		ppbv	10	75-65-0	
Tetrachloroethene	Not detected	2		ppbv	10	127-18-4	
Tetrahydrofuran*	13	2		ppbv	10	109-99-9	
Toluene	2	2		ppbv	10	108-88-3	
Trichloroethene	Not detected	2		ppbv	10	79-01-6	
Trichlorofluoromethane	Not detected	2		ppbv	10	75-69-4	
Vinyl chloride	Not detected	2		ppbv	10	75-01-4	
Vinyl acetate	Not detected	2		ppbv	10	108-05-4	
p,m-Xylene	Not detected	4		ppbv	10		
o-Xylene	Not detected	2		ppbv	10	95-47-6	
Total Xylenes	Not detected	6		ppbv	10	1330-20-7	

TO-15, Method: TO-15, Run Date: 06/03/21 20:18, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	95	48		ug/m3	10	67-64-1	
1,3-Butadiene	Not detected	22		ug/m3	10	106-99-0	
Benzene	Not detected	6.4		ug/m3	10	71-43-2	
Bromodichloromethane	Not detected	13		ug/m3	10	75-27-4	
Bromoform	Not detected	21		ug/m3	10	75-25-2	
Bromomethane	Not detected	7.8		ug/m3	10	74-83-9	
Vinyl bromide	Not detected	8.7		ug/m3	10	593-60-2	
Benzyl chloride	Not detected	10		ug/m3	10	100-44-7	
Carbon disulfide	Not detected	16		ug/m3	10	75-15-0	
Chlorobenzene	Not detected	9.2		ug/m3	10	108-90-7	
Chloroethane	Not detected	53		ug/m3	10	75-00-3	
Chloroform	Not detected	9.8		ug/m3	10	67-66-3	
Chloromethane	Not detected	41		ug/m3	10	74-87-3	
3-Chloropropene	Not detected	6.3		ug/m3	10	107-05-1	
2-Chlorotoluene	Not detected	10		ug/m3	10	95-49-8	

Lab Sample ID: S24728.02 (continued)
Sample Tag: VP-1S

TO-15, Method: TO-15, Run Date: 06/03/21 20:18, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Carbon tetrachloride	Not detected	13		ug/m3	10	56-23-5	
Cyclohexane	Not detected	6.9		ug/m3	10	110-82-7	
1,1-Dichloroethane	Not detected	8.1		ug/m3	10	75-34-3	
1,1-Dichloroethene	Not detected	7.9		ug/m3	10	75-35-4	
1,2-Dibromoethane	Not detected	15		ug/m3	10	106-93-4	
1,2-Dichloroethane	Not detected	8.1		ug/m3	10	107-06-2	
1,2-Dichloropropane	Not detected	9.2		ug/m3	10	78-87-5	
1,4-Dioxane	Not detected	90		ug/m3	10	123-91-1	
Dichlorodifluoromethane	Not detected	9.9		ug/m3	10	75-71-8	
Dibromochloromethane	Not detected	17		ug/m3	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	12		ug/m3	10	541-73-1	
1,2-Dichlorobenzene	Not detected	12		ug/m3	10	95-50-1	
1,4-Dichlorobenzene	Not detected	12		ug/m3	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-02-6	
Ethanol*	140	47		ug/m3	10	64-17-5	
Ethylbenzene	Not detected	8.7		ug/m3	10	100-41-4	
Ethyl Acetate*	Not detected	72		ug/m3	10	141-78-6	
4-Ethyltoluene	Not detected	9.8		ug/m3	10	622-96-8	
Freon 113	Not detected	15		ug/m3	10	76-13-1	
Freon 114	Not detected	14		ug/m3	10	76-14-2	
Heptane	Not detected	8.2		ug/m3	10	142-82-5	
Hexachlorobutadiene	Not detected	21		ug/m3	10	87-68-3	
Hexane	Not detected	7.0		ug/m3	10	110-54-3	
2-Hexanone*	Not detected	20		ug/m3	10	591-78-6	
Isopropyl Alcohol*	Not detected	49		ug/m3	10	67-63-0	
Methylene chloride	Not detected	17		ug/m3	10	75-09-2	
2-Butanone (MEK)	Not detected	59		ug/m3	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	20		ug/m3	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	7.2		ug/m3	10	1634-04-4	
Methyl methacrylate	Not detected	8.2		ug/m3	10	80-62-6	
Naphthalene	Not detected	10		ug/m3	10	91-20-3	
Propylene*	Not detected	170		ug/m3	10	115-07-1	
Styrene	Not detected	8.5		ug/m3	10	100-42-5	
1,1,1-Trichloroethane	Not detected	11		ug/m3	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	14		ug/m3	10	79-34-5	
1,1,2-Trichloroethane	Not detected	11		ug/m3	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	37		ug/m3	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	9.8		ug/m3	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	9.8		ug/m3	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	9.3		ug/m3	10	540-84-1	
Tert-butyl Alcohol	Not detected	30		ug/m3	10	75-65-0	
Tetrachloroethene	Not detected	14		ug/m3	10	127-18-4	
Tetrahydrofuran*	38	5.9		ug/m3	10	109-99-9	
Toluene	7.5	7.5		ug/m3	10	108-88-3	
Trichloroethene	Not detected	11		ug/m3	10	79-01-6	
Trichlorofluoromethane	Not detected	11		ug/m3	10	75-69-4	
Vinyl chloride	Not detected	5.1		ug/m3	10	75-01-4	

Lab Sample ID: S24728.02 (continued)
Sample Tag: VP-1S

TO-15, Method: TO-15, Run Date: 06/03/21 20:18, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vinyl acetate	Not detected	7.0		ug/m3	10	108-05-4	
p,m-Xylene	Not detected	17		ug/m3	10		
o-Xylene	Not detected	8.7		ug/m3	10	95-47-6	
Total Xylenes	Not detected	26		ug/m3	10	1330-20-7	

Lab Sample ID: S24728.03
Sample Tag: VP-2D
Collected Date/Time: 05/27/2021 16:12 - 05/27/2021 16:24
Matrix: Air
COC Reference: A4974

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	Air Canister	None	No	RT	n/a

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Pressure check for TO-15*	-2	N/A	05/28/21 13:30	KAG	

Organics - Volatiles

TO-15, Method: TO-15, Run Date: 06/03/21 20:50, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	50	20		ppbv	10	67-64-1	
1,3-Butadiene	Not detected	10		ppbv	10	106-99-0	
Benzene	4	2		ppbv	10	71-43-2	
Bromodichloromethane	Not detected	2		ppbv	10	75-27-4	
Bromoform	Not detected	2		ppbv	10	75-25-2	
Bromomethane	Not detected	2		ppbv	10	74-83-9	
Vinyl bromide	Not detected	2		ppbv	10	593-60-2	
Benzyl chloride	Not detected	2		ppbv	10	100-44-7	
Carbon disulfide	Not detected	5		ppbv	10	75-15-0	
Chlorobenzene	Not detected	2		ppbv	10	108-90-7	
Chloroethane	Not detected	20		ppbv	10	75-00-3	
Chloroform	Not detected	2		ppbv	10	67-66-3	
Chloromethane	Not detected	20		ppbv	10	74-87-3	
3-Chloropropene	Not detected	2		ppbv	10	107-05-1	
2-Chlorotoluene	Not detected	2		ppbv	10	95-49-8	
Carbon tetrachloride	Not detected	2		ppbv	10	56-23-5	
Cyclohexane	Not detected	2		ppbv	10	110-82-7	
1,1-Dichloroethane	Not detected	2		ppbv	10	75-34-3	
1,1-Dichloroethene	Not detected	2		ppbv	10	75-35-4	
1,2-Dibromoethane	Not detected	2		ppbv	10	106-93-4	
1,2-Dichloroethane	Not detected	2		ppbv	10	107-06-2	
1,2-Dichloropropane	Not detected	2		ppbv	10	78-87-5	
1,4-Dioxane	Not detected	25		ppbv	10	123-91-1	
Dichlorodifluoromethane	Not detected	2		ppbv	10	75-71-8	
Dibromochloromethane	Not detected	2		ppbv	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	2		ppbv	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	2		ppbv	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	2		ppbv	10	541-73-1	
1,2-Dichlorobenzene	Not detected	2		ppbv	10	95-50-1	
1,4-Dichlorobenzene	Not detected	2		ppbv	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-02-6	
Ethanol*	56	25		ppbv	10	64-17-5	
Ethylbenzene	Not detected	2		ppbv	10	100-41-4	
Ethyl Acetate*	Not detected	20		ppbv	10	141-78-6	
4-Ethyltoluene	Not detected	2		ppbv	10	622-96-8	
Freon 113	Not detected	2		ppbv	10	76-13-1	

Lab Sample ID: S24728.03 (continued)
Sample Tag: VP-2D

TO-15, Method: TO-15, Run Date: 06/03/21 20:50, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Freon 114	Not detected	2		ppbv	10	76-14-2	
Heptane	Not detected	2		ppbv	10	142-82-5	
Hexachlorobutadiene	Not detected	2		ppbv	10	87-68-3	
Hexane	Not detected	2		ppbv	10	110-54-3	
2-Hexanone*	Not detected	5		ppbv	10	591-78-6	
Isopropyl Alcohol*	Not detected	20		ppbv	10	67-63-0	
Methylene chloride	Not detected	5		ppbv	10	75-09-2	
2-Butanone (MEK)	Not detected	20		ppbv	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	5		ppbv	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	2		ppbv	10	1634-04-4	
Methyl methacrylate	Not detected	2		ppbv	10	80-62-6	
Naphthalene	Not detected	2		ppbv	10	91-20-3	
Propylene*	Not detected	100		ppbv	10	115-07-1	
Styrene	Not detected	2		ppbv	10	100-42-5	
1,1,1-Trichloroethane	Not detected	2		ppbv	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	2		ppbv	10	79-34-5	
1,1,2-Trichloroethane	Not detected	2		ppbv	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	5		ppbv	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	2		ppbv	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	2		ppbv	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	2		ppbv	10	540-84-1	
Tert-butyl Alcohol	Not detected	10		ppbv	10	75-65-0	
Tetrachloroethene	Not detected	2		ppbv	10	127-18-4	
Tetrahydrofuran*	7	2		ppbv	10	109-99-9	
Toluene	Not detected	2		ppbv	10	108-88-3	
Trichloroethene	Not detected	2		ppbv	10	79-01-6	
Trichlorofluoromethane	Not detected	2		ppbv	10	75-69-4	
Vinyl chloride	Not detected	2		ppbv	10	75-01-4	
Vinyl acetate	Not detected	2		ppbv	10	108-05-4	
p,m-Xylene	Not detected	4		ppbv	10		
o-Xylene	Not detected	2		ppbv	10	95-47-6	
Total Xylenes	Not detected	6		ppbv	10	1330-20-7	

TO-15, Method: TO-15, Run Date: 06/03/21 20:50, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	120	48		ug/m3	10	67-64-1	
1,3-Butadiene	Not detected	22		ug/m3	10	106-99-0	
Benzene	13	6.4		ug/m3	10	71-43-2	
Bromodichloromethane	Not detected	13		ug/m3	10	75-27-4	
Bromoform	Not detected	21		ug/m3	10	75-25-2	
Bromomethane	Not detected	7.8		ug/m3	10	74-83-9	
Vinyl bromide	Not detected	8.7		ug/m3	10	593-60-2	
Benzyl chloride	Not detected	10		ug/m3	10	100-44-7	
Carbon disulfide	Not detected	16		ug/m3	10	75-15-0	
Chlorobenzene	Not detected	9.2		ug/m3	10	108-90-7	
Chloroethane	Not detected	53		ug/m3	10	75-00-3	
Chloroform	Not detected	9.8		ug/m3	10	67-66-3	
Chloromethane	Not detected	41		ug/m3	10	74-87-3	
3-Chloropropene	Not detected	6.3		ug/m3	10	107-05-1	
2-Chlorotoluene	Not detected	10		ug/m3	10	95-49-8	

Lab Sample ID: S24728.03 (continued)
Sample Tag: VP-2D

TO-15, Method: TO-15, Run Date: 06/03/21 20:50, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Carbon tetrachloride	Not detected	13		ug/m3	10	56-23-5	
Cyclohexane	Not detected	6.9		ug/m3	10	110-82-7	
1,1-Dichloroethane	Not detected	8.1		ug/m3	10	75-34-3	
1,1-Dichloroethene	Not detected	7.9		ug/m3	10	75-35-4	
1,2-Dibromoethane	Not detected	15		ug/m3	10	106-93-4	
1,2-Dichloroethane	Not detected	8.1		ug/m3	10	107-06-2	
1,2-Dichloropropane	Not detected	9.2		ug/m3	10	78-87-5	
1,4-Dioxane	Not detected	90		ug/m3	10	123-91-1	
Dichlorodifluoromethane	Not detected	9.9		ug/m3	10	75-71-8	
Dibromochloromethane	Not detected	17		ug/m3	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	12		ug/m3	10	541-73-1	
1,2-Dichlorobenzene	Not detected	12		ug/m3	10	95-50-1	
1,4-Dichlorobenzene	Not detected	12		ug/m3	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-02-6	
Ethanol*	110	47		ug/m3	10	64-17-5	
Ethylbenzene	Not detected	8.7		ug/m3	10	100-41-4	
Ethyl Acetate*	Not detected	72		ug/m3	10	141-78-6	
4-Ethyltoluene	Not detected	9.8		ug/m3	10	622-96-8	
Freon 113	Not detected	15		ug/m3	10	76-13-1	
Freon 114	Not detected	14		ug/m3	10	76-14-2	
Heptane	Not detected	8.2		ug/m3	10	142-82-5	
Hexachlorobutadiene	Not detected	21		ug/m3	10	87-68-3	
Hexane	Not detected	7.0		ug/m3	10	110-54-3	
2-Hexanone*	Not detected	20		ug/m3	10	591-78-6	
Isopropyl Alcohol*	Not detected	49		ug/m3	10	67-63-0	
Methylene chloride	Not detected	17		ug/m3	10	75-09-2	
2-Butanone (MEK)	Not detected	59		ug/m3	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	20		ug/m3	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	7.2		ug/m3	10	1634-04-4	
Methyl methacrylate	Not detected	8.2		ug/m3	10	80-62-6	
Naphthalene	Not detected	10		ug/m3	10	91-20-3	
Propylene*	Not detected	170		ug/m3	10	115-07-1	
Styrene	Not detected	8.5		ug/m3	10	100-42-5	
1,1,1-Trichloroethane	Not detected	11		ug/m3	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	14		ug/m3	10	79-34-5	
1,1,2-Trichloroethane	Not detected	11		ug/m3	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	37		ug/m3	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	9.8		ug/m3	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	9.8		ug/m3	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	9.3		ug/m3	10	540-84-1	
Tert-butyl Alcohol	Not detected	30		ug/m3	10	75-65-0	
Tetrachloroethene	Not detected	14		ug/m3	10	127-18-4	
Tetrahydrofuran*	21	5.9		ug/m3	10	109-99-9	
Toluene	Not detected	7.5		ug/m3	10	108-88-3	
Trichloroethene	Not detected	11		ug/m3	10	79-01-6	
Trichlorofluoromethane	Not detected	11		ug/m3	10	75-69-4	
Vinyl chloride	Not detected	5.1		ug/m3	10	75-01-4	

Lab Sample ID: S24728.03 (continued)
Sample Tag: VP-2D

TO-15, Method: TO-15, Run Date: 06/03/21 20:50, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vinyl acetate	Not detected	7.0		ug/m3	10	108-05-4	
p,m-Xylene	Not detected	17		ug/m3	10		
o-Xylene	Not detected	8.7		ug/m3	10	95-47-6	
Total Xylenes	Not detected	26		ug/m3	10	1330-20-7	

Lab Sample ID: S24728.04
Sample Tag: DUP-052721
Collected Date/Time: 05/27/2021 00:01 - 05/27/2021 00:02
Matrix: Air
COC Reference: A4974

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	Air Canister	None	No	RT	n/a

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Pressure check for TO-15*	-2	N/A	05/28/21 13:30	KAG	

Organics - Volatiles

TO-15, Method: TO-15, Run Date: 06/03/21 21:22, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	40	20		ppbv	10	67-64-1	
1,3-Butadiene	Not detected	10		ppbv	10	106-99-0	
Benzene	Not detected	2		ppbv	10	71-43-2	
Bromodichloromethane	Not detected	2		ppbv	10	75-27-4	
Bromoform	Not detected	2		ppbv	10	75-25-2	
Bromomethane	Not detected	2		ppbv	10	74-83-9	
Vinyl bromide	Not detected	2		ppbv	10	593-60-2	
Benzyl chloride	Not detected	2		ppbv	10	100-44-7	
Carbon disulfide	Not detected	5		ppbv	10	75-15-0	
Chlorobenzene	Not detected	2		ppbv	10	108-90-7	
Chloroethane	Not detected	20		ppbv	10	75-00-3	
Chloroform	Not detected	2		ppbv	10	67-66-3	
Chloromethane	Not detected	20		ppbv	10	74-87-3	
3-Chloropropene	Not detected	2		ppbv	10	107-05-1	
2-Chlorotoluene	Not detected	2		ppbv	10	95-49-8	
Carbon tetrachloride	Not detected	2		ppbv	10	56-23-5	
Cyclohexane	Not detected	2		ppbv	10	110-82-7	
1,1-Dichloroethane	Not detected	2		ppbv	10	75-34-3	
1,1-Dichloroethene	Not detected	2		ppbv	10	75-35-4	
1,2-Dibromoethane	Not detected	2		ppbv	10	106-93-4	
1,2-Dichloroethane	Not detected	2		ppbv	10	107-06-2	
1,2-Dichloropropane	Not detected	2		ppbv	10	78-87-5	
1,4-Dioxane	Not detected	25		ppbv	10	123-91-1	
Dichlorodifluoromethane	Not detected	2		ppbv	10	75-71-8	
Dibromochloromethane	Not detected	2		ppbv	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	2		ppbv	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	2		ppbv	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	2		ppbv	10	541-73-1	
1,2-Dichlorobenzene	Not detected	2		ppbv	10	95-50-1	
1,4-Dichlorobenzene	Not detected	2		ppbv	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	2		ppbv	10	10061-02-6	
Ethanol*	77	25		ppbv	10	64-17-5	
Ethylbenzene	Not detected	2		ppbv	10	100-41-4	
Ethyl Acetate*	Not detected	20		ppbv	10	141-78-6	
4-Ethyltoluene	Not detected	2		ppbv	10	622-96-8	
Freon 113	Not detected	2		ppbv	10	76-13-1	

Lab Sample ID: S24728.04 (continued)
Sample Tag: DUP-052721

TO-15, Method: TO-15, Run Date: 06/03/21 21:22, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Freon 114	Not detected	2		ppbv	10	76-14-2	
Heptane	Not detected	2		ppbv	10	142-82-5	
Hexachlorobutadiene	Not detected	2		ppbv	10	87-68-3	
Hexane	Not detected	2		ppbv	10	110-54-3	
2-Hexanone*	Not detected	5		ppbv	10	591-78-6	
Isopropyl Alcohol*	Not detected	20		ppbv	10	67-63-0	
Methylene chloride	Not detected	5		ppbv	10	75-09-2	
2-Butanone (MEK)	Not detected	20		ppbv	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	5		ppbv	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	2		ppbv	10	1634-04-4	
Methyl methacrylate	Not detected	2		ppbv	10	80-62-6	
Naphthalene	Not detected	2		ppbv	10	91-20-3	
Propylene*	Not detected	100		ppbv	10	115-07-1	
Styrene	Not detected	2		ppbv	10	100-42-5	
1,1,1-Trichloroethane	Not detected	2		ppbv	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	2		ppbv	10	79-34-5	
1,1,2-Trichloroethane	Not detected	2		ppbv	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	5		ppbv	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	2		ppbv	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	2		ppbv	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	2		ppbv	10	540-84-1	
Tert-butyl Alcohol	Not detected	10		ppbv	10	75-65-0	
Tetrachloroethene	Not detected	2		ppbv	10	127-18-4	
Tetrahydrofuran*	12	2		ppbv	10	109-99-9	
Toluene	2	2		ppbv	10	108-88-3	
Trichloroethene	Not detected	2		ppbv	10	79-01-6	
Trichlorofluoromethane	Not detected	2		ppbv	10	75-69-4	
Vinyl chloride	Not detected	2		ppbv	10	75-01-4	
Vinyl acetate	Not detected	2		ppbv	10	108-05-4	
p,m-Xylene	Not detected	4		ppbv	10		
o-Xylene	Not detected	2		ppbv	10	95-47-6	
Total Xylenes	Not detected	6		ppbv	10	1330-20-7	

TO-15, Method: TO-15, Run Date: 06/03/21 21:22, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	95	48		ug/m3	10	67-64-1	
1,3-Butadiene	Not detected	22		ug/m3	10	106-99-0	
Benzene	Not detected	6.4		ug/m3	10	71-43-2	
Bromodichloromethane	Not detected	13		ug/m3	10	75-27-4	
Bromoform	Not detected	21		ug/m3	10	75-25-2	
Bromomethane	Not detected	7.8		ug/m3	10	74-83-9	
Vinyl bromide	Not detected	8.7		ug/m3	10	593-60-2	
Benzyl chloride	Not detected	10		ug/m3	10	100-44-7	
Carbon disulfide	Not detected	16		ug/m3	10	75-15-0	
Chlorobenzene	Not detected	9.2		ug/m3	10	108-90-7	
Chloroethane	Not detected	53		ug/m3	10	75-00-3	
Chloroform	Not detected	9.8		ug/m3	10	67-66-3	
Chloromethane	Not detected	41		ug/m3	10	74-87-3	
3-Chloropropene	Not detected	6.3		ug/m3	10	107-05-1	
2-Chlorotoluene	Not detected	10		ug/m3	10	95-49-8	

Lab Sample ID: S24728.04 (continued)
Sample Tag: DUP-052721

TO-15, Method: TO-15, Run Date: 06/03/21 21:22, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Carbon tetrachloride	Not detected	13		ug/m3	10	56-23-5	
Cyclohexane	Not detected	6.9		ug/m3	10	110-82-7	
1,1-Dichloroethane	Not detected	8.1		ug/m3	10	75-34-3	
1,1-Dichloroethene	Not detected	7.9		ug/m3	10	75-35-4	
1,2-Dibromoethane	Not detected	15		ug/m3	10	106-93-4	
1,2-Dichloroethane	Not detected	8.1		ug/m3	10	107-06-2	
1,2-Dichloropropane	Not detected	9.2		ug/m3	10	78-87-5	
1,4-Dioxane	Not detected	90		ug/m3	10	123-91-1	
Dichlorodifluoromethane	Not detected	9.9		ug/m3	10	75-71-8	
Dibromochloromethane	Not detected	17		ug/m3	10	124-48-1	
trans-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-60-5	
cis-1,2-Dichloroethene	Not detected	7.9		ug/m3	10	156-59-2	
cis-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-01-5	
1,3-Dichlorobenzene	Not detected	12		ug/m3	10	541-73-1	
1,2-Dichlorobenzene	Not detected	12		ug/m3	10	95-50-1	
1,4-Dichlorobenzene	Not detected	12		ug/m3	10	106-46-7	
trans-1,3-Dichloropropene	Not detected	9.1		ug/m3	10	10061-02-6	
Ethanol*	150	47		ug/m3	10	64-17-5	
Ethylbenzene	Not detected	8.7		ug/m3	10	100-41-4	
Ethyl Acetate*	Not detected	72		ug/m3	10	141-78-6	
4-Ethyltoluene	Not detected	9.8		ug/m3	10	622-96-8	
Freon 113	Not detected	15		ug/m3	10	76-13-1	
Freon 114	Not detected	14		ug/m3	10	76-14-2	
Heptane	Not detected	8.2		ug/m3	10	142-82-5	
Hexachlorobutadiene	Not detected	21		ug/m3	10	87-68-3	
Hexane	Not detected	7.0		ug/m3	10	110-54-3	
2-Hexanone*	Not detected	20		ug/m3	10	591-78-6	
Isopropyl Alcohol*	Not detected	49		ug/m3	10	67-63-0	
Methylene chloride	Not detected	17		ug/m3	10	75-09-2	
2-Butanone (MEK)	Not detected	59		ug/m3	10	78-93-3	
4-Methyl-2-pentanone (MIBK)	Not detected	20		ug/m3	10	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	7.2		ug/m3	10	1634-04-4	
Methyl methacrylate	Not detected	8.2		ug/m3	10	80-62-6	
Naphthalene	Not detected	10		ug/m3	10	91-20-3	
Propylene*	Not detected	170		ug/m3	10	115-07-1	
Styrene	Not detected	8.5		ug/m3	10	100-42-5	
1,1,1-Trichloroethane	Not detected	11		ug/m3	10	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	14		ug/m3	10	79-34-5	
1,1,2-Trichloroethane	Not detected	11		ug/m3	10	79-00-5	
1,2,4-Trichlorobenzene	Not detected	37		ug/m3	10	120-82-1	
1,2,4-Trimethylbenzene	Not detected	9.8		ug/m3	10	95-63-6	
1,3,5-Trimethylbenzene	Not detected	9.8		ug/m3	10	108-67-8	
2,2,4-Trimethylpentane	Not detected	9.3		ug/m3	10	540-84-1	
Tert-butyl Alcohol	Not detected	30		ug/m3	10	75-65-0	
Tetrachloroethene	Not detected	14		ug/m3	10	127-18-4	
Tetrahydrofuran*	35	5.9		ug/m3	10	109-99-9	
Toluene	7.5	7.5		ug/m3	10	108-88-3	
Trichloroethene	Not detected	11		ug/m3	10	79-01-6	
Trichlorofluoromethane	Not detected	11		ug/m3	10	75-69-4	
Vinyl chloride	Not detected	5.1		ug/m3	10	75-01-4	

Lab Sample ID: S24728.04 (continued)
Sample Tag: DUP-052721

TO-15, Method: TO-15, Run Date: 06/03/21 21:22, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Vinyl acetate	Not detected	7.0		ug/m3	10	108-05-4	
p,m-Xylene	Not detected	17		ug/m3	10		
o-Xylene	Not detected	8.7		ug/m3	10	95-47-6	
Total Xylenes	Not detected	26		ug/m3	10	1330-20-7	

Merit Laboratories Login Checklist

Lab Set ID: S24728
Client: OBG02 (O'Brien & Gere Engineers, Inc.)
Project: RACER Coldwater Road
Submitted: 05/28/2021 09:00 Login User: REJ

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	RT
02.	☐ Yes	☒ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☐ No	☒ N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

A 4974

AIR/GAS SAMPLES CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yuntz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 3600 Green Court Ste 750
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940002628
EMAIL ADDRESS: Kevin.Schneider@Ramboll.com clifford.Yuntz@Ramboll.com
QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: EMAIL ADDRESS:

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

Certifications
☐ OHIO VAP ☐ NELAP
☐ DoD ☐ NPDES

MERIT LAB NO. FOR LAB USE ONLY	SAMPLE TAG IDENTIFICATION-DESCRIPTION	Start Date	Start Time	Stop Date	Stop Time	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (specify in notes)	Analyses: TO-15	Other (specify in notes)
24728.01	VP-6M	5/27/21	939	5/27/21	945	-26	0	~~27402~~ 221 (MFC)	27402			X			X	
.02	VP-1S	5/27/21	1332	5/27/21	1355	-29	-2	183	12425			X			X	
.03	VP-2D	5/27/21	1612	5/27/21	1624	-29	-2	114	28924			X			X	
.04	DUP-052721	5/27/21	—	5/27/21	—	-29	-2	—	28915			X			X	

Temperature (Fahrenheit)	Interior	Ambient	Notes
Start		51	
Stop		55	

Pressure (inches of Hg)	Interior	Ambient	Notes
Start		30.23	
Stop		30.13	

Notes:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] ☒ Sampler DATE: 5/28/21 TIME: 900
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/28/21 TIME: 900
RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/28/21 TIME: 900
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/28/21 TIME: 900

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

TEMP. ON ARRIVAL: RT

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 06/28/19

Quality Control Report

Report ID: QC-S24728-01
Generated on 06/08/2021

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24728.01-S24728.04
Project: RACER Coldwater Road
Submitted Date/Time: 05/28/2021 09:00
Sampled by: Kevin Schneider
P.O. #: 1940002628

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S24728.01

Sample Tag: VP-6M

Collected Date/Time: 05/27/2021 09:39 - 05/27/2021 09:45

Matrix: Air

COC Reference: A4974

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
TO-15	TO-15	06/03/21 19:46	210603A8	GV210603G1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24728.02

Sample Tag: VP-1S

Collected Date/Time: 05/27/2021 13:32 - 05/27/2021 13:55

Matrix: Air

COC Reference: A4974

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
TO-15	TO-15	06/03/21 20:18	210603A8	GV210603G1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24728.03

Sample Tag: VP-2D

Collected Date/Time: 05/27/2021 16:12 - 05/27/2021 16:24

Matrix: Air

COC Reference: A4974

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
TO-15	TO-15	06/03/21 20:50	210603A8	GV210603G1	Yes	BLK/LCS/LCSD

Lab Sample ID: S24728.04

Sample Tag: DUP-052721

Collected Date/Time: 05/27/2021 00:01 - 05/27/2021 00:02

Matrix: Air

COC Reference: A4974

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
TO-15	TO-15	06/03/21 21:22	210603A8	GV210603G1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: GV210603G1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S24728.01	TO-15	TO-15	06/03/21 19:46	210603A8
S24728.02	TO-15	TO-15	06/03/21 20:18	210603A8
S24728.03	TO-15	TO-15	06/03/21 20:50	210603A8
S24728.04	TO-15	TO-15	06/03/21 21:22	210603A8

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24728.01

Sample Tag: VP-6M

Collected Date/Time: 05/27/2021 09:39 - 05/27/2021 09:45

Matrix: Air

COC Reference: A4974

Organics - Volatiles, Analysis: TO-15

Run in Batch: 210603A8, Run Date: 06/03/2021 19:46, Matrix: G, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**81.5**	60	140

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24728.02

Sample Tag: VP-1S

Collected Date/Time: 05/27/2021 13:32 - 05/27/2021 13:55

Matrix: Air

COC Reference: A4974

Organics - Volatiles, Analysis: TO-15

Run in Batch: 210603A8, Run Date: 06/03/2021 20:18, Matrix: G, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**78.8**	60	140

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24728.03

Sample Tag: VP-2D

Collected Date/Time: 05/27/2021 16:12 - 05/27/2021 16:24

Matrix: Air

COC Reference: A4974

Organics - Volatiles, Analysis: TO-15

Run in Batch: 210603A8, Run Date: 06/03/2021 20:50, Matrix: G, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**80.3**	60	140

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24728.04

Sample Tag: DUP-052721

Collected Date/Time: 05/27/2021 00:01 - 05/27/2021 00:02

Matrix: Air

COC Reference: A4974

Organics - Volatiles, Analysis: TO-15

Run in Batch: 210603A8, Run Date: 06/03/2021 21:22, Matrix: G, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**79.5**	60	140

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: GV210603G1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210603A8.BLKG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 12:26, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**80.0**	60	140

Laboratory Control Sample (LCS)

Lab Sample ID: 210603A8.LCSG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 11:21, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**94.0**	60	140

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210603A8.LCSDG03A, Parent Sample ID: 210603A8.LCSG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 11:52, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**94.8**	60	140

Organics - Volatiles, Prep Batch ID: GV210603G1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210603A8.BLKG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 12:26, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acetone		ND	2.00	ppbv
1,3-Butadiene		ND	0.20	ppbv
Benzene		ND	0.20	ppbv
Bromodichloromethane		ND	0.20	ppbv
Bromoform		ND	0.20	ppbv
Bromomethane		ND	0.20	ppbv
Vinyl bromide		ND	0.20	ppbv
Benzyl chloride		ND	0.20	ppbv
Carbon disulfide		ND	0.20	ppbv
Chlorobenzene		ND	0.20	ppbv
Chloroethane		ND	2.00	ppbv
Chloroform		ND	0.20	ppbv
Chloromethane		ND	2.00	ppbv
3-Chloropropene		ND	0.20	ppbv
2-Chlorotoluene		ND	0.20	ppbv
Carbon tetrachloride		ND	0.20	ppbv
Cyclohexane		ND	0.20	ppbv
1,1-Dichloroethane		ND	0.20	ppbv
1,1-Dichloroethene		ND	0.20	ppbv
1,2-Dibromoethane		ND	0.20	ppbv
1,2-Dichloroethane		ND	0.20	ppbv
1,2-Dichloropropane		ND	0.20	ppbv
1,4-Dioxane		ND	0.20	ppbv
Dichlorodifluoromethane		ND	0.20	ppbv
Dibromochloromethane		ND	0.20	ppbv
trans-1,2-Dichloroethene		ND	0.20	ppbv
cis-1,2-Dichloroethene		ND	0.20	ppbv
cis-1,3-Dichloropropene		ND	0.20	ppbv
1,3-Dichlorobenzene		ND	0.20	ppbv
1,2-Dichlorobenzene		ND	0.20	ppbv
1,4-Dichlorobenzene		ND	0.20	ppbv
trans-1,3-Dichloropropene		ND	0.20	ppbv
Ethanol		ND	2.00	ppbv
Ethylbenzene		ND	0.20	ppbv
Ethyl Acetate		ND	2.00	ppbv
4-Ethyltoluene		ND	0.20	ppbv
Freon 113		ND	0.20	ppbv
Freon 114		ND	0.20	ppbv
Heptane		ND	0.20	ppbv
Hexachlorobutadiene		ND	0.20	ppbv
Hexane		ND	0.20	ppbv
2-Hexanone		ND	0.20	ppbv
Isopropyl Alcohol		ND	2.00	ppbv
Methylene chloride		ND	0.20	ppbv
2-Butanone (MEK)		ND	2.00	ppbv
4-Methyl-2-pentanone (MIBK)		ND	0.20	ppbv

Organics - Volatiles, Prep Batch ID: GV210603G1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 210603A8.BLKG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 12:26, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Analyte	Flags	Conc	RDL	Units
tert-Methyl butyl ether (MTBE)		ND	0.20	ppbv
Methyl methacrylate		ND	0.20	ppbv
Naphthalene		ND	0.20	ppbv
Propylene		ND	2.00	ppbv
Styrene		ND	0.20	ppbv
1,1,1-Trichloroethane		ND	0.20	ppbv
1,1,2,2-Tetrachloroethane		ND	0.20	ppbv
1,1,2-Trichloroethane		ND	0.20	ppbv
1,2,4-Trichlorobenzene		ND	0.20	ppbv
1,2,4-Trimethylbenzene		ND	0.20	ppbv
1,3,5-Trimethylbenzene		ND	0.20	ppbv
2,2,4-Trimethylpentane		ND	0.20	ppbv
Tert-butyl Alcohol		ND	0.20	ppbv
Tetrachloroethene		ND	0.20	ppbv
Tetrahydrofuran		ND	0.20	ppbv
Toluene		ND	0.20	ppbv
Trichloroethene		ND	0.20	ppbv
Trichlorofluoromethane		ND	0.20	ppbv
Vinyl chloride		ND	0.20	ppbv
Vinyl acetate		ND	0.20	ppbv
p,m-Xylene		ND	0.20	ppbv
o-Xylene		ND	0.20	ppbv

Laboratory Control Sample (LCS)

Lab Sample ID: 210603A8.LCSG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 11:21, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acetone		104.7	70.0	130.0
1,3-Butadiene		112.9	70.0	130.0
Benzene		99.6	70.0	130.0
Bromodichloromethane		102.6	70.0	130.0
Bromoform		90.5	70.0	130.0
Bromomethane		103.1	70.0	130.0
Vinyl bromide		104.5	70.0	130.0
Benzyl chloride		99.8	70.0	130.0
Carbon disulfide		108.1	70.0	130.0
Chlorobenzene		92.1	70.0	130.0
Chloroethane		111.9	70.0	130.0
Chloroform		106.6	70.0	130.0
Chloromethane		114.5	70.0	130.0
3-Chloropropene		108.9	70.0	130.0
2-Chlorotoluene		97.6	70.0	130.0
Carbon tetrachloride		96.2	70.0	130.0
Cyclohexane		97.6	70.0	130.0
1,1-Dichloroethane		107.1	70.0	130.0
1,1-Dichloroethene		99.5	70.0	130.0

Organics - Volatiles, Prep Batch ID: GV210603G1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210603A8.LCSG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 11:21, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,2-Dibromoethane		93.4	70.0	130.0
1,2-Dichloroethane		110.3	70.0	130.0
1,2-Dichloropropane		95.1	70.0	130.0
1,4-Dioxane		95.7	70.0	130.0
Dichlorodifluoromethane		106.9	70.0	130.0
Dibromochloromethane		93.7	70.0	130.0
trans-1,2-Dichloroethene		108.7	70.0	130.0
cis-1,2-Dichloroethene		105.2	70.0	130.0
cis-1,3-Dichloropropene		99.6	70.0	130.0
1,3-Dichlorobenzene		96.4	70.0	130.0
1,2-Dichlorobenzene		95.5	70.0	130.0
1,4-Dichlorobenzene		98.0	70.0	130.0
trans-1,3-Dichloropropene		100.7	70.0	130.0
Ethanol		115.7	70.0	130.0
Ethylbenzene		94.2	70.0	130.0
Ethyl Acetate		106.4	70.0	130.0
4-Ethyltoluene		99.0	70.0	130.0
Freon 113		104.4	70.0	130.0
Freon 114		104.8	70.0	130.0
Heptane		103.4	70.0	130.0
Hexachlorobutadiene		87.4	70.0	130.0
Hexane		122.7	70.0	130.0
2-Hexanone		105.4	70.0	130.0
Isopropyl Alcohol		108.5	70.0	130.0
Methylene chloride		103.2	70.0	130.0
2-Butanone (MEK)		111.6	70.0	130.0
4-Methyl-2-pentanone (MIBK)		104.7	70.0	130.0
tert-Methyl butyl ether (MTBE)		104.6	70.0	130.0
Methyl methacrylate		106.7	70.0	130.0
Naphthalene		85.2	70.0	130.0
Propylene		106.8	70.0	130.0
Styrene		99.7	70.0	130.0
1,1,1-Trichloroethane		107.9	70.0	130.0
1,1,2,2-Tetrachloroethane		96.0	70.0	130.0
1,1,2-Trichloroethane		100.3	70.0	130.0
1,2,4-Trichlorobenzene		82.6	70.0	130.0
1,2,4-Trimethylbenzene		98.4	70.0	130.0
1,3,5-Trimethylbenzene		95.2	70.0	130.0
2,2,4-Trimethylpentane		97.8	70.0	130.0
Tert-butyl Alcohol		108.8	70.0	130.0
Tetrachloroethene		88.0	70.0	130.0
Tetrahydrofuran		109.2	70.0	130.0
Toluene		99.4	70.0	130.0
Trichloroethene		98.6	70.0	130.0
Trichlorofluoromethane		104.2	70.0	130.0
Vinyl chloride		111.9	70.0	130.0

Organics - Volatiles, Prep Batch ID: GV210603G1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210603A8.LCSG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 11:21, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Vinyl acetate		111.7	70.0	130.0
p,m-Xylene		96.4	70.0	130.0
o-Xylene		98.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210603A8.LCSDG03A, Parent Sample ID: 210603A8.LCSG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 11:52, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acetone		111.3	70.0	130.0	6.1	30.0
1,3-Butadiene		113.4	70.0	130.0	0.4	30.0
Benzene		103.1	70.0	130.0	3.5	30.0
Bromodichloromethane		105.3	70.0	130.0	2.6	30.0
Bromoform		95.0	70.0	130.0	4.9	30.0
Bromomethane		105.1	70.0	130.0	1.9	30.0
Vinyl bromide		106.3	70.0	130.0	1.7	30.0
Benzyl chloride		107.4	70.0	130.0	7.3	30.0
Carbon disulfide		109.9	70.0	130.0	1.7	30.0
Chlorobenzene		95.4	70.0	130.0	3.5	30.0
Chloroethane		108.2	70.0	130.0	3.4	30.0
Chloroform		110.1	70.0	130.0	3.2	30.0
Chloromethane		104.1	70.0	130.0	9.5	30.0
3-Chloropropene		112.6	70.0	130.0	3.3	30.0
2-Chlorotoluene		101.7	70.0	130.0	4.1	30.0
Carbon tetrachloride		100.7	70.0	130.0	4.6	30.0
Cyclohexane		103.3	70.0	130.0	5.7	30.0
1,1-Dichloroethane		109.9	70.0	130.0	2.6	30.0
1,1-Dichloroethene		104.9	70.0	130.0	5.3	30.0
1,2-Dibromoethane		97.3	70.0	130.0	4.1	30.0
1,2-Dichloroethane		111.6	70.0	130.0	1.2	30.0
1,2-Dichloropropane		99.5	70.0	130.0	4.5	30.0
1,4-Dioxane		98.9	70.0	130.0	3.3	30.0
Dichlorodifluoromethane		109.4	70.0	130.0	2.3	30.0
Dibromochloromethane		97.2	70.0	130.0	3.7	30.0
trans-1,2-Dichloroethene		110.9	70.0	130.0	2.0	30.0
cis-1,2-Dichloroethene		109.6	70.0	130.0	4.1	30.0
cis-1,3-Dichloropropene		102.6	70.0	130.0	3.0	30.0
1,3-Dichlorobenzene		99.3	70.0	130.0	3.0	30.0
1,2-Dichlorobenzene		100.2	70.0	130.0	4.8	30.0
1,4-Dichlorobenzene		102.6	70.0	130.0	4.6	30.0
trans-1,3-Dichloropropene		103.9	70.0	130.0	3.1	30.0
Ethanol		125.0	70.0	130.0	7.7	30.0
Ethylbenzene		98.1	70.0	130.0	4.1	30.0
Ethyl Acetate		115.8	70.0	130.0	8.5	30.0
4-Ethyltoluene		102.3	70.0	130.0	3.3	30.0
Freon 113		107.2	70.0	130.0	2.6	30.0
Freon 114		107.7	70.0	130.0	2.7	30.0

Organics - Volatiles, Prep Batch ID: GV210603G1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 210603A8.LCSDG03A, Parent Sample ID: 210603A8.LCSG03A

Run in Batch: 210603A8, Run Date: 06/03/2021 11:52, Prep Date: 06/03/2021, Matrix: G, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Heptane		105.9	70.0	130.0	2.4	30.0
Hexachlorobutadiene		91.9	70.0	130.0	5.0	30.0
Hexane		125.8	70.0	130.0	2.5	30.0
2-Hexanone		110.4	70.0	130.0	4.6	30.0
Isopropyl Alcohol		113.3	70.0	130.0	4.3	30.0
Methylene chloride		107.8	70.0	130.0	4.4	30.0
2-Butanone (MEK)		114.3	70.0	130.0	2.4	30.0
4-Methyl-2-pentanone (MIBK)		107.8	70.0	130.0	2.9	30.0
tert-Methyl butyl ether (MTBE)		109.7	70.0	130.0	4.8	30.0
Methyl methacrylate		108.9	70.0	130.0	2.0	30.0
Naphthalene		92.9	70.0	130.0	8.6	30.0
Propylene		105.9	70.0	130.0	0.8	30.0
Styrene		102.6	70.0	130.0	2.9	30.0
1,1,1-Trichloroethane		110.0	70.0	130.0	1.9	30.0
1,1,2,2-Tetrachloroethane		99.6	70.0	130.0	3.7	30.0
1,1,2-Trichloroethane		102.6	70.0	130.0	2.3	30.0
1,2,4-Trichlorobenzene		89.4	70.0	130.0	7.9	30.0
1,2,4-Trimethylbenzene		102.9	70.0	130.0	4.5	30.0
1,3,5-Trimethylbenzene		98.4	70.0	130.0	3.3	30.0
2,2,4-Trimethylpentane		101.1	70.0	130.0	3.3	30.0
Tert-butyl Alcohol		112.9	70.0	130.0	3.7	30.0
Tetrachloroethene		93.0	70.0	130.0	5.5	30.0
Tetrahydrofuran		111.9	70.0	130.0	2.4	30.0
Toluene		103.1	70.0	130.0	3.7	30.0
Trichloroethene		102.1	70.0	130.0	3.5	30.0
Trichlorofluoromethane		106.1	70.0	130.0	1.8	30.0
Vinyl chloride		114.1	70.0	130.0	1.9	30.0
Vinyl acetate		116.0	70.0	130.0	3.8	30.0
p,m-Xylene		99.6	70.0	130.0	3.2	30.0
o-Xylene		101.6	70.0	130.0	3.6	30.0

Merit Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

A 4974

AIR/GAS SAMPLES CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yuntz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 3600 Green Court Ste 750
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940002628
EMAIL ADDRESS: Kevin.Schneider@Ramboll.com clifford.Yuntz@Ramboll.com
QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: EMAIL ADDRESS:

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

Certifications
☐ OHIO VAP ☐ NELAP
☐ DoD ☐ NPDES

MERIT LAB NO. FOR LAB USE ONLY	SAMPLE TAG IDENTIFICATION-DESCRIPTION	Start Date	Start Time	Stop Date	Stop Time	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (specify in notes)	Analyses: TO-15	Other (specify in notes)
24728.01	VP-6M	5/27/21	939	5/27/21	945	-26	0	~~27402~~ 221 (MFC)	27402			X			X	
.02	VP-1S	5/27/21	1332	5/27/21	1355	-29	-2	183	12425			X			X	
.03	VP-2D	5/27/21	1612	5/27/21	1624	-29	-2	114	28924			X			X	
.04	DUP-052721	5/27/21	—	5/27/21	—	-29	-2	—	28915			X			X	

Temperature (Fahrenheit)	Interior	Ambient	Notes
Start		51	
Stop		55	

Pressure (inches of Hg)	Interior	Ambient	Notes
Start		30.23	
Stop		30.13	

Notes:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] ☒ Sampler DATE: 5/28/21 TIME: 900
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/28/21 TIME: 900
RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/28/21 TIME: 900
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/28/21 TIME: 900

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

TEMP. ON ARRIVAL: RT

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 06/28/19

Analytical Laboratory Report

Report ID: S24729.01(01)
Generated on 06/03/2021

Report to

Attention: Clifford Yantz
Ramboll
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Addtional Contacts: Kevin Schneider

Report produced by

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2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S24729.01-S24729.08
Project: RACER Coldwater Road
Collected Date(s): 05/27/2021
Submitted Date/Time: 05/28/2021 10:00
Sampled by: Kevin Schneider
P.O. #: 1940002628

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S24729.01	VP-6S	Groundwater	05/27/21 10:05
S24729.02	VP-3S	Groundwater	05/27/21 11:05
S24729.03	VP-1D	Groundwater	05/27/21 14:08
S24729.04	VP-5S	Groundwater	05/27/21 15:35
S24729.05	VP-5M	Groundwater	05/27/21 15:40
S24729.06	VP-5D	Groundwater	05/27/21 15:50
S24729.07	VP-2S	Groundwater	05/27/21 16:40
S24729.08	Trip Blank-052721	Water	05/27/21 00:01

Lab Sample ID: S24729.01
Sample Tag: VP-6S
Collected Date/Time: 05/27/2021 10:05
Matrix: Groundwater
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	>2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 14:19, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.01 (continued)
Sample Tag: VP-6S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 14:19, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24729.02
Sample Tag: VP-3S
Collected Date/Time: 05/27/2021 11:05
Matrix: Groundwater
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	>2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 14:42, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.02 (continued)
Sample Tag: VP-3S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 14:42, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24729.03
Sample Tag: VP-1D
Collected Date/Time: 05/27/2021 14:08
Matrix: Groundwater
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	>2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 15:05, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.03 (continued)
Sample Tag: VP-1D

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 15:05, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24729.04
Sample Tag: VP-5S
Collected Date/Time: 05/27/2021 15:35
Matrix: Groundwater
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 15:28, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.04 (continued)
Sample Tag: VP-5S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 15:28, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24729.05
Sample Tag: VP-5M
Collected Date/Time: 05/27/2021 15:40
Matrix: Groundwater
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	>2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 15:51, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.05 (continued)
Sample Tag: VP-5M

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 15:51, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24729.06
Sample Tag: VP-5D
Collected Date/Time: 05/27/2021 15:50
Matrix: Groundwater
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	>2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 16:14, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.06 (continued)
Sample Tag: VP-5D

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 16:14, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24729.07
Sample Tag: VP-2S
Collected Date/Time: 05/27/2021 16:40
Matrix: Groundwater
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	>2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 16:37, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.07 (continued)
Sample Tag: VP-2S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 16:37, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24729.08
Sample Tag: Trip Blank-052721
Collected Date/Time: 05/27/2021 00:01
Matrix: Water
COC Reference: 112280

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	3.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	06/02/21 11:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 13:56, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24729.08 (continued)
Sample Tag: Trip Blank-052721

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/01/21 13:56, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Merit Laboratories Login Checklist

Lab Set ID: S24729
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 05/28/2021 10:00 Login User: SRS

Attention: Clifford Yantz
Address: Ramboll
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 3.2
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

112280

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 3600 Green Court ste 750
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO.: 313-3330211 FAX NO.: P.O. NO.: 1940002628
E-MAIL ADDRESS: Clifford.Yantz@ramboll.com Kevin.Schneider@Ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider KS

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS X STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD X LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs
24729.01	5/27/21	1005	VP-6S	GW	3		3						X
.02		1105	VP-3S	GW	2		2						X
.03		1408	VP-1D	GW	3		3						X
.04		1535	VP-5S	GW	2		2						X
.05		1540	VP-5M	GW	2		2						X
.06		1550	VP-5D	GW	2		2						X
.07		1640	VP-2S	GW	3		3						X
.08	↓	—	Trip Blank-052721	QC	1		1						X

KBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION: KS	X Sampler	DATE: 5/28/21	TIME: 960
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE: 5/28/21	TIME: 900
RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: Sam Smith		DATE: 5/28/21	TIME: 1000
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL: 3.2
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Quality Control Report

Report ID: QC-S24729-01
Generated on 06/04/2021

Report to

Attention: Clifford Yantz
Ramboll
3600 Green Court Ste 750
Ann Arbor, MI 48105

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S24729.01-S24729.08
Project: RACER Coldwater Road
Submitted Date/Time: 05/28/2021 10:00
Sampled by: Kevin Schneider
P.O. #: 1940002628

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S24729.01
Sample Tag: VP-6S
Collected Date/Time: 05/27/2021 10:05
Matrix: Groundwater
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 14:19	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24729.02
Sample Tag: VP-3S
Collected Date/Time: 05/27/2021 11:05
Matrix: Groundwater
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 14:42	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24729.03
Sample Tag: VP-1D
Collected Date/Time: 05/27/2021 14:08
Matrix: Groundwater
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 15:05	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24729.04
Sample Tag: VP-5S
Collected Date/Time: 05/27/2021 15:35
Matrix: Groundwater
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 15:28	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24729.05
Sample Tag: VP-5M
Collected Date/Time: 05/27/2021 15:40
Matrix: Groundwater
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 15:51	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24729.06
Sample Tag: VP-5D
Collected Date/Time: 05/27/2021 15:50
Matrix: Groundwater
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 16:14	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24729.07
Sample Tag: VP-2S
Collected Date/Time: 05/27/2021 16:40
Matrix: Groundwater
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 16:37	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24729.08
Sample Tag: Trip Blank-052721
Collected Date/Time: 05/27/2021 00:01
Matrix: Water
COC Reference: 112280

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 13:56	210601A7	VF210601W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF210601W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S24729.01	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 14:19	210601A7
S24729.02	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 14:42	210601A7
S24729.03	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 15:05	210601A7
S24729.04	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 15:28	210601A7
S24729.05	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 15:51	210601A7
S24729.06	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 16:14	210601A7
S24729.07	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 16:37	210601A7
S24729.08	Volatile Organics - DEQ List	SW5030C/8260C	06/01/21 13:56	210601A7

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.01

Sample Tag: VP-6S

Collected Date/Time: 05/27/2021 10:05

Matrix: Groundwater

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 14:19, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.1**	80.0	124.0
1,2-Dichloroethane-D4		**103.5**	72.0	125.0
Toluene-D8		**102.7**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.02

Sample Tag: VP-3S

Collected Date/Time: 05/27/2021 11:05

Matrix: Groundwater

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 14:42, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**103.7**	80.0	124.0
1,2-Dichloroethane-D4		**114.4**	72.0	125.0
Toluene-D8		**101.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.03

Sample Tag: VP-1D

Collected Date/Time: 05/27/2021 14:08

Matrix: Groundwater

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 15:05, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.9**	80.0	124.0
1,2-Dichloroethane-D4		**107.1**	72.0	125.0
Toluene-D8		**103.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.04

Sample Tag: VP-5S

Collected Date/Time: 05/27/2021 15:35

Matrix: Groundwater

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 15:28, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.4**	80.0	124.0
1,2-Dichloroethane-D4		**108.1**	72.0	125.0
Toluene-D8		**103.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.05

Sample Tag: VP-5M

Collected Date/Time: 05/27/2021 15:40

Matrix: Groundwater

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 15:51, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.2**	80.0	124.0
1,2-Dichloroethane-D4		**105.2**	72.0	125.0
Toluene-D8		**102.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.06

Sample Tag: VP-5D

Collected Date/Time: 05/27/2021 15:50

Matrix: Groundwater

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 16:14, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.4**	80.0	124.0
1,2-Dichloroethane-D4		**100.9**	72.0	125.0
Toluene-D8		**102.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.07

Sample Tag: VP-2S

Collected Date/Time: 05/27/2021 16:40

Matrix: Groundwater

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 16:37, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.9**	80.0	124.0
1,2-Dichloroethane-D4		**105.8**	72.0	125.0
Toluene-D8		**103.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24729.08

Sample Tag: Trip Blank-052721

Collected Date/Time: 05/27/2021 00:01

Matrix: Water

COC Reference: 112280

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210601A7, Run Date: 06/01/2021 13:56, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.9**	80.0	124.0
1,2-Dichloroethane-D4		**100.0**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF210601W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210601A7.BLKW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 13:32, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**101.7**	80.0	124.0
1,2-Dichloroethane-D4		**98.1**	72.0	125.0
Toluene-D8		**100.1**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 210601A7.LCSW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 12:23, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.6**	80.0	124.0
1,2-Dichloroethane-D4		**98.6**	72.0	125.0
Toluene-D8		**101.2**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210601A7.LCSDW01A, Parent Sample ID: 210601A7.LCSW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 12:46, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.4**	80.0	124.0
1,2-Dichloroethane-D4		**98.3**	72.0	125.0
Toluene-D8		**102.0**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF210601W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210601A7.BLKW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 13:32, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acetone		ND	10.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Benzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Bromoform		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Chloroform		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Diethyl ether		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
2-Hexanone		ND	10.00	ug/l
Hexachloroethane		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Methyl iodide		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF210601W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 210601A7.BLKW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 13:32, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Naphthalene		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Toluene		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
o-Xylene		ND	1.00	ug/l
p,m-Xylene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 210601A7.LCSW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 12:23, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acetone		105.3	29.9	161.5
Acrylonitrile		108.7	69.9	128.9
2-Butanone (MEK)		110.5	44.0	134.4
Benzene		97.0	79.9	124.9
n-Butylbenzene		95.0	80.0	133.3
Bromobenzene		89.8	78.7	124.6
Bromochloromethane		98.2	78.2	120.8
Bromodichloromethane		99.3	80.4	128.2
Bromoform		94.9	69.4	128.0
Bromomethane		96.7	56.8	151.3
sec-Butylbenzene		94.7	77.4	129.8
tert-Butylbenzene		90.6	80.7	128.9
Carbon disulfide		94.8	63.8	137.4
Carbon tetrachloride		95.7	72.6	133.0
Chlorobenzene		93.1	79.2	122.7
Chloroethane		99.8	53.4	149.4
Chloroform		97.3	78.4	124.0
Chloromethane		95.5	23.8	166.5
1,1-Dichloroethane		100.1	71.5	126.2
1,1-Dichloroethene		94.5	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF210601W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210601A7.LCSW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 12:23, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,2-Dibromo-3-chloropropane		87.3	21.2	189.4
1,2-Dibromoethane		92.5	70.3	133.7
1,2-Dichlorobenzene		91.2	10.0	166.2
1,2-Dichloroethane		91.8	76.0	126.3
1,2-Dichloropropane		100.2	78.6	126.4
1,3-Dichlorobenzene		92.6	77.0	131.3
1,4-Dichlorobenzene		92.7	20.7	137.7
cis-1,2-Dichloroethene		98.0	76.6	122.1
cis-1,3-Dichloropropene		104.7	79.8	129.9
Dibromochloromethane		96.6	74.6	127.2
Dibromomethane		95.1	76.9	122.1
Dichlorodifluoromethane		66.5	10.0	222.8
Diethyl ether		100.3	67.4	121.2
trans-1,2-Dichloroethene		99.7	73.6	129.3
trans-1,3-Dichloropropene		103.4	74.0	131.3
trans-1,4-Dichloro-2-butene		91.8	68.6	135.4
Ethylbenzene		93.8	79.5	129.1
2-Hexanone		94.2	55.4	136.9
Hexachloroethane		100.3	23.8	138.1
p-Isopropyltoluene		94.2	79.8	137.5
Isopropylbenzene		92.1	74.4	121.5
2-Methylnaphthalene		93.3	25.5	165.5
4-Methyl-2-pentanone (MIBK)		94.6	71.6	125.2
tert-Methyl butyl ether (MTBE)		93.6	73.2	122.4
Methyl iodide		96.3	68.8	116.4
Methylene chloride		93.8	73.3	121.1
Naphthalene		85.4	32.9	135.8
n-Propylbenzene		93.9	82.0	130.7
Styrene		92.1	69.5	126.7
1,1,1,2-Tetrachloroethane		93.9	80.3	128.2
1,1,1-Trichloroethane		95.6	79.4	130.9
1,1,2,2-Tetrachloroethane		90.0	79.8	126.3
1,1,2-Trichloroethane		98.4	78.7	123.1
1,2,3-Trichlorobenzene		88.0	75.4	131.4
1,2,3-Trichloropropane		87.3	78.3	138.8
1,2,3-Trimethylbenzene		92.6	76.3	124.2
1,2,4-Trichlorobenzene		89.1	27.4	143.4
1,2,4-Trimethylbenzene		90.6	81.4	130.8
1,3,5-Trimethylbenzene		90.8	81.3	128.9
Tetrachloroethene		87.5	74.5	124.5
Tetrahydrofuran		106.0	59.0	117.9
Toluene		97.2	79.8	124.5
Trichloroethene		95.9	79.7	124.2
Trichlorofluoromethane		95.8	59.7	151.8
Vinyl chloride		93.7	43.5	149.1
o-Xylene		90.5	80.2	131.0

Organics - Volatiles, Prep Batch ID: VF210601W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210601A7.LCSW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 12:23, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
p,m-Xylene		92.2	79.4	132.2

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210601A7.LCSDW01A, Parent Sample ID: 210601A7.LCSW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 12:46, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acetone		112.1	29.9	161.5	6.3	30.0
Acrylonitrile		113.0	69.9	128.9	3.9	30.0
2-Butanone (MEK)		110.9	44.0	134.4	0.4	30.0
Benzene		95.0	79.9	124.9	2.1	30.0
n-Butylbenzene		91.4	80.0	133.3	3.9	30.0
Bromobenzene		89.2	78.7	124.6	0.7	30.0
Bromochloromethane		97.7	78.2	120.8	0.5	30.0
Bromodichloromethane		98.1	80.4	128.2	1.2	30.0
Bromoform		97.3	69.4	128.0	2.5	30.0
Bromomethane		93.6	56.8	151.3	3.3	30.0
sec-Butylbenzene		89.9	77.4	129.8	5.2	30.0
tert-Butylbenzene		88.5	80.7	128.9	2.3	30.0
Carbon disulfide		89.0	63.8	137.4	6.3	30.0
Carbon tetrachloride		91.9	72.6	133.0	4.0	30.0
Chlorobenzene		91.6	79.2	122.7	1.6	30.0
Chloroethane		96.5	53.4	149.4	3.4	30.0
Chloroform		95.6	78.4	124.0	1.7	30.0
Chloromethane		92.5	23.8	166.5	3.3	30.0
1,1-Dichloroethane		96.9	71.5	126.2	3.3	30.0
1,1-Dichloroethene		90.9	69.6	139.4	3.9	30.0
1,2-Dibromo-3-chloropropane		92.7	21.2	189.4	6.0	30.0
1,2-Dibromoethane		94.7	70.3	133.7	2.4	30.0
1,2-Dichlorobenzene		88.0	10.0	166.2	3.6	30.0
1,2-Dichloroethane		91.7	76.0	126.3	0.0	30.0
1,2-Dichloropropane		98.5	78.6	126.4	1.7	30.0
1,3-Dichlorobenzene		89.1	77.0	131.3	3.9	30.0
1,4-Dichlorobenzene		90.1	20.7	137.7	2.8	30.0
cis-1,2-Dichloroethene		96.2	76.6	122.1	1.9	30.0
cis-1,3-Dichloropropene		103.5	79.8	129.9	1.1	30.0
Dibromochloromethane		97.3	74.6	127.2	0.7	30.0
Dibromomethane		96.6	76.9	122.1	1.5	30.0
Dichlorodifluoromethane		63.4	10.0	222.8	4.8	30.0
Diethyl ether		101.6	67.4	121.2	1.3	30.0
trans-1,2-Dichloroethene		96.2	73.6	129.3	3.7	30.0
trans-1,3-Dichloropropene		103.9	74.0	131.3	0.6	30.0
trans-1,4-Dichloro-2-butene		91.3	68.6	135.4	0.5	30.0
Ethylbenzene		91.2	79.5	129.1	2.9	30.0
2-Hexanone		103.7	55.4	136.9	9.6	30.0
Hexachloroethane		96.2	23.8	138.1	4.2	30.0
p-Isopropyltoluene		88.9	79.8	137.5	5.8	30.0

Organics - Volatiles, Prep Batch ID: VF210601W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 210601A7.LCSDW01A, Parent Sample ID: 210601A7.LCSW01A

Run in Batch: 210601A7, Run Date: 06/01/2021 12:46, Prep Date: 06/01/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isopropylbenzene		88.7	74.4	121.5	3.7	30.0
2-Methylnaphthalene		97.7	25.5	165.5	4.6	30.0
4-Methyl-2-pentanone (MIBK)		101.8	71.6	125.2	7.4	30.0
tert-Methyl butyl ether (MTBE)		94.8	73.2	122.4	1.3	30.0
Methyl iodide		93.3	68.8	116.4	3.1	30.0
Methylene chloride		92.8	73.3	121.1	1.1	30.0
Naphthalene		86.7	32.9	135.8	1.5	30.0
n-Propylbenzene		91.0	82.0	130.7	3.2	30.0
Styrene		91.2	69.5	126.7	1.0	30.0
1,1,1,2-Tetrachloroethane		92.9	80.3	128.2	1.0	30.0
1,1,1-Trichloroethane		92.5	79.4	130.9	3.2	30.0
1,1,2,2-Tetrachloroethane		93.4	79.8	126.3	3.7	30.0
1,1,2-Trichloroethane		98.9	78.7	123.1	0.5	30.0
1,2,3-Trichlorobenzene		86.9	75.4	131.4	1.3	30.0
1,2,3-Trichloropropane		90.7	78.3	138.8	3.9	30.0
1,2,3-Trimethylbenzene		89.7	76.3	124.2	3.1	30.0
1,2,4-Trichlorobenzene		85.8	27.4	143.4	3.7	30.0
1,2,4-Trimethylbenzene		88.9	81.4	130.8	1.9	30.0
1,3,5-Trimethylbenzene		87.9	81.3	128.9	3.2	30.0
Tetrachloroethene		85.4	74.5	124.5	2.4	30.0
Tetrahydrofuran		111.6	59.0	117.9	5.2	30.0
Toluene		95.0	79.8	124.5	2.3	30.0
Trichloroethene		92.9	79.7	124.2	3.2	30.0
Trichlorofluoromethane		91.4	59.7	151.8	4.7	30.0
Vinyl chloride		90.7	43.5	149.1	3.3	30.0
o-Xylene		89.4	80.2	131.0	1.3	30.0
p,m-Xylene		90.1	79.4	132.2	2.3	30.0

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112280

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 3600 Green Court ste 750
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO.: 313-3330211 FAX NO.: P.O. NO.: 1940002628
E-MAIL ADDRESS: Clifford.Yantz@ramboll.com Kevin.Schneider@Ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider KS

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS X STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD X LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs
24729.01	5/27/21	1005	VP-6S	GW	3		3						X
.02		1105	VP-3S	GW	2		2						X
.03		1408	VP-1D	GW	3		3						X
.04		1535	VP-5S	GW	2		2						X
.05		1540	VP-5M	GW	2		2						X
.06		1550	VP-5D	GW	2		2						X
.07		1640	VP-2S	GW	3		3						X
.08	↓	—	Trip Blank-052721	QC	1		1						X

KBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION: KS	X Sampler	DATE: 5/28/21	TIME: 960
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE: 5/28/21	TIME: 900
RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE:	TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: Sam Smith		DATE: 5/28/21	TIME: 1000
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL: 3.2
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

APPENDIX C
Site-specific VIAC criteria & Transmittal Letter

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

October 22, 2020

VIA E-MAIL AND U.S. MAIL

Mr. David Favero
Deputy Cleanup Manager - Michigan
RACER Trust
500 Woodward Avenue, Suite 2650
Detroit, Michigan 48226

Dear Mr. Favero,

SUBJECT: Transmittal of Site-Specific Volatilization to Indoor Air Criteria: Revitalizing Auto Communities Environmental Response (RACER) Trust, Coldwater Road Landfill; Flint, Michigan; MID 005 356 860; Waste Data System Number 393431

The purpose of this letter is to transmit Michigan Department of Environment, Great Lakes, and Energy (EGLE), Materials Management Division (MMD), site-specific criteria for soil, groundwater, soil gas, and indoor air for the compounds on the Target Analyte List. The site-specific criteria for various scenarios are attached, as described below:

- The site-specific soil, groundwater, and soil gas criteria for residential houses constructed with a crawlspace with a dirt floor and groundwater three feet below grade are attached as Table 1.

- The site-specific soil, groundwater, and soil gas criteria for residential houses constructed as slab-on-grade and groundwater three feet below grade are attached as Table 2.

- The site-specific soil, groundwater, and soil gas criteria for residential houses constructed with a basement and groundwater three feet below grade are attached as Table 3.

EGLE developed the site-specific soil, groundwater, and soil gas criteria using values that better reflect best available information regarding facility geology and hydrogeology, building-specific information, and the toxicity and exposure risks posed by the hazardous substances present at the facility.

Provided that the conditions used to develop the site-specific criteria are met, the values may be used without further EGLE, MMD approval. As always, please maintain records to document that the site-specific criteria were used as intended and approved.

If desired, RACER may initiate the development of other site-specific criteria, using additional site-specific information consistent with the statutory provisions for development of site-specific criteria of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Such a process will require EGLE, MMD involvement, and any other site-specific criteria developed will require EGLE, MMD review and approval.

The site-specific criteria should be used to evaluate groundwater, soil, soil gas, and sub-slab soil gas collected as part of any volatilization to indoor air pathway investigation. In addition, the indoor air data should be evaluated against the Recommended Interim Action Screening Levels and the Time-Sensitive Recommended Interim Action Screening Levels (TS RIASL). Concentrations in sub-slab soil gas greater than the site-specific criteria should be interpreted as indicative of a potential long-term source of inhalation exposure risk. The exceedance of an indoor air TS RIASL will require more rapid exposure mitigation, such as immediately increased ventilation, and/or may require collaboration with the Michigan Department of Health and Human Services, and/or the Genesee County Health Department.

Should you have any questions, please contact me at 517-284-6580; RungeJ@Michigan.gov; or EGLE, MMD, P.O. Box 30241, Lansing, MI 48909-7741.

Sincerely,

Jacob Runge, Environmental Engineer
Management and Tracking Unit
Hazardous Waste Section
Materials Management Division

Enclosures
cc: Mr. Clifford Yantz, Senior Hydrogeologist, Ramboll
Mr. Kevin Schneider, Environmental Scientist, Ramboll
Mr. Rich Conforti, EGLE
Mr. John McCabe, EGLE
Ms. Nicole Sanabria, EGLE
cc/encl: Corrective Action File

DEPARTMENT OFENVIRONMENT, GREAT LAKES, AND ENERGY

INTEROFFICE COMMUNICATION

TO: Nicole Sanabria, Geologist, MMD

FROM: Shane Morrison, Senior Toxicologist, RRD

DATE: January 6, 2020

SUBJECT: Coldwater Road Landfill Site-Specific Criteria Evaluation

The following site-specific volatilization to indoor air criteria (VIAC) are the Michigan Department of Environment, Great Lakes, and Energy's (EGLE's) determination of values that reflect best available information regarding the toxicity and exposure risks posed by the hazardous substances present at the facility. These values are based upon the information provided with the request to develop site-specific VIAC for this facility. These values may be used provided it is documented that the conditions used to develop the site-specific criteria are met at the facility. Other values may be developed by a person consistent with the statutory provisions for development of site-specific criteria and provided for EGLE review and approval.

Correspondence transmitting these values to the submitter/consultant as part of a report, review, or other request must incorporate the appropriate sections of the VIAP model document language. As indicated in this document, when GVIIC and SVIIC are not applicable, the correspondence must include language indicating the requirement to satisfy the site-specific VIAC for all three media i.e., groundwater, soil, and soil gas. In addition, all of the following site-specific VIAC tables must be copied into the correspondence or letter as part of your response to the submitter/consultant.

Unrestricted residential site-specific criteria were included in the evaluation based on information provided and EGLE's residential conceptual site model. Exceedance of the site-specific unrestricted residential criteria will require restrictions or institutional controls for closure or aid in the determination of off-site migration.

If multiple foundation types are present for a structure (i.e. slab-on-grade, crawlspace, and/or basement), a sensitivity analysis should be performed to identify the most restrictive set of criteria to evaluate risk associated with the VIAP for that structure.

The site-specific criteria were generated using the United States Department of Agriculture (USDA) soil type of sand. Other site-specific criteria can be generated using a different soil type by providing soil characterization results from department approved methods on soils collected at the site.

Additional hazardous substances were included in the site-specific evaluation that were not explicitly requested. These hazardous substances may be components of recent petroleum releases and the primary breakdown products of tetrachloroethylene. The preemptive site-specific evaluation of these substances was provided to limit the potential need for future resubmittal for this facility.

Please contact me at MorrisonS5@michigan.gov or 517-284-5063 if you require any clarification of these comments and criterion or have additional questions.

cc: Eric Wildfang, Toxicology Unit Supervisor, RRD
Virginia Himich, Environmental Manager, MMD
Joe Rogers, Environmental Quality Specialist, MMD
Jacob Runge, Environmental Engineer, MMD

John McCabe, Senior Environmental Quality Analyst, MMD

Table 1. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a residential house with a **crawlspace with a dirt floor**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m³)
83329	Acenaphthene	130 nc	48,000 nc	220 nc
208968	Acenaphthylene	65 nc	DATA	220 nc
994058	t-Amyl methyl ether (TAME)	3.9 (M) nc	DATA	65 nc
120127	Anthracene	43 (S) sol	4.1E+06 nc	1,000 nc
71432	Benzene	0.14 (M) ca	0.21 (M) ca	3.3 ca
56553	Benzo(a)anthracene	2.7 (MM) mut	89,000 (MM) mut	0.17 (MM) mut
78933	2-Butanone (MEK)	2,600 (DD) dev	3,800 (DD) dev	5,000 (DD) dev
75650	t-Butyl alcohol	230 nc	DATA	75 nc
104518	n-Butylbenzene	9.9 nc	120 nc	210 nc
135988	sec-Butylbenzene	8.1 nc	840 nc	0.42 nc
98066	t-Butylbenzene	1.9E-02 (M) nc	0.14 (M) nc	0.42 nc
110827	Cyclohexane	230 nc	44 (M) nc	6,300 nc
124481	Dibromochloromethane	4.0E-02 (MM) (M) mut	0.14 (MM) (M) mut	0.43 (MM) mut
95501	1,2-Dichlorobenzene	23 nc	310 nc	310 nc
541731	1,3-Dichlorobenzene	0.19 (M) nc	2.1 (M) nc	3.1 nc
106467	1,4-Dichlorobenzene	0.42 (M) ca	5.0 (M) ca	6.5 ca
75718	Dichlorodifluoromethane	12 nc	1.9 (M) nc	340 nc
75343	1,1-Dichloroethane	0.66 (M) ca	0.35 (M) ca	16 ca
107062	1,2-Dichloroethane	7.5E-02 (M) ca	0.11 (M) ca	0.98 ca
75354	1,1-Dichloroethylene	7.0 nc	1.6 (M) nc	210 nc
156592	cis-1,2-Dichloroethylene	0.36 (M) nc	0.26 (M) nc	8.3 nc
156605	trans-1,2-Dichloroethylene	3.0 nc	1.5 (M) nc	83 nc
78875	1,2-Dichloropropane	0.22 (M) nc	0.32 (M) nc	4.2 nc
542756	1,3-Dichloropropene	0.31 (M) (J) ca	0.45 (M) (J) ca	6.4 (J) ca
60297	Diethyl ether	75 nc	46 (M) nc	1,000 nc
108203	Diisopropyl ether	36 (DD) dev	34 (M) (DD) dev	700 (DD) dev

Table 1. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a residential house with a **crawlspace with a dirt floor**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m³)
123911	1,4-Dioxane	59 ca	46 (M) ca	5.1 ca
64175	Ethanol	1.0E+05 (FF) st	1.2E+05 (EE) st	19,000 (EE) st
141786	Ethyl acetate	31 nc	28 nc	73 nc
637923	Ethyl-tert-butyl ether (ETBE)	22 nc	DATA	390 nc
100414	Ethylbenzene	0.47 (M) ca	2.0 (M) ca	10 ca
106934	Ethylene dibromide	5.5E-03 (M) ca	2.1E-02 (M) ca	4.2E-02 ca
86737	Fluorene	160 nc	87,000 nc	150 nc
142825	n-Heptane	150 nc	23 nc	3,700 nc
87683	Hexachlorobutadiene (C-46)	5.9E-02 ca	1.3 (M) ca	1.2 ca
110543	n-Hexane	28 nc	3.9 nc	730 nc
591786	2-Hexanone	22 (M) nc	35 (M) nc	31 nc
67630	Isopropyl alcohol	1,700 nc	1,100 (M) nc	210 nc
98828	Isopropyl benzene	0.11 (M) ca	0.73 (M) ca	2.4 ca
108101	4-Methyl-2-pentanone (MIBK)	720 (DD) dev	2,000 (M) (DD) dev	3,000 (DD) dev
1634044	Methyl-tert-butyl ether (MTBE)	12 ca	11 (M) ca	98 ca
96377	Methylcyclopentane	27 (M) nc	4.1 (M) nc	730 nc
91576	2-Methylnaphthalene	2.5 (M) nc	390 nc	10 nc
91203	Naphthalene	0.16 (M) ca	13 (M) ca	0.75 ca
109660	Pentane	39 (M) nc	4.9 (M) nc	1,000 nc
85018	Phenanthrene	7.7E-02 (M) nc	DATA	0.10 nc
1336363	Polychlorinated biphenyls (PCBs)	3.1E-02 (M) (J) ca	DATA	0.25 (J) ca
103651	n-Propylbenzene	43 (DD) dev	340 (DD) dev	1,000 (DD) dev
129000	Pyrene	140 (S) sol	1.3E+07 nc	100 nc
100425	Styrene	2.7 ca	24 (M) ca	45 ca
630206	1,1,1,2-Tetrachloroethane	0.22 (M) ca	0.81 (M) ca	3.4 ca
79345	1,1,2,2-Tetrachloroethane	9.2E-02 (M) ca	0.67 (M) ca	0.44 ca

Table 1. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a residential house with a **crawlspace with a dirt floor**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
127184	Tetrachloroethylene	1.5 (FF) st	1.5 (M) (EE) st	41 (EE) st
109999	Tetrahydrofuran	1,500 nc	1,500 nc	2,100 nc
108883	Toluene	300 (FF) st	540 nc	5,200 nc
87616	1,2,3-Trichlorobenzene	2.9 (M) nc	270 nc	28 nc
120821	1,2,4-Trichlorobenzene	0.20 (M) nc	17 (M) nc	2.1 nc
71556	1,1,1-Trichloroethane	180 (FF) st	79 (EE) st	5,000 (EE) st
79005	1,1,2-Trichloroethane	2.2E-02 (M) nc	6.4E-02 (M) nc	0.21 nc
79016	Trichloroethylene	7.3E-02 (M) (DD) dev	5.5E-02 (M) (DD) dev	2.0 (DD) dev
75694	Trichlorofluoromethane	16 nc	3.4 (M) nc	460 nc
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	750 nc	290 nc	20,000 nc
540841	2,2,4-Trimethyl pentane	160 nc	26 (M) nc	3,700 nc
526738	1,2,3-Trimethylbenzene	3.7 (M) (JT) nc	52 (M) (JT) nc	63 (JT) nc
95636	1,2,4-Trimethylbenzene	3.2 (JT) nc	28 (M) (JT) nc	63 (JT) nc
108678	1,3,5-Trimethylbenzene	3.0 (JT) nc	20 (M) (JT) nc	63 (JT) nc
75014	Vinyl chloride	5.1E-02 (MM) (M) mut	8.4E-03 (MM) (M) mut	1.6 (MM) mut
1330207	Xylenes	11 (J) nc	47 (M) (J) nc	230 (J) nc
76142	1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	NR	NR	NR
622968	4-Ethyltoluene	NR	NR	NR
115071	Propylene	NR	NR	NR

Table 2. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
83329	Acenaphthene	3,900 (S) sol	2.1E+05 nc	7,300 nc
208968	Acenaphthylene	65 nc	DATA	7,300 nc
994058	t-Amyl methyl ether (TAME)	3.9 (M) nc	DATA	2,200 nc
120127	Anthracene	43 (S) sol	1.3E+07 nc	35,000 nc
71432	Benzene	1.0 ca	1.7 (M) ca	110 ca
56553	Benzo(a)anthracene	9.4 (S) (MM) sol	1.6E+05 (MM) mut	5.8 (MM) mut
78933	2-Butanone (MEK)	2,600 (DD) dev	31,000 (DD) dev	1.7E+05 (DD) dev
75650	t-Butyl alcohol	230 nc	DATA	2,500 nc
104518	n-Butylbenzene	44 nc	560 nc	7,000 nc
135988	sec-Butylbenzene	270 nc	3,800 nc	14 nc
98066	t-Butylbenzene	7.7E-02 (M) nc	0.64 (M) nc	14 nc
110827	Cyclohexane	290 nc	320 (M) nc	2.1E+05 nc
124481	Dibromochloromethane	0.78 (MM) (M) mut	0.40 (MM) (M) mut	14 (MM) mut
95501	1,2-Dichlorobenzene	370 nc	1,500 nc	10,000 nc
541731	1,3-Dichlorobenzene	2.6 nc	10 (M) nc	100 nc
106467	1,4-Dichlorobenzene	5.9 ca	23 (M) ca	220 ca
75718	Dichlorodifluoromethane	13 nc	12 (M) nc	11,000 nc
75343	1,1-Dichloroethane	4.7 ca	2.6 (M) ca	530 ca
107062	1,2-Dichloroethane	1.4 ca	0.82 (M) ca	33 ca
75354	1,1-Dichloroethylene	18 nc	12 (M) nc	7,000 nc
156592	cis-1,2-Dichloroethylene	3.4 nc	2.1 (M) nc	280 nc
156605	trans-1,2-Dichloroethylene	16 nc	12 (M) nc	2,800 nc
78875	1,2-Dichloropropane	2.6 nc	2.1 (M) nc	140 nc
542756	1,3-Dichloropropene	3.3 (J) ca	3.1 (M) (J) ca	210 (J) ca
60297	Diethyl ether	1,200 nc	350 nc	35,000 nc
108203	Diisopropyl ether	36 (DD) dev	200 (M) (DD) dev	23,000 (DD) dev

Table 2. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m³)
123911	1,4-Dioxane	1,900 ca	370 (M) ca	170 ca
64175	Ethanol	1.0E+05 (FF) st	1.3E+06 (EE) st	6.3E+05 (EE) st
141786	Ethyl acetate	910 nc	210 nc	2,400 nc
637923	Ethyl-tert-butyl ether (ETBE)	22 nc	DATA	13,000 nc
100414	Ethylbenzene	2.8 ca	12 (M) ca	340 ca
106934	Ethylene dibromide	0.13 ca	7.4E-02 (M) ca	1.4 ca
86737	Fluorene	1,700 (S) sol	4.7E+05 nc	4,900 nc
142825	n-Heptane	150 nc	130 nc	1.2E+05 nc
87683	Hexachlorobutadiene (C-46)	0.32 ca	2.5 (M) ca	39 ca
110543	n-Hexane	29 nc	25 nc	24,000 nc
591786	2-Hexanone	660 nc	220 (M) nc	1,000 nc
67630	Isopropyl alcohol	53,000 nc	9,900 nc	7,000 nc
98828	Isopropyl benzene	0.60 (M) ca	3.8 (M) ca	81 ca
108101	4-Methyl-2-pentanone (MIBK)	720 (DD) dev	12,000 (DD) dev	1.0E+05 (DD) dev
1634044	Methyl-tert-butyl ether (MTBE)	250 ca	74 (M) ca	3,300 ca
96377	Methylcyclopentane	30 (M) nc	29 (M) nc	24,000 nc
91576	2-Methylnaphthalene	66 nc	1,700 nc	350 nc
91203	Naphthalene	4.2 (M) ca	67 (M) ca	25 ca
109660	Pentane	40 (M) nc	36 (M) nc	35,000 nc
85018	Phenanthrene	7.7E-02 (M) nc	DATA	3.5 nc
1336363	Polychlorinated biphenyls (PCBs)	3.1E-02 (M) (J) ca	DATA	8.5 (J) ca
103651	n-Propylbenzene	43 (DD) dev	1,800 (DD) dev	33,000 (DD) dev
129000	Pyrene	140 (S) sol	2.5E+07 nc	3,500 nc
100425	Styrene	33 ca	150 ca	1,500 ca
630206	1,1,1,2-Tetrachloroethane	3.1 ca	3.2 (M) ca	110 ca
79345	1,1,2,2-Tetrachloroethane	2.4 ca	2.7 (M) ca	15 ca

Table 2. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
127184	Tetrachloroethylene	1.5 (FF) st	6.2 (M) (EE) st	1,400 (EE) st
109999	Tetrahydrofuran	45,000 nc	13,000 nc	70,000 nc
108883	Toluene	300 (FF) st	3,700 nc	1.7E+05 nc
87616	1,2,3-Trichlorobenzene	58 nc	840 nc	940 nc
120821	1,2,4-Trichlorobenzene	3.8 (M) nc	53 (M) nc	70 nc
71556	1,1,1-Trichloroethane	180 (FF) st	450 (EE) st	1.7E+05 (EE) st
79005	1,1,2-Trichloroethane	0.47 (M) nc	0.37 (M) nc	7.0 nc
79016	Trichloroethylene	7.3E-02 (M) (DD) dev	0.33 (M) (DD) dev	67 (DD) dev
75694	Trichlorofluoromethane	22 nc	19 (M) nc	15,000 nc
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	840 nc	860 nc	6.6E+05 nc
540841	2,2,4-Trimethyl pentane	160 nc	130 (M) nc	1.2E+05 nc
526738	1,2,3-Trimethylbenzene	43 (JT) nc	270 (JT) nc	2,100 (JT) nc
95636	1,2,4-Trimethylbenzene	25 (JT) nc	150 (JT) nc	2,100 (JT) nc
108678	1,3,5-Trimethylbenzene	18 (JT) nc	100 (JT) nc	2,100 (JT) nc
75014	Vinyl chloride	0.12 (MM) (M) mut	8.2E-02 (MM) (M) mut	54 (MM) mut
1330207	Xylenes	75 (J) nc	280 (J) nc	7,600 (J) nc
76142	1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	NR	NR	NR
622968	4-Ethyltoluene	NR	NR	NR
115071	Propylene	NR	NR	NR

Table 3. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **basement**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
83329	Acenaphthene	3,900 (S) sol	2.0E+05 nc	7,300 nc
208968	Acenaphthylene	65 nc	DATA	7,300 nc
994058	t-Amyl methyl ether (TAME)	3.9 (M) nc	DATA	2,200 nc
120127	Anthracene	43 (S) sol	1.3E+07 nc	35,000 nc
71432	Benzene	1.0 ca	1.7 (M) ca	110 ca
56553	Benzo(a)anthracene	9.4 (S) (MM) sol	1.6E+05 (MM) mut	5.8 (MM) mut
78933	2-Butanone (MEK)	2,600 (DD) dev	31,000 (DD) dev	1.7E+05 (DD) dev
75650	t-Butyl alcohol	230 nc	DATA	2,500 nc
104518	n-Butylbenzene	44 nc	550 nc	7,000 nc
135988	sec-Butylbenzene	270 nc	3,800 nc	14 nc
98066	t-Butylbenzene	7.7E-02 (M) nc	0.64 (M) nc	14 nc
110827	Cyclohexane	290 nc	320 (M) nc	2.1E+05 nc
124481	Dibromochloromethane	0.78 (MM) (M) mut	0.40 (MM) (M) mut	14 (MM) mut
95501	1,2-Dichlorobenzene	370 nc	1,500 nc	10,000 nc
541731	1,3-Dichlorobenzene	2.6 nc	10 (M) nc	100 nc
106467	1,4-Dichlorobenzene	5.9 ca	23 (M) ca	220 ca
75718	Dichlorodifluoromethane	13 nc	12 (M) nc	11,000 nc
75343	1,1-Dichloroethane	4.7 ca	2.6 (M) ca	530 ca
107062	1,2-Dichloroethane	1.4 ca	0.82 (M) ca	33 ca
75354	1,1-Dichloroethylene	18 nc	12 (M) nc	7,000 nc
156592	cis-1,2-Dichloroethylene	3.4 nc	2.1 (M) nc	280 nc
156605	trans-1,2-Dichloroethylene	16 nc	12 (M) nc	2,800 nc
78875	1,2-Dichloropropane	2.6 nc	2.1 (M) nc	140 nc
542756	1,3-Dichloropropene	3.3 (J) ca	3.1 (M) (J) ca	210 (J) ca
60297	Diethyl ether	1,200 nc	350 nc	35,000 nc
108203	Diisopropyl ether	36 (DD) dev	190 (M) (DD) dev	23,000 (DD) dev

Table 3. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **basement**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m³)
123911	1,4-Dioxane	1,900 ca	360 (M) ca	170 ca
64175	Ethanol	1.0E+05 (FF) st	1.3E+06 (EE) st	6.3E+05 (EE) st
141786	Ethyl acetate	910 nc	210 nc	2,400 nc
637923	Ethyl-tert-butyl ether (ETBE)	22 nc	DATA	13,000 nc
100414	Ethylbenzene	2.8 ca	12 (M) ca	340 ca
106934	Ethylene dibromide	0.13 ca	7.4E-02 (M) ca	1.4 ca
86737	Fluorene	1,700 (S) sol	4.7E+05 nc	4,900 nc
142825	n-Heptane	150 nc	130 nc	1.2E+05 nc
87683	Hexachlorobutadiene (C-46)	0.32 ca	2.5 (M) ca	39 ca
110543	n-Hexane	29 nc	25 nc	24,000 nc
591786	2-Hexanone	660 nc	210 (M) nc	1,000 nc
67630	Isopropyl alcohol	53,000 nc	9,800 nc	7,000 nc
98828	Isopropyl benzene	0.60 (M) ca	3.8 (M) ca	81 ca
108101	4-Methyl-2-pentanone (MIBK)	720 (DD) dev	12,000 (DD) dev	1.0E+05 (DD) dev
1634044	Methyl-tert-butyl ether (MTBE)	250 ca	74 (M) ca	3,300 ca
96377	Methylcyclopentane	30 (M) nc	29 (M) nc	24,000 nc
91576	2-Methylnaphthalene	66 nc	1,700 nc	350 nc
91203	Naphthalene	4.2 (M) ca	67 (M) ca	25 ca
109660	Pentane	40 (M) nc	36 (M) nc	35,000 nc
85018	Phenanthrene	7.7E-02 (M) nc	DATA	3.5 nc
1336363	Polychlorinated biphenyls (PCBs)	3.1E-02 (M) (J) ca	DATA	8.5 (J) ca
103651	n-Propylbenzene	43 (DD) dev	1,800 (DD) dev	33,000 (DD) dev
129000	Pyrene	140 (S) sol	2.5E+07 nc	3,500 nc
100425	Styrene	33 ca	150 ca	1,500 ca
630206	1,1,1,2-Tetrachloroethane	3.1 ca	3.2 (M) ca	110 ca
79345	1,1,2,2-Tetrachloroethane	2.4 ca	2.7 (M) ca	15 ca

Table 3. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **basement**, the depth to groundwater submitted for this site (i.e. 3 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
127184	Tetrachloroethylene	1.5 (FF) st	6.2 (M) (EE) st	1,400 (EE) st
109999	Tetrahydrofuran	45,000 nc	13,000 nc	70,000 nc
108883	Toluene	300 (FF) st	3,700 nc	1.7E+05 nc
87616	1,2,3-Trichlorobenzene	58 nc	830 nc	940 nc
120821	1,2,4-Trichlorobenzene	3.8 (M) nc	53 (M) nc	70 nc
71556	1,1,1-Trichloroethane	180 (FF) st	450 (EE) st	1.7E+05 (EE) st
79005	1,1,2-Trichloroethane	0.47 (M) nc	0.37 (M) nc	7.0 nc
79016	Trichloroethylene	7.3E-02 (M) (DD) dev	0.33 (M) (DD) dev	67 (DD) dev
75694	Trichlorofluoromethane	22 nc	19 (M) nc	15,000 nc
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	840 nc	860 nc	6.6E+05 nc
540841	2,2,4-Trimethyl pentane	160 nc	130 (M) nc	1.2E+05 nc
526738	1,2,3-Trimethylbenzene	43 (JT) nc	270 (JT) nc	2,100 (JT) nc
95636	1,2,4-Trimethylbenzene	25 (JT) nc	150 (JT) nc	2,100 (JT) nc
108678	1,3,5-Trimethylbenzene	18 (JT) nc	100 (JT) nc	2,100 (JT) nc
75014	Vinyl chloride	0.12 (MM) (M) mut	8.2E-02 (MM) (M) mut	54 (MM) mut
1330207	Xylenes	75 (J) nc	280 (J) nc	7,600 (J) nc
76142	1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	NR	NR	NR
622968	4-Ethyltoluene	NR	NR	NR
115071	Propylene	NR	NR	NR

FOOTNOTES

**Soil gas site-specific volatilization to indoor air (SSVIAC) are applicable for all depths.

- Acceptable Air Values (AAV) endpoint basis used for SSVIAC: (**ca**) = Carcinogenetic; (**nc**) = Non-Carcinogenetic; (**dev**) = Developmental; (**mut**) = Mutagenic cancer; (**st**) = Short-term (i.e., less than chronic exposure).
- Footnote **AA**: Health-based groundwater SSVIAC are not available due to insufficient toxicological data. Dissolved-phase methane in groundwater is not explosive; however, if liberated and allowed to accumulate in an enclosed structure the principle health and safety concerns are explosive, flammable, and asphyxiant properties of gas phase methane. The acceptable groundwater concentration is the flammability and explosivity screening level (**FESL**) is 10,000 µg/L.
- Footnote **C**: The health-based SSVIAC exceeds the chemical-specific soil saturation screening level (**Csat**). The person proposing or implementing response activity must document whether additional response activity is required to control non aqueous phase liquid (**NAPL**) to protect against risks associated with NAPL by using methods appropriate for the NAPL present.
- Footnote **CC**: Insufficient chemical-physical input parameters have been identified to allow the development of a health-based SSVIAC using standard equations. The health-based SSVIAC for groundwater is developed based solely on the approach that the department uses for shallow groundwater. If groundwater detections are present, soil vapor may be the most appropriate media to evaluate risk posed from the VIAP.
- Footnote **DATA**: Insufficient physical chemical parameters to calculate a health-based SSVIAC for specified media. If detections are present in specified media, health-based soil vapor SSVIAC should be used to evaluate risk.
- Footnote **DD**: Hazardous substance causes developmental effects. Residential SSVIAC are protective of both prenatal exposure using a pregnant female receptor and postnatal exposure using a child receptor. Nonresidential SSVIAC are protective of prenatal exposure using a pregnant female receptor. Prenatal developmental effects may occur after an acute (i.e. short-term) or full-term exposure.
- Footnote **EE**: The acceptable air concentration (**AAC**) for the volatile hazardous substances is not derived using standard equations. The hazardous substance may cause adverse human health effects for less than chronic exposures (i.e. short-term or acute). The AAC for these hazardous substances is the acute or intermediate minimum risk level (MRL) developed by the Agency for Toxic Substances and Disease Registry (ATSDR), a United States Environmental Protection Agency Integrated Risk Information System (IRIS) acute reference concentration, or an acute initial threshold screening level (ITSL) by the EGLE's Air Quality Division.
- Footnote **FF**: The AAC for the volatile hazardous substances are based on toxicity values that have been identified to have the potential to cause adverse human health effects for less than chronic exposures (i.e. short-term or acute). The short-term exposure for shallow groundwater health-based SSVIAC are based on modification of the standard equations by the department to develop applicable shallow groundwater values.
- Footnote **GG**: Health-based SSVIAC for soil vapor are not available due to insufficient toxicological data. The soil vapor value addresses the health and safety concerns of explosive, flammable, and asphyxiant properties of gas phase methane. The acceptable soil vapor concentration is derived based on 25% of the lower explosive level (**LEL**) for methane.
- Footnote **GW**: The calculated health-based SSVIAC for a hazardous substance based upon shallow groundwater is considered protective when it is greater than the calculated value for groundwater.
- Footnote **ID**: Requires further evaluation to determine the appropriate media to sample.
- Footnote **J**: Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.
- Footnote **JT**: Hazardous substance may be present in several isomer forms. The health-based SSVIAC may be used for the individual isomer provided that it is the sole isomer detected; however, when multiple isomers are detected in a medium, the isomer-specific concentrations must be added together and compared to the most restrictive health-based SSVIAC of the detected isomers.
- Footnote **M**: The health-based SSVIAC may be below target detection limits (**TDL**). In accordance with Sec. 20120a(10) when the TDL for a hazardous substance is greater than the developed health-based SSVIAC, the TDL is used to evaluate the risk posed from the pathway.
- Footnote **MM**: Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating health-based SSVIAC are modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.
- Footnote **NA**: The hazardous substance does not meet the department's definition of a volatile; therefore, no health-based SSVIAC were developed.
- Footnote **NR**: The hazardous substance has not been previously evaluated by the Remediation and Redevelopment Division Toxicology Unit. The identification, collection, and evaluation of toxicological literature and chemical-physical data cannot be completed within the timeframe requested.
- Footnote **S**: Calculated health-based SSVIAC exceeds the hazardous substance-specific water solubility limit; therefore, the water solubility limit is used to evaluate the risk posed from the pathway.
- Footnote **TX**: The Remediation and Redevelopment Division Toxicology Unit has not identified an inhalation toxicity value for the hazardous substance.