

# MEMO

Project name	<b>RACER Coldwater Road</b>	CC:	
Project no.	<b>15388/1940100783</b>		<b>John McCabe - EGLE</b>
Client	<b>Racer Trust</b>		<b>Nicole Sanabria - EGLE</b>
Memo no.	<b>01</b>		<b>David Favero - EGLE</b>
Version	<b>1</b>		<b>Kevin Schneider - Ramboll</b>
To	<b>Jacob Runge</b>		
From	<b>Clifford Yantz</b>		
Copy to	<b>Kevin Schneider</b>		
Prepared by	<b>Kevin Schneider</b>		
Checked by	<b>Clifford Yantz</b>		
Approved by	<b>Clifford Yantz</b>		

## Vapor Intrusion Building Foundation Summary

Date August 2, 2021

Ramboll Americas Engineering Solutions (Ramboll), on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) is providing this memorandum to document the foundation type of residences adjacent to vapor probes that have exceedances above the most stringent Site-Specific Volatilization to Indoor Air Criteria "crawl space with a dirt floor" (VP-2, VP-3, and VP-5) at the RACER Trust Coldwater Road Facility (Site) located in Flint, Michigan.

This evaluation was completed to determine if there is the potential for exposure requiring additional investigation and to determine which Site-specific criteria is applicable to compare to for future sampling events.

The evaluation 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*, the subsequent January 14, 2021 response letter prepared by Ramboll regarding *Comments on Vapor Intrusion Technical Memo-Letter Dated December 23, 2020*, and the EGLE review letter titled, *Review: 2<sup>nd</sup> Quarter Vapor Intrusion Sampling Results* dated July 29, 2021.

To more accurately compare detected soil gas concentrations to the appropriate soil gas criteria at the Site, a review of the residences adjacent to vapor probes with exceedances above the most stringent "crawl space with a dirt floor" was performed. The review was completed with information that was provided by the Genesee County Geographic Information Systems (GIS) Department and was visually field verified as best possible for homes along Morris Hills Parkway, Temple Avenue, and Hartman Street.

Details of the residences foundation type adjacent to vapor probes VP-2, VP-3, and VP-5 can be found on the table provided below and the attached **Figure 1**, which shows the location of the vapor probes with an approximate 100-foot by 100-foot buffer to the west of the vapor probe in the direction of the nearest residence. The

Ramboll  
3600 Green Court  
Suite 750  
Ann Arbor, MI 48105  
USA

T 734-761-4000  
F 734-761-2050  
<https://ramboll.com>

soil vapor and groundwater analytical results can be found in the attached [Table 1](#) and [Table 2](#), respectively.

### Residences Adjacent to onsite Vapor Probes (VP-2, VP-3, and VP-5)

Owner	Address	Foundation Type	Associated Vapor Probe
Verdier, Louis H. SR	1203 Morris Hills Parkway, Mount Morris	Concrete Slab	VP-2
Alexander, Terrence	1208 Temple Avenue, Mount Morris	Crawl Space	VP-5
Kinney, Scott A & Toni M	1200 Hartman Street, Mount Morris	Crawl Space	VP-3

### Summary

After review of the available information, the residence at 1203 Morris Hills Parkway, which is within 100 feet to the west of VP-2 is built on a concrete slab. The highest detected concentrations above the EGLE site-specific “crawl space with a dirt floor” criteria are 1,2-dichloroethane ( $12 \mu\text{g}/\text{m}^3$ ), and trichloroethene ( $32 \mu\text{g}/\text{m}^3$ ) in VP-2S (5 ft depth) and benzene ( $12 \mu\text{g}/\text{m}^3$ ) in VP-2D (10 ft depth). These detections are below the EGLE site-specific “slab-on-grade & basement” criteria of  $110 \mu\text{g}/\text{m}^3$  for benzene,  $33 \mu\text{g}/\text{m}^3$  for 1,2-dichloroethane, and  $67 \mu\text{g}/\text{m}^3$  for trichloroethene. The EGLE site-specific “slab-on-grade & basement” criteria will continue to be applied to the analytical results collected from VP-2 during future sampling events.

The residence at 1200 Hartman Street, which is within 100 feet to the west of VP-3, and 1208 Temple Avenue, which is within 100 feet to the west of VP-5 are built on dirt floor crawl spaces. The highest detected concentrations above the EGLE site-specific “crawl space with a dirt floor” criteria from VP-3 and VP-5 vapor probe locations are benzene ( $16 \mu\text{g}/\text{m}^3$ ) at VP-3S (5 ft depth), benzene ( $16 \mu\text{g}/\text{m}^3$ ), ethylbenzene ( $130 \mu\text{g}/\text{m}^3$ ), and total xylene ( $480 \mu\text{g}/\text{m}^3$ ) at VP-3D (15 ft depth), and benzene ( $9.6 \mu\text{g}/\text{m}^3$ ) at VP-5M (10 ft depth).

The results from VP-3 and VP-5 locations above the EGLE site-specific “crawl space with a dirt floor” criteria were last detected during 2018 sample events. The samples that have been collected in 2019 and 2021 from vapor probe locations VP-3 and VP-5, have not been detected above the EGLE site-specific “crawl space with a dirt floor” criteria, and the groundwater volatile organic compound (VOCs) results from flooded vapor probes continue to not identify detections above the laboratory reporting limit.

The existing vapor probes will be sampled again 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.**

A handwritten signature in blue ink that reads "Clifford Scott Yantz".

**Clifford S. Yantz**

Managing Hydrogeologist

1943864 - MIDWEST EAST Resources 056

M 313.333.0211

[Clifford.yantz@ramboll.com](mailto:Clifford.yantz@ramboll.com)

## **Enclosures:**

### **Tables**

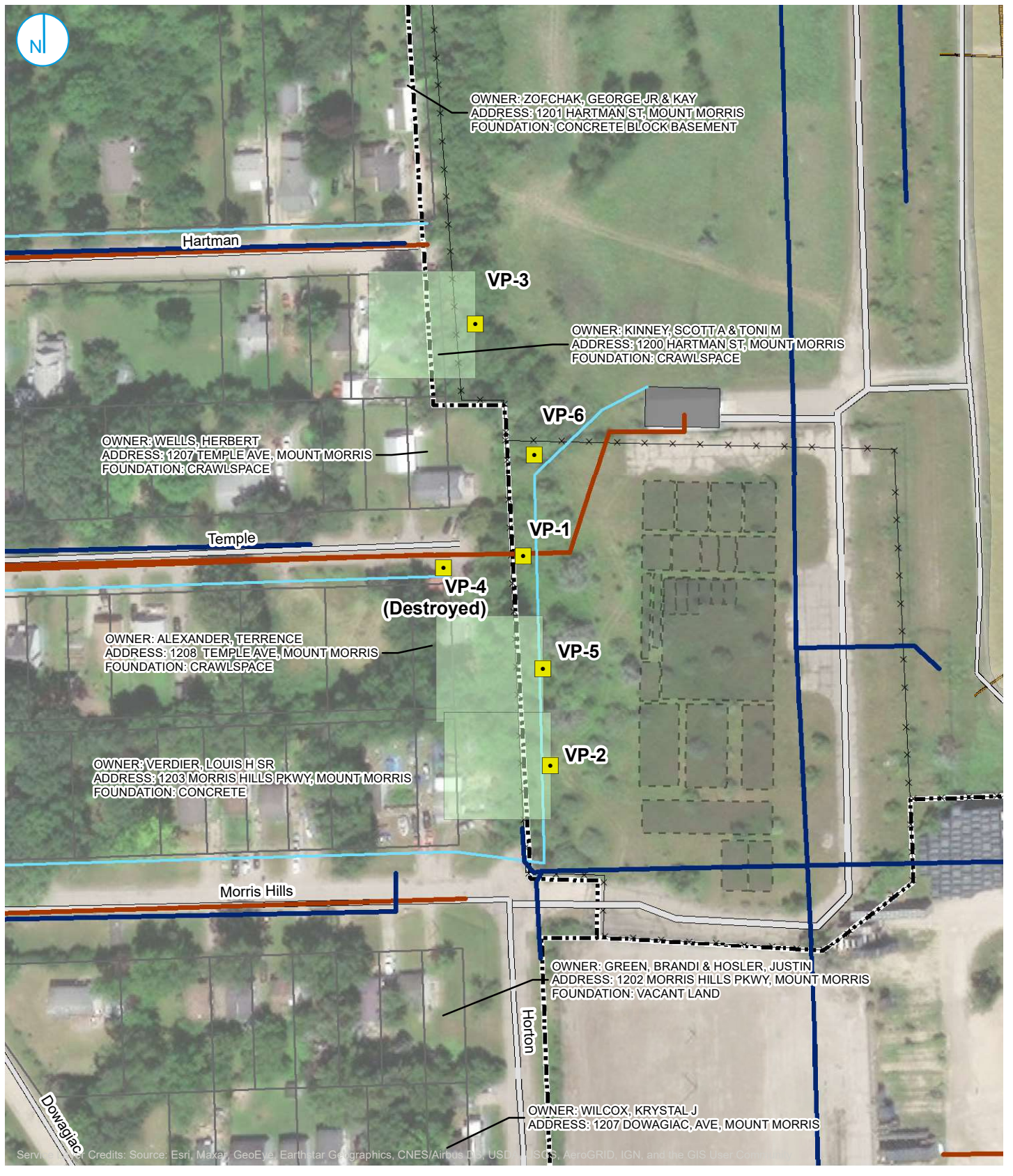
Table 1 – Vapor Intrusion Analytical Results – December 2017, June 2018, October 2018, November 2019, February 2021, May 2021

Table 2 – Groundwater VOCs Analytical Results – November 2019, February 2021, May 2021

### **Figures**

Figure 1 – Sample Location Map

## FIGURES



Services Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroGRID, IGN, and the GIS User Community

- VAPOR POINT LOCATION
- FORMER BUILDING
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- PROPERTY BOUNDARY
- DISTANCE FOR VAPOR PROBE-100 FT



## VAPOR POINT LOCATIONS

FIGURE 02

RAMBOLL US CORPORATION  
A RAMBOLL COMPANY

**RACER TRUST**  
COLDWATER ROAD  
FLINT, MICHIGAN



## **TABLES**



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

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

Notes on Page 4



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

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

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

Compound	Sample ID: Units:	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 1	EGLE Site-Specific Residential Volatilization to Indoor Air (VIAC) Criteria- Table 2 & 3	VP-5M	VP-5M	VP-5M	VP-5D	VP-5D	VP-6S	VP-6M	VP-6M	VP-6D	VP-6D
		(crawlspace with a dirt floor) $\mu\text{g}/\text{m}^3$	(slab-on-grade & basement) $\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
Sample Date:				10/25/2018	11/18/2019	2/22/2021	11/18/2019	2/22/2021	10/25/2018	10/25/2018	5/27/2021	10/25/2018	11/18/2019
Acetone	NA	NA	NA	<48	<48	<48	<48	<48	<48	<48	<b>71</b>	<48	<b>95</b>
Benzene	3.3 ca	110 ca	NA	<b>9.6</b>	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Carbon Disulfide	NA	NA	NA	<b>290</b>	<16	<16	<16	<16	<b>140</b>	<b>250</b>	<16	<16	<16
Chloroform	NA	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	NA	<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	NA	<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	NA	<47	<47	<230	<47	<230	<47	<47	<b>55</b>	<47	<b>85</b>
Ethylbenzene	10 ca	340 ca	NA	<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	NA	<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	NA	<b>18</b>	<7.0	<7.0	<7.0	<7.0	<b>11</b>	<7.0	<7.0	<7.0	<b>49</b>
Isopropyl Alcohol	210 nc	7,000 nc	NA	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49
Methylene Chloride	NA	NA	NA	<17	<17	<17	<17	<17	<17	<17	<17	<17	<b>28</b>
2-Butanone (MEK)	5,000 (DD) dev	1.7E+05 (DD) dev	NA	<29	<29	<59	<29	<59	<29	<29	<29	<29	<29
Propylene	NA	NA	NA	<62 X	<6.9 X	<170	<3.4	<170	<15 X	<12 X	<170	<3.9	<b>12</b>
1,2,4-Trimethylbenzene	63 (JT) nc	2,100 (JT) nc	NA	<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	NA	<b>14</b>	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3	<9.3
Tert-butyl Alcohol	NA	NA	NA	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Tetrachloroethene	41 (EE) st	1,400 (EE) st	NA	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14
Tetrahydrofuran	2,100 nc	70,000 nc	NA	<b>15</b>	<b>27</b>	<5.9	<b>15</b>	<b>8.8</b>	<b>12</b>	<b>8.8</b>	<b>24</b>	<b>5.9</b>	<b>29</b>
Toluene	5,200 nc	1.7E+05 nc	NA	<b>45</b>	<7.5	<7.5	<7.5	<7.5	<b>19</b>	<b>15</b>	<b>30</b>	<b>11</b>	<b>23</b>
Trichloroethene	2.0 (DD) dev	67 (DD) dev	NA	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11
p,m-Xylene	NA	NA	NA	<b>22</b>	<17	<17	<17	<17	<17	<17	<b>17</b>	<17	<17
o-Xylene	NA	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	NA	<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 (crawl space 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 (crawl space with a dirt floor) and Table 2 & 3 (slab-on-grade & basement ) are highlighted in orange.
- 3) Concentrations in  $\mu\text{g}/\text{m}^3$  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) = Carcinogenic; (nc) = Non-Carcinogenic; (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 groundwater 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 groundwater 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
1,1,1,2-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 <i>Sample Date</i>	VP-6S	VP-6S	VP-6S	VP-6M	VP-6M	Trip Blank- 111919	Trip Blank- 022321	Trip Blank- 052721
	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