



Annual Groundwater Report

PCC - Validation

RACER Trust

September 08, 2022

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1. Introduction

GHD is providing this report on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust for the former PCC-Validation property in Pontiac, Michigan (Site). A Site location map is presented on Figure 1. The purpose of this report is to provide a summary of the April 2022 monitoring well re-installation activities and the results from the September 2021 and April 2022 groundwater monitoring events.

In 2014, M1 began redevelopment of the Site. During redevelopment, it was necessary to remove all groundwater monitoring wells. The U.S. Environmental Protection Agency (U.S. EPA) required certain monitoring wells be re-installed following Site redevelopment. This report summarizes the re-installation of the final six (6) wells in accordance with the GHD's proposed re-install scope of work, which was approved by U.S. EPA on November 18, 2021. The scope of work for the re-install was developed in general accordance with the May 5, 2018 Interim Groundwater Monitoring Plan (IGWMP), the corresponding reduced groundwater monitoring plan that was approved by US EPA on June 4, 2020, and subsequent communication with US EPA. The IGWMP amended the Sampling and Analysis Plan (SAP) submitted to the U.S. EPA on July 25, 2014, and Supplemental SAP submitted to the U.S. EPA on January 13, 2015. The current groundwater monitoring plan is summarized in Table 1.

2. Soil Boring Completion and Monitoring Well Re-Installation Activities

In November 2021, the scope of work for the monitoring well reinstallation was approved by U.S. EPA and was subsequently documented in a December 14, 2021, memo from GHD to U.S. EPA. The drilling services were provided by Stearns Drilling of Dutton, Michigan and by GHD's in-house drilling personnel (GHD Services). At the request of the U.S. EPA monitoring well (MW-48-22R) and a 60-foot soil boring (SB-48-22R) were completed in the southeast portion of the Site, where a small portion of the Site is in the far upgradient extent of an existing wellhead protection area.

Stearns Drilling began their drilling services on April 4, 2022, while a GHD geologist provided oversight. Stearns drilled and installed one replacement monitoring well (MW-74D-22R) using rotary-sonic drilling techniques. MW-74D-22R was completed to a total depth of 45 feet below ground surface (bgs). The well was constructed with a 5-foot long, two-inch diameter polyvinyl chloride (PVC) screen attached to a sufficient length of two-inch diameter PVC riser. Additionally, Stearns advanced a deep soil boring (SB-48D-22R) on April 6, 2022, to a total depth of 60 feet bgs also using rotary-sonic drilling techniques.

GHD Services began their drilling services on April 8, 2022, while a GHD geologist provided oversight. Five replacement monitoring wells (MW-48-22R, MW-74-22R, MW-88-22R, MW-90-22R, and MW-94-22R) were installed using a direct-push drilling machine. Monitoring well locations were finalized prior to drilling based on review with the site owner, M1, and utility clearance. Monitoring wells were installed to varying depths. MW-48-22R was installed to a total depth of 18.5 feet bgs, MW-74-22R was installed to 17.5 feet bgs, MW-88-22R was installed to 25 feet bgs, MW-90-22R was installed to 18.1 feet bgs, and MW-94-22R was installed to 21 feet bgs. The wells were constructed with a 5-foot long, two-inch diameter PVC screen attached to a sufficient length of two-inch diameter PVC riser.

A summary of the groundwater elevations is provided in Table 2 and well construction logs are provided in Appendix A.

3. Monitoring Well Development

On April 7, 2022, Stearns Drilling and GHD developed the newly installed replacement monitoring well MW-74D-22R. A battery-operated submersible PVC pump was used to develop the well, using new polyethylene tubing. A total of approximately 20 well volumes of water were removed during the development process.

On April 13, 14, and 15, 2022, GHD developed three replacement monitoring wells (MW-48-22R, MW-74-22R, and MW-88-22R). A battery-operated submersible PVC pump was used to develop MW-88-22R and a peristaltic pump was used to develop monitoring wells MW-48-22R and MW-74-22R. New polyethylene tubing was used for each well. A total of approximately 20 well volumes of water were removed during the development process. However, MW-88-22R went dry during development, so the well was allowed to recharge and was pumped dry a total of three times over a three-day period.

The two remaining replacement wells, MW-90-22R and MW-94-22R, were observed to be dry in April 2022 after installation, although groundwater was encountered during the installation activities. On May 13, 2022, GHD returned to the site to perform additional development at the two wells. GHD used a surge block to clear any sediment clogging the well screens. For each well, water was added into the well and the surge block was lowered into the well to surge the well. After the surge block was removed each well was pumped dry and allowed to recharge before checking the water level. Each well was surged twice and although the wells were given sufficient time to recharge, both wells still only had residual water in them. The replacement wells will continue to be checked during quarterly groundwater monitoring events moving forward.

4. Groundwater Sampling and Analysis

On September 24, 2021, two monitoring wells (MW-79I-19 and MW-79D-19) were sampled. The two monitoring wells were sampled for volatile organic compounds (VOCs).

During the April 2022 annual monitoring event, 20 monitoring wells were sampled (MW-02-07, MW-10-07, MW-21-07, MW-33-07, MW-38-07, MW-48-22R, MW-64-08, MW-68-08, MW-74-22R, MW-74D-22R, MW-79I-19, MW-79D-19, MW-80-12, MW-81-12, MW-85-12, MW-87-12, MW-88-22R, MW-92S-13, MW-92I-13, and MW-93I-13). Recently installed monitoring wells MW-90-22R and MW-94-22R were dry during the April 2022 sampling event; therefore, could not be sampled. A Site plan with the groundwater monitoring well locations is presented on Figure 2.

Prior to groundwater sample collection, static groundwater elevations were measured and recorded. Groundwater samples were collected from the monitoring wells using low-flow sampling techniques with a peristaltic pump and dedicated tubing. Field parameters collected during purging included pH, temperature, conductivity, oxidation/reduction potential (ORP), dissolved oxygen (DO), and turbidity. Groundwater samples were collected after the field parameters stabilized. Groundwater field parameters collected from each monitoring well are presented on Monitoring Well Record for Low Flow Purging Forms included in Appendix B.

Groundwater samples were analyzed using USEPA Method 8260 for VOCs and/or Method 6020 for total and dissolved Aluminum, Lead, and Vanadium. Additionally, MW-74-22R was analyzed for 1,4-Dioxane USEPA Method 8270 SIM per the SOW dated December 14, 2021. Samples were analyzed for dissolved parameters to allow for consideration of the impact of suspended solids on the results. Groundwater samples were shipped under chain-of-custody protocol via courier to Eurofins-TestAmerica Laboratories in Barberton, Ohio for analysis. Table 3 presents the sample analysis summary.

5. Analytical Results

Select groundwater results are shown on Figure 3. The analytical results were compared against the criteria and screening levels outlined below and provided on Table 4. The data validation memos dated February 3, 2022, and August 12, 2022, are presented in Appendix C. Based on the assessment discussed throughout both memos, all data was reviewed and identified to be acceptable.

Laboratory Analytical Reports are presented in Appendix D. Historical groundwater results from 2018 through 2022 are provided in Appendix E.

Groundwater analytical results were compared to all Michigan Environment, Great Lakes & Energy (EGLE) Cleanup Criteria Requirements for Response Activity (RRA), updated December 21, 2020 (Formerly the Part 201 Generic Cleanup Criteria and Screening Levels). Additionally, the results were compared to the site-specific volatilization to indoor air criteria. The criteria are presented in Appendix F. The following is a summary of the analytical results from the April 2022 groundwater sampling event:

- Total aluminum exceeded the EGLE Cleanup Criteria RRA Nonresidential/Residential Aesthetic Drinking Water Criteria (DWC) during the April 2022 monitoring event in two wells, MW-10-07 and MW-21-07. Total aluminum exceeded the EGLE Residential Health Based values in one well, MW-21-07. The sample from MW-21-07 was not analyzed for dissolved metals. Dissolved aluminum exceeded the EGLE Cleanup Criteria RRA Nonresidential/Residential Aesthetic Drinking Water Criteria (DWC) in one well, MW-10-07.
- Total lead exceeded the EGLE Cleanup Criteria RRA Nonresidential/Residential Drinking Water Criteria (DWC) in one well MW-21-07. The sample was not analyzed for dissolved lead. The federal and Michigan drinking water action level for lead is 15 micrograms per liter (µg/L) and the lead concentration in the sample from MW-21-07 did not exceed the action level.
- Trichloroethene exceeded the EGLE Cleanup Criteria RRA Nonresidential/Residential Drinking Water Criteria (DWC) and SSVIAC Table 2 Residential Volatilization to Indoor Air in one well MW-74-22R.
- 1,4-Dioxane was identified to be non-detect for monitoring well MW-74-22R
- All other analyzed constituents were not detected or detected at concentrations below EGLE Cleanup Criteria RRA.

6. Discussion

Groundwater levels were collected from 20 of the 22 monitoring wells during the April 2022 sampling event; a groundwater elevation contour map is provided on Figure 4 and a summary table of groundwater levels is provided in Table 2. While individual wells groundwater elevations varied compared to the April 2022 site-wide event, groundwater flow direction was generally the same as prior events, west in the mid-portion of the Site transitioning to the northwest in the northern and southern portion of the Site. It is noted that the contours are based on a limited well distribution and saturated units that are generally limited in connectivity.

During the April 2022 sampling event, groundwater results for MW-10-07 exhibited total and dissolved aluminum exceeding EGLE Cleanup Criteria RRA Residential/Nonresidential Aesthetic DWC, which is consistent with previous groundwater data. MW-21-07 exhibited total aluminum exceeding EGLE Cleanup Criteria RRA Residential/Nonresidential Aesthetic DWC and EGLE Residential Health-Based Drinking Water Value. MW-21-07 exhibited lead exceeding EGLE Cleanup Criteria RRA Residential/Nonresidential DWC. The sample was not analyzed for dissolved metals so comparison between total and dissolved results is not possible. MW-74-22R exhibited trichloroethene exceeding EGLE Cleanup Criteria RRA Residential/Nonresidential DWC and SSVIAC Table 2 Residential Volatilization to Indoor Air Basement. The EGLE (formerly MDEQ) Part 201 Drinking Water Criteria for aluminum is based on the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources

and Environmental Protection Act, 1994 PA 451, as amended (NREPA). The applicable health-based drinking water values are provided as an alternate criterion as identified in Footnote E of EGLE Cleanup Criteria RRA. Per the March 3, 2016, U.S. EPA approved CA750, the health-based drinking water values were determined to be more appropriate than the aesthetic drinking water values.

Monitoring wells MW-90-22R and MW-94-22R (installed in April 2022) were identified as dry during the April 2022 sampling event. It is not unusual for Site monitoring wells to be dry due to the discontinuous nature of the saturated sand seams. Absence of shallow groundwater near the south-central boundary indicates there is not shallow groundwater present which makes it unlikely for groundwater to travel off-site to the south. As depicted on Figure 4 the groundwater flow direction is to the north-west, which further shows groundwater is not traveling off-site to the south.

GHD compared the historical data for the previously abandoned monitoring wells (MW-48-07, MW-74-08, MW-74D-15, MW-88-12, MW-90-12, and MW-94-15) to the newly reinstalled replacement monitoring wells (MW-48-22R, MW-74-22R, MW-74D-22R, MW-90-22R, and MW-94-22R). The April 2015 and April 2022 sampling events were compared. Three monitoring wells (MW-48-07 (22R), MW-74D-15 (22R), and MW-88-12 (22R)) were non-detect for both April 2015 and April 2022 sampling events. Monitoring well MW-90-12 (22R) was non-detect during the April 2015 sampling event, but dry during the April 2022 sampling event. Monitoring well MW-94-15(22R) was dry during both the April 2015 and 2022 sampling events, so a sample could not be collected during these events.

The trichloroethene concentrations at monitoring well MW-74-08 (22R) exceeded the EGLE Cleanup Criteria RRA Nonresidential/Residential Drinking Water Criteria (DWC) and SSVIAC Table 2 Residential Volatilization to Indoor Air for both the April 2015 and April 2022 sampling events. Although the replacement well (MW-74-22R) still exceeded criteria, the VOCs levels have attenuated significantly. The only remaining VOC exceedance at this location is trichloroethene which decreased from 1,100 to 44 µg/L. Additionally, GHD compared the April 2015 and April 2022 groundwater elevations.

Elevations when compared to the April 2015 measurements the elevations in the majority of the monitoring wells varied between 4 to 6 feet lower than noted in April 2015. One monitoring well MW-94-15(22R) was dry during both events. A historical data comparison is provided in Table 5.

Historically, impacted groundwater at the Site has been limited to the upper geologic unit that typically consists of fill and sand. The upper unit is underlain with a regional clay that limits vertical migration. Lateral groundwater migration at the Site is discontinuous due to presence of intermittent sand seams and generally to the west or northwest. Therefore, is not expected that groundwater from the Site has a pathway to migrate laterally or vertically to the saturated geologic unit that supplies the private household well located approximately 0.45 miles to the southeast or the wells that are the subject of the wellhead protection area that extends to the southeast portion of the Site.

Advancement of SB-48 to a total depth of 60 feet below ground surface (bgs) identified shallow stratigraphy consistent with the previous information from that location and indicated no field observations of impacts (PID readings, staining, odors). These observations along with the analytical results from newly installed monitoring well MW-48-22R (located in the south-eastern corner of the Site) document there are no Site impacts within the wellhead protection area. Further, based on the additional geologic and groundwater quality data there is no reason to revise the May 26, 2022 Vapor Intrusion Conceptual Site Model.

7. Schedule

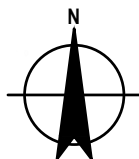
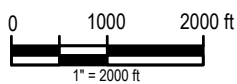
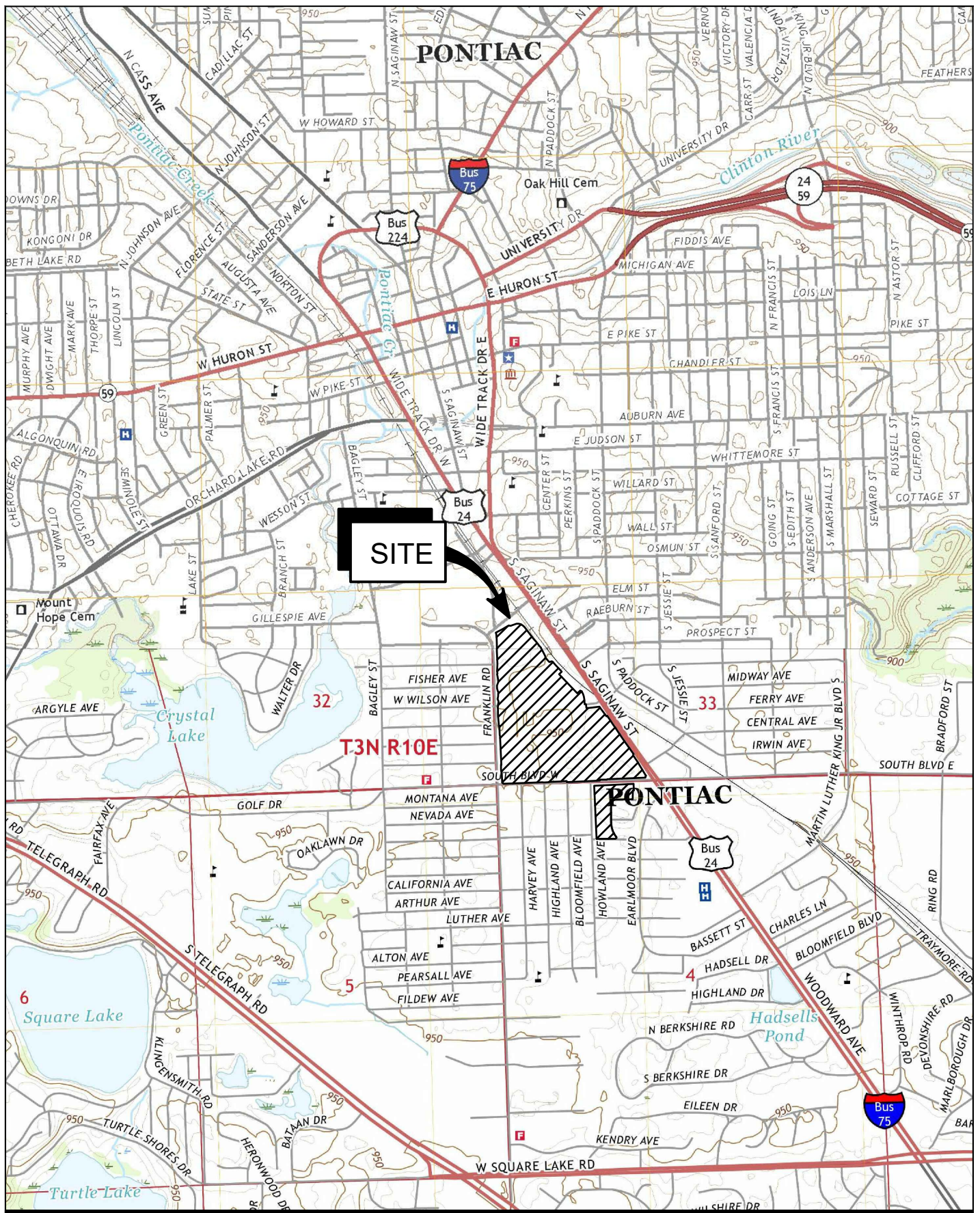
Groundwater monitoring well installation was completed in April 2022. The tentative schedule for upcoming groundwater monitoring tasks are summarized below:

Task:	Approximate Timeline
Limited Quarterly Groundwater Monitoring ⁽¹⁾	September 2020 - <i>Completed</i>
Limited Quarterly Groundwater Monitoring ⁽¹⁾	December 2020 - <i>Completed</i>
Limited Quarterly Groundwater Monitoring ⁽¹⁾	March 2021 - <i>Completed</i>
Annual Sitewide Groundwater Monitoring ⁽¹⁾	June 2021 - <i>Completed</i>
Limited Quarterly & Annual Groundwater Monitoring Results	August 2021 – <i>Completed October 2021</i>
Limited Quarterly Groundwater Monitoring ⁽¹⁾	September 2021 - <i>Completed</i>
Third Phase of Monitoring Well Installation	Completed April 2022
Annual Sitewide Groundwater Monitoring ⁽¹⁾	April 2022 - <i>Completed</i>
Annual Groundwater Report (this report)	September 2022 - <i>Completed</i>
Limited Quarterly Groundwater Monitoring ⁽²⁾	July 2022
Groundwater Sampling Results July 2022 Memorandum ⁽²⁾	September 2022
Limited Quarterly Groundwater Monitoring ⁽²⁾	October 2022
Limited Quarterly Groundwater Monitoring ⁽²⁾	January 2023
Annual Groundwater Report ⁽²⁾	March 2023

⁽¹⁾ Indicates monitoring event was performed in accordance with the current approved groundwater monitoring plan presented on Table 1.

⁽²⁾ Indicates monitoring event will be performed in accordance with proposed monitoring plan presented on Table 1.

Figures

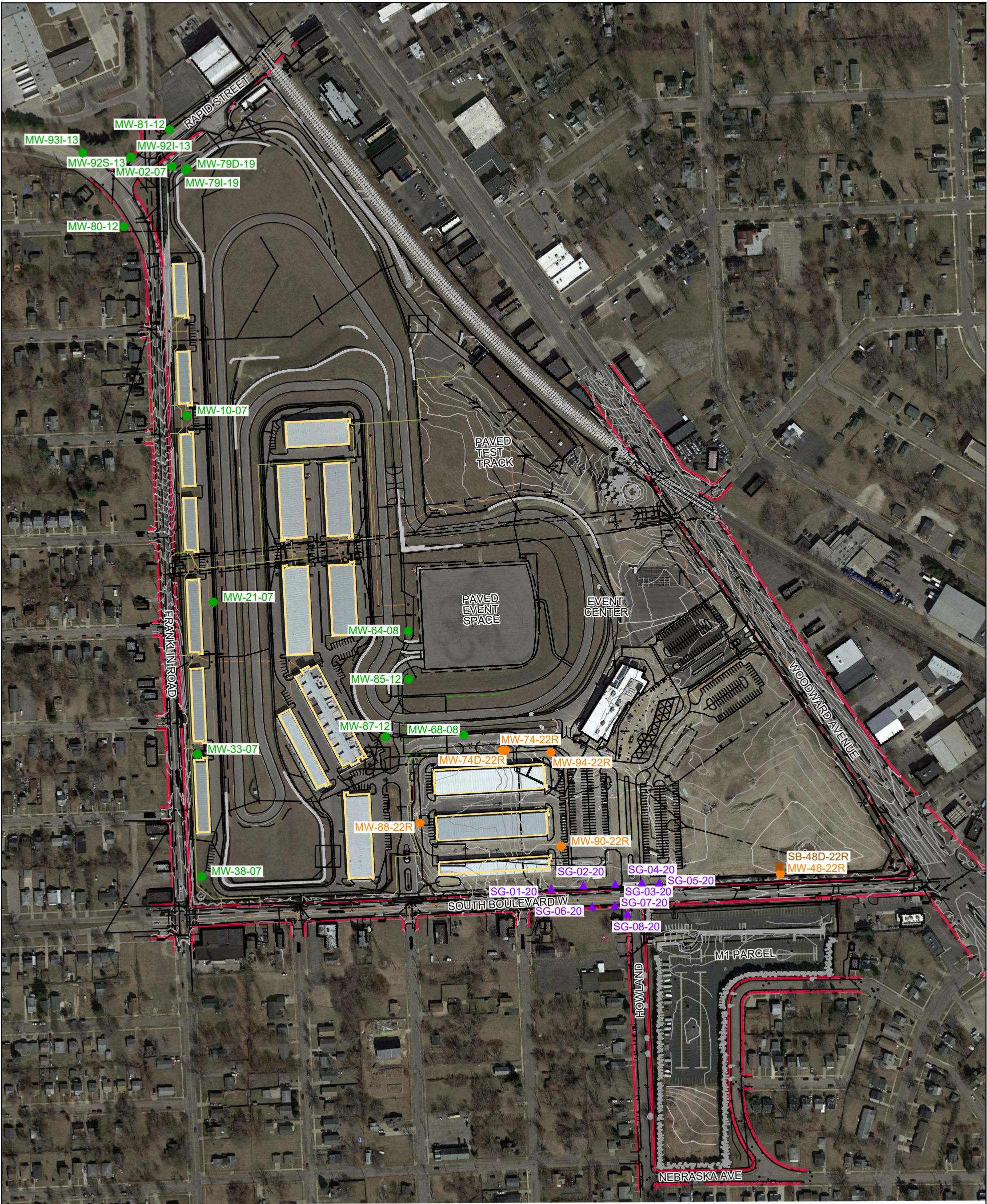


RACER
1 CONCOURSE DRIVE
PONTIAC, MICHIGAN

Project No. 11223416
 Date June 2022

SITE LOCATION MAP

FIGURE 1



LEGEND

APPROXIMATE PROPERTY BOUNDARY

RAILROAD

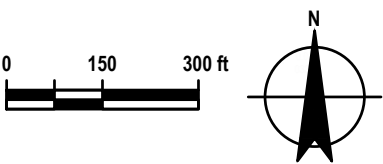
MW-80-12 ACTIVE MONITORING WELL LOCATION

MW-90-22R NEW ACTIVE MONITORING WELL LOCATION - APRIL 2022

SG-01-20 SOIL GAS PROBE LOCATION

SB-48D-22R BOREHOLE LOCATION

PRIVATE NON-RESIDENTIAL GARAGES

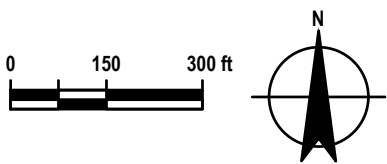
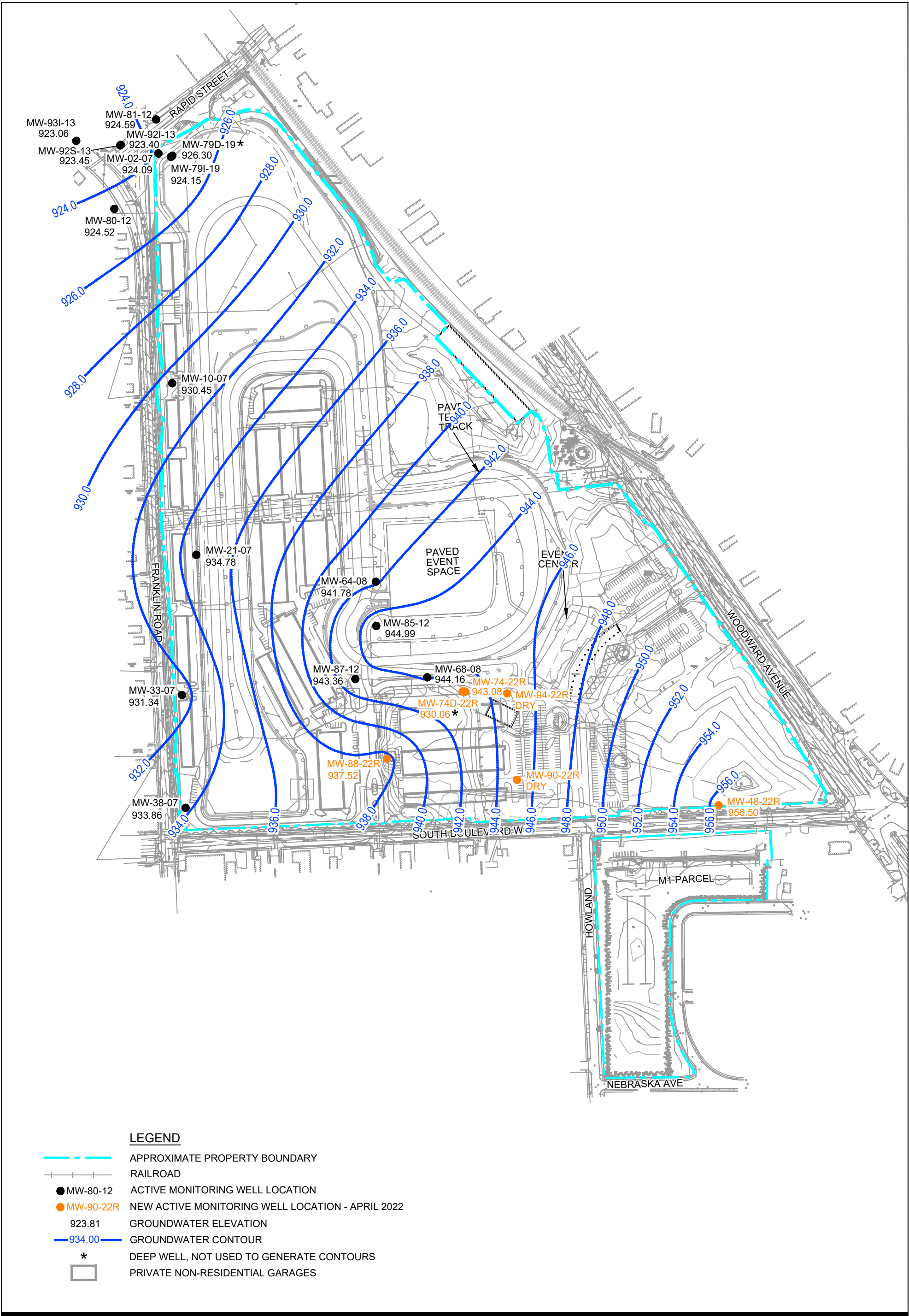


RACER
1 CONCOURSE DRIVE
PONTIAC, MICHIGAN

Project No. 11223416
Date June 2022

SITE PLAN WITH CURRENT
MONITORING LOCATIONS

FIGURE 2



RACER
1 CONCOURSE DRIVE,
PONTIAC, MICHIGAN

SITE PLAN WITH SHALLOW
GROUNDWATER CONTOURS - APRIL 2022

Project No. 11223416
Date June 2022

FIGURE 4

Tables

Table 1

**Groundwater Monitoring Plan Summary
RACER PCC - Validation
Pontiac, Michigan**

Well ID	Most Recent Install Date	Sampling Parameters	Current Monitoring Frequency
MW-02-07	6/4/2018	TCL VOCs	Annually (1)
MW-10-07	6/1/2018	Al, Pb, V (Total+Dissolved)	Annually (1)
MW-21-07	5/22/2019	Al, Pb, V (Total+Dissolved)	Annually (1)
MW-33-07	5/31/2018	Al, Pb, V (Total+Dissolved)	Annually (1)
MW-38-07	5/30/2018	Al, Pb, V (Total+Dissolved)	Annually (1)
MW-64-08	5/29/2018	TCL VOCs	Annually (1)
MW-68-08	5/24/2019	TCL VOCs	Annually (1)
MW-79D-19	5/21/2019	TCL VOCs	Annually (1)
MW-79I-19	5/21/2019	TCL VOCs	Annually (1)
MW-80-12	8/28/2012	TCL VOCs	Annually (1)
MW-81-12	8/28/2012	TCL VOCs	Annually (1)
MW-85-12	5/28/2018	TCL VOCs	Annually (1)
MW-87-12	5/22/2019	TCL VOCs	Annually (1)
MW-92I-13	1/23/2013	TCL VOCs	Annually (1)
MW-92S-13	1/24/2013	TCL VOCs	Annually (1)
MW-93I-13	7/26/2013	TCL VOCs	Annually (1)
MW-74-22R	Second Quarter of 2022	TCL VOCs & 1,4-Dioxane (initial event only unless detected)	To be sampled quarterly for four events following install
MW-74D-22R	Second Quarter of 2022	TCL VOCs	To be sampled quarterly for four events following install
MW-88-22R	Second Quarter of 2022	TCL VOCs	To be sampled quarterly for four events following install
MW-90-22R	Second Quarter of 2022	TCL VOCs	To be sampled quarterly for four events following install
MW-48-22R (2)	Second Quarter of 2022	TCL VOCs	To be sampled quarterly for four events following install
MW-94-22R	Second Quarter of 2022	TCL VOCs	To be sampled quarterly for four events following install

Notes:

(1) Annual sampling event will occur in Q2, the quarter with the most recent exceedance of Michigan EGLE Generic Groundwater Cleanup Criteria (Part 201).

(2) Proposed well MW-48-07R has replaced previously proposed MW-91-12.

Table 2
Groundwater Elevation Summary
RACER PCC Validation
Pontiac, Michigan

Sample Location	Date Installed	Current Ground Elevation (FT AMSL)	Current TOC	Current Screen Interval (FT BGS)		June 2021 Depth To Groundwater (FT TOC)	April 2022 Depth To Groundwater (FT TOC)	June 2021 Groundwater Elevation (FT AMSL)	April 2022 Groundwater Elevation (FT AMSL)	Change in Groundwater Elevation: June 2021 vs. April 2022 (FT)	
MW-02-07	6/4/2018	936.15	935.63	11.40	-	16.40	12.24	11.54	923.39	924.09	0.70
MW-10-07	6/1/2018	943.34	943.09	12.55	-	17.55	13.89	12.64	929.20	930.45	1.25
MW-21-07	5/22/2019	950.67	950.37	11.00	-	16.00	Dry	15.59	Dry	934.78	-
MW-33-07	5/31/2018	947.89	947.50	17.24	-	22.24	18.4	16.16	929.10	931.34	2.24
MW-38-07	5/30/2018	948.99	948.50	12.20	-	17.20	Dry	14.64	Dry	933.86	-
MW-64-08	5/29/2018	947.31	947.03	10.25	-	15.25	6.10	5.25	940.93	941.78	0.85
MW-68-08	5/24/2019	956.34	956.05	10.00	-	15.00	13.76	11.89	942.29	944.16	1.87
MW-79I-19	5/21/2019	936.43	936.13	17.00	-	22.00	12.38	11.98	923.75	924.15	0.40
MW-79D-19	5/21/2019	936.45	936.21	30.00	-	35.00	11.15	9.91	925.06	926.30	1.24
MW-80-12	8/28/2012	930.14	929.72	7.00	-	12.00	5.91	5.2	923.81	924.52	0.71
MW-81-12	8/28/2012	932.16	931.54	14.00	-	19.00	7.41	6.95	924.13	924.59	0.46
MW-85-12	5/29/2018	948.00	947.72	3.20	-	8.20	4.26	2.73	943.46	944.99	1.53
MW-87-12	5/22/2019	951.29	950.99	10.00	-	15.00	9.13	7.63	941.86	943.36	1.50
MW-92S-13	1/24/2013	929.85	929.48	4.80	-	9.80	6.63	6.03	922.85	923.45	0.60
MW-92I-13	1/24/2013	929.80	929.22	12.00	-	17.00	6.46	5.82	922.76	923.40	0.64
MW-93I-13	7/26/2013	930.55	930.00	12.00	-	17.00	7.63	6.94	922.37	923.06	0.69
MW-48-22R	4/12/2022	960.32	959.88	12.5	-	18.5	--	3.38	--	956.50	--
MW-74-22R	4/8/2022	959.31	958.71	12.5	-	17.5	--	15.63	--	943.08	--
MW-74D-22R	4/6/2022	959.26	958.76	40	-	45	--	28.7	--	930.06	--
MW-88-22R	4/11/2022	957.6	957.11	20	-	25	--	19.59	--	937.52	--
MW-90-22R	4/14/2022	958.45	958.16	13.1	-	18.1	--	Dry	--	--	--
MW-94-22R	4/8/2022	958.77	958.35	16	-	21	--	Dry	--	--	--

Notes:

FT AMSL - Feet above mean sea level

FT BGS - Feet below ground surface

NA - No data available

Dry - No groundwater encountered

Table 3

**Sample Analysis Summary
RACER PCC- Validation
Pontiac, Michigan**

Matrix	Sample ID	Sample Location	Date	QA/QC	Analysis
September 2021 Groundwater Sampling Event					
Groundwater	GW-11223416-092421-SK-001	MW-79I-19	9/24/2021	NA	TCL VOCs
Groundwater	GW-11223416-092421-SK-002	MW-79D-19	9/24/2021	NA	TCL VOCs
Groundwater	GW-11223416-092421-SK-003	MW-79D-19	9/24/2021	Duplicate	TCL VOCs
April 2022 Groundwater Sampling Event					
Groundwater	GW-11223416-041522-SK-001	MW-68-08	4/15/2022	NA	TCL VOCs
Groundwater	GW-11223416-041522-SK-002	MW-79I-19	4/15/2022	NA	TCL VOCs
Groundwater	GW-11223416-041522-SK-003	MW-79I-19	4/15/2022	Duplicate	TCL VOCs
Groundwater	GW-11223416-041522-SK-004	MW-79D-19	4/15/2022	NA	TCL VOCs
Groundwater	GW-11223416-041522-SK-005	MW-02-07	4/15/2022	NA	TCL VOCs
Groundwater	GW-11223416-041522-SK-006	MW-74D-22R	4/15/2022	NA	TCL VOCs
Groundwater	GW-11223416-041822-SK-007	MW-87-12	4/18/2022	NA	TCL VOCs
Groundwater	GW-11223416-041822-SK-008	MW-80-12	4/18/2022	NA	TCL VOCs
Groundwater	GW-11223416-041822-SK-009	MW-93I-13	4/18/2022	NA	TCL VOCs
Groundwater	GW-11223416-041822-SK-010	MW-92S-13	4/18/2022	NA	TCL VOCs
Groundwater	GW-11223416-041822-SK-011	MW-92I-13	4/18/2022	NA	TCL VOCs
Groundwater	GW-11223416-041922-SK-012	MW-85-12	4/19/2022	NA	TCL VOCs
Groundwater	GW-11223416-041922-SK-013	MW-64-08	4/19/2022	NA	TCL VOCs
Groundwater	GW-11223416-041922-SK-014	MW-81-12	4/19/2022	NA	TCL VOCs
Groundwater	GW-11223416-042122-SK-015	MW-10-07	4/21/2022	NA	Al, Pb, V (Total+Dissolved)
Groundwater	GW-11223416-042122-SK-016	MW-33-07	4/21/2022	NA	TCL VOCs
Groundwater	GW-11223416-042122-SK-017	MW-33-07	4/21/2022	Duplicate	TCL VOCs
Groundwater	GW-11223416-042122-SK-018	MW-74-22R	4/21/2022	NA	TCL VOCs, 1,4-Dioxane
Groundwater	GW-11223416-042122-SK-019	MW-74-22R	4/21/2022	Duplicate	TCL VOCs, 1,4-Dioxane
Groundwater	GW-11223416-042222-SK-020	MW-21-07	4/22/2022	NA	Al, Pb, V (Total+Dissolved)
Groundwater	GW-11223416-042222-SK-021	MW-38-07	4/22/2022	NA	TCL VOCs
Groundwater	GW-11223416-042222-SK-022	MW-88-22R	4/22/2022	NA	TCL VOCs
Groundwater	GW-11223416-042222-SK-023	MW-48-22R	4/22/2022	NA	TCL VOCs

Notes:

ft bgs - Feet below ground surface

MW - Monitoring well

NA - Not applicable

TCL VOCS - Target Compound List Volatile Organic Compounds

AL, PB, V - Aluminum, lead, and vanadium

Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		EGLE Generic Groundwater Cleanup Criteria: Residential and Nonresidential ⁽¹⁾							EGLE ⁽²⁾	
Sample Identification		Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface ⁽⁴⁾	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Water Solubility	Flammability and Explosivity Screening Levels	Residential Health-Based Drinking Water	Nonresidential Health-Based Drinking Water
Sample Date										
Sample Type										
Units		a	b	c	d	e	f	g	i	j
Volatile Organic Compounds (VOCs)										
1,1,1-Trichloroethane	ug/L	200	200	89	660000	1300000	1330000	ID		
1,1,2,2-Tetrachloroethane	ug/L	8.5	35	78	12000	77000	2970000	ID		
1,1,2-Trichloroethane	ug/L	5	5	330	17000	110000	4420000			
1,1-Dichloroethane	ug/L	880	2500	740	1000000	2300000	5060000	380000		
1,1-Dichloroethene	ug/L	7	7	130	200	1300	2250000	97000		
1,2,4-Trichlorobenzene	ug/L	70	70	99	300000	300000	300000			
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	0.2		220	1200	1230			
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	0.05	5.7	2400	15000	4200000	ID		
1,2-Dichlorobenzene	ug/L	600	600	13	160000	160000	156000			
1,2-Dichloroethane	ug/L	5	5	360	9600	59000	8520000	2500000		
1,2-Dichloropropane	ug/L	5	5	230	16000	36000	2800000	550000		
1,3-Dichlorobenzene	ug/L	6.6	19	28	18000	41000	111000	ID		
1,4-Dichlorobenzene	ug/L	75	75	17	16000	74000	73800			
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13000	38000	2200	240000000	240000000	240000000	ID		
2-Hexanone	ug/L	1000	2900	ID	4200000	8700000	16000000			
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1800	5200	ID	20000000	20000000	20000000	ID		
Acetone	ug/L	730	2100	1700	1000000000	1000000000	1000000000	15000000		
Benzene	ug/L	5	5	200	5600	35000	1750000	68000		
Bromodichloromethane	ug/L	80	80	ID	4800	37000	6740000	ID		
Bromoform	ug/L	80	80	ID	470000	3100000	3100000	ID		
Bromomethane (Methyl bromide)	ug/L	10	29	5	4000	9000	14500000	ID		
Carbon disulfide	ug/L	800	2300	ID	250000	550000	1190000	13000		
Carbon tetrachloride	ug/L	5	5	38	370	2400	793000	ID		
Chlorobenzene	ug/L	100	100	25	210000	470000	472000	160000		
Chloroethane	ug/L	430	1700	1100	5700000	5700000	5740000	110000		
Chloroform (Trichloromethane)	ug/L	80	80	350	28000	180000	7920000	ID		
Chloromethane (Methyl chloride)	ug/L	260	1100	ID	8600	45000	6340000	36000		
cis-1,2-Dichloroethene	ug/L	70	70	620	93000	210000	3500000	530000		
cis-1,3-Dichloropropene	ug/L									
Cyclohexane	ug/L									
Dibromochloromethane	ug/L	80	80	ID	14000	110000	2600000	ID		
Dichlorodifluoromethane (CFC-12)	ug/L	1700	4800	ID	220000	300000	300000	ID		
Ethylbenzene	ug/L	74	74	18	110000	170000	169000	43000	700	700
Isopropyl benzene	ug/L	800	2300	28	56000	56000	56000	29000		
Methyl acetate	ug/L									
Methyl cyclohexane	ug/L									
Methyl tert butyl ether (MTBE)	ug/L	40	40	7100	47000000	47000000	46800000	ID	240	690
Methylene chloride	ug/L	5	5	1500	220000	1400000	17000000	ID		
Styrene	ug/L	100	100	80	170000	310000	310000	140000		
Tetrachloroethene	ug/L	5	5	60	25000	170000	200000	ID		
Toluene	ug/L	790	790	270	530000	530000	526000	61000	1000	1000
trans-1,2-Dichloroethene	ug/L	100	100	1500	85000	200000	6300000	230000		
trans-1,3-Dichloropropene	ug/L									
Trichloroethene	ug/L	5	5	200	2200	4900	1100000	ID		
Trichlorofluoromethane (CFC-11)	ug/L	2600	7300		1100000	1100000	1100000	ID		
Trifluorotrichloroethane (CFC-113)	ug/L	170000	170000	32	170000	170000	170000	ID		
Vinyl chloride	ug/L	2	2	13	1100	13000	2760000	33000		
Xylenes (total)	ug/L	280	280	49	190000	190000	186000	70000	10000	10000

Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
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Sample Location		EGLE Generic Groundwater Cleanup Criteria: Residential and Nonresidential ⁽¹⁾							EGLE ⁽²⁾	
Sample Identification		Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface ⁽⁴⁾	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Water Solubility	Flammability and Explosivity Screening Levels	Residential Health-Based Drinking Water	Nonresidential Health-Based Drinking Water
Sample Date	Sample Type	a	b	c	d	e	f	g	i	j
Semi-Volatile Organic Compounds (SVOCs)										
1,4-Dioxane	ug/L	7.2	350	280	NLV	NLV	900000000	140000000		
Metals										
Aluminum	ug/L	50	50		NLV	NLV		ID	300	4100
Aluminum (dissolved)	ug/L	50	50		NLV	NLV		ID	300	4100
Lead	ug/L	4	4	58	NLV	NLV		ID	15	15
Lead (dissolved)	ug/L	4	4	58	NLV	NLV		ID	15	15
Vanadium	ug/L	4.5	62	27	NLV	NLV		ID		
Vanadium (dissolved)	ug/L	4.5	62	27	NLV	NLV		ID		

Notes:

(1) EGLE - Michigan Department of Environment, Great Lakes and Energy (EGLE) Generic cleanup criteria for residential and nonresidential category, administrative rule R 299.44 effective December 30, 2013, pursuant to Part 201 of 1994 PA 451 as amended. Criteria table dated January 10, 2018; GSI Criteria updated June 25, 2018.

(2) EGLE R 299.49 Footnote for Generic Cleanup Criteria Tables, Footnote E

(3) EGLE Site-Specific Volatilization to Indoor Air Criteria (VIAC) for M1 Concourse Phase 4 - Building 16, March 2020.

(4) A hardness of 300 mg/L and pH of 7.4 was assumed, where required, to calculate Site-specific Groundwater Surface Water Interface (GSI) Criteria . Hardness and pH were approximated using EGLE's Water Chemistry Monitoring Program Report, dated November 2019. Calculated utilizing EGLE's "Footnote 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).

(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

(EE) - The acceptable air concentration (AAC) for the volatile hazardous substances is not derived using standard methods. 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

(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.

U - Not detected at the associated reporting limit.

J - Estimated concentration.

NLV - means hazardous substance is not likely to volatilize under most conditions.

ID - means insufficient data to develop criterion.

- Indicates concentration exceeded criteria

Table 4

RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		SSVIAC ⁽³⁾		MW-2-07	MW-10-07	MW-21-07	MW-33-07
Sample Identification		Table 1 - NonResidential	Table 2 - Residential	GW-11223416-041522-SK-005	GW-11223416-042122-SK-015	GW-11223416-042222-SK-020	GW-11223416-042122-SK-016
Sample Date		Volatilization to Indoor Air	Volatilization to Indoor Air	04/15/2022	04/21/2022	04/22/2022	04/21/2022
Sample Type		<50,000 ft², slab-on-grade	Basement				
	Units	m	n				
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	ug/L	190000 (EE) st	11000 (EE) st	1.0 U	--	--	--
1,1,2,2-Tetrachloroethane	ug/L	1900 ca	59 ca	1.0 U	--	--	--
1,1,2-Trichloroethane	ug/L	190 nc	9.9 nc	1.0 U	--	--	--
1,1-Dichloroethane	ug/L	2500 ca	81 ca	1.0 U	--	--	--
1,1-Dichloroethene	ug/L	3900 nc	200 nc	1.0 U	--	--	--
1,2,4-Trichlorobenzene	ug/L			1.0 U	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L			2.0 U	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	ug/L	120 ca	3.6 ca	1.0 U	--	--	--
1,2-Dichlorobenzene	ug/L			1.0 U	--	--	--
1,2-Dichloroethane	ug/L	770 ca	25 ca	1.0 U	--	--	--
1,2-Dichloropropane	ug/L			1.0 U	--	--	--
1,3-Dichlorobenzene	ug/L			1.0 U	--	--	--
1,4-Dichlorobenzene	ug/L			1.0 U	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L			10 U	--	--	--
2-Hexanone	ug/L			10 U	--	--	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L			10 U	--	--	--
Acetone	ug/L			10 U	--	--	--
Benzene	ug/L	520 ca	17 ca	1.0 U	--	--	--
Bromodichloromethane	ug/L			1.0 U	--	--	--
Bromoform	ug/L			1.0 U	--	--	--
Bromomethane (Methyl bromide)	ug/L			1.0 U	--	--	--
Carbon disulfide	ug/L			1.0 U	--	--	--
Carbon tetrachloride	ug/L			1.0 U	--	--	--
Chlorobenzene	ug/L	13000 nc	660 nc	1.0 U	--	--	--
Chloroethane	ug/L	150000 nc	8000 nc	1.0 U	--	--	--
Chloroform (Trichloromethane)	ug/L	280 ca	9.2 ca	1.0 U	--	--	--
Chloromethane (Methyl chloride)	ug/L	3500 nc	180 nc	1.0 U	--	--	--
cis-1,2-Dichloroethene	ug/L	1100 nc	58 nc	1.0 U	--	--	--
cis-1,3-Dichloropropene	ug/L			1.0 U	--	--	--
Cyclohexane	ug/L	25000 nc	1300 nc	1.0 U	--	--	--
Dibromochloromethane	ug/L			1.0 U	--	--	--
Dichlorodifluoromethane (CFC-12)	ug/L			1.0 U	--	--	--
Ethylbenzene	ug/L	1700 ca	55 ca	1.0 U	--	--	--
Isopropyl benzene	ug/L	380 ca	12 ca	1.0 U	--	--	--
Methyl acetate	ug/L			10 U	--	--	--
Methyl cyclohexane	ug/L			1.0 U	--	--	--
Methyl tert butyl ether (MTBE)	ug/L	150000 ca	4900 ca	1.0 U	--	--	--
Methylene chloride	ug/L			5.0 U	--	--	--
Styrene	ug/L	21000 ca	680 ca	1.0 U	--	--	--
Tetrachloroethene	ug/L	1600 (EE) st	120 (EE) st	1.0 U	--	--	--
Toluene	ug/L	520000 (EE) st	28000 nc	1.0 U	--	--	--
trans-1,2-Dichloroethene	ug/L	4600 nc	240 nc	1.0 U	--	--	--
trans-1,3-Dichloropropene	ug/L			1.0 U	--	--	--
Trichloroethene	ug/L	98 (DD) dev	7.5 (DD) dev	1.0 U	--	--	--
Trichlorofluoromethane (CFC-11)	ug/L			1.0 U	--	--	--
Trifluorotrichloroethane (CFC-113)	ug/L			1.0 U	--	--	--
Vinyl chloride	ug/L	120 ca	1.1 (MM) mut	1.0 U	--	--	--
Xylenes (total)	ug/L	28000 nc	1500 nc	2.0 U	--	--	--

Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location	SSVIAC ⁽³⁾		MW-2-07	MW-10-07	MW-21-07	MW-33-07
Sample Identification	Table 1 - NonResidential	Table 2 - Residential	GW-11223416-041522-SK-005	GW-11223416-042122-SK-015	GW-11223416-042222-SK-020	GW-11223416-042122-SK-016
Sample Date	Volatilization to Indoor Air	Volatilization to Indoor Air	04/15/2022	04/21/2022	04/22/2022	04/21/2022
Sample Type	<50,000 ft ² , slab-on-grade	Basement				
	m	n				
Semi-Volatile Organic Compounds (SVOCs)						
1,4-Dioxane	ug/L		--	--	--	--
Metals						
Aluminum	ug/L		--	160 ^{ab}	1200 ^{abi}	50 U
Aluminum (dissolved)	ug/L		--	51 ^{ab}	--	50 U
Lead	ug/L		--	1.0 U	6.3 ^{ab}	1.0 U
Lead (dissolved)	ug/L		--	1.0 U	--	1.0 U
Vanadium	ug/L		--	4.0 U	1.7 J	4.0 U
Vanadium (dissolved)	ug/L		--	4.0 U	--	4.0 U

Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-33-07	MW-38-07	MW-48-22R	MW-64-08	MW-68-08	MW-74-22R
Sample Identification		GW-11223416-042122-SK-017	GW-11223416-042222-SK-021	GW-11223416-042222-SK-023	GW-11223416-041922-SK-013	GW-11223416-041522-SK-001	GW-11223416-042122-SK-018
Sample Date		04/21/2022	04/22/2022	04/22/2022	04/19/2022	04/15/2022	04/21/2022
Sample Type		Duplicate					
Units							
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	15
1,1,2,2-Tetrachloroethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	--	--	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	--	--	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	--	--	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	--	--	10 U	10 U	10 U	10 U
Acetone	ug/L	--	--	10 U	10 U	10 U	10 U
Benzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	--	--	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	--	--	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	--	--	1.0 U	1.0 U	1.0 U	44 ^{abn}
Trichlorofluoromethane (CFC-11)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	--	--	2.0 U	2.0 U	2.0 U	2.0 U

Table 4
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Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-33-07	MW-38-07	MW-48-22R	MW-64-08	MW-68-08	MW-74-22R
Sample Identification		GW-11223416-042122-SK-017	GW-11223416-042222-SK-021	GW-11223416-042222-SK-023	GW-11223416-041922-SK-013	GW-11223416-041522-SK-001	GW-11223416-042122-SK-018
Sample Date		04/21/2022	04/22/2022	04/22/2022	04/19/2022	04/15/2022	04/21/2022
Sample Type		Duplicate					
Units							
Semi-Volatile Organic Compounds (SVOCs)							
1,4-Dioxane	ug/L	--	--	--	--	--	1.0 U
Metals							
Aluminum	ug/L	50 U	50 U	--	--	--	--
Aluminum (dissolved)	ug/L	50 U	50 U	--	--	--	--
Lead	ug/L	1.0 U	1.0 U	--	--	--	--
Lead (dissolved)	ug/L	1.0 U	1.0 U	--	--	--	--
Vanadium	ug/L	4.0 U	4.0 U	--	--	--	--
Vanadium (dissolved)	ug/L	4.0 U	4.0 U	--	--	--	--

Notes:



Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-74-22R	MW-74D-22R	MW-79D-19	MW-79D-19	MW-79D-19	MW-79I-19
Sample Identification		GW-11223416-042122-SK-019	GW-11223416-041522-SK-006	GW-11223416-092421-SK-002	GW-11223416-092421-SK-003	GW-11223416-041522-SK-004	GW-11223416-092421-SK-001
Sample Date		04/21/2022	04/15/2022	09/24/2021	09/24/2021	04/15/2022	09/24/2021
Sample Type		Duplicate			Duplicate		
Units							
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	ug/L	11	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 UJ
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	34 ^{abn}	0.57 J	1.0 U	1.0 U	1.0 U	0.73 J
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-74-22R	MW-74D-22R	MW-79D-19	MW-79D-19	MW-79D-19	MW-79I-19
Sample Identification		GW-11223416-042122-SK-019	GW-11223416-041522-SK-006	GW-11223416-092421-SK-002	GW-11223416-092421-SK-003	GW-11223416-041522-SK-004	GW-11223416-092421-SK-001
Sample Date		04/21/2022	04/15/2022	09/24/2021	09/24/2021	04/15/2022	09/24/2021
Sample Type		Duplicate			Duplicate		
Units							
Semi-Volatile Organic Compounds (SVOCs)							
1,4-Dioxane	ug/L	1.0 U	--	--	--	--	--
Metals							
Aluminum	ug/L	--	--	--	--	--	--
Aluminum (dissolved)	ug/L	--	--	--	--	--	--
Lead	ug/L	--	--	--	--	--	--
Lead (dissolved)	ug/L	--	--	--	--	--	--
Vanadium	ug/L	--	--	--	--	--	--
Vanadium (dissolved)	ug/L	--	--	--	--	--	--

Notes:



Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-79I-19	MW-79I-19	MW-80-12	MW-81-12	MW-85-12	MW-87-12
Sample Identification		GW-11223416-041522-SK-002	GW-11223416-041522-SK-003	GW-11223416-041822-SK-008	GW-11223416-041922-SK-014	GW-11223416-041922-SK-012	GW-11223416-041822-SK-007
Sample Date		04/15/2022	04/15/2022	04/18/2022	04/19/2022	04/19/2022	04/18/2022
Sample Type			Duplicate				
Units							
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	0.71 J	0.68 J	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	0.58 J	0.61 J	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 J

Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-79I-19	MW-79I-19	MW-80-12	MW-81-12	MW-85-12	MW-87-12
Sample Identification		GW-11223416-041522-SK-002	GW-11223416-041522-SK-003	GW-11223416-041822-SK-008	GW-11223416-041922-SK-014	GW-11223416-041922-SK-012	GW-11223416-041822-SK-007
Sample Date		04/15/2022	04/15/2022	04/18/2022	04/19/2022	04/19/2022	04/18/2022
Sample Type			Duplicate				
Units							
Semi-Volatile Organic Compounds (SVOCs)							
1,4-Dioxane	ug/L	--	--	--	--	--	--
Metals							
Aluminum	ug/L	--	--	--	--	--	--
Aluminum (dissolved)	ug/L	--	--	--	--	--	--
Lead	ug/L	--	--	--	--	--	--
Lead (dissolved)	ug/L	--	--	--	--	--	--
Vanadium	ug/L	--	--	--	--	--	--
Vanadium (dissolved)	ug/L	--	--	--	--	--	--

Notes:



Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-88-22R	MW-92I-13	MW-92S-13	MW-93I-13
Sample Identification		GW-11223416-042222-SK-022	GW-11223416-041822-SK-011	GW-11223416-041822-SK-010	GW-11223416-041822-SK-009
Sample Date		04/22/2022	04/18/2022	04/18/2022	04/18/2022
Sample Type					
	Units				
Volatile Organic Compounds (VOCs)					
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	10 U	10 U
Acetone	ug/L	5.8 J	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U

Table 4
RACER PCC Validation
Groundwater Analytical Results - September 2021 through April 2022
Pontica Michigan

Sample Location		MW-88-22R	MW-92I-13	MW-92S-13	MW-93I-13
Sample Identification		GW-11223416-042222-SK-022	GW-11223416-041822-SK-011	GW-11223416-041822-SK-010	GW-11223416-041822-SK-009
Sample Date		04/22/2022	04/18/2022	04/18/2022	04/18/2022
Sample Type					
Units					
Semi-Volatile Organic Compounds (SVOCs)					
1,4-Dioxane	ug/L	--	--	--	--
Metals					
Aluminum	ug/L	--	--	--	--
Aluminum (dissolved)	ug/L	--	--	--	--
Lead	ug/L	--	--	--	--
Lead (dissolved)	ug/L	--	--	--	--
Vanadium	ug/L	--	--	--	--
Vanadium (dissolved)	ug/L	--	--	--	--

Notes:



Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-07	MW-48-07	MW-48-07	MW-48-07
Sample Identification		GW-17322-040808-CB-006	GW-17322-040808-CB-007	GW-17322-020113-DR-019	GW-17322-040615-DN-001
Sample Date		04/08/2008	04/08/2008	02/01/2013	04/06/2015
Sample Type			Duplicate		
	Units				
Field Parameters					
Conductivity, field	umhos/cm	4.8	4.8	--	--
Dissolved oxygen (DO), field	ug/L	1170	1170	--	--
Oxidation reduction potential (ORP), field	millivolts	-158	-158	--	--
pH, field	s.u.	7.14	7.14	--	--
Temperature, ambient	Deg F	50	50	--	--
Temperature, field	Deg C	10	10	--	--
Turbidity, field	NTU	3.87	3.87	--	--
Metals					
Aluminum	ug/L	22.5 J	26.2 J	--	--
Antimony	ug/L	2.0 U	2.0 U	--	--
Arsenic	ug/L	5.0 U	5.0 U	--	--
Barium	ug/L	299	293	--	--
Beryllium	ug/L	1.0 U	1.0 U	--	--
Cadmium	ug/L	1.0 U	1.0 U	--	--
Calcium	ug/L	143000	142000	--	--
Chromium	ug/L	5.0 U	5.0 U	--	--
Chromium III (trivalent)	ug/L	5 U	5 U	--	--
Chromium VI (hexavalent)	ug/L	10 U	10 U	--	--
Cobalt	ug/L	7.0 U	7.0 U	--	--
Copper	ug/L	2.0 U	2.0 U	--	--
Iron	ug/L	7670	7880	--	--
Lead	ug/L	3.0 U	3.0 U	--	--
Magnesium	ug/L	33500	33000	--	--
Manganese	ug/L	324	323	--	--
Mercury	ug/L	0.20 U	0.20 U	--	--
Nickel	ug/L	20.0 U	20.0 U	--	--
Potassium	ug/L	6790 J	6700 J	--	--
Selenium	ug/L	5.0 U	5.0 U	--	--
Silver	ug/L	0.20 U	0.20 U	--	--
Sodium	ug/L	730000	716000	--	--
Thallium	ug/L	1.0 U	1.0 U	--	--
Vanadium	ug/L	4.0 U	4.0 U	--	--
Zinc	ug/L	20.0 U	20.0 U	--	--
PCBs					
Aroclor-1016 (PCB-1016)	ug/L	0.10 U	0.10 U	--	--
Aroclor-1221 (PCB-1221)	ug/L	0.10 U	0.10 U	--	--
Aroclor-1232 (PCB-1232)	ug/L	0.10 U	0.10 U	--	--
Aroclor-1242 (PCB-1242)	ug/L	0.10 U	0.10 U	--	--
Aroclor-1248 (PCB-1248)	ug/L	0.10 U	0.10 U	--	--
Aroclor-1254 (PCB-1254)	ug/L	0.10 U	0.10 U	--	--
Aroclor-1260 (PCB-1260)	ug/L	0.10 U	0.10 U	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-07	MW-48-07	MW-48-07	MW-48-07
Sample Identification		GW-17322-040808-CB-006	GW-17322-040808-CB-007	GW-17322-020113-DR-019	GW-17322-040615-DN-001
Sample Date		04/08/2008	04/08/2008	02/01/2013	04/06/2015
Sample Type			Duplicate		
Total PCBs	Units ug/L	0.10 U	0.10 U	--	--
Semi-Volatile Organic Compounds (SVOCs)					
1,4-Dioxane	ug/L	--	--	--	--
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	1.0 U	1.0 U	5.0 U	--
2,4,5-Trichlorophenol	ug/L	5.0 U	5.0 U	5.0 U	--
2,4,6-Trichlorophenol	ug/L	4.0 U	4.0 U	4.0 U	--
2,4-Dichlorophenol	ug/L	2.0 U	2.0 U	10 U	--
2,4-Dimethylphenol	ug/L	2.0 U	2.0 U	5.0 U	--
2,4-Dinitrophenol	ug/L	5.0 U	5.0 U	5.0 U	--
2,4-Dinitrotoluene	ug/L	5.0 U	5.0 U	5.0 U	--
2,6-Dinitrotoluene	ug/L	5.0 U	5.0 U	5.0 U	--
2-Chloronaphthalene	ug/L	1.0 U	1.0 U	5.0 U	--
2-Chlorophenol	ug/L	1.0 U	1.0 U	5.0 U	--
2-Methylnaphthalene	ug/L	0.20 U	0.20 U	5.0 U	--
2-Methylphenol	ug/L	1.0 U	1.0 U	5.0 U	--
2-Nitroaniline	ug/L	2.0 U	2.0 U	20 U	--
2-Nitrophenol	ug/L	2.0 U	2.0 U	5.0 U	--
3,3'-Dichlorobenzidine	ug/L	1.0 U	1.0 U	1.0 U	--
3-Nitroaniline	ug/L	2.0 U	2.0 U	20 U	--
4,6-Dinitro-2-methylphenol	ug/L	5.0 U	5.0 U	20 U	--
4-Bromophenyl phenyl ether	ug/L	2.0 U	2.0 U	5.0 U	--
4-Chloro-3-methylphenol	ug/L	2.0 U	2.0 U	5.0 U	--
4-Chloroaniline	ug/L	2.0 U	2.0 U	10 U	--
4-Chlorophenyl phenyl ether	ug/L	2.0 U	2.0 U	5.0 U	--
4-Methylphenol	ug/L	1.0 U	1.0 U	5.0 U	--
4-Nitroaniline	ug/L	2.0 U	2.0 U	20 U	--
4-Nitrophenol	ug/L	5.0 U	5.0 U	20 U	--
Acenaphthene	ug/L	0.20 U	0.20 U	5.0 U	--
Acenaphthylene	ug/L	0.20 U	0.20 U	5.0 U	--
Acetophenone	ug/L	1.0 U	1.0 U	1.0 U	--
Anthracene	ug/L	0.20 U	0.20 U	5.0 U	--
Atrazine	ug/L	1.0 U	1.0 U	3.0 U	--
Benzaldehyde	ug/L	1.0 U	1.0 U	1.0 U	--
Benzo(a)anthracene	ug/L	0.20 U	0.20 U	1.0 U	--
Benzo(a)pyrene	ug/L	0.20 U	0.20 U	1.0 U	--
Benzo(b)fluoranthene	ug/L	0.20 U	0.20 U	1.0 U	--
Benzo(g,h,i)perylene	ug/L	0.20 U	0.20 U	1.0 U	--
Benzo(k)fluoranthene	ug/L	0.20 U	0.20 U	1.0 U	--
Biphenyl (1,1-Biphenyl)	ug/L	1.0 U	1.0 U	5.0 U	--
bis(2-Chloroethoxy)methane	ug/L	1.0 U	1.0 U	5.0 U	--
bis(2-Chloroethyl)ether	ug/L	1.0 U	1.0 U	1.0 U	--
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	1.0 U	1.0 U	5.0 U	--
Butyl benzylphthalate (BBP)	ug/L	1.0 U	1.0 U	5.0 U	--
Caprolactam	ug/L	5.0 UJ	5.0 UJ	10 U	--
Carbazole	ug/L	1.0 U	1.0 U	10 U	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-07	MW-48-07	MW-48-07	MW-48-07
Sample Identification		GW-17322-040808-CB-006	GW-17322-040808-CB-007	GW-17322-020113-DR-019	GW-17322-040615-DN-001
Sample Date		04/08/2008	04/08/2008	02/01/2013	04/06/2015
Sample Type			Duplicate		
	Units				
Chrysene	ug/L	0.20 U	0.20 U	1.0 U	--
Dibenz(a,h)anthracene	ug/L	0.20 U	0.20 U	2.0 U	--
Dibenzofuran	ug/L	1.0 U	1.0 U	4.0 U	--
Diethyl phthalate	ug/L	1.0 U	1.0 U	5.0 U	--
Dimethyl phthalate	ug/L	1.0 U	1.0 U	5.0 U	--
Di-n-butylphthalate (DBP)	ug/L	1.0 U	1.0 U	5.0 U	--
Di-n-octyl phthalate (DnOP)	ug/L	1.0 U	1.0 U	5.0 U	--
Fluoranthene	ug/L	0.24	0.20 U	1.0 U	--
Fluorene	ug/L	0.20 U	0.20 U	5.0 U	--
Hexachlorobenzene	ug/L	0.20 U	0.20 U	1.0 U	--
Hexachlorobutadiene	ug/L	1.0 U	1.0 U	1.0 U	--
Hexachlorocyclopentadiene	ug/L	5.0 U	5.0 U	5.0 U	--
Hexachloroethane	ug/L	1.0 U	1.0 U	5.0 U	--
Indeno(1,2,3-cd)pyrene	ug/L	0.20 U	0.20 U	2.0 U	--
Isophorone	ug/L	1.0 U	1.0 U	5.0 U	--
Naphthalene	ug/L	0.20 U	0.20 U	5.0 U	--
Nitrobenzene	ug/L	1.0 U	1.0 U	3.0 U	--
N-Nitrosodi-n-propylamine	ug/L	1.0 U	1.0 U	5.0 U	--
N-Nitrosodiphenylamine	ug/L	1.0 U	1.0 U	5.0 U	--
Pentachlorophenol	ug/L	5.0 U	5.0 U	1.0 U	--
Phenanthrene	ug/L	0.20 U	0.20 U	2.0 U	--
Phenol	ug/L	1.0 U	1.0 U	5.0 U	--
Pyrene	ug/L	0.20 U	0.20 U	5.0 U	--
Pyridine	ug/L	1.0 U	1.0 U	--	--
Volatile Organic Compounds (VOCs)					
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	0.65 J	0.68 J	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 UJ
1,2,4-Trimethylbenzene	ug/L	1.0 U	1.0 U	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	ug/L	1.0 U	1.0 U	--	--
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dioxane	ug/L	--	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	25 U	0.74 J	25 U	25 UJ
2-Hexanone	ug/L	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	50 U	50 U	50 U	50 U
Acetone	ug/L	25 U	25 UJ	50 U	50 UJ

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-07	MW-48-07	MW-48-07	MW-48-07
Sample Identification		GW-17322-040808-CB-006	GW-17322-040808-CB-007	GW-17322-020113-DR-019	GW-17322-040615-DN-001
Sample Date		04/08/2008	04/08/2008	02/01/2013	04/06/2015
Sample Type			Duplicate		
	Units				
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 UJ	5.0 U	5.0 U
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 UJ	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 UJ	5.0 U	5.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	5.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	5.0 U	5.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 UJ	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	3.0 U	3.0 U
General Chemistry					
Cyanide (amenable)	ug/L	5 U	5 U	--	--

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

¹ Well Dry During This Event. Screened interval 945.35 to 940.35ft AMSL.² Well Dry For Every Event. Screened interval 942.77 to 937.77 ft AMSL.

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-22R	MW-74-08	MW-74-08	MW-74-08
Sample Identification		GW-11223416-042222-SK-023	GW-17322-040708-CB-004	GW-17322-082812-DD-041	GW-17322-020113-DR-012
Sample Date		04/22/2022	04/07/2008	08/28/2012	02/01/2013
Sample Type					
Units					
Field Parameters					
Conductivity, field	umhos/cm	--	4.08	--	--
Dissolved oxygen (DO), field	ug/L	--	12920	--	--
Oxidation reduction potential (ORP), field	millivolts	--	-27	--	--
pH, field	s.u.	--	7.71	--	--
Temperature, ambient	Deg F	--	50	--	--
Temperature, field	Deg C	--	15.5	--	--
Turbidity, field	NTU	--	40.9	--	--
Metals					
Aluminum	ug/L	--	459	--	--
Antimony	ug/L	--	0.51 J	--	--
Arsenic	ug/L	--	5.0 U	--	--
Barium	ug/L	--	90.8 J	--	--
Beryllium	ug/L	--	1.0 U	--	--
Cadmium	ug/L	--	1.0 U	--	--
Calcium	ug/L	--	118000	--	--
Chromium	ug/L	--	2.4 J	--	--
Chromium III (trivalent)	ug/L	--	5 U	--	--
Chromium VI (hexavalent)	ug/L	--	10 U	--	--
Cobalt	ug/L	--	13.3	--	--
Copper	ug/L	--	4.1	--	--
Iron	ug/L	--	1250	--	--
Lead	ug/L	--	3.0 U	--	--
Magnesium	ug/L	--	29800	--	--
Manganese	ug/L	--	475	--	--
Mercury	ug/L	--	0.20 U	--	--
Nickel	ug/L	--	8.6 J	--	--
Potassium	ug/L	--	5990 J	--	--
Selenium	ug/L	--	5.0 U	--	--
Silver	ug/L	--	0.20 U	--	--
Sodium	ug/L	--	593000	--	--
Thallium	ug/L	--	1.0 U	--	--
Vanadium	ug/L	--	4.0 U	--	--
Zinc	ug/L	--	31.4	--	--
PCBs					
Aroclor-1016 (PCB-1016)	ug/L	--	0.10 U	--	--
Aroclor-1221 (PCB-1221)	ug/L	--	0.10 U	--	--
Aroclor-1232 (PCB-1232)	ug/L	--	0.10 U	--	--
Aroclor-1242 (PCB-1242)	ug/L	--	0.10 U	--	--
Aroclor-1248 (PCB-1248)	ug/L	--	0.10 U	--	--
Aroclor-1254 (PCB-1254)	ug/L	--	0.10 U	--	--
Aroclor-1260 (PCB-1260)	ug/L	--	0.10 U	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-22R	MW-74-08	MW-74-08	MW-74-08
Sample Identification		GW-11223416-042222-SK-023	GW-17322-040708-CB-004	GW-17322-082812-DD-041	GW-17322-020113-DR-012
Sample Date		04/22/2022	04/07/2008	08/28/2012	02/01/2013
Sample Type					
Total PCBs	Units ug/L	--	0.10 U	--	--
Semi-Volatile Organic Compounds (SVOCs)					
1,4-Dioxane	ug/L	--	--	--	--
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	--	1.8 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	ug/L	--	9.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	ug/L	--	7.2 U	5.0 U	4.0 U
2,4-Dichlorophenol	ug/L	--	3.6 U	10 U	10 U
2,4-Dimethylphenol	ug/L	--	3.6 U	5.0 U	5.0 U
2,4-Dinitrophenol	ug/L	--	9.0 U	5.0 U	5.0 U
2,4-Dinitrotoluene	ug/L	--	9.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	ug/L	--	9.0 U	5.0 U	5.0 U
2-Chloronaphthalene	ug/L	--	1.8 U	5.0 U	5.0 U
2-Chlorophenol	ug/L	--	1.8 U	5.0 U	5.0 U
2-Methylnaphthalene	ug/L	--	0.36 U	5.0 U	5.0 U
2-Methylphenol	ug/L	--	1.8 U	5.0 U	5.0 U
2-Nitroaniline	ug/L	--	3.6 U	20 U	20 U
2-Nitrophenol	ug/L	--	3.6 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	ug/L	--	1.8 U	5.0 U	1.0 U
3-Nitroaniline	ug/L	--	3.6 U	20 U	20 U
4,6-Dinitro-2-methylphenol	ug/L	--	9.0 U	20 U	20 U
4-Bromophenyl phenyl ether	ug/L	--	3.6 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	ug/L	--	3.6 U	5.0 U	5.0 U
4-Chloroaniline	ug/L	--	3.6 U	20 U	10 U
4-Chlorophenyl phenyl ether	ug/L	--	3.6 U	5.0 U	5.0 U
4-Methylphenol	ug/L	--	1.8 U	5.0 U	5.0 U
4-Nitroaniline	ug/L	--	3.6 U	20 U	20 U
4-Nitrophenol	ug/L	--	9.0 U	20 U	20 U
Acenaphthene	ug/L	--	0.66	5.0 U	5.0 U
Acenaphthylene	ug/L	--	0.36 U	5.0 U	5.0 U
Acetophenone	ug/L	--	1.8 U	1.0 U	1.0 U
Anthracene	ug/L	--	1.3	5.0 U	5.0 U
Atrazine	ug/L	--	1.8 U	10 U	3.0 U
Benzaldehyde	ug/L	--	1.8 U	1.0 U	1.0 U
Benzo(a)anthracene	ug/L	--	3.4	5.0 U	1.0 U
Benzo(a)pyrene	ug/L	--	3.3	5.0 U	1.0 U
Benzo(b)fluoranthene	ug/L	--	4.1	5.0 U	1.0 U
Benzo(g,h,i)perylene	ug/L	--	2.2	5.0 U	1.0 U
Benzo(k)fluoranthene	ug/L	--	1.7	5.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	ug/L	--	1.8 U	5.0 U	5.0 U
bis(2-Chloroethoxy)methane	ug/L	--	1.8 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	ug/L	--	1.8 U	5.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	--	0.90 J	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	ug/L	--	1.8 U	5.0 U	5.0 U
Caprolactam	ug/L	--	9.0 UJ	10 U	10 U
Carbazole	ug/L	--	0.97 J	10 U	10 U

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-22R	MW-74-08	MW-74-08	MW-74-08
Sample Identification		GW-11223416-042222-SK-023	GW-17322-040708-CB-004	GW-17322-082812-DD-041	GW-17322-020113-DR-012
Sample Date		04/22/2022	04/07/2008	08/28/2012	02/01/2013
Sample Type					
	Units				
Chrysene	ug/L	--	3.3	5.0 U	1.0 U
Dibenz(a,h)anthracene	ug/L	--	0.61	5.0 U	2.0 U
Dibenzofuran	ug/L	--	1.8 U	5.0 U	4.0 U
Diethyl phthalate	ug/L	--	1.8 U	20 U	5.0 U
Dimethyl phthalate	ug/L	--	1.8 U	20 U	5.0 U
Di-n-butylphthalate (DBP)	ug/L	--	0.73 J	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	ug/L	--	1.8 U	5.0 U	5.0 U
Fluoranthene	ug/L	--	8.4	5.0 U	1.0 U
Fluorene	ug/L	--	0.72	5.0 U	5.0 U
Hexachlorobenzene	ug/L	--	0.36 U	5.0 U	1.0 U
Hexachlorobutadiene	ug/L	--	1.8 U	5.0 U	1.0 U
Hexachlorocyclopentadiene	ug/L	--	9.0 U	20 U	5.0 U
Hexachloroethane	ug/L	--	1.8 U	5.0 U	5.0 U
Indeno(1,2,3-cd)pyrene	ug/L	--	2.0	5.0 U	2.0 U
Isophorone	ug/L	--	1.8 U	5.0 U	5.0 U
Naphthalene	ug/L	--	0.36 U	5.0 U	5.0 U
Nitrobenzene	ug/L	--	1.8 U	5.0 U	3.0 U
N-Nitrosodi-n-propylamine	ug/L	--	1.8 U	5.0 U	5.0 U
N-Nitrosodiphenylamine	ug/L	--	1.8 U	5.0 U	5.0 U
Pentachlorophenol	ug/L	--	9.0 U	20 U	1.0 U
Phenanthrene	ug/L	--	5.8	5.0 U	2.0 U
Phenol	ug/L	--	1.8 U	5.0 U	5.0 U
Pyrene	ug/L	--	6.3	5.0 U	5.0 U
Pyridine	ug/L	--	1.8 U	--	--
Volatile Organic Compounds (VOCs)					
1,1,1-Trichloroethane	ug/L	1.0 U	1000	750	250
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	230	54	30 J
1,1-Dichloroethene	ug/L	1.0 U	57 J	18	17 J
1,2,4-Trichlorobenzene	ug/L	1.0 U	380 U	25 U	5.0 U
1,2,4-Trimethylbenzene	ug/L	--	77 U	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	77 U	5.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,3,5-Trimethylbenzene	ug/L	--	77 U	--	--
1,3-Dichlorobenzene	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	77 U	5.0 U	1.0 U
1,4-Dioxane	ug/L	--	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	1900 U	120 U	25 U
2-Hexanone	ug/L	10 U	3800 U	250 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	3800 U	250 U	50 U
Acetone	ug/L	10 U	1900 UJ	250 U	50 U

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-48-22R	MW-74-08	MW-74-08	MW-74-08
Sample Identification		GW-11223416-042222-SK-023	GW-17322-040708-CB-004	GW-17322-082812-DD-041	GW-17322-020113-DR-012
Sample Date		04/22/2022	04/07/2008	08/28/2012	02/01/2013
Sample Type					
	Units				
Benzene	ug/L	1.0 U	77 U	5.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	77 U	5.0 U	1.0 U
Bromoform	ug/L	1.0 U	77 U	5.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	77 U	25 U	5.0 U
Carbon disulfide	ug/L	1.0 U	380 U	25 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	77 U	5.0 U	1.0 UJ
Chlorobenzene	ug/L	1.0 U	77 U	5.0 U	1.0 U
Chloroethane	ug/L	1.0 U	77 UJ	25 U	5.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	17 J	7.2	5.5 J
Chloromethane (Methyl chloride)	ug/L	1.0 U	77 UJ	25 U	5.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	76 J	26	13 J
cis-1,3-Dichloropropene	ug/L	1.0 U	77 UJ	5.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	77 U	5.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	77 U	25 U	5.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	77 U	25 U	5.0 U
Ethylbenzene	ug/L	1.0 U	77 U	5.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	380 U	25 U	5.0 U
Methyl acetate	ug/L	10 U	770 U	50 U	10 U
Methyl cyclohexane	ug/L	1.0 U	77 U	5.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	380 U	25 U	5.0 U
Methylene chloride	ug/L	5.0 U	380 U	25 U	5.0 U
Styrene	ug/L	1.0 U	77 U	5.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	77 UJ	5.0 U	1.0 U
Toluene	ug/L	1.0 U	77 U	5.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	77 U	5.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	77 UJ	5.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	2100	2100	750
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	77 UJ	5.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	77 U	5.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	77 U	5.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	150 U	15 U	3.0 U
General Chemistry					
Cyanide (amenable)	ug/L	--	14	--	--

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

¹ Well Dry During This Event. Screened interval 945.35 to 940.35ft AMSL.² Well Dry For Every Event. Screened interval 942.77 to 937.77 ft AMSL.

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74-08	MW-74-08	MW-74-22R	MW-74-22R
Sample Identification		GW-17322-072914-DN-04	GW-17322-040615-DN-006	GW-11223416-042122-SK-018	GW-11223416-042122-SK-019
Sample Date		07/29/2014	04/06/2015	04/21/2022	04/21/2022
Sample Type					Duplicate
Units					
Field Parameters					
Conductivity, field	umhos/cm	--	--	--	--
Dissolved oxygen (DO), field	ug/L	--	--	--	--
Oxidation reduction potential (ORP), field	millivolts	--	--	--	--
pH, field	s.u.	--	--	--	--
Temperature, ambient	Deg F	--	--	--	--
Temperature, field	Deg C	--	--	--	--
Turbidity, field	NTU	--	--	--	--
Metals					
Aluminum	ug/L	--	--	--	--
Antimony	ug/L	--	--	--	--
Arsenic	ug/L	--	--	--	--
Barium	ug/L	--	--	--	--
Beryllium	ug/L	--	--	--	--
Cadmium	ug/L	--	--	--	--
Calcium	ug/L	--	--	--	--
Chromium	ug/L	--	--	--	--
Chromium III (trivalent)	ug/L	--	--	--	--
Chromium VI (hexavalent)	ug/L	--	--	--	--
Cobalt	ug/L	--	--	--	--
Copper	ug/L	--	--	--	--
Iron	ug/L	--	--	--	--
Lead	ug/L	--	--	--	--
Magnesium	ug/L	--	--	--	--
Manganese	ug/L	--	--	--	--
Mercury	ug/L	--	--	--	--
Nickel	ug/L	--	--	--	--
Potassium	ug/L	--	--	--	--
Selenium	ug/L	--	--	--	--
Silver	ug/L	--	--	--	--
Sodium	ug/L	--	--	--	--
Thallium	ug/L	--	--	--	--
Vanadium	ug/L	--	--	--	--
Zinc	ug/L	--	--	--	--
PCBs					
Aroclor-1016 (PCB-1016)	ug/L	--	--	--	--
Aroclor-1221 (PCB-1221)	ug/L	--	--	--	--
Aroclor-1232 (PCB-1232)	ug/L	--	--	--	--
Aroclor-1242 (PCB-1242)	ug/L	--	--	--	--
Aroclor-1248 (PCB-1248)	ug/L	--	--	--	--
Aroclor-1254 (PCB-1254)	ug/L	--	--	--	--
Aroclor-1260 (PCB-1260)	ug/L	--	--	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74-08	MW-74-08	MW-74-22R	MW-74-22R
Sample Identification		GW-17322-072914-DN-04	GW-17322-040615-DN-006	GW-11223416-042122-SK-018	GW-11223416-042122-SK-019
Sample Date		07/29/2014	04/06/2015	04/21/2022	04/21/2022
Sample Type					Duplicate
Total PCBs	Units ug/L	--	--	--	--
Semi-Volatile Organic Compounds (SVOCs)					
1,4-Dioxane	ug/L	--	--	1.0 U	1.0 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	--	--	--	--
2,4,5-Trichlorophenol	ug/L	--	--	--	--
2,4,6-Trichlorophenol	ug/L	--	--	--	--
2,4-Dichlorophenol	ug/L	--	--	--	--
2,4-Dimethylphenol	ug/L	--	--	--	--
2,4-Dinitrophenol	ug/L	--	--	--	--
2,4-Dinitrotoluene	ug/L	--	--	--	--
2,6-Dinitrotoluene	ug/L	--	--	--	--
2-Chloronaphthalene	ug/L	--	--	--	--
2-Chlorophenol	ug/L	--	--	--	--
2-Methylnaphthalene	ug/L	--	--	--	--
2-Methylphenol	ug/L	--	--	--	--
2-Nitroaniline	ug/L	--	--	--	--
2-Nitrophenol	ug/L	--	--	--	--
3,3'-Dichlorobenzidine	ug/L	--	--	--	--
3-Nitroaniline	ug/L	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/L	--	--	--	--
4-Bromophenyl phenyl ether	ug/L	--	--	--	--
4-Chloro-3-methylphenol	ug/L	--	--	--	--
4-Chloroaniline	ug/L	--	--	--	--
4-Chlorophenyl phenyl ether	ug/L	--	--	--	--
4-Methylphenol	ug/L	--	--	--	--
4-Nitroaniline	ug/L	--	--	--	--
4-Nitrophenol	ug/L	--	--	--	--
Acenaphthene	ug/L	--	--	--	--
Acenaphthylene	ug/L	--	--	--	--
Acetophenone	ug/L	--	--	--	--
Anthracene	ug/L	--	--	--	--
Atrazine	ug/L	--	--	--	--
Benzaldehyde	ug/L	--	--	--	--
Benzo(a)anthracene	ug/L	--	--	--	--
Benzo(a)pyrene	ug/L	--	--	--	--
Benzo(b)fluoranthene	ug/L	--	--	--	--
Benzo(g,h,i)perylene	ug/L	--	--	--	--
Benzo(k)fluoranthene	ug/L	--	--	--	--
Biphenyl (1,1-Biphenyl)	ug/L	--	--	--	--
bis(2-Chloroethoxy)methane	ug/L	--	--	--	--
bis(2-Chloroethyl)ether	ug/L	--	--	--	--
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	--	--	--	--
Butyl benzylphthalate (BBP)	ug/L	--	--	--	--
Caprolactam	ug/L	--	--	--	--
Carbazole	ug/L	--	--	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74-08	MW-74-08	MW-74-22R	MW-74-22R
Sample Identification		GW-17322-072914-DN-04	GW-17322-040615-DN-006	GW-11223416-042122-SK-018	GW-11223416-042122-SK-019
Sample Date		07/29/2014	04/06/2015	04/21/2022	04/21/2022
Sample Type					Duplicate
	Units				
Chrysene	ug/L	--	--	--	--
Dibenz(a,h)anthracene	ug/L	--	--	--	--
Dibenzofuran	ug/L	--	--	--	--
Diethyl phthalate	ug/L	--	--	--	--
Dimethyl phthalate	ug/L	--	--	--	--
Di-n-butylphthalate (DBP)	ug/L	--	--	--	--
Di-n-octyl phthalate (DnOP)	ug/L	--	--	--	--
Fluoranthene	ug/L	--	--	--	--
Fluorene	ug/L	--	--	--	--
Hexachlorobenzene	ug/L	--	--	--	--
Hexachlorobutadiene	ug/L	--	--	--	--
Hexachlorocyclopentadiene	ug/L	--	--	--	--
Hexachloroethane	ug/L	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L	--	--	--	--
Isophorone	ug/L	--	--	--	--
Naphthalene	ug/L	--	--	--	--
Nitrobenzene	ug/L	--	--	--	--
N-Nitrosodi-n-propylamine	ug/L	--	--	--	--
N-Nitrosodiphenylamine	ug/L	--	--	--	--
Pentachlorophenol	ug/L	--	--	--	--
Phenanthrene	ug/L	--	--	--	--
Phenol	ug/L	--	--	--	--
Pyrene	ug/L	--	--	--	--
Pyridine	ug/L	--	--	--	--
Volatile Organic Compounds (VOCs)					
1,1,1-Trichloroethane	ug/L	110	320	15	11
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	5.0	26	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.6	14	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	25 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	ug/L	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	5.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	ug/L	--	--	--	--
1,3-Dichlorobenzene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
1,4-Dioxane	ug/L	120 UJ	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	25 UJ	120 U	10 U	10 U
2-Hexanone	ug/L	50 U	250 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	50 U	250 U	10 U	10 U
Acetone	ug/L	50 U	250 U	10 U	10 U

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74-08	MW-74-08	MW-74-22R	MW-74-22R
Sample Identification		GW-17322-072914-DN-04	GW-17322-040615-DN-006	GW-11223416-042122-SK-018	GW-11223416-042122-SK-019
Sample Date		07/29/2014	04/06/2015	04/21/2022	04/21/2022
Sample Type					Duplicate
	Units				
Benzene	ug/L	1.0 U	3.4 J	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	5.0 U	25 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	25 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Chloroethane	ug/L	5.0 U	25 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	2.4	4.4 J	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	5.0 U	25 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	2.1	12	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	5.0 U	25 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	5.0 U	25 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	5.0 U	25 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	50 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	5.0 U	25 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	25 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	300	1100	44	34
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	5.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	3.0 U	15 U	2.0 U	2.0 U
General Chemistry					
Cyanide (amenable)	ug/L	--	--	--	--

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

¹ Well Dry During This Event. Screened interval 945.35 to 940.35ft AMSL.² Well Dry For Every Event. Screened interval 942.77 to 937.77 ft AMSL.

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74D-15	MW-74D-15	MW-74D-22R	MW-88-12
Sample Identification		GW-17322-040615-DN-005	GW-17322-051315-EM-007	GW-11223416-041522-SK-006	GW-17322-082912-DD-044
Sample Date		04/06/2015	05/13/2015	04/15/2022	08/29/2012
Sample Type					
	Units				
Field Parameters					
Conductivity, field	umhos/cm	--	--	--	--
Dissolved oxygen (DO), field	ug/L	--	--	--	--
Oxidation reduction potential (ORP), field	millivolts	--	--	--	--
pH, field	s.u.	--	--	--	--
Temperature, ambient	Deg F	--	--	--	--
Temperature, field	Deg C	--	--	--	--
Turbidity, field	NTU	--	--	--	--
Metals					
Aluminum	ug/L	--	--	--	43
Antimony	ug/L	--	--	--	0.098 J
Arsenic	ug/L	--	--	--	12
Barium	ug/L	--	--	--	85
Beryllium	ug/L	--	--	--	2 U
Cadmium	ug/L	--	--	--	0.11 J
Calcium	ug/L	--	--	--	--
Chromium	ug/L	--	--	--	5 U
Chromium III (trivalent)	ug/L	--	--	--	--
Chromium VI (hexavalent)	ug/L	--	--	--	--
Cobalt	ug/L	--	--	--	1.5 J
Copper	ug/L	--	--	--	2.1 J
Iron	ug/L	--	--	--	2600
Lead	ug/L	--	--	--	0.11 J
Magnesium	ug/L	--	--	--	--
Manganese	ug/L	--	--	--	93
Mercury	ug/L	--	--	--	0.2 U
Nickel	ug/L	--	--	--	11
Potassium	ug/L	--	--	--	--
Selenium	ug/L	--	--	--	5 U
Silver	ug/L	--	--	--	5 U
Sodium	ug/L	--	--	--	--
Thallium	ug/L	--	--	--	0.36 J
Vanadium	ug/L	--	--	--	5 U
Zinc	ug/L	--	--	--	10 U
PCBs					
Aroclor-1016 (PCB-1016)	ug/L	--	--	--	0.25 U
Aroclor-1221 (PCB-1221)	ug/L	--	--	--	0.25 U
Aroclor-1232 (PCB-1232)	ug/L	--	--	--	0.25 U
Aroclor-1242 (PCB-1242)	ug/L	--	--	--	0.25 U
Aroclor-1248 (PCB-1248)	ug/L	--	--	--	0.25 U
Aroclor-1254 (PCB-1254)	ug/L	--	--	--	0.25 U
Aroclor-1260 (PCB-1260)	ug/L	--	--	--	0.25 U

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74D-15	MW-74D-15	MW-74D-22R	MW-88-12
Sample Identification		GW-17322-040615-DN-005	GW-17322-051315-EM-007	GW-11223416-041522-SK-006	GW-17322-082912-DD-044
Sample Date		04/06/2015	05/13/2015	04/15/2022	08/29/2012
Sample Type					
Total PCBs	Units ug/L	--	--	--	0.25 U
Semi-Volatile Organic Compounds (SVOCs)					
1,4-Dioxane	ug/L	--	--	--	--
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	--	--	--	5.0 U
2,4,5-Trichlorophenol	ug/L	--	--	--	5.0 U
2,4,6-Trichlorophenol	ug/L	--	--	--	5.0 U
2,4-Dichlorophenol	ug/L	--	--	--	10 U
2,4-Dimethylphenol	ug/L	--	--	--	5.0 U
2,4-Dinitrophenol	ug/L	--	--	--	5.0 U
2,4-Dinitrotoluene	ug/L	--	--	--	5.0 U
2,6-Dinitrotoluene	ug/L	--	--	--	5.0 U
2-Chloronaphthalene	ug/L	--	--	--	5.0 U
2-Chlorophenol	ug/L	--	--	--	5.0 U
2-Methylnaphthalene	ug/L	--	--	--	29
2-Methylphenol	ug/L	--	--	--	5.0 U
2-Nitroaniline	ug/L	--	--	--	20 U
2-Nitrophenol	ug/L	--	--	--	5.0 U
3,3'-Dichlorobenzidine	ug/L	--	--	--	5.0 U
3-Nitroaniline	ug/L	--	--	--	20 U
4,6-Dinitro-2-methylphenol	ug/L	--	--	--	20 U
4-Bromophenyl phenyl ether	ug/L	--	--	--	5.0 U
4-Chloro-3-methylphenol	ug/L	--	--	--	5.0 U
4-Chloroaniline	ug/L	--	--	--	20 U
4-Chlorophenyl phenyl ether	ug/L	--	--	--	5.0 U
4-Methylphenol	ug/L	--	--	--	5.0 U
4-Nitroaniline	ug/L	--	--	--	20 U
4-Nitrophenol	ug/L	--	--	--	20 U
Acenaphthene	ug/L	--	--	--	5.0 U
Acenaphthylene	ug/L	--	--	--	5.0 U
Acetophenone	ug/L	--	--	--	1.0 U
Anthracene	ug/L	--	--	--	5.0 U
Atrazine	ug/L	--	--	--	10 U
Benzaldehyde	ug/L	--	--	--	1.0 U
Benzo(a)anthracene	ug/L	--	--	--	5.0 U
Benzo(a)pyrene	ug/L	--	--	--	5.0 U
Benzo(b)fluoranthene	ug/L	--	--	--	5.0 U
Benzo(g,h,i)perylene	ug/L	--	--	--	5.0 U
Benzo(k)fluoranthene	ug/L	--	--	--	5.0 U
Biphenyl (1,1-Biphenyl)	ug/L	--	--	--	2.2 J
bis(2-Chloroethoxy)methane	ug/L	--	--	--	5.0 U
bis(2-Chloroethyl)ether	ug/L	--	--	--	5.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	--	--	--	5.0 U
Butyl benzylphthalate (BBP)	ug/L	--	--	--	5.0 U
Caprolactam	ug/L	--	--	--	10 U
Carbazole	ug/L	--	--	--	10 U

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74D-15	MW-74D-15	MW-74D-22R	MW-88-12
Sample Identification		GW-17322-040615-DN-005	GW-17322-051315-EM-007	GW-11223416-041522-SK-006	GW-17322-082912-DD-044
Sample Date		04/06/2015	05/13/2015	04/15/2022	08/29/2012
Sample Type					
	Units				
Chrysene	ug/L	--	--	--	5.0 U
Dibenz(a,h)anthracene	ug/L	--	--	--	5.0 U
Dibenzofuran	ug/L	--	--	--	5.0 U
Diethyl phthalate	ug/L	--	--	--	1.4 J
Dimethyl phthalate	ug/L	--	--	--	20 U
Di-n-butylphthalate (DBP)	ug/L	--	--	--	5.0 U
Di-n-octyl phthalate (DnOP)	ug/L	--	--	--	5.0 U
Fluoranthene	ug/L	--	--	--	5.0 U
Fluorene	ug/L	--	--	--	5.0 U
Hexachlorobenzene	ug/L	--	--	--	5.0 U
Hexachlorobutadiene	ug/L	--	--	--	5.0 U
Hexachlorocyclopentadiene	ug/L	--	--	--	20 U
Hexachloroethane	ug/L	--	--	--	5.0 U
Indeno(1,2,3-cd)pyrene	ug/L	--	--	--	5.0 U
Isophorone	ug/L	--	--	--	5.0 U
Naphthalene	ug/L	--	--	--	24
Nitrobenzene	ug/L	--	--	--	5.0 U
N-Nitrosodi-n-propylamine	ug/L	--	--	--	5.0 U
N-Nitrosodiphenylamine	ug/L	--	--	--	5.0 U
Pentachlorophenol	ug/L	--	--	--	20 U
Phenanthrene	ug/L	--	--	--	5.0 U
Phenol	ug/L	--	--	--	5.0 U
Pyrene	ug/L	--	--	--	5.0 U
Pyridine	ug/L	--	--	--	--
Volatile Organic Compounds (VOCs)					
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	1.0 U	5.0 U
1,2,4-Trimethylbenzene	ug/L	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	2.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	ug/L	--	--	--	--
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dioxane	ug/L	--	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	25 UJ	25 U	10 U	25 U
2-Hexanone	ug/L	50 UJ	50 U	10 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	50 U	50 U	10 U	50 U
Acetone	ug/L	50 UJ	50 U	10 U	50 U

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-74D-15	MW-74D-15	MW-74D-22R	MW-88-12
Sample Identification		GW-17322-040615-DN-005	GW-17322-051315-EM-007	GW-11223416-041522-SK-006	GW-17322-082912-DD-044
Sample Date		04/06/2015	05/13/2015	04/15/2022	08/29/2012
Sample Type					
	Units				
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	5.0 U	5.0 U	1.0 U	5.0 U
Carbon disulfide	ug/L	5.0 U	1.0 J	1.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	5.0 U	5.0 U	1.0 U	5.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	5.0 U	5.0 U	1.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 U	1.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	5.0 U	5.0 U	1.0 U	5.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	3.9
Isopropyl benzene	ug/L	5.0 U	5.0 U	1.0 U	3.9 J
Methyl acetate	ug/L	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	5.0 U	5.0 U	1.0 U	5.0 U
Methylene chloride	ug/L	5.0 UJ	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	0.57 J	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	3.0 U	3.0 U	2.0 U	3.0 U
General Chemistry					
Cyanide (amenable)	ug/L	--	--	--	--

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

¹ Well Dry During This Event. Screened interval 945.35 to 940.35ft AMSL.² Well Dry For Every Event. Screened interval 942.77 to 937.77 ft AMSL.

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-88-12	MW-88-12	MW-88-22R	MW-90-12
Sample Identification		GW-17322-020113-DR-015	GW-17322-040715-DN-023	GW-11223416-042222-SK-022	GW-17322-120712-CT-029
Sample Date		02/01/2013	04/07/2015	04/22/2022	12/07/2012
Sample Type					
Units					
Field Parameters					
Conductivity, field	umhos/cm	--	--	--	--
Dissolved oxygen (DO), field	ug/L	--	--	--	--
Oxidation reduction potential (ORP), field	millivolts	--	--	--	--
pH, field	s.u.	--	--	--	--
Temperature, ambient	Deg F	--	--	--	--
Temperature, field	Deg C	--	--	--	--
Turbidity, field	NTU	--	--	--	--
Metals					
Aluminum	ug/L	--	--	--	--
Antimony	ug/L	--	--	--	--
Arsenic	ug/L	--	--	--	--
Barium	ug/L	--	--	--	--
Beryllium	ug/L	--	--	--	--
Cadmium	ug/L	--	--	--	--
Calcium	ug/L	--	--	--	--
Chromium	ug/L	--	--	--	--
Chromium III (trivalent)	ug/L	--	--	--	--
Chromium VI (hexavalent)	ug/L	--	--	--	--
Cobalt	ug/L	--	--	--	--
Copper	ug/L	--	--	--	--
Iron	ug/L	--	--	--	--
Lead	ug/L	--	--	--	--
Magnesium	ug/L	--	--	--	--
Manganese	ug/L	--	--	--	--
Mercury	ug/L	--	--	--	--
Nickel	ug/L	--	--	--	--
Potassium	ug/L	--	--	--	--
Selenium	ug/L	--	--	--	--
Silver	ug/L	--	--	--	--
Sodium	ug/L	--	--	--	--
Thallium	ug/L	--	--	--	--
Vanadium	ug/L	--	--	--	--
Zinc	ug/L	--	--	--	--
PCBs					
Aroclor-1016 (PCB-1016)	ug/L	0.20 U	--	--	--
Aroclor-1221 (PCB-1221)	ug/L	0.20 U	--	--	--
Aroclor-1232 (PCB-1232)	ug/L	0.20 U	--	--	--
Aroclor-1242 (PCB-1242)	ug/L	0.20 U	--	--	--
Aroclor-1248 (PCB-1248)	ug/L	0.20 U	--	--	--
Aroclor-1254 (PCB-1254)	ug/L	0.20 U	--	--	--
Aroclor-1260 (PCB-1260)	ug/L	0.20 U	--	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-88-12	MW-88-12	MW-88-22R	MW-90-12
Sample Identification		GW-17322-020113-DR-015	GW-17322-040715-DN-023	GW-11223416-042222-SK-022	GW-17322-120712-CT-029
Sample Date		02/01/2013	04/07/2015	04/22/2022	12/07/2012
Sample Type					
Total PCBs	Units ug/L	0.20 U	--	--	--
Semi-Volatile Organic Compounds (SVOCs)					
1,4-Dioxane	ug/L	--	--	--	--
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	5.0 U	--	--	--
2,4,5-Trichlorophenol	ug/L	5.0 U	--	--	--
2,4,6-Trichlorophenol	ug/L	4.0 U	--	--	--
2,4-Dichlorophenol	ug/L	10 U	--	--	--
2,4-Dimethylphenol	ug/L	5.0 U	--	--	--
2,4-Dinitrophenol	ug/L	5.0 U	--	--	--
2,4-Dinitrotoluene	ug/L	5.0 U	--	--	--
2,6-Dinitrotoluene	ug/L	5.0 U	--	--	--
2-Chloronaphthalene	ug/L	5.0 U	--	--	--
2-Chlorophenol	ug/L	5.0 U	--	--	--
2-Methylnaphthalene	ug/L	58	--	--	5.0 U
2-Methylphenol	ug/L	5.0 U	--	--	--
2-Nitroaniline	ug/L	20 U	--	--	--
2-Nitrophenol	ug/L	5.0 U	--	--	--
3,3'-Dichlorobenzidine	ug/L	1.0 U	--	--	--
3-Nitroaniline	ug/L	20 U	--	--	--
4,6-Dinitro-2-methylphenol	ug/L	20 U	--	--	--
4-Bromophenyl phenyl ether	ug/L	5.0 U	--	--	--
4-Chloro-3-methylphenol	ug/L	5.0 U	--	--	--
4-Chloroaniline	ug/L	10 U	--	--	--
4-Chlorophenyl phenyl ether	ug/L	5.0 U	--	--	--
4-Methylphenol	ug/L	5.0 U	--	--	--
4-Nitroaniline	ug/L	20 U	--	--	--
4-Nitrophenol	ug/L	20 U	--	--	--
Acenaphthene	ug/L	5.0 U	--	--	5.0 U
Acenaphthylene	ug/L	5.0 U	--	--	5.0 U
Acetophenone	ug/L	1.0 U	--	--	--
Anthracene	ug/L	5.0 U	--	--	5.0 U
Atrazine	ug/L	3.0 U	--	--	--
Benzaldehyde	ug/L	1.0 U	--	--	--
Benzo(a)anthracene	ug/L	1.0 U	--	--	1.0 U
Benzo(a)pyrene	ug/L	1.0 U	--	--	0.58 J
Benzo(b)fluoranthene	ug/L	1.0 U	--	--	0.75 J
Benzo(g,h,i)perylene	ug/L	1.0 U	--	--	1.0 U
Benzo(k)fluoranthene	ug/L	1.0 U	--	--	1.0 U
Biphenyl (1,1-Biphenyl)	ug/L	3.2 J	--	--	--
bis(2-Chloroethoxy)methane	ug/L	5.0 U	--	--	--
bis(2-Chloroethyl)ether	ug/L	1.0 U	--	--	--
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	5.0 U	--	--	--
Butyl benzylphthalate (BBP)	ug/L	5.0 U	--	--	--
Caprolactam	ug/L	10 U	--	--	--
Carbazole	ug/L	10 U	--	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-88-12	MW-88-12	MW-88-22R	MW-90-12
Sample Identification		GW-17322-020113-DR-015	GW-17322-040715-DN-023	GW-11223416-042222-SK-022	GW-17322-120712-CT-029
Sample Date		02/01/2013	04/07/2015	04/22/2022	12/07/2012
Sample Type					
	Units				
Chrysene	ug/L	1.0 U	--	--	1.0 U
Dibenz(a,h)anthracene	ug/L	2.0 U	--	--	2.0 U
Dibenzofuran	ug/L	4.0 U	--	--	--
Diethyl phthalate	ug/L	5.0 U	--	--	--
Dimethyl phthalate	ug/L	5.0 U	--	--	--
Di-n-butylphthalate (DBP)	ug/L	5.0 U	--	--	--
Di-n-octyl phthalate (DnOP)	ug/L	5.0 U	--	--	--
Fluoranthene	ug/L	1.0 U	--	--	1.2
Fluorene	ug/L	5.0 U	--	--	5.0 U
Hexachlorobenzene	ug/L	1.0 U	--	--	--
Hexachlorobutadiene	ug/L	1.0 U	--	--	--
Hexachlorocyclopentadiene	ug/L	5.0 U	--	--	--
Hexachloroethane	ug/L	5.0 U	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L	2.0 U	--	--	5.0 U
Isophorone	ug/L	5.0 U	--	--	--
Naphthalene	ug/L	58	--	--	5.0 U
Nitrobenzene	ug/L	3.0 U	--	--	--
N-Nitrosodi-n-propylamine	ug/L	5.0 U	--	--	--
N-Nitrosodiphenylamine	ug/L	5.0 U	--	--	--
Pentachlorophenol	ug/L	1.0 U	--	--	--
Phenanthrene	ug/L	2.0 U	--	--	2.0 U
Phenol	ug/L	5.0 U	--	--	--
Pyrene	ug/L	5.0 U	--	--	1.2 J
Pyridine	ug/L	--	--	--	--
Volatile Organic Compounds (VOCs)					
1,1,1-Trichloroethane	ug/L	--	1.0 U	1.0 U	1.0 U
1,1,1,2,2-Tetrachloroethane	ug/L	--	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	--	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	--	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	--	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	--	5.0 U	1.0 U	5.0 U
1,2,4-Trimethylbenzene	ug/L	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	--	1.0 U	2.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	--	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	--	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	--	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	--	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	ug/L	--	--	--	--
1,3-Dichlorobenzene	ug/L	--	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	--	1.0 U	1.0 U	1.0 U
1,4-Dioxane	ug/L	--	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	--	25 U	10 U	25 U
2-Hexanone	ug/L	--	50 U	10 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	--	50 U	10 U	50 U
Acetone	ug/L	--	50 U	5.8 J	50 U

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-88-12	MW-88-12	MW-88-22R	MW-90-12
Sample Identification		GW-17322-020113-DR-015	GW-17322-040715-DN-023	GW-11223416-042222-SK-022	GW-17322-120712-CT-029
Sample Date		02/01/2013	04/07/2015	04/22/2022	12/07/2012
Sample Type					
	Units				
Benzene	ug/L	--	0.93 J	1.0 U	1.0 U
Bromodichloromethane	ug/L	--	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	--	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	--	5.0 U	1.0 U	5.0 U
Carbon disulfide	ug/L	--	5.0 U	1.0 U	5.0 U
Carbon tetrachloride	ug/L	--	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	--	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	--	5.0 U	1.0 U	5.0 U
Chloroform (Trichloromethane)	ug/L	--	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	--	5.0 U	1.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	--	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	--	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	--	2.2	1.0 U	1.0 U
Dibromochloromethane	ug/L	--	5.0 U	1.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	--	5.0 U	1.0 U	5.0 U
Ethylbenzene	ug/L	--	5.1	1.0 U	1.0 U
Isopropyl benzene	ug/L	--	6.0	1.0 U	5.0 U
Methyl acetate	ug/L	--	10 U	10 U	10 U
Methyl cyclohexane	ug/L	--	2.9	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	--	5.0 U	1.0 U	5.0 U
Methylene chloride	ug/L	--	5.0 U	5.0 U	5.0 U
Styrene	ug/L	--	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	--	1.0 U	1.0 U	1.0 U
Toluene	ug/L	--	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	--	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	--	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	--	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	--	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	--	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	--	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	--	3.0 U	2.0 U	3.0 U
General Chemistry					
Cyanide (amenable)	ug/L	--	--	--	--

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

¹ Well Dry During This Event. Screened interval 945.35 to 940.35ft AMSL.² Well Dry For Every Event. Screened interval 942.77 to 937.77 ft AMSL.

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-90-12	MW-90-12	MW-90-12	MW-90-22R ¹	MW-94-22R ²
Sample Identification		GW-17322-020113-DR-014	GW-17322-072914-DN-05	GW-17322-040715-DN-016		
Sample Date		02/01/2013	07/29/2014	04/07/2015	4/15/2022	4/15/2022
Sample Type						
	Units					
Field Parameters						
Conductivity, field	umhos/cm	--	--	--	--	--
Dissolved oxygen (DO), field	ug/L	--	--	--	--	--
Oxidation reduction potential (ORP), field	millivolts	--	--	--	--	--
pH, field	s.u.	--	--	--	--	--
Temperature, ambient	Deg F	--	--	--	--	--
Temperature, field	Deg C	--	--	--	--	--
Turbidity, field	NTU	--	--	--	--	--
Metals						
Aluminum	ug/L	--	--	--	--	--
Antimony	ug/L	--	--	--	--	--
Arsenic	ug/L	--	--	--	--	--
Barium	ug/L	--	--	--	--	--
Beryllium	ug/L	--	--	--	--	--
Cadmium	ug/L	--	--	--	--	--
Calcium	ug/L	--	--	--	--	--
Chromium	ug/L	--	--	--	--	--
Chromium III (trivalent)	ug/L	--	--	--	--	--
Chromium VI (hexavalent)	ug/L	--	--	--	--	--
Cobalt	ug/L	--	--	--	--	--
Copper	ug/L	--	--	--	--	--
Iron	ug/L	--	--	--	--	--
Lead	ug/L	--	--	--	--	--
Magnesium	ug/L	--	--	--	--	--
Manganese	ug/L	--	--	--	--	--
Mercury	ug/L	--	--	--	--	--
Nickel	ug/L	--	--	--	--	--
Potassium	ug/L	--	--	--	--	--
Selenium	ug/L	--	--	--	--	--
Silver	ug/L	--	--	--	--	--
Sodium	ug/L	--	--	--	--	--
Thallium	ug/L	--	--	--	--	--
Vanadium	ug/L	--	--	--	--	--
Zinc	ug/L	--	--	--	--	--
PCBs						
Aroclor-1016 (PCB-1016)	ug/L	--	--	--	--	--
Aroclor-1221 (PCB-1221)	ug/L	--	--	--	--	--
Aroclor-1232 (PCB-1232)	ug/L	--	--	--	--	--
Aroclor-1242 (PCB-1242)	ug/L	--	--	--	--	--
Aroclor-1248 (PCB-1248)	ug/L	--	--	--	--	--
Aroclor-1254 (PCB-1254)	ug/L	--	--	--	--	--
Aroclor-1260 (PCB-1260)	ug/L	--	--	--	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-90-12	MW-90-12	MW-90-12	MW-90-22R ¹	MW-94-22R ²
Sample Identification		GW-17322-020113-DR-014	GW-17322-072914-DN-05	GW-17322-040715-DN-016		
Sample Date		02/01/2013	07/29/2014	04/07/2015	4/15/2022	4/15/2022
Sample Type						
Total PCBs	Units ug/L	--	--	--	--	--
Semi-Volatile Organic Compounds (SVOCs)						
1,4-Dioxane	ug/L	--	--	--	--	--
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	5.0 U	--	--	--	--
2,4,5-Trichlorophenol	ug/L	5.0 U	--	--	--	--
2,4,6-Trichlorophenol	ug/L	4.0 U	--	--	--	--
2,4-Dichlorophenol	ug/L	10 U	--	--	--	--
2,4-Dimethylphenol	ug/L	5.0 U	--	--	--	--
2,4-Dinitrophenol	ug/L	5.0 U	--	--	--	--
2,4-Dinitrotoluene	ug/L	5.0 U	--	--	--	--
2,6-Dinitrotoluene	ug/L	5.0 U	--	--	--	--
2-Chloronaphthalene	ug/L	5.0 U	--	--	--	--
2-Chlorophenol	ug/L	5.0 U	--	--	--	--
2-Methylnaphthalene	ug/L	5.0 U	--	--	--	--
2-Methylphenol	ug/L	5.0 U	--	--	--	--
2-Nitroaniline	ug/L	20 U	--	--	--	--
2-Nitrophenol	ug/L	5.0 U	--	--	--	--
3,3'-Dichlorobenzidine	ug/L	1.0 U	--	--	--	--
3-Nitroaniline	ug/L	20 U	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/L	20 U	--	--	--	--
4-Bromophenyl phenyl ether	ug/L	5.0 U	--	--	--	--
4-Chloro-3-methylphenol	ug/L	5.0 U	--	--	--	--
4-Chloroaniline	ug/L	10 U	--	--	--	--
4-Chlorophenyl phenyl ether	ug/L	5.0 U	--	--	--	--
4-Methylphenol	ug/L	5.0 U	--	--	--	--
4-Nitroaniline	ug/L	20 U	--	--	--	--
4-Nitrophenol	ug/L	20 U	--	--	--	--
Acenaphthene	ug/L	5.0 U	--	--	--	--
Acenaphthylene	ug/L	5.0 U	--	--	--	--
Acetophenone	ug/L	1.0 U	--	--	--	--
Anthracene	ug/L	5.0 U	--	--	--	--
Atrazine	ug/L	3.0 U	--	--	--	--
Benzaldehyde	ug/L	1.0 U	--	--	--	--
Benzo(a)anthracene	ug/L	1.0 U	--	--	--	--
Benzo(a)pyrene	ug/L	1.0 U	--	--	--	--
Benzo(b)fluoranthene	ug/L	1.0 U	--	--	--	--
Benzo(g,h,i)perylene	ug/L	1.0 U	--	--	--	--
Benzo(k)fluoranthene	ug/L	1.0 U	--	--	--	--
Biphenyl (1,1-Biphenyl)	ug/L	5.0 U	--	--	--	--
bis(2-Chloroethoxy)methane	ug/L	5.0 U	--	--	--	--
bis(2-Chloroethyl)ether	ug/L	1.0 U	--	--	--	--
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	5.0 U	--	--	--	--
Butyl benzylphthalate (BBP)	ug/L	5.0 U	--	--	--	--
Caprolactam	ug/L	10 U	--	--	--	--
Carbazole	ug/L	10 U	--	--	--	--

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-90-12	MW-90-12	MW-90-12	MW-90-22R ¹	MW-94-22R ²
Sample Identification		GW-17322-020113-DR-014	GW-17322-072914-DN-05	GW-17322-040715-DN-016		
Sample Date		02/01/2013	07/29/2014	04/07/2015	4/15/2022	4/15/2022
Sample Type						
	Units					
Chrysene	ug/L	1.0 U	--	--	--	--
Dibenz(a,h)anthracene	ug/L	2.0 U	--	--	--	--
Dibenzofuran	ug/L	4.0 U	--	--	--	--
Diethyl phthalate	ug/L	5.0 U	--	--	--	--
Dimethyl phthalate	ug/L	5.0 U	--	--	--	--
Di-n-butylphthalate (DBP)	ug/L	5.0 U	--	--	--	--
Di-n-octyl phthalate (DnOP)	ug/L	5.0 U	--	--	--	--
Fluoranthene	ug/L	1.0 U	--	--	--	--
Fluorene	ug/L	5.0 U	--	--	--	--
Hexachlorobenzene	ug/L	1.0 U	--	--	--	--
Hexachlorobutadiene	ug/L	1.0 U	--	--	--	--
Hexachlorocyclopentadiene	ug/L	5.0 U	--	--	--	--
Hexachloroethane	ug/L	5.0 U	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L	2.0 U	--	--	--	--
Isophorone	ug/L	5.0 U	--	--	--	--
Naphthalene	ug/L	5.0 U	--	--	--	--
Nitrobenzene	ug/L	3.0 U	--	--	--	--
N-Nitrosodi-n-propylamine	ug/L	5.0 U	--	--	--	--
N-Nitrosodiphenylamine	ug/L	5.0 U	--	--	--	--
Pentachlorophenol	ug/L	1.0 U	--	--	--	--
Phenanthrene	ug/L	2.0 U	--	--	--	--
Phenol	ug/L	5.0 U	--	--	--	--
Pyrene	ug/L	5.0 U	--	--	--	--
Pyridine	ug/L	--	--	--	--	--
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
1,2,4-Trimethylbenzene	ug/L	--	--	--	Dry	Dry
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,3,5-Trimethylbenzene	ug/L	--	--	--	Dry	Dry
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
1,4-Dioxane	ug/L	--	--	--	Dry	Dry
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	25 U	25 UJ	25 U	Dry	Dry
2-Hexanone	ug/L	50 U	50 U	50 U	Dry	Dry
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	50 U	50 U	50 U	Dry	Dry
Acetone	ug/L	50 U	50 U	50 U	Dry	Dry

Table 5

**Historical Analytical Comparison
Abandoned Monitoring Wells to Reinstalled Monitoring Wells
Racer PCC Validation
Pontiac, Michigan**

Sample Location		MW-90-12	MW-90-12	MW-90-12	MW-90-22R ¹	MW-94-22R ²
Sample Identification		GW-17322-020113-DR-014	GW-17322-072914-DN-05	GW-17322-040715-DN-016		
Sample Date		02/01/2013	07/29/2014	04/07/2015	4/15/2022	4/15/2022
Sample Type						
	Units					
Benzene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Bromomethane (Methyl bromide)	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Carbon tetrachloride	ug/L	1.0 UJ	1.0 U	1.0 U	Dry	Dry
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Chloromethane (Methyl chloride)	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Dibromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Dichlorodifluoromethane (CFC-12)	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Isopropyl benzene	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Methyl acetate	ug/L	10 U	10 U	10 U	Dry	Dry
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Methyl tert butyl ether (MTBE)	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	Dry	Dry
Styrene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Toluene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	Dry	Dry
Xylenes (total)	ug/L	3.0 U	3.0 U	3.0 U	Dry	Dry
General Chemistry						
Cyanide (amenable)	ug/L	--	--	--	--	--

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

¹ Well Dry During This Event. Screened interval 945.35 to 940.35ft AMSL.² Well Dry For Every Event. Screened interval 942.77 to 937.77 ft AMSL.

Appendices

Appendix A

Strat and Instrumentation Logs



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: PCC VALIDATION

PROJECT NUMBER: 11223416

CLIENT: RACER

LOCATION: PONTIAC, MICHIGAN

DRILLING CONTRACTOR: GHD Services

HOLE DESIGNATION: MW-48-22R

DATE COMPLETED: April 12, 2022

DRILLING METHOD: Direct Push/Geoprobe/Hollow Stem Auger

FIELD PERSONNEL: Scott Kippen

File: N:\US\DETROIT\PROJECTS\663\11223416\TECH\GINT\LOG DATABASE\11223416.GPJ Library File: GHD_ENV\IRO_V06.GLB Report: OVERBURDEN LOG Date: 6/23/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
	GROUND SURFACE TOP OF RISER	960.32 959.88						
	TOPSOIL	960.02						
2	CL-SILTY CLAY, trace sand, with fine to coarse gravel, trace debris (fill), firm, low plasticity, brown, moist	958.12		1		70		0.0
4	SM-SILTY SAND, with fine gravels (fill), compact, fine grained, poorly graded, black, moist	956.72 956.52						
	SLAG MATERIAL-DEBRIS, with gravel (fill)							1.5
6	SM-SILTY SAND, compact, fine grained, poorly graded, brown/black, moist - wet from 5.00 to 5.50ft BGS	954.82						
8	CL-SILTY CLAY, trace sand, with fine to coarse gravel, soft, low plasticity, dark brownish-gray, moist	953.02 952.52		2		90		2.9
10	SM-SILTY SAND, compact, fine grained, poorly graded, black, wet	950.82						1.3
12	CL-SILTY CLAY, trace sand, with fine to coarse gravel, soft, low plasticity, gray, moist - trace fine gravel from 8.50 to 9.50ft BGS							
	SM-SILTY SAND LOAM, loose, fine grained, poorly graded, dark reddish brown, moist	947.62		3		70		1.4
14	CL-SILTY CLAY, trace sand, with fine gravel, stiff, low plasticity, brown, moist	946.52						
16	SP-SAND, with silt, with fine to coarse gravel, compact, fine grained, poorly graded, gray, wet							2.4
18		942.12		4		80		0.0
20	CL-SILTY CLAY, trace fine gravel, stiff, low plasticity, gray, moist							
	END OF BOREHOLE @ 20.00ft BGS	940.32						0.0

WELL DETAILS
Screened interval:
946.82 to 941.82ft AMSL
13.50 to 18.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
959.52 to 948.82ft AMSL
0.80 to 11.50ft BGS
Material: BENTONITE CHIPS
Sand Pack:
948.82 to 940.32ft AMSL
11.50 to 20.00ft BGS
Material: #4 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/12/2022



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: PCC VALIDATION

PROJECT NUMBER: 11223416

CLIENT: RACER

LOCATION: PONTIAC, MICHIGAN

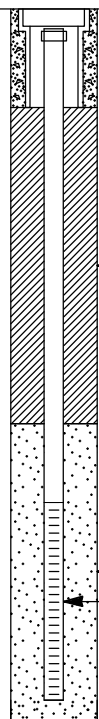
DRILLING CONTRACTOR: GHD Services

HOLE DESIGNATION: MW-74-22R

DATE COMPLETED: April 8, 2022

DRILLING METHOD: Direct Push/Geoprobe/Hollow Stem Auger

FIELD PERSONNEL: Scott Kippen

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	
	GROUND SURFACE TOP OF RISER	959.31 958.71						
2	TOPSOIL - SOD SP-SAND, trace silt, trace fine to coarse gravel, compact, fine grained, poorly graded, brown, moist	958.91	 BENTONITE CHIPS #4 SAND SCREEN					
4								
6								
8	CL-SILTY CLAY, trace fine to coarse gravel, stiff, low plasticity, brown, moist	952.31						
10	SP-SAND, trace silt, trace fine to coarse gravel, compact, fine grained, poorly graded, brown, moist - cobbles from 9.40 to 9.60ft BGS	951.31 949.71 949.31						
12	CL-SILTY CLAY, trace fine to coarse gravel, stiff, low plasticity, brown, moist	947.51						
14	SP-SAND, trace silt, with fine to coarse gravel, compact, fine to coarse sand, poorly graded, brown, moist	946.01						
16	CL-SILTY CLAY, trace fine to coarse gravel, stiff, low plasticity, brown, moist							
18	SP-SAND, trace silt, with fine to coarse gravel, compact, fine to coarse sand, poorly graded, brown, wet - with silt from 16.30 to 16.70ft BGS - with silt from 17.50 to 17.80ft BGS	941.31						
20	END OF BOREHOLE @ 18.00ft BGS							
22	NOTE: STRATIGRAPHY WAS NOT LOGGED, DESCRIPTIONS ARE FROM MW-74D-22R.							
24								
26								
28								
30								
32								
34								

WELL DETAILS

Screened interval:

946.81 to 941.81ft AMSL

12.50 to 17.50ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 10

Material: PVC

Seal:

958.41 to 948.81ft AMSL

0.90 to 10.50ft BGS

Material: BENTONITE CHIPS

Sand Pack:

948.81 to 941.31ft AMSL

10.50 to 18.00ft BGS

Material: #4 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

File: N:\US\DETROIT\PROJECTS\6311223416\TECH\INT\LOG DATABASE\11223416.GPJ Library File: GHD_ENVIRO_V06.GLB Report: OVERBURDEN LOG Date: 6/23/22



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: PCC VALIDATION

PROJECT NUMBER: 11223416

CLIENT: RACER

LOCATION: PONTIAC, MICHIGAN

DRILLING CONTRACTOR: Stearns Drilling

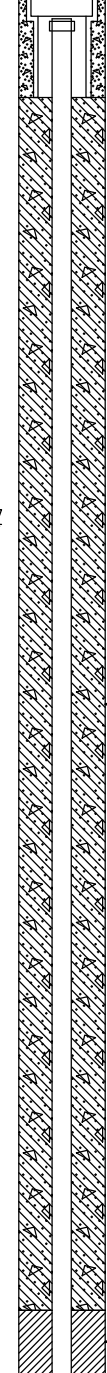
HOLE DESIGNATION: MW-74D-22R

DATE COMPLETED: April 6, 2022

DRILLING METHOD: Sonic Rig - Versa Sonic

FIELD PERSONNEL: Scott Kippen

File: N:\US\DETROIT\PROJECTS\66311223416\TECH\INTLOG DATABASE\11223416.GPJ Library File: GHD_ENVIRO_V06.GLB Report: OVERBURDEN LOG Date: 6/23/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
	GROUND SURFACE TOP OF RISER	959.26 958.76						
2	TOPSOIL - SOD SP-SAND, trace silt, trace fine to coarse gravel, compact, fine grained, poorly graded, brown, moist	958.86		1		50		1.5
4								2.0
6								2.4
8	CL-SILTY CLAY, trace fine to coarse gravel, stiff, low plasticity, brown, moist	952.26		2		90		2.6
10	SP-SAND, trace silt, trace fine to coarse gravel, compact, fine grained, poorly graded, brown, moist - cobbles from 9.40 to 9.60ft BGS	949.66 949.26						2.7
12	CL-SILTY CLAY, trace fine to coarse gravel, stiff, low plasticity, brown, moist	947.46						4.2
14	SP-SAND, trace silt, with fine to coarse gravel, compact, fine to coarse sand, poorly graded, brown, moist	945.96		3		95		4.7
16	CL-SILTY CLAY, trace fine to coarse gravel, stiff, low plasticity, brown, moist							13.6
18	SP-SAND, trace silt, with fine to coarse gravel, compact, fine to coarse sand, poorly graded, brown, wet - with silt from 16.30 to 16.70ft BGS - with silt from 17.50 to 17.80ft BGS	941.26						3.6
20	ML-SILT, trace clay, compact, light brown, wet							4.2
22	SP-SAND with fine to coarse gravel, compact, fine to coarse sand, poorly graded, brown, wet	938.76 938.06		4		90		3.8
24	ML-SILT, trace clay, compact, light brown, wet							3.9
26	SP-SAND, trace silt, compact, fine grained, poorly graded, light brown, wet - with fine gravels from 24.60 to 25.00ft BGS	935.26 934.26						3.9
28	CL-SILTY CLAY, firm, lean, low plasticity, gray, moist	932.06						
30	SP-SAND, trace fine gravel, compact, fine grained, poorly graded, gray, wet	931.66						
32	CL-SILTY CLAY, firm, lean, low plasticity, gray, moist	930.86						
34	SP-SAND, with silt, trace fine gravel, loose, fine grained, poorly graded, gray, wet - compact, fine to coarse sands from 32.00 to 33.60ft BGS			5		90		
	CL-SILTY CLAY, trace sand, with fine to coarse gravel till, stiff, low plasticity, gray, moist	925.66						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/6/2022



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: PCC VALIDATION

PROJECT NUMBER: 11223416

CLIENT: RACER

LOCATION: PONTIAC, MICHIGAN

DRILLING CONTRACTOR: Stearns Drilling

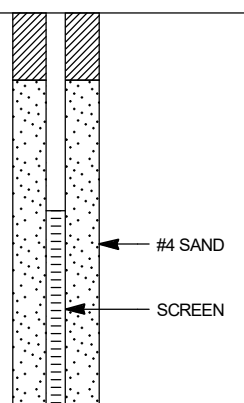
HOLE DESIGNATION: MW-74D-22R

DATE COMPLETED: April 6, 2022

DRILLING METHOD: Sonic Rig - Versa Sonic

FIELD PERSONNEL: Scott Kippen

File: N:\US\DETROIT\PROJECTS\663\11223416\TECH\GINTLOG DATABASE\11223416.GPJ Library File: GHD_ENVIRO_V06.GLB Report: OVERBURDEN LOG Date: 6/23/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
36	- sand seam, with fine to coarse gravel, wet from 36.30 to 36.40ft BGS							3.7
38								4.6
40	- large 6" to 7" cobble, rounded granite from 39.40 to 39.70ft BGS	919.56						4.5
42	SP-GRAVELLY SAND, trace silt, compact, fine to coarse grained, poorly graded, dark gray, wet			6		50		4.6
44	CL-SILTY CLAY, trace sand, trace fine gravel, firm, low plasticity, gray, moist	915.06						3.7
46	END OF BOREHOLE @ 45.00ft BGS	914.26	<u>WELL DETAILS</u> Screened interval: 919.26 to 914.26ft AMSL 40.00 to 45.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: PVC Seal: 926.06 to 922.56ft AMSL 33.20 to 36.70ft BGS Material: BENTONITE CHIPS Sand Pack: 922.56 to 914.26ft AMSL 36.70 to 45.00ft BGS Material: #4 SAND					
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/6/2022



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: PCC VALIDATION

PROJECT NUMBER: 11223416

CLIENT: RACER

LOCATION: PONTIAC, MICHIGAN

DRILLING CONTRACTOR: GHD Services

HOLE DESIGNATION: MW-88-22R

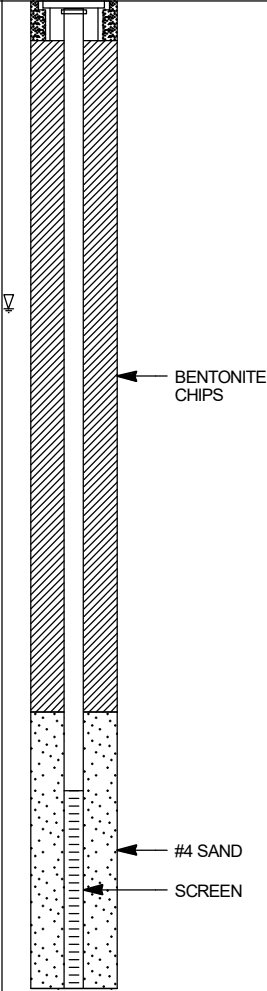
DATE COMPLETED: April 11, 2022

DRILLING METHOD: Direct Push/Geoprobe/Hollow Stem Auger

FIELD PERSONNEL: Scott Kippen

File: N:\US\DETROIT\PROJECTS\6311223416\TECH\INT\LOG DATABASE\11223416.GPJ Library File: GHD_ENV\IRO_V06.GLB Report: OVERBURDEN LOG Date: 6/23/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
	GROUND SURFACE TOP OF RISER	957.60 957.11						
	TOPSOIL/SOD							
2	SP-SAND, trace silt, with fine to coarse gravel (fill), compact, fine to coarse sand, poorly graded, brown, moist	956.80		1		45		10.3
4	CL-SILTY CLAY, with sand, with fine gravel (fill), stiff, low plasticity, brown, moist	954.00						14.1
6								
8	CONCRETE	950.00 949.80 949.20		2		50		13.0
10	SP-SAND, trace silt, compact, fine grained, poorly graded, black stained, wet, odorous							65.1
12	CL-SILTY CLAY, trace sand, trace fine gravel, firm, low plasticity, blackish-gray, moist, odorous - brown-blackish-gray from 9.00 to 11.20ft BGS - stiff, mottled, brown/gray, no odor from 11.20 to 22.60ft BGS			3		60		105.4
14								170.6
16								
18				4		85		13.4
20								13.6
22	- SP-sand seam, wet from 22.60 to 22.70ft BGS - stiff, gray from 22.70 to 24.60ft BGS			5		90		11.7
24								
26	ML-SILT, trace sand, compact, grey, wet	933.00 932.60						103.8
28	END OF BOREHOLE @ 25.00ft BGS							
30								
32								
34								



WELL DETAILS
Screened interval:
937.60 to 932.60ft AMSL
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
956.60 to 939.60ft AMSL
1.00 to 18.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
939.60 to 932.60ft AMSL
18.00 to 25.00ft BGS
Material: #4 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/11/2022



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: PCC VALIDATION

PROJECT NUMBER: 11223416

CLIENT: RACER

LOCATION: PONTIAC, MICHIGAN

DRILLING CONTRACTOR: GHD Services

HOLE DESIGNATION: MW-90-22R

DATE COMPLETED: April 14, 2022

DRILLING METHOD: Direct Push/Geoprobe/Hollow Stem Auger

FIELD PERSONNEL: Scott Kippen

File: N:\US\DETROIT\PROJECTS\6311223416\TECH\GINT\LOG DATABASE\11223416.GPJ Library File: GHD_ENV\IRO_V06.GLB Report: OVERBURDEN LOG Date: 6/23/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
	GROUND SURFACE TOP OF RISER	958.45 958.16						
	TOPSOIL	958.25						
2	SM-SILTY SAND, trace clay, with fine gravel (fill), loose, fine grained, poorly graded, brown, wet	957.45		1		95		1.1
4	CL-SILTY CLAY, with sand, with fine to coarse gravel, stiff, low plasticity, brown, moist							
6	SP-SAND, trace silt, trace clay, with fine gravel, compact, fine to coarse sand, poorly graded, brown, moist	953.25 952.95		2		90		1.6
8	CL-SILTY CLAY, trace sand, trace fine to coarse gravel, stiff, low plasticity, brown, moist							7.7
10	SM-SILTY SAND, trace clay, with fine to coarse gravel, compact, fine to coarse grained, poorly graded, brown, moist	949.45						4.9
12	- ML-silt seam at 10.30ft BGS - wet from 10.50 to 15.00ft BGS			3		70		4.8
14								
16	- ML-silt seam from 14.60 to 14.70ft BGS	943.45						4.8
18	ML-SILT, compact, fine grained, brown, moist to wet			4		40		8.3
20	SM-SILTY SAND, compact, fine grained, poorly graded, brown, wet	941.45 940.45						
22	ML-SILT, compact, fine grained, brown, moist to wet							9.7
24	END OF BOREHOLE @ 20.00ft BGS	938.45						

WELL DETAILS
Screened interval:
945.35 to 940.35ft AMSL
13.10 to 18.10ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
957.65 to 947.35ft AMSL
0.80 to 11.10ft BGS
Material: BENTONITE CHIPS
Sand Pack:
947.35 to 938.45ft AMSL
11.10 to 20.00ft BGS
Material: #4 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/14/2022



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: PCC VALIDATION

PROJECT NUMBER: 11223416

CLIENT: RACER

LOCATION: PONTIAC, MICHIGAN

DRILLING CONTRACTOR: GHD Services

HOLE DESIGNATION: MW-94-22R

DATE COMPLETED: April 8, 2022

DRILLING METHOD: Direct Push/Geoprobe/Hollow Stem Auger

FIELD PERSONNEL: Scott Kippen

File: N:\US\DETROIT\PROJECTS\6311223416\TECH\INT\LOG DATABASE\11223416.GPJ Library File: GHD_ENV\IRO_V06.GLB Report: OVERBURDEN LOG Date: 6/23/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
	GROUND SURFACE TOP OF RISER	958.77 958.35						
	TOPSOIL/SOD	958.57						
2	SC-CLAYEY SAND, trace silt, with fine gravel, trace debris (fill), compact, fine grained, poorly graded, grayish brown, moist	956.77		1		65		4.9
4	SP-SAND, with silt, with fine to coarse gravel (fill), compact, fine grained, poorly graded, brown, moist							
	CL-SILTY CLAY, trace sand, trace fine gravel, stiff, low plasticity, mottled brown-gray, moist	954.27						4.4
8	- with fine sand, firm, brownish gray, slight odor from 7.50 to 11.60ft BGS			2		70		18.0
10								14.6
12	- orangish brown from 11.60 to 15.00ft BGS			3		95		11.9
14								
16	- with fine sand, firm, brownish gray, slight odor from 15.00 to 16.20ft BGS							15.1
18	SP-GRAVELLY SAND, trace silt, compact, fine to coarse grained, poorly graded, gray, wet	942.57		4		60		6.1
	CL-SILTY CLAY, firm, low plasticity, grayish brown, moist	941.27 940.77 940.27						
20	SP-SAND, trace silt, with fine gravel, compact, fine graded, poorly graded, brown, wet							8.9
22	ML-SILT, trace clay, trace fine sand, compact, orangish-brown, moist			5		50		10.2
24	SP-SAND, trace silt, with fine gravel, compact, fine grained, poorly graded, orangish-brown, wet	935.07 934.77 934.27 933.77						9.4
26	ML-SILT, trace clay, compact, brown, moist							
28	SP-SAND, trace silt, compact, fine grained, poorly graded, brown, wet							
30	END OF BOREHOLE @ 25.00ft BGS							
32								
34								

WELL DETAILS
Screened interval:
942.77 to 937.77ft AMSL
16.00 to 21.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
957.97 to 944.77ft AMSL
0.80 to 14.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
944.77 to 933.77ft AMSL
14.00 to 25.00ft BGS
Material: #4 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/8/2022



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: PCC VALIDATION
PROJECT NUMBER: 11223416
CLIENT: RACER
LOCATION: PONTIAC, MICHIGAN

HOLE DESIGNATION: SB-48D-22R
DATE COMPLETED: 6 April 2022
DRILLING METHOD: Sonic Rig - Versa Sonic
FIELD PERSONNEL: Scott Kippen

File: \\GHDNET\GHD\US\DETROIT\PROJECTS\56311223416\TECH\GINT\LOG DATABASE\11223416-WA-052022.GPJ Library File: GHD_ENVIRO_V06.GLB Report: OVERBURDEN LOG Date: 18/5/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
2	SP-GRAVELLY SAND, trace silt, with clay (fill), compact, fine to coarse grained, poorly graded, brown, moist		1		90		1.9
4							2.5
6	SP-SAND, with coarse gravel, trace silt, trace debris (masonry, brick)(fill), compact, fine to coarse grained, poorly graded, black, moist	6.00	2		95		4.1
8	SM-SILTY SAND, trace organics (wood)(fill), compact, fine grained, poorly graded, black, moist	7.60					2.5
10	CL-SILTY CLAY, trace sand, trace fine to coarse gravel, stiff, low plasticity, mottled, gray/brown, moist	9.40					2.2
12	SM-SILTY SAND, with clay, loose, fine grained, poorly graded, black, wet	10.50	3		75		2.7
14	CL-SILTY CLAY, trace sand, trace fine to coarse gravel, firm, low plasticity, mottled, gray/brown, moist	12.80					3.6
16	SM-SILTY SAND LOAM, compact, fine grained, poorly graded, black, dry	15.00					4.6
18	CL-SILTY CLAY, trace fine to coarse gravel, stiff, low plasticity, gray, moist	16.00	4		95		4.1
20	SP-GRAVELLY SAND, trace silt, compact, fine grained, poorly graded, gray, wet	16.80					4.9
22	- cobbles from 17.50 to 17.60ft BGS	17.60					4.1
24	CL-SILTY CLAY, trace fine gravel, stiff, low plasticity, gray, moist						1.3
26	- with fine to coarse-rounded gravel from 18.00 to 29.00ft BGS						1.9
28	- cobble at 19.00ft BGS						
30	SP-SAND, with fine to coarse gravel, trace clay, compact, fine to coarse sand, poorly graded, brown, wet	29.00	5		95		
32							
34	- gray from 34.80 to 43.00ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: PCC VALIDATION
PROJECT NUMBER: 11223416
CLIENT: RACER
LOCATION: PONTIAC, MICHIGAN

HOLE DESIGNATION: SB-48D-22R
DATE COMPLETED: 6 April 2022
DRILLING METHOD: Sonic Rig - Versa Sonic
FIELD PERSONNEL: Scott Kippen

File: \\GHDNET\GHD\US\DETROIT\PROJECTS\56311223416\TECH\GINTLOG DATABASE\11223416-WA-052022.GPJ Library File: GHD_ENVIRO_V06.GLB Report: OVERBURDEN LOG Date: 18/5/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
36							2.1
38							0.0
40							0.0
42							0.2
44	CL-SILTY CLAY TILL, trace sand, trace fine to coarse gravel, stiff, low plasticity, gray, moist	43.00	6		95		0.4
46							0.5
48							0.7
50	SP-SAND, trace silt, trace fine gravel, compact, fine grained, poorly graded, dark grayish-brown, wet	48.80					0.6
52	ML-SILT, trace clay, compact, fine grained, gray, moist	52.30					0.4
54	SM-SILTY SAND, compact, fine grained, poorly graded, gray, wet	53.00	7		95		0.0
56							0.0
58							0.0
60	END OF BOREHOLE @ 60.00ft BGS	60.00					0.0
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

Appendix B

Low Flow Groundwater Sampling Field Forms

Monitoring Well Record for Low-flow Purging
(Form SP-09)

Project Data:

Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-15-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-68-08
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 15.21
Depth of Sediment (m/ft): _____

Purge (start): 9:04
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC - Flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 11.89



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
9:40	150 mL/min			8.8	0.909	2.92	1.23	6.75	177.7		
9:45				9.0	0.912	3.60	1.16	6.78	165.0		
9:50				8.9	0.905	5.56	1.09	6.80	157.7		
9:55				8.9	0.896	6.33	0.99	6.82	150.2		
10:00				8.9	0.894	7.63	0.92	6.83	146.1		
10:05	↓	13.17	1.28	8.9	0.892	7.11	0.91	6.85	145.7		
10:10	- Sample Time (-001)										

Sample ID: GW-11223416-041522-SK-001

Sample Time: 10:10

Notes:

TCL-VOC's 2 gals. purged.

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r=D/2$) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s .
- For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: PCC Validation
Ref. No.: 11223416

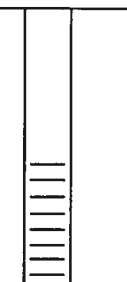
Date: 4-15-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-79i-19
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 22.16
Depth of Sediment (m/ft): _____

Purge (start): 10:26

Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2' PVC-Flush Mt
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 11.98



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
11:05	150 mL/min			10.1	1.903	8.08	0.55	6.89	172.3		
11:10				10.1	1.874	9.14	0.53	6.90	170.1		
11:15				9.9	1.828	8.79	0.53	6.91	169.3		
11:20				9.8	1.792	6.54	0.51	6.92	169.9		
11:25				9.8	1.758	5.37	0.50	6.93	168.5		
11:30	↓	12.13	0.15	9.6	1.734	4.36	0.50	6.93	167.8		
11:35	Sample Time		(-002)								
11:40	"	"	(-003 Dup)								

Sample ID: GW-11223416-041522-SK-002

Sample Time: 11:35

Notes: TCL-VOCs -003 (dup)

11:40 (dup)

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

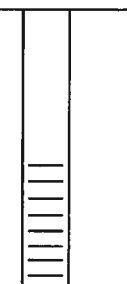
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-15-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-79d-19
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 34.56
Depth of Sediment (m/ft): _____

Purge (start): 11:08
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC - flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 9.91



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
11:50	150 mL/min	↓	↓	10.4	3.071	6.27	0.59	7.03	28.5		
11:55	↓	↓	↓	10.4	3.095	5.25	0.55	7.04	22.1		
12:00	↓	↓	↓	10.5	3.121	5.43	0.53	7.04	18.1		
12:05	↓	↓	↓	10.5	3.139	5.16	0.51	7.05	14.6		
12:10	↓	↓	↓	10.5	3.158	4.22	0.50	7.05	12.2		
12:15	↓	10.16	0.25	10.7	3.168	2.79	0.49	7.05	10.5		
12:20	- Sample Time (-004)										

Sample ID: GW-11223416-041522-SK-004

Sample Time: 12:20

Notes:

TCL VOC's

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r=D/2$) and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- For conductivity, the average value of three readings <1 mS/cm ± 0.005 mS/cm or where conductivity >1 mS/cm ± 0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-15-2022
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-02-07
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 15.90
Depth of Sediment (m/ft): _____

Purge (start): 12:29
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC-Flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 11.54



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
13:05	150 mL/min	↓	↓	9.8	2.111	1.17	0.42	6.79	91.9		
13:10	↓	↓	↓	9.9	2.075	-	0.42	6.79	92.9		
13:15	↓	↓	↓	9.7	2.076	-	0.42	6.79	92.0		
13:20	↓	14.99	3.45	9.7	2.070	0.80	0.42	6.78	92.0		
13:25	- Sample Time (-005)										

Sample ID: GW-11223416-041522-SK-005

Sample Time: 13:25

Notes: TCL-VOC's

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where $r (r=D/2)$ and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

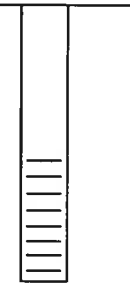
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-15-2022
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-74D-22
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 45.00
Depth of Sediment (m/ft): _____

Purge (start): 13:42
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC Flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 28.70



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
14:15	150 mL/min			10.1	6.090	5.74	0.52	6.88	10.8		
14:20				9.7	6.027	3.93	0.49	6.90	8.0		
14:25				9.5	5.857	2.91	0.50	6.91	5.5		
14:30				9.4	5.743	2.58	0.51	6.92	3.8		
14:35				9.3	5.649	2.20	0.51	6.93	2.2		
14:40				9.2	5.575	2.00	0.52	6.94	0.8		
14:45	↓	28.71	0.01	9.2	5.512	2.62	0.54	6.95	0.0		
14:50	- Sample Time (-006)										

Sample ID: GW-11223416-041522-SK-006

Sample Time: 14:50

Notes: TCL-VOC's

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

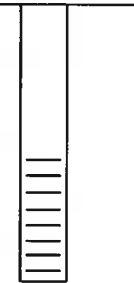
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-18-2022
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-87-12
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 14.93
Depth of Sediment (m/ft): _____

Purge (start): 11:03
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC-Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 7.63



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
11:40	150 mL/min	↓	↓	7.9	0.670	9.12	0.54	10.59	-66.6		
11:45	↓	↓	↓	7.9	0.673	6.33	0.52	10.59	-75.2		
11:50	↓	↓	↓	7.8	0.676	4.81	0.51	10.59	-81.6		
11:55	↓	↓	↓	7.8	0.677	3.86	0.50	10.60	-87.7		
12:00	↓	7.81	0.18	7.8	0.678	3.91	0.49	10.60	-91.5		
12:05	- Sample Time (-007)										

Sample ID: GW-11223416-041822-SK-007

Sample Time: 12:05

Notes:

TCL-VOCs

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = n \cdot (r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm. For Imperial units, $V_s = n \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches.
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

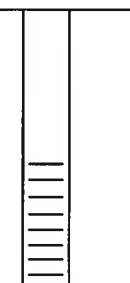
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-18-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-80-12
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 11.83
Depth of Sediment (m/ft): _____

Purge (start): 12:52
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 5.20



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
13:30	150 mL/min			5.6	1.100	2.68	0.79	6.76	93.0		
13:35				5.5	1.096	2.61	0.68	6.60	108.7		
13:40				5.3	1.095	2.40	0.64	6.55	117.8		
13:45				5.4	1.091	2.77	0.61	6.53	123.7		
13:50				5.2	1.090	2.19	0.59	6.51	128.7		
13:55		5.65	0.45	5.1	1.088	1.84	0.58	6.51	131.7		
14:00	- Sample Time (-008)										

Sample ID: GW-11223416-041822-SK-008

Sample Time: 14:00

Notes:

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

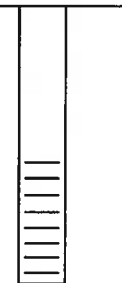
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-18-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW 93i-13
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 17.15
Depth of Sediment (m/ft): _____

Purge (start): 14:13
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC, Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 6.94



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
14:55	150 mL/min	↓	↓	7.8	2.366	3.33	0.89	6.36	94.0		
15:00	↓	↓	↓	7.9	2.367	3.36	0.84	6.35	92.8		
15:05	↓	↓	↓	8.0	2.375	2.37	0.79	6.36	91.3		
15:10	↓	7.35	0.41	7.8	2.388	2.13	0.72	6.35	90.4		
15:15	Sample Time		(-009)								

Sample ID: GW-11223416-041822-SK-009

Sample Time: 15:15

Notes:

+CL-VOC's

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

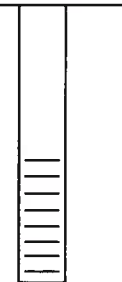
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-18-2022
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-925-12
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 9.68
Depth of Sediment (m/ft): _____

Purge (start): 15:31
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC- Flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 6.02



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
16:05	150 mL/min	↓	↓	7.1	2.293	9.20	0.45	6.39	6.6		
16:10	↓	↓	↓	7.1	2.311	6.86	0.44	6.39	5.1		
16:15	↓	↓	↓	7.2	2.309	5.28	0.44	6.39	3.8		
16:20	↓	7.45	1.43	6.8	2.321	4.11	0.49	6.39	3.6		
16:25	- Sample Time (-010)										

Sample ID: GW-11223416-041822-SK-010

Sample Time: 16:25

Notes:

TCL-VOC's

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- (5) For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

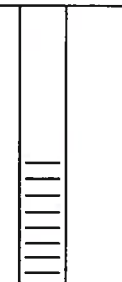
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-18-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-92i-12
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 16.26
Depth of Sediment (m/ft): _____

Purge (start): 16:12
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC - Flush Mt
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 5.82



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
16:45	150 mL/min	↓	↓	6.9	2.609	13.1	0.55	6.66	18.7		
16:50	↓	↓	↓	6.9	2.627	14.3	0.53	6.66	19.1		
16:55	↓	↓	↓	6.9	2.611	13.1	0.53	6.66	19.4		
17:00	↓	↓	↓	7.1	2.611	12.6	0.51	6.67	18.3		
17:05	↓	6.24	0.42	7.5	2.612	8.78	0.49	6.68	17.4		
17:10	- Sample Time (-011)										

Sample ID: GW-11223416-041822-SK-011

Sample Time: 17:10

Notes:

TCL-VOC's

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r = D/2$) and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

Monitoring Well Record for Low-flow Purging
(Form SP-09)

Project Data:

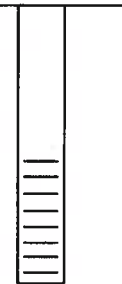
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-19-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-85-12
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 8.20
Depth of Sediment (m/ft): _____

Purge (start): 9:26
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 2.73



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
10:05	150 mL/min			6.1	1.074	8.08	2.13	10.35	147.9		
10:10				6.2	1.020	7.18	2.03	10.21	144.1		
10:15				6.0	0.995	6.80	1.92	10.06	141.6		
10:20				6.0	0.970	7.40	1.75	9.99	137.4		
10:25				5.6	0.922	9.13	1.43	9.91	133.5		
10:30	↓	5.26	2.53	5.9	0.902	8.24	1.19	9.87	128.1		
10:35	Sample Time - 012										

Sample ID: GW-11223416-041922-SK-012

Sample Time: 10:35

Notes: TCL-VOC's

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

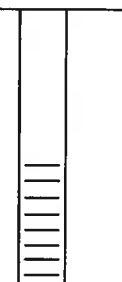
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-19-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-64-08
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 15.08
Depth of Sediment (m/ft): _____

Purge (start): 10:18
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC. Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 5.25



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
10:50	150 mL/min	↓	↓	5.4	0.967	11.3	0.67	6.67	158.2		
10:55	↓	↓	↓	5.3	0.972	11.9	0.62	6.59	146.0		
11:00	↓	↓	↓	5.4	0.966	7.12	0.59	6.57	130.7		
11:05	↓	↓	↓	5.5	0.960	5.63	0.57	6.57	117.5		
11:10	↓	↓	↓	5.8	0.955	6.02	0.56	6.56	106.4		
11:15	↓	↓	↓	5.7	0.950	7.24	0.57	6.56	96.6		
11:20	↓	10.10	4.85	5.6	0.952	11.9	0.56	6.56	89.6		
11:25	- Sample Time (013)			MS/msd							

Sample ID: 6W-11223416-041922-SK-013

Sample Time: 11:25

Notes:

TCL-Voc's

MS/msd

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r = D/2$) and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- (5) For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

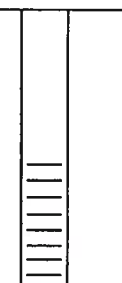
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-19-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-81-12
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 18.72
Depth of Sediment (m/ft): _____

Purge (start): 12:26
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 6.95



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
13:05	150 mL/min	↓	↓	6.8	2.227	8.71	0.47	7.39	20.2		
13:10	↓	↓	↓	6.7	2.225	8.72	0.46	7.40	14.4		
13:15	↓	↓	↓	6.8	2.212	8.31	0.45	7.41	10.4		
13:20	↓	↓	↓	7.4	2.202	7.24	0.44	7.41	6.2		
13:25	↓	7.59	0.64	7.6	2.200	6.85	0.43	7.43	1.6		
13:30 -	Sample Time (-014)										

Sample ID: GW-11223416-041922-SK-014

Sample Time: 13:30

Notes:

TCL-VOL'S

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r=D/2$) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s .
- For conductivity, the average value of three readings < 1 mS/cm ±0.005 mS/cm or where conductivity > 1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-21-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-10-07
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 17.55
Depth of Sediment (m/ft): _____

Purge (start): 8:52
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC-Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 12.64



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
9:30	150 mL/min	↓	↓	10.5	1.603	3.72	0.84	7.66	232.8		
9:35	↓	↓	↓	10.6	1.592	2.18	0.71	7.67	228.7		
9:40	↓	↓	↓	10.6	1.584	2.38	0.70	7.68	225.1		
9:45	↓	15.18	2.54	10.6	1.564	2.31	0.71	7.69	222.3		
9:50	- Sample Time (- 0.15 ms/msd)										

Sample ID: GW-11223416-042122-SK-015

Sample Time: 9:50

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r=D/2$) and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .
- (5) For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

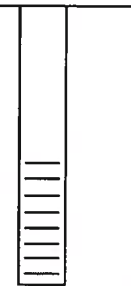
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-21-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-33-07
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 21.89
Depth of Sediment (m/ft): _____

Purge (start): 10:22
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC - Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 16.16



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
11:15	150 mL/min	↓	↓	12.2	3.075	1.28	0.49	6.84	79.2		
11:20	↓	↓	↓	12.2	3.014	—	0.47	6.85	64.4		
11:25	↓	↓	↓	12.2	2.949	—	0.45	6.85	55.9		
11:30	↓	↓	↓	12.5	2.892	—	0.44	6.86	50.1		
11:35	↓	↓	↓	12.7	2.844	—	0.43	6.87	47.1		
11:40	↓	16.30	0.14	12.3	2.790	1.09	0.43	6.87	44.5		
11:45	- Sample Time - (-016)										
11:55	- " " (-017 dup)										

Sample ID: GW-11223416-042122-SK-016/-017 dup

Sample Time: 11:45 / 11:55 (dup)

Notes:

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s.
- For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: PCC Validation
Ref. No.: 11223416

Date: 4.21.22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-74-08R
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 17.10
Depth of Sediment (m/ft): _____

Purge (start): 12:26
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC-Flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 15.64

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
13:00	150 mL/min			12.7	4.781	0.83	3.47	6.75	106.1		
13:05				12.7	4.912	—	3.39	6.74	112.1		
13:10				12.9	5.172	—	3.29	6.74	117.9		
13:15				12.7	5.341	—	3.26	6.74	122.7		
13:20				13.2	5.463	—	3.22	6.73	127.1		
13:25				13.0	5.587	—	3.19	6.73	131.2		
13:30		↓	↓	12.8	5.535	—	3.21	6.74	134.2		
13:35	↓	16.21		13.1	5.600	0.72	3.18	6.73	136.3		
13:40	Sample Time		-018	(MS/msd)							
14:20	"	"	-019	(Dup)							

Sample ID: GW-11223416-042122-SK-018 / MS/msd

Sample Time: 13:40

Notes:

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
- For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

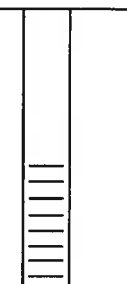
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4.22.22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-21-07
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 16.06
Depth of Sediment (m/ft): _____

Purge (start): _____
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" Avg. Flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 15.59



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
—	100 mL/min			- NO field Readings							
—				- Minimal water in a historically dry well.							
8:45				- Metals Bottle 1/3 full, will come back later in day to check levels.							
14:30	check well again.			- get a little more into metals Bottle 2/3 full for sample							
				NO Dissolved metals, not enough water in well.							
				* Only one Bottle for metals shipped for analysis.							

Sample ID: GW-11223416-042222-SK-020

Sample Time: 8:45

Notes:

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r=D/2$) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p/V_s .
- For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

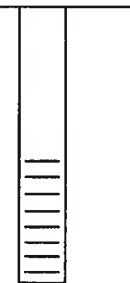
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-22-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-38-07
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 16.80
Depth of Sediment (m/ft): _____

Purge (start): 9:00
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC Flush Mt
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 14.64



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
9:20	100 mL/min	↓	↓	9.8	2.358	2.22	1.01	6.84	254.0		
9:25	↓	15.43	0.79	10.1	2.336	2.14	1.11	6.85	241.8		
9:30 -	Sample Time	(0.21)									

Sample ID: GW-11223416-042222-SK-021

Sample Time: 9:30

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-22-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-88-22R
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 24.67
Depth of Sediment (m/ft): _____

Purge (start): 10:00
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC - flush Mt
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 19.59



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
10:20	100 mL/min			11.4	1.757	80.3	1.37	6.93	128.9		
10:25				11.3	1.766	70.0	1.38	6.99	120.4		
10:30				11.2	1.804	50.8	1.57	6.99	114.8		
10:35				11.3	1.825	41.4	1.69	6.99	113.9		
10:40				11.3	1.837	36.1	1.83	6.99	114.7		
10:45				11.3	1.854	31.2	1.84	6.99	115.8		
10:50				11.3	1.857	30.8	1.93	6.98	117.3		
10:55	↓	22.52	2.93	11.6	1.874	36.1	1.91	6.98	118.0		
11:00	Sample Time (-022)										

Sample ID: BW-11223416-042222-SK-022

Sample Time: 11:00

Notes:

TCL-VOC'S

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

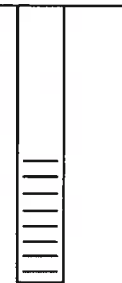
Project Name: PCC Validation
Ref. No.: 11223416

Date: 4-22-22
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-48-22R
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 18.43
Depth of Sediment (m/ft): _____

Purge (start): 11:27
Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC - Flush Mt.
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 3.38



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
12:15	150 mL/min			11.5	1.510	45.8	0.39	7.63	47.0		
12:20				11.7	1.506	44.2	0.38	7.63	42.9		
12:25				11.7	1.504	39.1	0.38	7.64	38.4		
12:30				11.7	1.505	36.5	0.38	7.63	35.3		
12:35				11.7	1.502	32.6	0.38	7.63	31.5		
12:40				11.6	1.502	30.8	0.38	7.64	28.3		
12:45				11.5	1.500	27.7	0.38	7.64	25.0		
12:50				11.3	1.494	27.6	0.38	7.64	22.9		
12:55		4.38	1.00	11.1	1.491	27.5	0.38	7.64	20.6		
13:00 -	Sample Time (-023)										

Sample ID: GW-11223416-042222-SK-023

Sample Time: 13:00

Notes: TCL-VOC's

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r=D/2$) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s .
- (5) For conductivity, the average value of three readings <1 mS/cm ± 0.005 mS/cm or where conductivity >1 mS/cm ± 0.01 mS/cm.

Monitoring Well Record for Low Flow Purging
(Form SP-09)

Project Data:

Project Name: PCC validation
Ref. No.: 112234116-

Date: 9-24-21
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-791-19
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 22.17
Depth of Sediment (m/ft): _____

Purge Time (start): 8:12

Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVL - Flush mt
Well Screen Volume, V_s (L)⁽²⁾: _____
Initial Depth to Water (m/ft): 11.01

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
8:45	150 mL/min			14.66	1.65	2.04	0.00	7.07	30.8		
8:50				14.68	1.61	1.77	0.00	7.08	30.1		
8:55				14.66	1.58	—	0.00	7.09	28.0		
9:00				14.69	1.57	—	0.00	7.10	27.0		
9:05				14.75	1.51	—	0.00	7.11	24.5		
9:10				14.75	1.51	—	0.00	7.11	22.8		
9:15	↓	11.13	0.12	14.75	1.50	1.21	0.00	7.12	20.3		
9:20 - Sample Time (-001)											

Sample ID: GW-112234116-092421-SK-001

Sample Time: 9:20

Notes:

TCL-VOC's

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .

Monitoring Well Record for Low-flow Purging
(Form SP-09)

Project Data:

Project Name: PCC Validation
Ref. No.: 11223416

Date: 9-24-21
Personnel: S. Kippen

Monitoring Well Data:

Well No.: MW-79d-19
Vapour PID (ppm): _____
Measurement Point: T.O.C.
Constructed Well Depth (m/ft): _____
Measured Well Depth (m/ft): 34.63
Depth of Sediment (m/ft): _____

Purge Time (start): 8:50

Saturated Screen Length (m/ft): _____
Depth to Pump Intake (m/ft)⁽¹⁾: _____
Well Diameter, D (cm/in): 2" PVC - Flush Mt.
Well Screen Volume, V_s (L)⁽⁴⁾: _____
Initial Depth to Water (m/ft): 10.49

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
9:30	150 mL/min			14.21	3.12	4.13	0.00	7.16	-118.3		
9:35				14.25	3.15	3.71	0.00	7.17	-120.0		
9:40				14.42	3.17	4.34	0.00	7.17	-121.0		
9:45				14.46	3.18	5.12	0.00	7.17	-121.7		
9:50		10.60	0.11	14.45	3.18	4.42	0.00	7.18	-122.1		
9:55	- Sample Time (-002)										
10:00	- Sample Time (-003 dup)										

Sample ID: GW-11223416-092421-SK-002/-003 duplicate

Sample Time: 9:55 / 10:00 (dup)

Notes:

TCL-VOCs

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .

Appendix C

Validation Memo

Technical Memorandum

03 February 2022

To	Tom Kinney	Tel	248-893.3400
Copy to	Sam Belisle	Email	Tom.kinney@ghd.com
From	James Abston/JA/4	Ref. No.	11223416 (17322A)
Subject	Analytical Results and Full Validation Groundwater and Soil Gas Sampling RACER PCC-Validation Pontiac, Michigan September 2021		

1. Introduction

This document details a reduced validation of analytical results for groundwater and soil gas samples collected in support of the 2021 Groundwater and Soil Gas Sampling at the RACER PCC-Validation site during September 2021. Groundwater samples were submitted to Eurofins Test America Laboratories located in North Canton, Ohio. Soil gas samples were submitted to Eurofins Test America Laboratories located in South Burlington, Vermont. A sample collection and analysis summary are presented in Tables 1A and 1B. The validated analytical results are summarized in Tables 2A and 2B. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS) and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

1. "Sampling and Analysis Plan and Fundamental Quality Assurance Project Plan (QAPP)", April 2012.
2. "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008.

Item 2 will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound determination was spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were within the laboratory control limits.

5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all compounds of interest. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy except for low recoveries for cyclohexane, 1,1,2-trichloro-1,2,2-trifluoroethane, methylcyclohexane and dichlorodifluoromethane. The associated sample results were non-detect and therefore qualified as estimated due to potential low bias (see Table 4).

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses was performed on non-site-specific samples and therefore could not be used to evaluate this data.

7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample, and two field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Tables 1A and 1B. The RPDs associated with these duplicate samples must be less than 50 percent for water and air samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value for water and air samples.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Tables 2A and 2B unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Tables 2A and 2B are acceptable with the specific qualifications noted herein.

Regards



James Abston
Data Analytics Chemist

Table 1

Sample Collection and Analysis Summary
Groundwater Sampling
RACER PCC-Validation
Pontiac, Michigan
September 2021

					Analysis/Parameters	
Sample Identification	Location	Matrix	Collection Date	Collection Time	Volatile Organic Compounds	Comments
			(mm/dd/yyyy)	(hr:min)		
GW-11223416-092421-SK-001	MW-79I-19	Groundwater	9/24/21	9:20	X	
GW-11223416-092421-SK-002	MW-79D-19	Groundwater	9/24/21	9:55	X	
GW-11223416-092421-SK-003	MW-79D-19	Groundwater	9/24/21	10:00	X	FD(GW-11223416-092421-SK-002)
TB-11223416-092421-SK	-	Groundwater Quality Control Matrix	9/24/21	0:00	X	Trip Blank

Notes:

DUP - Laboratory Duplicate
 FD - Field Duplicate sample of sample in parenthesis

Table 1

**Sample Collection and Analysis Summary
Soil Gas Sampling
RACER PCC-Validation
Pontiac, Michigan
September 2021**

Sample Identification	Location	Matrix	Collection Date	Collection Time	Analysis/Parameters
					Volatiles Organic Compounds
			(mm/dd/yyyy)	(hr:min)	
SG-11223416-092721-SK-001	SG-04-20	Soil Gas	9/27/21	13:04	X
SG-11223416-092721-SK-002	SG-02-20	Soil Gas	9/27/21	14:12	X
SG-11223416-092721-SK-003	SG-03-20	Soil Gas	9/27/21	15:12	X
SG-11223416-092721-SK-004	SG-03-20	Soil Gas	9/27/21	15:12	X

Notes:

FD

- Field Duplicate Sample of sample in parenthesis

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
September 2021

Location ID:	MW-79D-19	MW-79D-19	MW-79I-19
Sample Name:	GW-11223416-092421-SK-002	GW-11223416-092421-SK-003	GW-11223416-092421-SK-001
Sample Date:	09/24/2021	09/24/2021	09/24/2021
		Duplicate	

Parameters	Unit			
Volatile Organic Compounds				
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U
2-Hexanone	µg/L	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	10 U	10 U	10 U
Acetone	µg/L	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.3
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 UJ	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 UJ	1.0 U	1.0 UJ
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U
Methyl acetate	µg/L	10 U	10 U	10 U
Methyl cyclohexane	µg/L	1.0 U	1.0 UJ	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	0.73 J
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U
Trifluorotrchloroethane (CFC-113)	µg/L	1.0 U	1.0 UJ	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U

Notes:

J - Estimated concentration
 UJ - Not detected; associated reporting limit is estimated
 U - Not detected

Table 2

Validated Soil Gas Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
September 2021

Location ID:	SG-02-20	SG-03-20	SG-03-20	SG-04-20
Sample Name:	SG-11223416-092721-SK-002	SG-11223416-092721-SK-003	SG-11223416-092721-SK-004	SG-11223416-092721-SK-001
Sample Date:	09/27/2021	09/27/2021	09/27/2021 Duplicate	09/27/2021
Parameters	Unit			
Volatile Organic Compounds				
1,1,1-Trichloroethane	ppbv	2.7	4.5	4.9
1,1,2,2-Tetrachloroethane	ppbv	2.0 U	2.0 U	2.0 U
1,1,2-Trichloroethane	ppbv	2.0 U	2.0 U	2.0 U
1,1-Dichloroethane	ppbv	2.0 U	2.0 U	2.0 U
1,1-Dichloroethene	ppbv	2.0 U	2.0 U	2.0 U
1,2,4-Trichlorobenzene	ppbv	20 U	20 U	2.0 U
1,2,4-Trimethylbenzene	ppbv	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ppbv	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	ppbv	2.0 U	2.0 U	2.0 U
1,2-Dichloroethane	ppbv	2.0 U	2.0 U	2.0 U
1,2-Dichloropropane	ppbv	2.0 U	2.0 U	2.0 U
1,2-Dichlorotetrafluoroethane (CFC 114)	ppbv	2.0 U	2.0 U	2.0 U
1,3,5-Trimethylbenzene	ppbv	2.0 U	2.0 U	2.0 U
1,3-Dichlorobenzene	ppbv	2.0 U	2.0 U	2.0 U
1,4-Dichlorobenzene	ppbv	2.0 U	2.0 U	2.0 U
1,4-Dioxane	ppbv	50 U	50 U	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ppbv	8.0 J	12	23
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ppbv	5.0 U	5.0 U	5.0 U
Acetone	ppbv	50 U	50 U	5.0 U
Benzene	ppbv	2.0 U	2.0 U	2.0 U
Benzyl chloride	ppbv	8.0 U	8.0 U	8.0 U
Bromodichloromethane	ppbv	2.0 U	2.0 U	2.0 U
Bromoform	ppbv	2.0 U	2.0 U	2.0 U
Bromomethane (Methyl bromide)	ppbv	2.0 U	2.0 U	2.0 U
Carbon disulfide	ppbv	1.6 J	5.0 U	5.0 U
Carbon tetrachloride	ppbv	2.0 U	2.0 U	2.0 U
Chlorobenzene	ppbv	2.0 U	2.0 U	2.0 U
Chloroethane	ppbv	8.0 U	8.0 U	8.0 U
Chloroform (Trichloromethane)	ppbv	2.0 U	2.0 U	2.0 U
Chloromethane (Methyl chloride)	ppbv	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ppbv	2.0 U	2.0 U	2.0 U
cis-1,3-Dichloropropene	ppbv	2.0 U	2.0 U	2.0 U
Cyclohexane	ppbv	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ppbv	2.0 U	2.0 U	2.0 U
Dichlorodifluoromethane (CFC-12)	ppbv	5.0 U	5.0 U	5.0 U
Ethylbenzene	ppbv	2.0 U	2.0 U	2.0 U
Hexachlorobutadiene	ppbv	20 U	20 U	2.0 U
Hexane	ppbv	8.0 U	8.0 U	8.0 U
Isopropyl alcohol	ppbv	50 U	50 U	5.0 U
Isopropyl benzene	ppbv	8.0 U	8.0 U	8.0 U
m&p-Xylenes	ppbv	8.0 U	8.0 U	8.0 U
Methyl tert butyl ether (MTBE)	ppbv	10 U	10 U	1.0 U
Methylene chloride	ppbv	5.0 U	5.0 U	5.0 U
Naphthalene	ppbv	5.0 U	5.0 U	5.0 U
o-Xylene	ppbv	2.0 U	2.0 U	2.0 U
Styrene	ppbv	2.0 U	2.0 U	2.0 U
Tetrachloroethene	ppbv	0.44 J	0.91 J	0.83 J
Tetrahydrofuran	ppbv	50 U	50 U	5.0 U
Toluene	ppbv	2.0 U	2.0 U	2.0 U
trans-1,2-Dichloroethene	ppbv	2.0 U	2.0 U	2.0 U
trans-1,3-Dichloropropene	ppbv	2.0 U	2.0 U	2.0 U
Trichloroethene	ppbv	11	1.7 J	1.6 J
Trichlorofluoromethane (CFC-11)	ppbv	72	620	2.8
Trifluorotrichloroethane (CFC-113)	ppbv	2.0 U	2.0 U	2.0 U
Vinyl acetate	ppbv	50 U	50 U	5.0 U
Vinyl bromide (Bromoethene)	ppbv	2.0 U	2.0 U	2.0 U
Vinyl chloride	ppbv	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/m3	15	25	1.9
1,1,2,2-Tetrachloroethane	µg/m3	14 U	14 U	1.4 U
1,1,2-Trichloroethane	µg/m3	11 U	11 U	1.1 U
1,1-Dichloroethane	µg/m3	8.1 U	8.1 U	0.81 U
1,1-Dichloroethene	µg/m3	7.9 U	7.9 U	0.79 U
1,2,4-Trichlorobenzene	µg/m3	150 U	150 U	15 U
1,2,4-Trimethylbenzene	µg/m3	9.8 U	9.8 U	0.98 U
1,2-Dibromoethane (Ethylene dibromide)	µg/m3	15 U	15 U	1.5 U
1,2-Dichlorobenzene	µg/m3	12 U	12 U	1.2 U
1,2-Dichloroethane	µg/m3	8.1 U	8.1 U	0.81 U
1,2-Dichloropropane	µg/m3	9.2 U	9.2 U	0.92 U
1,2-Dichlorotetrafluoroethane (CFC 114)	µg/m3	14 U	14 U	1.4 U
1,3,5-Trimethylbenzene	µg/m3	9.8 U	9.8 U	0.98 U
1,3-Dichlorobenzene	µg/m3	12 U	12 U	1.2 U
1,4-Dichlorobenzene	µg/m3	12 U	12 U	1.2 U
1,4-Dioxane	µg/m3	180 U	180 U	18 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/m3	23 J	35	2.9 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/m3	20 U	20 U	2.0 U
Acetone	µg/m3	120 U	120 U	12 U
Benzene	µg/m3	6.4 U	6.4 U	0.64 U
Benzyl chloride	µg/m3	41 U	41 U	4.1 U
Bromodichloromethane	µg/m3	13 U	13 U	1.3 U
Bromoform	µg/m3	21 U	21 U	2.1 U
Bromomethane (Methyl bromide)	µg/m3	7.8 U	7.8 U	0.78 U
Carbon disulfide	µg/m3	4.9 J	16 U	1.6 U
Carbon tetrachloride	µg/m3	13 U	13 U	1.3 U
Chlorobenzene	µg/m3	9.2 U	9.2 U	0.92 U
Chloroethane	µg/m3	21 U	21 U	2.1 U
Chloroform (Trichloromethane)	µg/m3	9.8 U	9.8 U	0.98 U
Chloromethane (Methyl chloride)	µg/m3	10 U	10 U	1.0 U
cis-1,2-Dichloroethene	µg/m3	7.9 U	7.9 U	0.79 U
cis-1,3-Dichloropropene	µg/m3	9.1 U	9.1 U	0.91 U
Cyclohexane	µg/m3	17 U	17 U	1.7 U
Dibromochloromethane	µg/m3	17 U	17 U	1.7 U
Dichlorodifluoromethane (CFC-12)	µg/m3	25 U	25 U	2.5 U
Ethylbenzene	µg/m3	8.7 U	8.7 U	0.87 U
Hexachlorobutadiene	µg/m3	210 U	210 U	21 U
Hexane	µg/m3	28 U	28 U	2.8 U
Isopropyl alcohol	µg/m3	120 U	120 U	12 U
Isopropyl benzene	µg/m3	39 U	39 U	3.9 U
m&p-Xylenes	µg/m3	35 U	35 U	3.5 U

Table 2

Validated Soil Gas Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
September 2021

Parameters	Unit	Location ID:	SG-02-20	SG-03-20	SG-03-20	SG-04-20
		Sample Name:	SG-11223416-092721-SK-002	SG-11223416-092721-SK-003	SG-11223416-092721-SK-004	SG-11223416-092721-SK-001
		Sample Date:	09/27/2021	09/27/2021	09/27/2021 Duplicate	09/27/2021
Methyl tert butyl ether (MTBE)	µg/m3		36 U	36 U	36 U	3.6 U
Methylene chloride	µg/m3		17 U	17 U	17 U	1.7 U
Naphthalene	µg/m3		26 U	26 U	26 U	2.6 U
o-Xylene	µg/m3		8.7 U	8.7 U	8.7 U	0.87 U
Styrene	µg/m3		8.5 U	8.5 U	8.5 U	0.85 U
Tetrachloroethene	µg/m3		3.0 J	6.2 J	5.7 J	1.4 U
Tetrahydrofuran	µg/m3		150 U	150 U	150 U	15 U
Toluene	µg/m3		7.5 U	7.5 U	7.5 U	0.75 U
trans-1,2-Dichloroethene	µg/m3		7.9 U	7.9 U	7.9 U	0.79 U
trans-1,3-Dichloropropene	µg/m3		9.1 U	9.1 U	9.1 U	0.91 U
Trichloroethene	µg/m3		58	9.1 J	8.8 J	1.1 U
Trichlorofluoromethane (CFC-11)	µg/m3		410	3500	3600	16
Trifluorotrichloroethane (CFC-113)	µg/m3		15 U	15 U	15 U	1.5 U
Vinyl acetate	µg/m3		180 U	180 U	180 U	18 U
Vinyl bromide (Bromoethene)	µg/m3		8.7 U	8.7 U	8.7 U	0.87 U
Vinyl chloride	µg/m3		5.1 U	5.1 U	5.1 U	0.51 U

Notes:

J - Estimated concentration
 U - Not detected

Table 3

**Analytical Methods
Groundwater and Soil Gas Sampling
RACER PCC-Validation
Pontiac, Michigan
September 2021**

Parameter	Method	Matrix	Holding Time
			Collection or Extraction to Analysis (Days)
Volatile Organic Compounds (VOCs)	SW-846 8260B	Groundwater	14
	TO-15	Soil Gas	14

Notes:

Method References:

SW-846	- "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
TO	- Toxic Organics

Table 4

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Groundwater and Soil Gas Sampling
RACER PCC-Validation
Pontiac, Michigan
September 2021

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	Control Limits % Recovery	Associated Sample ID	Qualified Results	Units
Volatile Organic Compounds	Cyclohexane	10/01/2021	46	58 - 146	GW-11223416-092421-SK-003	1.0 UJ	ug/L
Volatile Organic Compounds	Methyl cyclohexane	10/01/2021	46	62 - 136	GW-11223416-092421-SK-003	1.0 UJ	ug/L
Volatile Organic Compounds	Trifluorotrichloroethane (CFC-113)	10/01/2021	48	51 - 146	GW-11223416-092421-SK-003	1.0 UJ	ug/L
Volatile Organic Compounds	Dichlorodifluoromethane (CFC-12)	10/07/2021	29	34 - 153	GW-11223416-092421-SK-001	1.0 UJ	ug/L
					GW-11223416-092421-SK-002	1.0 UJ	ug/L

Notes:

LCS - Laboratory Control Sample
 UJ - Not detected; associated reporting limit is estimated

Technical Memorandum

12 August 2022

To	Tom Kinney	Tel	248-893.3400
Copy to		Email	Tom.kinney@ghd.com
From	James Abston/tl/5	Ref. No.	11223416 (17322A)
Subject	Analytical Results and Full Validation Groundwater Sampling RACER PCC-Validation Pontiac, Michigan April 2022		

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the 2022 Groundwater Sampling at the RACER PCC-Validation site during April 2022. Groundwater samples were submitted to Eurofins Laboratories North Central located in Barberton, Ohio. A sample collection and analysis summary are presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes/laboratory control samples (LCS) and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

1. "Sampling and Analysis Plan and Fundamental Quality Assurance Project Plan (QAPP)", April 2012.
2. "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008.

Item 2 will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound determination was spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were within the laboratory control limits.

5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all compounds of interest. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as specified in Table 1.

Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision except for a high RPD for 1,4-dioxane. The associated sample result was non-detect and therefore no qualification was required.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples, and three field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest except for a low-level detection of 2-butanone (methyl ethyl ketone). The associated sample results were non-detect and therefore no qualification was required.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value for water samples.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable without qualification.

Regards



James Abston
Data Analytics Chemist

Table 1

Sample Collection and Analysis Summary
Groundwater Sampling
RACER PCC-Validation
Pontiac, Michigan
April 2022

Sample Identification	Location	Matrix	Collection Date	Collection Time	Analysis/Parameters			Comments
					Volatiles Organic Compounds	Semivolatiles Organic Compounds	Metals	
			(mm/dd/yyyy)	(hr:min)				
GW-11223416-041522-SK-001	MW-68-08	Groundwater	4/15/22	10:10	X	--	--	
GW-11223416-041522-SK-002	MW-79I-19	Groundwater	4/15/22	11:35	X	--	--	
GW-11223416-041522-SK-003	MW-79I-19	Groundwater	4/15/22	11:40	X	--	--	FD(GW-11223416-041522-SK-002)
GW-11223416-041522-SK-004	MW-79D-19	Groundwater	4/15/22	12:20	X	--	--	
GW-11223416-041522-SK-005	MW-2-07	Groundwater	4/15/22	13:25	X	--	--	
GW-11223416-041522-SK-006	MW-79D-19	Groundwater	4/15/22	14:50	X	--	--	
GW-11223416-041822-SK-007	MW-87-12	Groundwater	4/18/22	12:05	X	--	--	
GW-11223416-041822-SK-008	MW-80-12	Groundwater	4/18/22	14:00	X	--	--	
GW-11223416-041822-SK-009	MW-93I-13	Groundwater	4/18/22	15:15	X	--	--	
GW-11223416-041822-SK-010	MW-92S-13	Groundwater	4/18/22	16:25	X	--	--	
GW-11223416-041822-SK-011	MW-92I-13	Groundwater	4/18/22	17:10	X	--	--	
GW-11223416-041922-SK-012	MW-85-12	Groundwater	4/19/22	10:35	X	--	--	
GW-11223416-041922-SK-013	MW-64-08	Groundwater	4/19/22	11:25	X	--	--	MS/MSD
GW-11223416-041922-SK-014	MW-81-12	Groundwater	4/19/22	13:30	X	--	--	
GW-11223416-042122-SK-015	MW-10-07	Groundwater	4/21/22	9:50	--	--	X	MS/MSD
GW-11223416-042122-SK-016	MW-33-07	Groundwater	4/21/22	11:45	--	--	X	
GW-11223416-042122-SK-017	MW-33-07	Groundwater	4/21/22	11:55	--	--	X	FD (GW-11223416-042122-SK-016)
GW-11223416-042122-SK-018	MW-74-22R	Groundwater	4/21/22	13:40	X	X	--	MS/MSD
GW-11223416-042122-SK-019	MW-74-22R	Groundwater	4/21/22	14:20	X	X	--	FD (GW-11223416-042122-SK-018)
GW-11223416-042222-SK-020	MW-21-07	Groundwater	4/22/22	8:45	--	--	X	
GW-11223416-042222-SK-021	MW-38-07	Groundwater	4/22/22	9:30	--	--	X	
GW-11223416-042222-SK-022	MW-88-22R	Groundwater	4/22/22	11:00	X	--	--	
GW-11223416-042222-SK-023	MW-48-22R	Groundwater	4/22/22	13:00	X	--	--	
TB-11223416-041522-SK	-	Groundwater Quality Control Matrix	4/15/22	0:00	X	--	--	Trip Blank
TB-11223416-042222-SK	-	Groundwater Quality Control Matrix	4/22/22	0:00	X	--	--	Trip Blank

Notes:

DUP - Laboratory Duplicate

FD - Field Duplicate sample of sample in parenthesis

MS/MSD - Matrix Spike/Matrix Spike Duplicate

-- - Not applicable

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-2-07	MW-10-07	MW-21-07	MW-33-07
Sample Name:	GW-11223416-041522-SK-005	GW-11223416-042122-SK-015	GW-11223416-042222-SK-020	GW-11223416-042122-SK-016
Sample Date:	04/15/2022	04/21/2022	04/22/2022	04/21/2022

Parameters	Unit				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	1.0 U	--	--	--
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	--	--	--
1,1,2-Trichloroethane	µg/L	1.0 U	--	--	--
1,1-Dichloroethane	µg/L	1.0 U	--	--	--
1,1-Dichloroethene	µg/L	1.0 U	--	--	--
1,2,4-Trichlorobenzene	µg/L	1.0 U	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	--	--	--
1,2-Dichlorobenzene	µg/L	1.0 U	--	--	--
1,2-Dichloroethane	µg/L	1.0 U	--	--	--
1,2-Dichloropropane	µg/L	1.0 U	--	--	--
1,3-Dichlorobenzene	µg/L	1.0 U	--	--	--
1,4-Dichlorobenzene	µg/L	1.0 U	--	--	--
1,4-Dioxane	µg/L	50 U	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	--	--	--
2-Hexanone	µg/L	10 U	--	--	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	10 U	--	--	--
Acetone	µg/L	10 U	--	--	--
Benzene	µg/L	1.0 U	--	--	--
Bromodichloromethane	µg/L	1.0 U	--	--	--
Bromoform	µg/L	1.0 U	--	--	--
Bromomethane (Methyl bromide)	µg/L	1.0 U	--	--	--
Carbon disulfide	µg/L	1.0 U	--	--	--
Carbon tetrachloride	µg/L	1.0 U	--	--	--
Chlorobenzene	µg/L	1.0 U	--	--	--
Chloroethane	µg/L	1.0 U	--	--	--
Chloroform (Trichloromethane)	µg/L	1.0 U	--	--	--
Chloromethane (Methyl chloride)	µg/L	1.0 U	--	--	--
cis-1,2-Dichloroethene	µg/L	1.0 U	--	--	--
cis-1,3-Dichloropropene	µg/L	1.0 U	--	--	--
Cyclohexane	µg/L	1.0 U	--	--	--
Dibromochloromethane	µg/L	1.0 U	--	--	--
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	--	--	--
Ethylbenzene	µg/L	1.0 U	--	--	--
Isopropyl benzene	µg/L	1.0 U	--	--	--
Methyl acetate	µg/L	10 U	--	--	--
Methyl cyclohexane	µg/L	1.0 U	--	--	--
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	--	--	--
Methylene chloride	µg/L	5.0 U	--	--	--
Styrene	µg/L	1.0 U	--	--	--

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-2-07	MW-10-07	MW-21-07	MW-33-07
Sample Name:	GW-11223416-041522-SK-005	GW-11223416-042122-SK-015	GW-11223416-042222-SK-020	GW-11223416-042122-SK-016
Sample Date:	04/15/2022	04/21/2022	04/22/2022	04/21/2022

Parameters	Unit				
Volatile Organic Compounds					
Tetrachloroethene	µg/L	1.0 U	--	--	--
Toluene	µg/L	1.0 U	--	--	--
trans-1,2-Dichloroethene	µg/L	1.0 U	--	--	--
trans-1,3-Dichloropropene	µg/L	1.0 U	--	--	--
Trichloroethene	µg/L	1.0 U	--	--	--
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	--	--	--
Trifluorotrichloroethane (CFC-113)	µg/L	1.0 U	--	--	--
Vinyl chloride	µg/L	1.0 U	--	--	--
Xylenes (total)	µg/L	2.0 U	--	--	--
Semivolatile Organic Compounds					
1,4-Dioxane	µg/L	--	--	--	--
Metals					
Aluminum	µg/L	--	160	1200	50 U
Aluminum (dissolved)	µg/L	--	51	--	50 U
Lead	µg/L	--	1.0 U	6.3	1.0 U
Lead (dissolved)	µg/L	--	1.0 U	--	1.0 U
Vanadium	µg/L	--	4.0 U	1.7 J	4.0 U
Vanadium (dissolved)	µg/L	--	4.0 U	--	4.0 U

Notes:

J - Estimated concentration

U - Not detected

-- - Not applicable

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-33-07	MW-38-07	MW-48-22R	MW-64-08
Sample Name:	GW-11223416-042122-SK-017	GW-11223416-042222-SK-021	GW-11223416-042222-SK-023	GW-11223416-041922-SK-013
Sample Date:	04/21/2022 Duplicate	04/22/2022	04/22/2022	04/19/2022

Parameters	Unit				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	--	--	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	--	--	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	--	--	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	--	--	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	--	--	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	--	--	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	--	--	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	--	--	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	--	--	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	--	--	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	--	--	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	--	--	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	--	--	1.0 U	1.0 U
1,4-Dioxane	µg/L	--	--	50 U	50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	--	--	10 U	10 U
2-Hexanone	µg/L	--	--	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	--	--	10 U	10 U
Acetone	µg/L	--	--	10 U	10 U
Benzene	µg/L	--	--	1.0 U	1.0 U
Bromodichloromethane	µg/L	--	--	1.0 U	1.0 U
Bromoform	µg/L	--	--	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	--	--	1.0 U	1.0 U
Carbon disulfide	µg/L	--	--	1.0 U	1.0 U
Carbon tetrachloride	µg/L	--	--	1.0 U	1.0 U
Chlorobenzene	µg/L	--	--	1.0 U	1.0 U
Chloroethane	µg/L	--	--	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	--	--	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	--	--	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	--	--	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	--	--	1.0 U	1.0 U
Cyclohexane	µg/L	--	--	1.0 U	1.0 U
Dibromochloromethane	µg/L	--	--	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	--	--	1.0 U	1.0 U
Ethylbenzene	µg/L	--	--	1.0 U	1.0 U
Isopropyl benzene	µg/L	--	--	1.0 U	1.0 U
Methyl acetate	µg/L	--	--	10 U	10 U
Methyl cyclohexane	µg/L	--	--	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	--	--	1.0 U	1.0 U
Methylene chloride	µg/L	--	--	5.0 U	5.0 U
Styrene	µg/L	--	--	1.0 U	1.0 U

Table 2

**Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022**

Location ID:	MW-33-07	MW-38-07	MW-48-22R	MW-64-08
Sample Name:	GW-11223416-042122-SK-017	GW-11223416-042222-SK-021	GW-11223416-042222-SK-023	GW-11223416-041922-SK-013
Sample Date:	04/21/2022	04/22/2022	04/22/2022	04/19/2022
	Duplicate			
Parameters	Unit			
Volatiles Organic Compounds				
Tetrachloroethene	µg/L	--	--	1.0 U
Toluene	µg/L	--	--	1.0 U
trans-1,2-Dichloroethene	µg/L	--	--	1.0 U
trans-1,3-Dichloropropene	µg/L	--	--	1.0 U
Trichloroethene	µg/L	--	--	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	--	--	1.0 U
Trifluorotrichloroethane (CFC-113)	µg/L	--	--	1.0 U
Vinyl chloride	µg/L	--	--	1.0 U
Xylenes (total)	µg/L	--	--	2.0 U
Semivolatile Organic Compounds				
1,4-Dioxane	µg/L	--	--	--
Metals				
Aluminum	µg/L	50 U	50 U	--
Aluminum (dissolved)	µg/L	50 U	50 U	--
Lead	µg/L	1.0 U	1.0 U	--
Lead (dissolved)	µg/L	1.0 U	1.0 U	--
Vanadium	µg/L	4.0 U	4.0 U	--
Vanadium (dissolved)	µg/L	4.0 U	4.0 U	--

Notes:

J - Estimated concentration

U - Not detected

-- - Not applicable

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-68-08	MW-74-22R	MW-74-22R	MW-79D-19
Sample Name:	GW-11223416-041522-SK-001	GW-11223416-042122-SK-018	GW-11223416-042122-SK-019	GW-11223416-041522-SK-004
Sample Date:	04/15/2022	04/21/2022	04/21/2022 Duplicate	04/15/2022

Parameters	Unit				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	1.0 U	15	11	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dioxane	µg/L	50 U	50 U	50 U	50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	10 U	10 U	10 U	10 U
Acetone	µg/L	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	µg/L	10 U	10 U	10 U	10 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-68-08	MW-74-22R	MW-74-22R	MW-79D-19
Sample Name:	GW-11223416-041522-SK-001	GW-11223416-042122-SK-018	GW-11223416-042122-SK-019	GW-11223416-041522-SK-004
Sample Date:	04/15/2022	04/21/2022	04/21/2022	04/15/2022
			Duplicate	
Parameters	Unit			
Volatile Organic Compounds				
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	44	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	µg/L	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U
Semivolatile Organic Compounds				
1,4-Dioxane	µg/L	--	1.0 U	--
Metals				
Aluminum	µg/L	--	--	--
Aluminum (dissolved)	µg/L	--	--	--
Lead	µg/L	--	--	--
Lead (dissolved)	µg/L	--	--	--
Vanadium	µg/L	--	--	--
Vanadium (dissolved)	µg/L	--	--	--

Notes:

J - Estimated concentration

U - Not detected

-- - Not applicable

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-79D-19	MW-79I-19	MW-79I-19	MW-80-12
Sample Name:	GW-11223416-041522-SK-006	GW-11223416-041522-SK-002	GW-11223416-041522-SK-003	GW-11223416-041822-SK-008
Sample Date:	04/15/2022	04/15/2022	04/15/2022 Duplicate	04/18/2022
Parameters	Unit			
Volatile Organic Compounds				
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,4-Dioxane	µg/L	50 U	50 U	50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U
2-Hexanone	µg/L	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	10 U	10 U	10 U
Acetone	µg/L	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	0.71 J	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U
Methyl acetate	µg/L	10 U	10 U	10 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U

Table 2

**Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022**

Location ID:	MW-79D-19	MW-79I-19	MW-79I-19	MW-80-12
Sample Name:	GW-11223416-041522-SK-006	GW-11223416-041522-SK-002	GW-11223416-041522-SK-003	GW-11223416-041822-SK-008
Sample Date:	04/15/2022	04/15/2022	04/15/2022 Duplicate	04/18/2022
Parameters	Unit			
Volatile Organic Compounds				
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	0.57 J	0.58 J	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	µg/L	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U
Semivolatile Organic Compounds				
1,4-Dioxane	µg/L	--	--	--
Metals				
Aluminum	µg/L	--	--	--
Aluminum (dissolved)	µg/L	--	--	--
Lead	µg/L	--	--	--
Lead (dissolved)	µg/L	--	--	--
Vanadium	µg/L	--	--	--
Vanadium (dissolved)	µg/L	--	--	--

Notes:

J - Estimated concentration

U - Not detected

-- - Not applicable

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-81-12	MW-85-12	MW-87-12	MW-88-22R
Sample Name:	GW-11223416-041922-SK-014	GW-11223416-041922-SK-012	GW-11223416-041822-SK-007	GW-11223416-042222-SK-022
Sample Date:	04/19/2022	04/19/2022	04/18/2022	04/22/2022

Parameters	Unit				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dioxane	µg/L	38 J	50 U	50 U	50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	10 U	10 U	10 U	10 U
Acetone	µg/L	10 U	10 U	10 U	5.8 J
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	µg/L	10 U	10 U	10 U	10 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U

Table 2

**Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022**

Location ID:	MW-81-12	MW-85-12	MW-87-12	MW-88-22R
Sample Name:	GW-11223416-041922-SK-014	GW-11223416-041922-SK-012	GW-11223416-041822-SK-007	GW-11223416-042222-SK-022
Sample Date:	04/19/2022	04/19/2022	04/18/2022	04/22/2022

Parameters	Unit				
Volatile Organic Compounds					
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	1.0 J	2.0 U
Semivolatile Organic Compounds					
1,4-Dioxane	µg/L	--	--	--	--
Metals					
Aluminum	µg/L	--	--	--	--
Aluminum (dissolved)	µg/L	--	--	--	--
Lead	µg/L	--	--	--	--
Lead (dissolved)	µg/L	--	--	--	--
Vanadium	µg/L	--	--	--	--
Vanadium (dissolved)	µg/L	--	--	--	--

Notes:

J - Estimated concentration

U - Not detected

-- - Not applicable

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID:	MW-92I-13	MW-92S-13	MW-93I-13	Trip Blank
Sample Name:	GW-11223416-041822-SK-011	GW-11223416-041822-SK-010	GW-11223416-041822-SK-009	TB-11223416-041522-SK
Sample Date:	04/18/2022	04/18/2022	04/18/2022	04/15/2022

Parameters	Unit				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dioxane	µg/L	50 U	50 U	50 U	50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	3.2 J
2-Hexanone	µg/L	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	10 U	10 U	10 U	10 U
Acetone	µg/L	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	µg/L	10 U	10 U	10 U	10 U
Methyl cyclohexane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U

Table 2

**Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022**

Location ID:	MW-92I-13	MW-92S-13	MW-93I-13	Trip Blank
Sample Name:	GW-11223416-041822-SK-011	GW-11223416-041822-SK-010	GW-11223416-041822-SK-009	TB-11223416-041522-SK
Sample Date:	04/18/2022	04/18/2022	04/18/2022	04/15/2022

Parameters	Unit				
Volatile Organic Compounds					
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
Semivolatile Organic Compounds					
1,4-Dioxane	µg/L	--	--	--	--
Metals					
Aluminum	µg/L	--	--	--	--
Aluminum (dissolved)	µg/L	--	--	--	--
Lead	µg/L	--	--	--	--
Lead (dissolved)	µg/L	--	--	--	--
Vanadium	µg/L	--	--	--	--
Vanadium (dissolved)	µg/L	--	--	--	--

Notes:

J - Estimated concentration

U - Not detected

-- - Not applicable

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID: Trip Blank
Sample Name: TB-11223416-042222-SK
Sample Date: 04/22/2022

Parameters	Unit	
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U
1,1-Dichloroethane	µg/L	1.0 U
1,1-Dichloroethene	µg/L	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U
1,2-Dichloroethane	µg/L	1.0 U
1,2-Dichloropropane	µg/L	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U
1,4-Dioxane	µg/L	50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U
2-Hexanone	µg/L	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	10 U
Acetone	µg/L	10 U
Benzene	µg/L	1.0 U
Bromodichloromethane	µg/L	1.0 U
Bromoform	µg/L	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U
Carbon disulfide	µg/L	1.0 U
Carbon tetrachloride	µg/L	1.0 U
Chlorobenzene	µg/L	1.0 U
Chloroethane	µg/L	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U
Cyclohexane	µg/L	1.0 U
Dibromochloromethane	µg/L	1.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	1.0 U
Ethylbenzene	µg/L	1.0 U
Isopropyl benzene	µg/L	1.0 U
Methyl acetate	µg/L	10 U
Methyl cyclohexane	µg/L	1.0 U
Methyl tert butyl ether (MTBE)	µg/L	1.0 U
Methylene chloride	µg/L	5.0 U
Styrene	µg/L	1.0 U

Table 2

Validated Groundwater Sample Results Summary
RACER PCC-Validation
Pontiac, Michigan
April 2022

Location ID: Trip Blank
Sample Name: TB-11223416-042222-SK
Sample Date: 04/22/2022

Parameters	Unit	
Volatile Organic Compounds		
Tetrachloroethene	µg/L	1.0 U
Toluene	µg/L	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U
Trichloroethene	µg/L	1.0 U
Trichlorofluoromethane (CFC-11)	µg/L	1.0 U
Trifluorotrichloroethane (CFC-113)	µg/L	1.0 U
Vinyl chloride	µg/L	1.0 U
Xylenes (total)	µg/L	2.0 U
Semivolatile Organic Compounds		
1,4-Dioxane	µg/L	--
Metals		
Aluminum	µg/L	--
Aluminum (dissolved)	µg/L	--
Lead	µg/L	--
Lead (dissolved)	µg/L	--
Vanadium	µg/L	--
Vanadium (dissolved)	µg/L	--

Notes:

J - Estimated concentration
U - Not detected
-- - Not applicable

Table 3

**Analytical Methods
Groundwater Sampling
RACER PCC-Validation
Pontiac, Michigan
April 2022**

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
Semivolatile Organic Compounds	SW-846 8270	Groundwater	7	40
Metals	SW-846 6020/6010B	Groundwater	--	180
Volatile Organic Compounds (VOCs)	SW-846 8260B	Groundwater	--	14

Notes:

Method References:

- SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- - Not applicable

Appendix D

Laboratory Analytical Reports

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-156921-1

Client Project/Site: 11223416, PCC Validation

For:

GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Mr. James Abston



Authorized for release by:
10/10/2021 11:27:06 AM

Denise Heckler, Project Manager II
(330)966-9477

Denise.Heckler@Eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Job ID: 240-156921-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-156921-1

Comments

No additional comments.

Receipt

The samples were received on 9/25/2021 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.8° C.

GC/MS VOA

Method 8260B: There is no MS/MSD in batch 506309 due to an instrument failure.

Method 8260B: The continuing calibration verification (CCV) associated with batch 507133 recovered above the upper control limit for Toluene. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: GW-11223416-092421-SK-001 (240-156921-1), GW-11223416-092421-SK-002 (240-156921-2) and (240-157192-B-5).

Method 8260B: The Laboratory Check Sample (LCS) for analytical batch 507133 exceeded control criteria for Dichlorodifluoromethane. The samples associated with this LCS were non-detect for the affected analyte. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compounds were detected; therefore the data has been reported. No further corrective action was required.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Sample Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-156921-1	GW-11223416-092421-SK-001	Water	09/24/21 09:20	09/25/21 10:20
240-156921-2	GW-11223416-092421-SK-002	Water	09/24/21 09:55	09/25/21 10:20
240-156921-3	GW-11223416-092421-SK-003	Water	09/24/21 10:00	09/25/21 10:20
240-156921-4	TB-11223416-092421-SK	Water	09/24/21 00:00	09/25/21 10:20

Detection Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Client Sample ID: GW-11223416-092421-SK-001

Lab Sample ID: 240-156921-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.73	J	1.0	0.44	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.3		1.0	0.46	ug/L	1		8260B	Total/NA

Client Sample ID: GW-11223416-092421-SK-002

Lab Sample ID: 240-156921-2

No Detections.

Client Sample ID: GW-11223416-092421-SK-003

Lab Sample ID: 240-156921-3

No Detections.

Client Sample ID: TB-11223416-092421-SK

Lab Sample ID: 240-156921-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	2.5	J	10	1.2	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Method Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-11223416-092421-SK-001

Date Collected: 09/24/21 09:20

Date Received: 09/25/21 10:20

Lab Sample ID: 240-156921-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			10/07/21 10:03	1
Benzene	1.0	U	1.0	0.42	ug/L			10/07/21 10:03	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/07/21 10:03	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/07/21 10:03	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/07/21 10:03	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/07/21 10:03	1
Carbon disulfide	5.0	U	5.0	0.59	ug/L			10/07/21 10:03	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/07/21 10:03	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			10/07/21 10:03	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/07/21 10:03	1
Chloroform	1.0	U	1.0	0.47	ug/L			10/07/21 10:03	1
Chloromethane	1.0	U	1.0	0.63	ug/L			10/07/21 10:03	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			10/07/21 10:03	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/07/21 10:03	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			10/07/21 10:03	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			10/07/21 10:03	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/07/21 10:03	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/07/21 10:03	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			10/07/21 10:03	1
2-Hexanone	10	U	10	1.1	ug/L			10/07/21 10:03	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/07/21 10:03	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			10/07/21 10:03	1
Styrene	1.0	U	1.0	0.45	ug/L			10/07/21 10:03	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			10/07/21 10:03	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			10/07/21 10:03	1
Toluene	1.0	U	1.0	0.44	ug/L			10/07/21 10:03	1
Trichloroethene	0.73	J	1.0	0.44	ug/L			10/07/21 10:03	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			10/07/21 10:03	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			10/07/21 10:03	1
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/07/21 10:03	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/07/21 10:03	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			10/07/21 10:03	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/07/21 10:03	1
1,2-Dibromoethane	1.0	U	1.0	0.41	ug/L			10/07/21 10:03	1
Dichlorodifluoromethane	1.0	U *-	1.0	0.35	ug/L			10/07/21 10:03	1
cis-1,2-Dichloroethene	1.3		1.0	0.46	ug/L			10/07/21 10:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			10/07/21 10:03	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			10/07/21 10:03	1
Methyl acetate	10	U	10	1.7	ug/L			10/07/21 10:03	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			10/07/21 10:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/07/21 10:03	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			10/07/21 10:03	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			10/07/21 10:03	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			10/07/21 10:03	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			10/07/21 10:03	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/07/21 10:03	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/07/21 10:03	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/07/21 10:03	1

Eurofins TestAmerica, Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		10/07/21 10:03	1
4-Bromofluorobenzene (Surr)	75		56 - 136		10/07/21 10:03	1
Toluene-d8 (Surr)	100		78 - 122		10/07/21 10:03	1
Dibromofluoromethane (Surr)	96		73 - 120		10/07/21 10:03	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-11223416-092421-SK-002

Date Collected: 09/24/21 09:55

Date Received: 09/25/21 10:20

Lab Sample ID: 240-156921-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			10/07/21 10:25	1
Benzene	1.0	U	1.0	0.42	ug/L			10/07/21 10:25	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/07/21 10:25	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/07/21 10:25	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/07/21 10:25	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/07/21 10:25	1
Carbon disulfide	5.0	U	5.0	0.59	ug/L			10/07/21 10:25	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/07/21 10:25	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			10/07/21 10:25	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/07/21 10:25	1
Chloroform	1.0	U	1.0	0.47	ug/L			10/07/21 10:25	1
Chloromethane	1.0	U	1.0	0.63	ug/L			10/07/21 10:25	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			10/07/21 10:25	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/07/21 10:25	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			10/07/21 10:25	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			10/07/21 10:25	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/07/21 10:25	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/07/21 10:25	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			10/07/21 10:25	1
2-Hexanone	10	U	10	1.1	ug/L			10/07/21 10:25	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/07/21 10:25	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			10/07/21 10:25	1
Styrene	1.0	U	1.0	0.45	ug/L			10/07/21 10:25	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			10/07/21 10:25	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			10/07/21 10:25	1
Toluene	1.0	U	1.0	0.44	ug/L			10/07/21 10:25	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			10/07/21 10:25	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			10/07/21 10:25	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			10/07/21 10:25	1
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/07/21 10:25	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/07/21 10:25	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			10/07/21 10:25	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/07/21 10:25	1
1,2-Dibromoethane	1.0	U	1.0	0.41	ug/L			10/07/21 10:25	1
Dichlorodifluoromethane	1.0	U *-	1.0	0.35	ug/L			10/07/21 10:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			10/07/21 10:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			10/07/21 10:25	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			10/07/21 10:25	1
Methyl acetate	10	U	10	1.7	ug/L			10/07/21 10:25	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			10/07/21 10:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/07/21 10:25	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			10/07/21 10:25	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			10/07/21 10:25	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			10/07/21 10:25	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			10/07/21 10:25	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/07/21 10:25	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/07/21 10:25	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/07/21 10:25	1

Eurofins TestAmerica, Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	91		62 - 137		10/07/21 10:25	1
4-Bromofluorobenzene (Surr)	75		56 - 136		10/07/21 10:25	1
Toluene-d8 (Surr)	99		78 - 122		10/07/21 10:25	1
Dibromofluoromethane (Surr)	96		73 - 120		10/07/21 10:25	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-11223416-092421-SK-003

Date Collected: 09/24/21 10:00

Date Received: 09/25/21 10:20

Lab Sample ID: 240-156921-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			10/01/21 13:27	1
Benzene	1.0	U	1.0	0.42	ug/L			10/01/21 13:27	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/01/21 13:27	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/01/21 13:27	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/01/21 13:27	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/01/21 13:27	1
Carbon disulfide	5.0	U	5.0	0.59	ug/L			10/01/21 13:27	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/01/21 13:27	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			10/01/21 13:27	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/01/21 13:27	1
Chloroform	1.0	U	1.0	0.47	ug/L			10/01/21 13:27	1
Chloromethane	1.0	U	1.0	0.63	ug/L			10/01/21 13:27	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			10/01/21 13:27	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/01/21 13:27	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			10/01/21 13:27	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			10/01/21 13:27	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/01/21 13:27	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/01/21 13:27	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			10/01/21 13:27	1
2-Hexanone	10	U	10	1.1	ug/L			10/01/21 13:27	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/01/21 13:27	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			10/01/21 13:27	1
Styrene	1.0	U	1.0	0.45	ug/L			10/01/21 13:27	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			10/01/21 13:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			10/01/21 13:27	1
Toluene	1.0	U	1.0	0.44	ug/L			10/01/21 13:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			10/01/21 13:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			10/01/21 13:27	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			10/01/21 13:27	1
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/01/21 13:27	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/01/21 13:27	1
Cyclohexane	1.0	U *-	1.0	0.48	ug/L			10/01/21 13:27	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/01/21 13:27	1
1,2-Dibromoethane	1.0	U	1.0	0.41	ug/L			10/01/21 13:27	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/01/21 13:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			10/01/21 13:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			10/01/21 13:27	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			10/01/21 13:27	1
Methyl acetate	10	U	10	1.7	ug/L			10/01/21 13:27	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			10/01/21 13:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U *-	1.0	0.41	ug/L			10/01/21 13:27	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			10/01/21 13:27	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			10/01/21 13:27	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			10/01/21 13:27	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			10/01/21 13:27	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/01/21 13:27	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/01/21 13:27	1
Methylcyclohexane	1.0	U *-	1.0	0.33	ug/L			10/01/21 13:27	1

Eurofins TestAmerica, Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	109		62 - 137		10/01/21 13:27	1
4-Bromofluorobenzene (Surr)	67		56 - 136		10/01/21 13:27	1
Toluene-d8 (Surr)	91		78 - 122		10/01/21 13:27	1
Dibromofluoromethane (Surr)	92		73 - 120		10/01/21 13:27	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-11223416-092421-SK

Date Collected: 09/24/21 00:00

Date Received: 09/25/21 10:20

Lab Sample ID: 240-156921-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			10/01/21 13:05	1
Benzene	1.0	U	1.0	0.42	ug/L			10/01/21 13:05	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/01/21 13:05	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/01/21 13:05	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/01/21 13:05	1
2-Butanone (MEK)	2.5	J	10	1.2	ug/L			10/01/21 13:05	1
Carbon disulfide	5.0	U	5.0	0.59	ug/L			10/01/21 13:05	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/01/21 13:05	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			10/01/21 13:05	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/01/21 13:05	1
Chloroform	1.0	U	1.0	0.47	ug/L			10/01/21 13:05	1
Chloromethane	1.0	U	1.0	0.63	ug/L			10/01/21 13:05	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			10/01/21 13:05	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/01/21 13:05	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			10/01/21 13:05	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			10/01/21 13:05	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/01/21 13:05	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/01/21 13:05	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			10/01/21 13:05	1
2-Hexanone	10	U	10	1.1	ug/L			10/01/21 13:05	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/01/21 13:05	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			10/01/21 13:05	1
Styrene	1.0	U	1.0	0.45	ug/L			10/01/21 13:05	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			10/01/21 13:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			10/01/21 13:05	1
Toluene	1.0	U	1.0	0.44	ug/L			10/01/21 13:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			10/01/21 13:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			10/01/21 13:05	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			10/01/21 13:05	1
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/01/21 13:05	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/01/21 13:05	1
Cyclohexane	1.0	U *-	1.0	0.48	ug/L			10/01/21 13:05	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/01/21 13:05	1
1,2-Dibromoethane	1.0	U	1.0	0.41	ug/L			10/01/21 13:05	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/01/21 13:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			10/01/21 13:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			10/01/21 13:05	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			10/01/21 13:05	1
Methyl acetate	10	U	10	1.7	ug/L			10/01/21 13:05	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			10/01/21 13:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U *-	1.0	0.41	ug/L			10/01/21 13:05	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			10/01/21 13:05	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			10/01/21 13:05	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			10/01/21 13:05	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			10/01/21 13:05	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/01/21 13:05	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/01/21 13:05	1
Methylcyclohexane	1.0	U *-	1.0	0.33	ug/L			10/01/21 13:05	1

Eurofins TestAmerica, Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		10/01/21 13:05	1
4-Bromofluorobenzene (Surr)	67		56 - 136		10/01/21 13:05	1
Toluene-d8 (Surr)	90		78 - 122		10/01/21 13:05	1
Dibromofluoromethane (Surr)	89		73 - 120		10/01/21 13:05	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

GC/MS VOA

Analysis Batch: 506309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-156921-3	GW-11223416-092421-SK-003	Total/NA	Water	8260B	
240-156921-4	TB-11223416-092421-SK	Total/NA	Water	8260B	
MB 240-506309/7	Method Blank	Total/NA	Water	8260B	
LCS 240-506309/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 507133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-156921-1	GW-11223416-092421-SK-001	Total/NA	Water	8260B	
240-156921-2	GW-11223416-092421-SK-002	Total/NA	Water	8260B	
MB 240-507133/6	Method Blank	Total/NA	Water	8260B	
LCS 240-507133/4	Lab Control Sample	Total/NA	Water	8260B	

QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-506309/7

Matrix: Water

Analysis Batch: 506309

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			10/01/21 12:27	1
Benzene	1.0	U	1.0	0.42	ug/L			10/01/21 12:27	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/01/21 12:27	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/01/21 12:27	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/01/21 12:27	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/01/21 12:27	1
Carbon disulfide	5.0	U	5.0	0.59	ug/L			10/01/21 12:27	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/01/21 12:27	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			10/01/21 12:27	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/01/21 12:27	1
Chloroform	1.0	U	1.0	0.47	ug/L			10/01/21 12:27	1
Chloromethane	1.0	U	1.0	0.63	ug/L			10/01/21 12:27	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			10/01/21 12:27	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/01/21 12:27	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			10/01/21 12:27	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			10/01/21 12:27	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/01/21 12:27	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/01/21 12:27	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			10/01/21 12:27	1
2-Hexanone	10	U	10	1.1	ug/L			10/01/21 12:27	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/01/21 12:27	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			10/01/21 12:27	1
Styrene	1.0	U	1.0	0.45	ug/L			10/01/21 12:27	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			10/01/21 12:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			10/01/21 12:27	1
Toluene	1.0	U	1.0	0.44	ug/L			10/01/21 12:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			10/01/21 12:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			10/01/21 12:27	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			10/01/21 12:27	1
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/01/21 12:27	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/01/21 12:27	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			10/01/21 12:27	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/01/21 12:27	1
1,2-Dibromoethane	1.0	U	1.0	0.41	ug/L			10/01/21 12:27	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/01/21 12:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			10/01/21 12:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			10/01/21 12:27	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			10/01/21 12:27	1
Methyl acetate	10	U	10	1.7	ug/L			10/01/21 12:27	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			10/01/21 12:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/01/21 12:27	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			10/01/21 12:27	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			10/01/21 12:27	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			10/01/21 12:27	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			10/01/21 12:27	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/01/21 12:27	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/01/21 12:27	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/01/21 12:27	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-506309/7

Matrix: Water

Analysis Batch: 506309

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137		10/01/21 12:27	1
4-Bromofluorobenzene (Surr)	69		56 - 136		10/01/21 12:27	1
Toluene-d8 (Surr)	91		78 - 122		10/01/21 12:27	1
Dibromofluoromethane (Surr)	90		73 - 120		10/01/21 12:27	1

Lab Sample ID: LCS 240-506309/4

Matrix: Water

Analysis Batch: 506309

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	20.7		ug/L		103	50 - 149
Benzene	10.0	10.1		ug/L		101	77 - 123
Bromodichloromethane	10.0	9.13		ug/L		91	69 - 126
Bromoform	10.0	8.13		ug/L		81	57 - 129
Bromomethane	10.0	7.69		ug/L		77	36 - 142
2-Butanone (MEK)	20.0	23.4		ug/L		117	54 - 156
Carbon disulfide	10.0	6.19		ug/L		62	43 - 140
Carbon tetrachloride	10.0	6.24		ug/L		62	55 - 137
Chlorobenzene	10.0	11.0		ug/L		110	80 - 121
Chloroethane	10.0	8.80		ug/L		88	38 - 152
Chloroform	10.0	9.70		ug/L		97	74 - 122
Chloromethane	10.0	8.12		ug/L		81	47 - 143
1,1-Dichloroethane	10.0	9.42		ug/L		94	72 - 127
1,2-Dichloroethane	10.0	10.6		ug/L		106	66 - 128
1,1-Dichloroethene	10.0	7.23		ug/L		72	63 - 134
1,2-Dichloropropane	10.0	10.9		ug/L		109	75 - 133
cis-1,3-Dichloropropene	10.0	9.47		ug/L		95	64 - 130
trans-1,3-Dichloropropene	10.0	9.47		ug/L		95	57 - 129
Ethylbenzene	10.0	9.69		ug/L		97	80 - 121
2-Hexanone	20.0	19.6		ug/L		98	43 - 167
Methylene Chloride	10.0	10.4		ug/L		104	71 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.6		ug/L		98	46 - 158
Styrene	10.0	11.5		ug/L		115	80 - 135
1,1,2,2-Tetrachloroethane	10.0	12.1		ug/L		121	58 - 157
Tetrachloroethene	10.0	8.08		ug/L		81	76 - 123
Toluene	10.0	10.5		ug/L		105	80 - 123
Trichloroethene	10.0	8.79		ug/L		88	70 - 122
Vinyl chloride	10.0	8.99		ug/L		90	60 - 144
Xylenes, Total	20.0	19.1		ug/L		95	80 - 121
1,1,1-Trichloroethane	10.0	7.52		ug/L		75	64 - 131
1,1,2-Trichloroethane	10.0	12.2		ug/L		122	70 - 138
Cyclohexane	10.0	4.61	*	ug/L		46	58 - 146
1,2-Dibromo-3-Chloropropane	10.0	6.50		ug/L		65	53 - 135
1,2-Dibromoethane	10.0	11.6		ug/L		116	71 - 134
Dichlorodifluoromethane	10.0	6.81		ug/L		68	34 - 153
cis-1,2-Dichloroethene	10.0	9.56		ug/L		96	77 - 123
trans-1,2-Dichloroethene	10.0	9.09		ug/L		91	75 - 124
Isopropylbenzene	10.0	7.91		ug/L		79	74 - 128

Eurofins TestAmerica, Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-506309/4

Matrix: Water

Analysis Batch: 506309

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl acetate	20.0	22.7		ug/L		113	42 - 169
Methyl tert-butyl ether	10.0	8.22		ug/L		82	65 - 126
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	4.83	*-	ug/L		48	51 - 146
1,2,4-Trichlorobenzene	10.0	6.31		ug/L		63	44 - 147
1,2-Dichlorobenzene	10.0	9.50		ug/L		95	78 - 120
1,3-Dichlorobenzene	10.0	9.83		ug/L		98	80 - 120
1,4-Dichlorobenzene	10.0	10.0		ug/L		100	80 - 120
Trichlorofluoromethane	10.0	6.96		ug/L		70	30 - 170
Dibromochloromethane	10.0	9.23		ug/L		92	70 - 124
Methylcyclohexane	10.0	4.59	*-	ug/L		46	62 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	90		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	89		73 - 120

Lab Sample ID: MB 240-507133/6

Matrix: Water

Analysis Batch: 507133

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			10/07/21 09:40	1
Benzene	1.0	U	1.0	0.42	ug/L			10/07/21 09:40	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/07/21 09:40	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/07/21 09:40	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/07/21 09:40	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/07/21 09:40	1
Carbon disulfide	5.0	U	5.0	0.59	ug/L			10/07/21 09:40	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/07/21 09:40	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			10/07/21 09:40	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/07/21 09:40	1
Chloroform	1.0	U	1.0	0.47	ug/L			10/07/21 09:40	1
Chloromethane	1.0	U	1.0	0.63	ug/L			10/07/21 09:40	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			10/07/21 09:40	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/07/21 09:40	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			10/07/21 09:40	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			10/07/21 09:40	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/07/21 09:40	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/07/21 09:40	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			10/07/21 09:40	1
2-Hexanone	10	U	10	1.1	ug/L			10/07/21 09:40	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/07/21 09:40	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			10/07/21 09:40	1
Styrene	1.0	U	1.0	0.45	ug/L			10/07/21 09:40	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			10/07/21 09:40	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			10/07/21 09:40	1
Toluene	1.0	U	1.0	0.44	ug/L			10/07/21 09:40	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-507133/6

Matrix: Water

Analysis Batch: 507133

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1.0	U	1.0	0.44	ug/L			10/07/21 09:40	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			10/07/21 09:40	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			10/07/21 09:40	1
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/07/21 09:40	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			10/07/21 09:40	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			10/07/21 09:40	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/07/21 09:40	1
1,2-Dibromoethane	1.0	U	1.0	0.41	ug/L			10/07/21 09:40	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/07/21 09:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			10/07/21 09:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			10/07/21 09:40	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			10/07/21 09:40	1
Methyl acetate	10	U	10	1.7	ug/L			10/07/21 09:40	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			10/07/21 09:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/07/21 09:40	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			10/07/21 09:40	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			10/07/21 09:40	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			10/07/21 09:40	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			10/07/21 09:40	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/07/21 09:40	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/07/21 09:40	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/07/21 09:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		62 - 137		10/07/21 09:40	1
4-Bromofluorobenzene (Surr)	83		56 - 136		10/07/21 09:40	1
Toluene-d8 (Surr)	110		78 - 122		10/07/21 09:40	1
Dibromofluoromethane (Surr)	104		73 - 120		10/07/21 09:40	1

Lab Sample ID: LCS 240-507133/4

Matrix: Water

Analysis Batch: 507133

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	27.6		ug/L		138	50 - 149
Benzene	10.0	10.8		ug/L		108	77 - 123
Bromodichloromethane	10.0	8.79		ug/L		88	69 - 126
Bromoform	10.0	9.90		ug/L		99	57 - 129
Bromomethane	10.0	9.93		ug/L		99	36 - 142
2-Butanone (MEK)	20.0	24.0		ug/L		120	54 - 156
Carbon disulfide	10.0	9.40		ug/L		94	43 - 140
Carbon tetrachloride	10.0	7.20		ug/L		72	55 - 137
Chlorobenzene	10.0	9.64		ug/L		96	80 - 121
Chloroethane	10.0	10.0		ug/L		100	38 - 152
Chloroform	10.0	9.98		ug/L		100	74 - 122
Chloromethane	10.0	5.87		ug/L		59	47 - 143
1,1-Dichloroethane	10.0	11.2		ug/L		112	72 - 127
1,2-Dichloroethane	10.0	9.57		ug/L		96	66 - 128

Eurofins TestAmerica, Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-507133/4

Matrix: Water

Analysis Batch: 507133

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.94		ug/L		99	63 - 134
1,2-Dichloropropane	10.0	9.94		ug/L		99	75 - 133
cis-1,3-Dichloropropene	10.0	7.58		ug/L		76	64 - 130
trans-1,3-Dichloropropene	10.0	8.37		ug/L		84	57 - 129
Ethylbenzene	10.0	10.1		ug/L		101	80 - 121
2-Hexanone	20.0	22.9		ug/L		115	43 - 167
Methylene Chloride	10.0	10.3		ug/L		103	71 - 125
4-Methyl-2-pentanone (MIBK)	20.0	20.9		ug/L		105	46 - 158
Styrene	10.0	11.2		ug/L		112	80 - 135
1,1,2,2-Tetrachloroethane	10.0	10.5		ug/L		105	58 - 157
Tetrachloroethene	10.0	9.96		ug/L		100	76 - 123
Toluene	10.0	11.0		ug/L		110	80 - 123
Trichloroethene	10.0	8.96		ug/L		90	70 - 122
Vinyl chloride	10.0	7.52		ug/L		75	60 - 144
Xylenes, Total	20.0	21.1		ug/L		106	80 - 121
1,1,1-Trichloroethane	10.0	8.88		ug/L		89	64 - 131
1,1,2-Trichloroethane	10.0	10.2		ug/L		102	70 - 138
Cyclohexane	10.0	8.31		ug/L		83	58 - 146
1,2-Dibromo-3-Chloropropane	10.0	10.1		ug/L		101	53 - 135
1,2-Dibromoethane	10.0	9.38		ug/L		94	71 - 134
Dichlorodifluoromethane	10.0	2.88	*-	ug/L		29	34 - 153
cis-1,2-Dichloroethene	10.0	10.6		ug/L		106	77 - 123
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	75 - 124
Isopropylbenzene	10.0	10.2		ug/L		102	74 - 128
Methyl acetate	20.0	27.5		ug/L		138	42 - 169
Methyl tert-butyl ether	10.0	9.97		ug/L		100	65 - 126
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	7.39		ug/L		74	51 - 146
1,2,4-Trichlorobenzene	10.0	8.05		ug/L		80	44 - 147
1,2-Dichlorobenzene	10.0	9.29		ug/L		93	78 - 120
1,3-Dichlorobenzene	10.0	8.76		ug/L		88	80 - 120
1,4-Dichlorobenzene	10.0	8.91		ug/L		89	80 - 120
Trichlorofluoromethane	10.0	7.78		ug/L		78	30 - 170
Dibromochloromethane	10.0	9.23		ug/L		92	70 - 124
Methylcyclohexane	10.0	8.30		ug/L		83	62 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		62 - 137
4-Bromofluorobenzene (Surr)	86		56 - 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCA (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-156921-1	GW-11223416-092421-SK-001	90	75	100	96
240-156921-2	GW-11223416-092421-SK-002	91	75	99	96
240-156921-3	GW-11223416-092421-SK-003	109	67	91	92
240-156921-4	TB-11223416-092421-SK	104	67	90	89
LCS 240-506309/4	Lab Control Sample	97	90	99	89
LCS 240-507133/4	Lab Control Sample	90	86	105	94
MB 240-506309/7	Method Blank	109	69	91	90
MB 240-507133/6	Method Blank	97	83	110	104

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Client Sample ID: GW-11223416-092421-SK-001

Lab Sample ID: 240-156921-1

Date Collected: 09/24/21 09:20

Matrix: Water

Date Received: 09/25/21 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	507133	10/07/21 10:03	LEE	TAL CAN

Client Sample ID: GW-11223416-092421-SK-002

Lab Sample ID: 240-156921-2

Date Collected: 09/24/21 09:55

Matrix: Water

Date Received: 09/25/21 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	507133	10/07/21 10:25	LEE	TAL CAN

Client Sample ID: GW-11223416-092421-SK-003

Lab Sample ID: 240-156921-3

Date Collected: 09/24/21 10:00

Matrix: Water

Date Received: 09/25/21 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	506309	10/01/21 13:27	LEE	TAL CAN

Client Sample ID: TB-11223416-092421-SK

Lab Sample ID: 240-156921-4

Date Collected: 09/24/21 00:00

Matrix: Water

Date Received: 09/25/21 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	506309	10/01/21 13:05	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-156921-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

Ver: 06/08/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Client GHD Site Name _____ Login # : 156922

Cooler Received on 9-25-21 Opened on 9-27-21 Cooler unpacked by: Vandy Boyer

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 1A Foam Box Client Cooler Box Other _____

Packing material used Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-14 (CF +0.1 °C) Observed Cooler Temp. 0.7 °C Corrected Cooler Temp. 0.8 °C

IR GUN #IR-15 (CF +0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1

-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA

-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA

-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No

9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No

10. Were correct bottle(s) used for the test(s) indicated? Yes No

11. Sufficient quantity received to perform indicated analyses? Yes No

12. Are these work share samples and all listed on the COC? Yes No

If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC157842

14. Were VOAs on the COC? Yes No

15. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. 60282

16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 60282 Yes No

17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Tel: (330)497-9396

Laboratory Job ID: 240-165122-1

Client Project/Site: 11223416, PCC Validation
Revision: 1

For:

GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Mr. James Abston



Authorized for release by:
6/15/2022 7:47:31 AM

Denise Heckler, Project Manager II
(330)966-9477

Denise.Heckler@et.eurofinsus.com

LINKS

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Job ID: 240-165122-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-165122-1

Comments

A revised report was provided on June 15, 2022. The reporting VOC compound list was corrected.

Receipt

The samples were received on 4/16/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.8° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Sample Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-165122-1	GW-11223416-041522-SK-001	Water	04/15/22 10:10	04/16/22 10:00
240-165122-2	GW-11223416-041522-SK-002	Water	04/15/22 11:35	04/16/22 10:00
240-165122-3	GW-11223416-041522-SK-003	Water	04/15/22 11:40	04/16/22 10:00
240-165122-4	GW-11223416-041522-SK-004	Water	04/15/22 12:20	04/16/22 10:00
240-165122-5	GW-11223416-041522-SK-005	Water	04/15/22 13:25	04/16/22 10:00
240-165122-6	GW-11223416-041522-SK-006	Water	04/15/22 14:50	04/16/22 10:00
240-165122-7	TB-11223416-041522-SK	Water	04/15/22 00:00	04/16/22 10:00

Detection Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Client Sample ID: GW-11223416-041522-SK-001

Lab Sample ID: 240-165122-1

No Detections.

Client Sample ID: GW-11223416-041522-SK-002

Lab Sample ID: 240-165122-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.71	J	1.0	0.46	ug/L		1		8260C	Total/NA
Trichloroethene	0.58	J	1.0	0.44	ug/L		1		8260C	Total/NA

Client Sample ID: GW-11223416-041522-SK-003

Lab Sample ID: 240-165122-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.68	J	1.0	0.46	ug/L		1		8260C	Total/NA
Trichloroethene	0.61	J	1.0	0.44	ug/L		1		8260C	Total/NA

Client Sample ID: GW-11223416-041522-SK-004

Lab Sample ID: 240-165122-4

No Detections.

Client Sample ID: GW-11223416-041522-SK-005

Lab Sample ID: 240-165122-5

No Detections.

Client Sample ID: GW-11223416-041522-SK-006

Lab Sample ID: 240-165122-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Trichloroethene	0.57	J	1.0	0.44	ug/L		1		8260C	Total/NA

Client Sample ID: TB-11223416-041522-SK

Lab Sample ID: 240-165122-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
2-Butanone (MEK)	3.2	J	10	1.2	ug/L		1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL CAN
5030C	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041522-SK-001

Date Collected: 04/15/22 10:10

Date Received: 04/16/22 10:00

Lab Sample ID: 240-165122-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 12:19	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 12:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 12:19	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 12:19	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 12:19	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 12:19	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 12:19	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 12:19	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 12:19	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 12:19	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 12:19	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 12:19	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 12:19	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 12:19	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/22/22 12:19	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 12:19	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 12:19	1
Acetone	10	U	10	5.4	ug/L			04/22/22 12:19	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 12:19	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 12:19	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 12:19	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 12:19	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 12:19	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 12:19	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 12:19	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 12:19	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 12:19	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 12:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/22/22 12:19	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 12:19	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 12:19	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 12:19	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 12:19	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 12:19	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 12:19	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 12:19	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 12:19	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 12:19	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 12:19	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 12:19	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 12:19	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 12:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 12:19	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 12:19	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 12:19	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 12:19	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 12:19	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 12:19	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Toluene-d8 (Surr)</i>	102		78 - 122		04/22/22 12:19	1
<i>Dibromofluoromethane (Surr)</i>	108		73 - 120		04/22/22 12:19	1
<i>4-Bromofluorobenzene (Surr)</i>	97		56 - 136		04/22/22 12:19	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	107		62 - 137		04/22/22 12:19	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041522-SK-002

Date Collected: 04/15/22 11:35

Date Received: 04/16/22 10:00

Lab Sample ID: 240-165122-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 12:42	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 12:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 12:42	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 12:42	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 12:42	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 12:42	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 12:42	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 12:42	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 12:42	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 12:42	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 12:42	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 12:42	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 12:42	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 12:42	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/22/22 12:42	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 12:42	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 12:42	1
Acetone	10	U	10	5.4	ug/L			04/22/22 12:42	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 12:42	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 12:42	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 12:42	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 12:42	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 12:42	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 12:42	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 12:42	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 12:42	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 12:42	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 12:42	1
cis-1,2-Dichloroethene	0.71	J	1.0	0.46	ug/L			04/22/22 12:42	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 12:42	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 12:42	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 12:42	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 12:42	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 12:42	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 12:42	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 12:42	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 12:42	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 12:42	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 12:42	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 12:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 12:42	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 12:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 12:42	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 12:42	1
Trichloroethene	0.58	J	1.0	0.44	ug/L			04/22/22 12:42	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 12:42	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 12:42	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 12:42	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Toluene-d8 (Surr)</i>	103		78 - 122		04/22/22 12:42	1
<i>Dibromofluoromethane (Surr)</i>	107		73 - 120		04/22/22 12:42	1
<i>4-Bromofluorobenzene (Surr)</i>	96		56 - 136		04/22/22 12:42	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	108		62 - 137		04/22/22 12:42	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041522-SK-003

Date Collected: 04/15/22 11:40

Date Received: 04/16/22 10:00

Lab Sample ID: 240-165122-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 13:04	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 13:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 13:04	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 13:04	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 13:04	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 13:04	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 13:04	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 13:04	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 13:04	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 13:04	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 13:04	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 13:04	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 13:04	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 13:04	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/22/22 13:04	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 13:04	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 13:04	1
Acetone	10	U	10	5.4	ug/L			04/22/22 13:04	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 13:04	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 13:04	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 13:04	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 13:04	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 13:04	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 13:04	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 13:04	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 13:04	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 13:04	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 13:04	1
cis-1,2-Dichloroethene	0.68	J	1.0	0.46	ug/L			04/22/22 13:04	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 13:04	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 13:04	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 13:04	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 13:04	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 13:04	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 13:04	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 13:04	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 13:04	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 13:04	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 13:04	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 13:04	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 13:04	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 13:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 13:04	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 13:04	1
Trichloroethene	0.61	J	1.0	0.44	ug/L			04/22/22 13:04	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 13:04	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 13:04	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 13:04	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	104		78 - 122		04/22/22 13:04	1
<i>Dibromofluoromethane (Surr)</i>	109		73 - 120		04/22/22 13:04	1
<i>4-Bromofluorobenzene (Surr)</i>	98		56 - 136		04/22/22 13:04	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	112		62 - 137		04/22/22 13:04	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041522-SK-004

Date Collected: 04/15/22 12:20

Date Received: 04/16/22 10:00

Lab Sample ID: 240-165122-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 13:26	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 13:26	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 13:26	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 13:26	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 13:26	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 13:26	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 13:26	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 13:26	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 13:26	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 13:26	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 13:26	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 13:26	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 13:26	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 13:26	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/22/22 13:26	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 13:26	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 13:26	1
Acetone	10	U	10	5.4	ug/L			04/22/22 13:26	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 13:26	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 13:26	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 13:26	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 13:26	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 13:26	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 13:26	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 13:26	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 13:26	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 13:26	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 13:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/22/22 13:26	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 13:26	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 13:26	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 13:26	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 13:26	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 13:26	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 13:26	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 13:26	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 13:26	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 13:26	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 13:26	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 13:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 13:26	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 13:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 13:26	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 13:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 13:26	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 13:26	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 13:26	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 13:26	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	103		78 - 122		04/22/22 13:26	1
<i>Dibromofluoromethane (Surr)</i>	107		73 - 120		04/22/22 13:26	1
<i>4-Bromofluorobenzene (Surr)</i>	98		56 - 136		04/22/22 13:26	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	110		62 - 137		04/22/22 13:26	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041522-SK-005

Date Collected: 04/15/22 13:25

Date Received: 04/16/22 10:00

Lab Sample ID: 240-165122-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 13:49	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 13:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 13:49	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 13:49	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 13:49	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 13:49	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 13:49	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 13:49	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 13:49	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 13:49	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 13:49	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 13:49	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 13:49	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 13:49	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/22/22 13:49	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 13:49	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 13:49	1
Acetone	10	U	10	5.4	ug/L			04/22/22 13:49	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 13:49	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 13:49	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 13:49	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 13:49	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 13:49	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 13:49	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 13:49	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 13:49	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 13:49	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 13:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/22/22 13:49	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 13:49	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 13:49	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 13:49	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 13:49	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 13:49	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 13:49	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 13:49	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 13:49	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 13:49	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 13:49	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 13:49	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 13:49	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 13:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 13:49	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 13:49	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 13:49	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 13:49	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 13:49	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 13:49	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Toluene-d8 (Surr)</i>	104		78 - 122		04/22/22 13:49	1
<i>Dibromofluoromethane (Surr)</i>	108		73 - 120		04/22/22 13:49	1
<i>4-Bromofluorobenzene (Surr)</i>	98		56 - 136		04/22/22 13:49	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	111		62 - 137		04/22/22 13:49	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041522-SK-006

Date Collected: 04/15/22 14:50

Date Received: 04/16/22 10:00

Lab Sample ID: 240-165122-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 14:11	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 14:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 14:11	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 14:11	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 14:11	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 14:11	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 14:11	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 14:11	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 14:11	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 14:11	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 14:11	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 14:11	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 14:11	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 14:11	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/22/22 14:11	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 14:11	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 14:11	1
Acetone	10	U	10	5.4	ug/L			04/22/22 14:11	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 14:11	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 14:11	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 14:11	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 14:11	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 14:11	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 14:11	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 14:11	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 14:11	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 14:11	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 14:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/22/22 14:11	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 14:11	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 14:11	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 14:11	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 14:11	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 14:11	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 14:11	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 14:11	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 14:11	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 14:11	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 14:11	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 14:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 14:11	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 14:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 14:11	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 14:11	1
Trichloroethene	0.57	J	1.0	0.44	ug/L			04/22/22 14:11	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 14:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 14:11	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 14:11	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	102		78 - 122		04/22/22 14:11	1
<i>Dibromofluoromethane (Surr)</i>	109		73 - 120		04/22/22 14:11	1
<i>4-Bromofluorobenzene (Surr)</i>	97		56 - 136		04/22/22 14:11	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	109		62 - 137		04/22/22 14:11	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: TB-11223416-041522-SK

Date Collected: 04/15/22 00:00

Date Received: 04/16/22 10:00

Lab Sample ID: 240-165122-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 14:33	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 14:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 14:33	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 14:33	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 14:33	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 14:33	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 14:33	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 14:33	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 14:33	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 14:33	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 14:33	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 14:33	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 14:33	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 14:33	1
2-Butanone (MEK)	3.2	J	10	1.2	ug/L			04/22/22 14:33	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 14:33	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 14:33	1
Acetone	10	U	10	5.4	ug/L			04/22/22 14:33	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 14:33	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 14:33	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 14:33	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 14:33	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 14:33	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 14:33	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 14:33	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 14:33	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 14:33	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 14:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/22/22 14:33	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 14:33	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 14:33	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 14:33	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 14:33	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 14:33	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 14:33	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 14:33	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 14:33	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 14:33	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 14:33	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 14:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 14:33	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 14:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 14:33	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 14:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 14:33	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 14:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 14:33	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 14:33	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	104		78 - 122		04/22/22 14:33	1
<i>Dibromofluoromethane (Surr)</i>	109		73 - 120		04/22/22 14:33	1
<i>4-Bromofluorobenzene (Surr)</i>	97		56 - 136		04/22/22 14:33	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	109		62 - 137		04/22/22 14:33	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

GC/MS VOA

Analysis Batch: 523615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165122-1	GW-11223416-041522-SK-001	Total/NA	Water	8260C	
240-165122-2	GW-11223416-041522-SK-002	Total/NA	Water	8260C	
240-165122-3	GW-11223416-041522-SK-003	Total/NA	Water	8260C	
240-165122-4	GW-11223416-041522-SK-004	Total/NA	Water	8260C	
240-165122-5	GW-11223416-041522-SK-005	Total/NA	Water	8260C	
240-165122-6	GW-11223416-041522-SK-006	Total/NA	Water	8260C	
240-165122-7	TB-11223416-041522-SK	Total/NA	Water	8260C	
MB 240-523615/8	Method Blank	Total/NA	Water	8260C	
LCS 240-523615/5	Lab Control Sample	Total/NA	Water	8260C	

QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-523615/8

Matrix: Water

Analysis Batch: 523615

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 10:50	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/22/22 10:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/22/22 10:50	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/22/22 10:50	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/22/22 10:50	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/22/22 10:50	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/22/22 10:50	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/22/22 10:50	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/22/22 10:50	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/22/22 10:50	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/22/22 10:50	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/22/22 10:50	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/22/22 10:50	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/22/22 10:50	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/22/22 10:50	1
2-Hexanone	10	U	10	1.1	ug/L			04/22/22 10:50	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/22/22 10:50	1
Acetone	10	U	10	5.4	ug/L			04/22/22 10:50	1
Benzene	1.0	U	1.0	0.42	ug/L			04/22/22 10:50	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/22/22 10:50	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/22/22 10:50	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/22/22 10:50	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/22/22 10:50	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/22/22 10:50	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/22/22 10:50	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/22/22 10:50	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/22/22 10:50	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/22/22 10:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/22/22 10:50	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/22/22 10:50	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/22/22 10:50	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/22/22 10:50	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/22/22 10:50	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/22/22 10:50	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/22/22 10:50	1
Methyl acetate	10	U	10	1.7	ug/L			04/22/22 10:50	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/22/22 10:50	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/22/22 10:50	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/22/22 10:50	1
Styrene	1.0	U	1.0	0.45	ug/L			04/22/22 10:50	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 10:50	1
Toluene	1.0	U	1.0	0.44	ug/L			04/22/22 10:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/22/22 10:50	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/22/22 10:50	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/22/22 10:50	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/22/22 10:50	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/22/22 10:50	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/22/22 10:50	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-523615/8

Matrix: Water

Analysis Batch: 523615

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		78 - 122		04/22/22 10:50	1
Dibromofluoromethane (Surr)	109		73 - 120		04/22/22 10:50	1
4-Bromofluorobenzene (Surr)	101		56 - 136		04/22/22 10:50	1
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		04/22/22 10:50	1

Lab Sample ID: LCS 240-523615/5

Matrix: Water

Analysis Batch: 523615

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	20.8		ug/L		104	64 - 131
1,1,1,2,2-Tetrachloroethane	20.0	21.5		ug/L		108	58 - 157
1,1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	20.5		ug/L		103	51 - 146
1,1,2-Trichloroethane	20.0	21.5		ug/L		108	70 - 138
1,1-Dichloroethane	20.0	19.9		ug/L		99	72 - 127
1,1-Dichloroethene	20.0	19.1		ug/L		96	63 - 134
1,2,4-Trichlorobenzene	20.0	17.0		ug/L		85	44 - 147
1,2-Dibromo-3-Chloropropane	20.0	19.2		ug/L		96	53 - 135
Ethylene Dibromide	20.0	21.2		ug/L		106	71 - 134
1,2-Dichlorobenzene	20.0	20.1		ug/L		101	78 - 120
1,2-Dichloroethane	20.0	19.5		ug/L		97	66 - 128
1,2-Dichloropropane	20.0	20.1		ug/L		101	75 - 133
1,3-Dichlorobenzene	20.0	20.5		ug/L		102	80 - 120
1,4-Dichlorobenzene	20.0	20.6		ug/L		103	80 - 120
2-Butanone (MEK)	40.0	40.8		ug/L		102	54 - 156
2-Hexanone	40.0	36.2		ug/L		90	43 - 167
4-Methyl-2-pentanone (MIBK)	40.0	36.1		ug/L		90	46 - 158
Acetone	40.0	35.9		ug/L		90	50 - 149
Benzene	20.0	21.1		ug/L		105	77 - 123
Dichlorobromomethane	20.0	20.9		ug/L		105	69 - 126
Bromoform	20.0	20.8		ug/L		104	57 - 129
Bromomethane	20.0	21.1		ug/L		105	36 - 142
Carbon disulfide	20.0	17.7		ug/L		88	43 - 140
Carbon tetrachloride	20.0	20.2		ug/L		101	55 - 137
Chlorobenzene	20.0	19.6		ug/L		98	80 - 121
Chloroethane	20.0	21.9		ug/L		109	38 - 152
Chloroform	20.0	21.0		ug/L		105	74 - 122
Chloromethane	20.0	21.9		ug/L		110	47 - 143
cis-1,2-Dichloroethene	20.0	21.1		ug/L		105	77 - 123
cis-1,3-Dichloropropene	20.0	20.5		ug/L		102	64 - 130
Cyclohexane	20.0	19.9		ug/L		100	58 - 146
Chlorodibromomethane	20.0	21.3		ug/L		106	70 - 124
Dichlorodifluoromethane	20.0	18.7		ug/L		93	34 - 153
Ethylbenzene	20.0	20.6		ug/L		103	80 - 121
Isopropylbenzene	20.0	20.5		ug/L		102	74 - 128
Methyl acetate	40.0	36.8		ug/L		92	42 - 169
Methyl tert-butyl ether	20.0	19.5		ug/L		97	65 - 126
Methylcyclohexane	20.0	20.6		ug/L		103	62 - 136

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-523615/5

Matrix: Water

Analysis Batch: 523615

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	20.0	16.7		ug/L		84	71 - 125
Styrene	20.0	21.2		ug/L		106	80 - 135
Tetrachloroethene	20.0	20.9		ug/L		105	76 - 123
Toluene	20.0	20.7		ug/L		103	80 - 123
trans-1,2-Dichloroethene	20.0	19.7		ug/L		98	75 - 124
trans-1,3-Dichloropropene	20.0	20.8		ug/L		104	57 - 129
Trichloroethene	20.0	21.7		ug/L		108	70 - 122
Trichlorofluoromethane	20.0	20.4		ug/L		102	30 - 170
Vinyl chloride	20.0	24.7		ug/L		124	60 - 144
Xylenes, Total	40.0	41.7		ug/L		104	80 - 121
m-Xylene & p-Xylene	20.0	20.9		ug/L		105	80 - 120
o-Xylene	20.0	20.8		ug/L		104	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	108		73 - 120
4-Bromofluorobenzene (Surr)	106		56 - 136
1,2-Dichloroethane-d4 (Surr)	103		62 - 137

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (78-122)	DBFM (73-120)	BFB (56-136)	DCA (62-137)
240-165122-1	GW-11223416-041522-SK-001	102	108	97	107
240-165122-2	GW-11223416-041522-SK-002	103	107	96	108
240-165122-3	GW-11223416-041522-SK-003	104	109	98	112
240-165122-4	GW-11223416-041522-SK-004	103	107	98	110
240-165122-5	GW-11223416-041522-SK-005	104	108	98	111
240-165122-6	GW-11223416-041522-SK-006	102	109	97	109
240-165122-7	TB-11223416-041522-SK	104	109	97	109
LCS 240-523615/5	Lab Control Sample	107	108	106	103
MB 240-523615/8	Method Blank	104	109	101	107

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Client Sample ID: GW-11223416-041522-SK-001

Lab Sample ID: 240-165122-1

Date Collected: 04/15/22 10:10

Matrix: Water

Date Received: 04/16/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	523615	04/22/22 12:19	TJL1	TAL CAN

Client Sample ID: GW-11223416-041522-SK-002

Lab Sample ID: 240-165122-2

Date Collected: 04/15/22 11:35

Matrix: Water

Date Received: 04/16/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	523615	04/22/22 12:42	TJL1	TAL CAN

Client Sample ID: GW-11223416-041522-SK-003

Lab Sample ID: 240-165122-3

Date Collected: 04/15/22 11:40

Matrix: Water

Date Received: 04/16/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	523615	04/22/22 13:04	TJL1	TAL CAN

Client Sample ID: GW-11223416-041522-SK-004

Lab Sample ID: 240-165122-4

Date Collected: 04/15/22 12:20

Matrix: Water

Date Received: 04/16/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	523615	04/22/22 13:26	TJL1	TAL CAN

Client Sample ID: GW-11223416-041522-SK-005

Lab Sample ID: 240-165122-5

Date Collected: 04/15/22 13:25

Matrix: Water

Date Received: 04/16/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	523615	04/22/22 13:49	TJL1	TAL CAN

Client Sample ID: GW-11223416-041522-SK-006

Lab Sample ID: 240-165122-6

Date Collected: 04/15/22 14:50

Matrix: Water

Date Received: 04/16/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	523615	04/22/22 14:11	TJL1	TAL CAN

Client Sample ID: TB-11223416-041522-SK

Lab Sample ID: 240-165122-7

Date Collected: 04/15/22 00:00

Matrix: Water

Date Received: 04/16/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	523615	04/22/22 14:33	TJL1	TAL CAN

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Eurofins Canton

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165122-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	06-02-22
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	05-31-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	04-25-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	06-09-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	06-06-22
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	05-24-22
Oregon	NELAP	4062	05-24-22
Pennsylvania	NELAP	68-00340	04-24-22
Texas	NELAP	T104704517-22-17	06-09-22
Virginia	NELAP	11570	04-25-22
Washington	State	C971	06-05-22
West Virginia DEP	State	210	12-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

[illegible]

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 165122

Client GHD Site Name _____ Cooler unpacked by: Brandon
Cooler Received on 4-16-22 Opened on 4-18-22
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 48 Foam Box Client Cooler Box Other _____
Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp. 4.8 °C Corrected Cooler Temp. 4.8 °C
IR GUN# IR-15 (CF -0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
- Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
- Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
- Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC157842
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not
checked for pH by
Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

ANALYTICAL REPORT

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Tel: (330)497-9396

Laboratory Job ID: 240-165506-1

Client Project/Site: 11223416, PCC Validation
Revision: 1

For:

GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Mr. James Abston



Authorized for release by:
6/15/2022 7:45:33 AM

Denise Heckler, Project Manager II
(330)966-9477

Denise.Heckler@et.eurofinsus.com

LINKS

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results through



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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Job ID: 240-165506-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-165506-1

Comments

A revised report was provided on June 15, 2022. The reporting VOC compound list was corrected.

Receipt

The samples were received on 4/23/2022 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.7° C and 4.8° C.

GC/MS VOA

Method 8260C: The continuing calibration verification (CCV) associated with batch 240-524039 recovered above the upper control limit for Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: GW-11223416-042122-SK-019 (240-165506-13), GW-11223416-042122-SK-019 (240-165506-13[MS]), GW-11223416-042122-SK-019 (240-165506-13[MSD]), GW-11223416-042222-SK-022 (240-165506-16), GW-11223416-042222-SK-023 (240-165506-17), TB-11223416-042222-SK (240-165506-18), (CCV 240-524039/4), (CCVIS 240-524039/3), (LCS 240-524039/5), (LCS 240-524039/6) and (MB 240-524039/9).

Method 8260C: The continuing calibration verification (CCV) analyzed in batch 240-524140 was outside the method criteria for the following analyte(s): Trichlorofluoromethane and Bromomethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 6020: The continuing calibration blank (CCB) for analytical batch 524399 contained sodium above the reporting limit (RL). Associated sample(s) were not re-analyzed because results were greater than 10X the value found in the CCB.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Sample Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-165506-1	GW-11223416-041822-SK-007	Water	04/18/22 12:05	04/23/22 09:45
240-165506-2	GW-11223416-041822-SK-008	Water	04/18/22 14:00	04/23/22 09:45
240-165506-3	GW-11223416-041822-SK-009	Water	04/18/22 15:15	04/23/22 09:45
240-165506-4	GW-11223416-041822-SK-010	Water	04/18/22 16:25	04/23/22 09:45
240-165506-5	GW-11223416-041822-SK-011	Water	04/18/22 17:10	04/23/22 09:45
240-165506-6	GW-11223416-041922-SK-012	Water	04/19/22 10:35	04/23/22 09:45
240-165506-7	GW-11223416-041922-SK-013	Water	04/19/22 11:25	04/23/22 09:45
240-165506-8	GW-11223416-041922-SK-014	Water	04/19/22 13:30	04/23/22 09:45
240-165506-9	GW-11223416-042122-SK-015	Water	04/21/22 09:50	04/23/22 09:45
240-165506-10	GW-11223416-042122-SK-016	Water	04/21/22 11:45	04/23/22 09:45
240-165506-11	GW-11223416-042122-SK-017	Water	04/21/22 11:55	04/23/22 09:45
240-165506-12	GW-11223416-042122-SK-018	Water	04/21/22 13:40	04/23/22 09:45
240-165506-13	GW-11223416-042122-SK-019	Water	04/21/22 14:20	04/23/22 09:45
240-165506-14	GW-11223416-042222-SK-020	Water	04/22/22 08:45	04/23/22 09:45
240-165506-15	GW-11223416-042222-SK-021	Water	04/22/22 09:30	04/23/22 09:45
240-165506-16	GW-11223416-042222-SK-022	Water	04/22/22 11:00	04/23/22 09:45
240-165506-17	GW-11223416-042222-SK-023	Water	04/22/22 13:00	04/23/22 09:45
240-165506-18	TB-11223416-042222-SK	Water	04/22/22 00:00	04/23/22 09:45

Detection Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Client Sample ID: GW-11223416-041822-SK-007

Lab Sample ID: 240-165506-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	1.0	J	2.0	0.42	ug/L	1		8260C	Total/NA

Client Sample ID: GW-11223416-041822-SK-008

Lab Sample ID: 240-165506-2

No Detections.

Client Sample ID: GW-11223416-041822-SK-009

Lab Sample ID: 240-165506-3

No Detections.

Client Sample ID: GW-11223416-041822-SK-010

Lab Sample ID: 240-165506-4

No Detections.

Client Sample ID: GW-11223416-041822-SK-011

Lab Sample ID: 240-165506-5

No Detections.

Client Sample ID: GW-11223416-041922-SK-012

Lab Sample ID: 240-165506-6

No Detections.

Client Sample ID: GW-11223416-041922-SK-013

Lab Sample ID: 240-165506-7

No Detections.

Client Sample ID: GW-11223416-041922-SK-014

Lab Sample ID: 240-165506-8

No Detections.

Client Sample ID: GW-11223416-042122-SK-015

Lab Sample ID: 240-165506-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	160		50	34	ug/L	1		6020	Total
Aluminum	51		50	34	ug/L	1		6020	Recoverable
									Dissolved

Client Sample ID: GW-11223416-042122-SK-016

Lab Sample ID: 240-165506-10

No Detections.

Client Sample ID: GW-11223416-042122-SK-017

Lab Sample ID: 240-165506-11

No Detections.

Client Sample ID: GW-11223416-042122-SK-018

Lab Sample ID: 240-165506-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	15		1.0	0.48	ug/L	1		8260C	Total/NA
Trichloroethene	44		1.0	0.44	ug/L	1		8260C	Total/NA

Client Sample ID: GW-11223416-042122-SK-019

Lab Sample ID: 240-165506-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	11		1.0	0.48	ug/L	1		8260C	Total/NA
Trichloroethene	34		1.0	0.44	ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Client Sample ID: GW-11223416-042222-SK-020

Lab Sample ID: 240-165506-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	1200		50	34	ug/L	1		6020	Total
Lead	6.3		1.0	0.45	ug/L	1		6020	Recoverable
Vanadium	1.7	J	4.0	0.82	ug/L	1		6020	Total
									Recoverable

Client Sample ID: GW-11223416-042222-SK-021

Lab Sample ID: 240-165506-15

No Detections.

Client Sample ID: GW-11223416-042222-SK-022

Lab Sample ID: 240-165506-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.8	J	10	5.4	ug/L	1		8260C	Total/NA

Client Sample ID: GW-11223416-042222-SK-023

Lab Sample ID: 240-165506-17

No Detections.

Client Sample ID: TB-11223416-042222-SK

Lab Sample ID: 240-165506-18

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Method Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL CAN
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
6020	Metals (ICP/MS)	SW846	TAL CAN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CAN
5030C	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041822-SK-007

Date Collected: 04/18/22 12:05

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 14:32	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 14:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 14:32	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 14:32	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 14:32	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 14:32	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 14:32	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 14:32	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 14:32	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 14:32	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 14:32	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 14:32	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 14:32	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 14:32	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 14:32	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 14:32	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 14:32	1
Acetone	10	U	10	5.4	ug/L			04/27/22 14:32	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 14:32	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 14:32	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 14:32	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 14:32	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 14:32	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 14:32	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 14:32	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 14:32	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 14:32	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 14:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 14:32	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 14:32	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 14:32	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 14:32	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 14:32	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 14:32	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 14:32	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 14:32	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 14:32	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 14:32	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 14:32	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 14:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 14:32	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 14:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 14:32	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 14:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 14:32	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 14:32	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 14:32	1
Xylenes, Total	1.0	J	2.0	0.42	ug/L			04/27/22 14:32	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	94		78 - 122		04/27/22 14:32	1
<i>Dibromofluoromethane (Surr)</i>	104		73 - 120		04/27/22 14:32	1
<i>4-Bromofluorobenzene (Surr)</i>	90		56 - 136		04/27/22 14:32	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	93		62 - 137		04/27/22 14:32	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041822-SK-008

Date Collected: 04/18/22 14:00

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 14:57	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 14:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 14:57	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 14:57	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 14:57	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 14:57	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 14:57	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 14:57	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 14:57	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 14:57	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 14:57	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 14:57	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 14:57	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 14:57	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 14:57	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 14:57	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 14:57	1
Acetone	10	U	10	5.4	ug/L			04/27/22 14:57	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 14:57	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 14:57	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 14:57	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 14:57	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 14:57	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 14:57	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 14:57	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 14:57	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 14:57	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 14:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 14:57	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 14:57	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 14:57	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 14:57	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 14:57	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 14:57	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 14:57	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 14:57	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 14:57	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 14:57	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 14:57	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 14:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 14:57	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 14:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 14:57	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 14:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 14:57	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 14:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 14:57	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 14:57	1

Eurofins Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	92		78 - 122		04/27/22 14:57	1
<i>Dibromofluoromethane (Surr)</i>	103		73 - 120		04/27/22 14:57	1
<i>4-Bromofluorobenzene (Surr)</i>	92		56 - 136		04/27/22 14:57	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	95		62 - 137		04/27/22 14:57	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041822-SK-009

Date Collected: 04/18/22 15:15

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 15:21	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 15:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 15:21	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 15:21	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 15:21	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 15:21	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 15:21	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 15:21	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 15:21	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 15:21	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 15:21	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 15:21	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 15:21	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 15:21	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 15:21	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 15:21	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 15:21	1
Acetone	10	U	10	5.4	ug/L			04/27/22 15:21	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 15:21	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 15:21	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 15:21	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 15:21	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 15:21	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 15:21	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 15:21	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 15:21	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 15:21	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 15:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 15:21	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 15:21	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 15:21	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 15:21	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 15:21	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 15:21	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 15:21	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 15:21	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 15:21	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 15:21	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 15:21	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 15:21	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 15:21	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 15:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 15:21	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 15:21	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 15:21	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 15:21	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 15:21	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 15:21	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	94		78 - 122		04/27/22 15:21	1
<i>Dibromofluoromethane (Surr)</i>	104		73 - 120		04/27/22 15:21	1
<i>4-Bromofluorobenzene (Surr)</i>	92		56 - 136		04/27/22 15:21	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	95		62 - 137		04/27/22 15:21	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041822-SK-010

Date Collected: 04/18/22 16:25

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 15:46	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 15:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 15:46	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 15:46	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 15:46	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 15:46	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 15:46	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 15:46	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 15:46	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 15:46	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 15:46	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 15:46	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 15:46	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 15:46	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 15:46	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 15:46	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 15:46	1
Acetone	10	U	10	5.4	ug/L			04/27/22 15:46	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 15:46	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 15:46	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 15:46	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 15:46	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 15:46	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 15:46	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 15:46	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 15:46	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 15:46	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 15:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 15:46	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 15:46	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 15:46	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 15:46	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 15:46	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 15:46	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 15:46	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 15:46	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 15:46	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 15:46	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 15:46	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 15:46	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 15:46	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 15:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 15:46	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 15:46	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 15:46	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 15:46	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 15:46	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 15:46	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	94		78 - 122		04/27/22 15:46	1
<i>Dibromofluoromethane (Surr)</i>	103		73 - 120		04/27/22 15:46	1
<i>4-Bromofluorobenzene (Surr)</i>	90		56 - 136		04/27/22 15:46	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	91		62 - 137		04/27/22 15:46	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041822-SK-011

Date Collected: 04/18/22 17:10

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 16:10	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 16:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 16:10	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 16:10	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 16:10	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 16:10	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 16:10	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 16:10	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 16:10	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 16:10	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 16:10	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 16:10	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 16:10	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 16:10	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 16:10	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 16:10	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 16:10	1
Acetone	10	U	10	5.4	ug/L			04/27/22 16:10	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 16:10	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 16:10	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 16:10	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 16:10	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 16:10	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 16:10	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 16:10	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 16:10	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 16:10	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 16:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 16:10	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 16:10	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 16:10	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 16:10	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 16:10	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 16:10	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 16:10	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 16:10	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 16:10	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 16:10	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 16:10	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 16:10	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 16:10	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 16:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 16:10	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 16:10	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 16:10	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 16:10	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 16:10	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 16:10	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	95		78 - 122		04/27/22 16:10	1
<i>Dibromofluoromethane (Surr)</i>	107		73 - 120		04/27/22 16:10	1
<i>4-Bromofluorobenzene (Surr)</i>	94		56 - 136		04/27/22 16:10	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	99		62 - 137		04/27/22 16:10	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041922-SK-012

Date Collected: 04/19/22 10:35

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 16:35	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 16:35	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 16:35	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 16:35	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 16:35	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 16:35	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 16:35	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 16:35	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 16:35	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 16:35	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 16:35	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 16:35	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 16:35	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 16:35	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 16:35	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 16:35	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 16:35	1
Acetone	10	U	10	5.4	ug/L			04/27/22 16:35	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 16:35	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 16:35	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 16:35	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 16:35	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 16:35	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 16:35	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 16:35	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 16:35	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 16:35	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 16:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 16:35	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 16:35	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 16:35	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 16:35	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 16:35	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 16:35	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 16:35	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 16:35	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 16:35	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 16:35	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 16:35	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 16:35	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 16:35	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 16:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 16:35	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 16:35	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 16:35	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 16:35	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 16:35	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 16:35	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	94		78 - 122		04/27/22 16:35	1
<i>Dibromofluoromethane (Surr)</i>	104		73 - 120		04/27/22 16:35	1
<i>4-Bromofluorobenzene (Surr)</i>	91		56 - 136		04/27/22 16:35	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	91		62 - 137		04/27/22 16:35	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041922-SK-013

Date Collected: 04/19/22 11:25

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 16:59	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 16:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 16:59	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 16:59	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 16:59	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 16:59	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 16:59	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 16:59	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 16:59	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 16:59	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 16:59	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 16:59	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 16:59	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 16:59	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 16:59	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 16:59	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 16:59	1
Acetone	10	U	10	5.4	ug/L			04/27/22 16:59	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 16:59	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 16:59	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 16:59	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 16:59	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 16:59	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 16:59	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 16:59	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 16:59	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 16:59	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 16:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 16:59	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 16:59	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 16:59	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 16:59	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 16:59	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 16:59	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 16:59	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 16:59	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 16:59	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 16:59	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 16:59	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 16:59	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 16:59	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 16:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 16:59	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 16:59	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 16:59	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 16:59	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 16:59	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 16:59	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	94		78 - 122		04/27/22 16:59	1
<i>Dibromofluoromethane (Surr)</i>	106		73 - 120		04/27/22 16:59	1
<i>4-Bromofluorobenzene (Surr)</i>	91		56 - 136		04/27/22 16:59	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	97		62 - 137		04/27/22 16:59	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-041922-SK-014

Date Collected: 04/19/22 13:30

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 18:13	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 18:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 18:13	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 18:13	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 18:13	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 18:13	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 18:13	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 18:13	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 18:13	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 18:13	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 18:13	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 18:13	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 18:13	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 18:13	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 18:13	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 18:13	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 18:13	1
Acetone	10	U	10	5.4	ug/L			04/27/22 18:13	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 18:13	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 18:13	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 18:13	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 18:13	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 18:13	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 18:13	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 18:13	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 18:13	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 18:13	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 18:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 18:13	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 18:13	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 18:13	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 18:13	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 18:13	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 18:13	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 18:13	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 18:13	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 18:13	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 18:13	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 18:13	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 18:13	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 18:13	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 18:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 18:13	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 18:13	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 18:13	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 18:13	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 18:13	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 18:13	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	96		78 - 122		04/27/22 18:13	1
<i>Dibromofluoromethane (Surr)</i>	102		73 - 120		04/27/22 18:13	1
<i>4-Bromofluorobenzene (Surr)</i>	91		56 - 136		04/27/22 18:13	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	92		62 - 137		04/27/22 18:13	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-042122-SK-018

Date Collected: 04/21/22 13:40

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	15		1.0	0.48	ug/L			04/27/22 18:37	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 18:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 18:37	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 18:37	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 18:37	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 18:37	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 18:37	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 18:37	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 18:37	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 18:37	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 18:37	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 18:37	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 18:37	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 18:37	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 18:37	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 18:37	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 18:37	1
Acetone	10	U	10	5.4	ug/L			04/27/22 18:37	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 18:37	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 18:37	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 18:37	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 18:37	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 18:37	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 18:37	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 18:37	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 18:37	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 18:37	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 18:37	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 18:37	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 18:37	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 18:37	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 18:37	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 18:37	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 18:37	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 18:37	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 18:37	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 18:37	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 18:37	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 18:37	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 18:37	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 18:37	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 18:37	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 18:37	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 18:37	1
Trichloroethene	44		1.0	0.44	ug/L			04/27/22 18:37	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 18:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 18:37	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 18:37	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	92		78 - 122		04/27/22 18:37	1
<i>Dibromofluoromethane (Surr)</i>	104		73 - 120		04/27/22 18:37	1
<i>4-Bromofluorobenzene (Surr)</i>	91		56 - 136		04/27/22 18:37	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	98		62 - 137		04/27/22 18:37	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-042122-SK-019

Date Collected: 04/21/22 14:20

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	11		1.0	0.48	ug/L			04/26/22 16:01	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/26/22 16:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/26/22 16:01	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 16:01	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/26/22 16:01	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/26/22 16:01	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/26/22 16:01	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/26/22 16:01	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/26/22 16:01	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/26/22 16:01	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/26/22 16:01	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/26/22 16:01	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/26/22 16:01	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/26/22 16:01	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/26/22 16:01	1
2-Hexanone	10	U	10	1.1	ug/L			04/26/22 16:01	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/26/22 16:01	1
Acetone	10	U	10	5.4	ug/L			04/26/22 16:01	1
Benzene	1.0	U	1.0	0.42	ug/L			04/26/22 16:01	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/26/22 16:01	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/26/22 16:01	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/26/22 16:01	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/26/22 16:01	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/26/22 16:01	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/26/22 16:01	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/26/22 16:01	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/26/22 16:01	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/26/22 16:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/26/22 16:01	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/26/22 16:01	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/26/22 16:01	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/26/22 16:01	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/26/22 16:01	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/26/22 16:01	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/26/22 16:01	1
Methyl acetate	10	U	10	1.7	ug/L			04/26/22 16:01	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/26/22 16:01	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/26/22 16:01	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/26/22 16:01	1
Styrene	1.0	U	1.0	0.45	ug/L			04/26/22 16:01	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 16:01	1
Toluene	1.0	U	1.0	0.44	ug/L			04/26/22 16:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/26/22 16:01	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/26/22 16:01	1
Trichloroethene	34		1.0	0.44	ug/L			04/26/22 16:01	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/26/22 16:01	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/26/22 16:01	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/26/22 16:01	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	93		78 - 122		04/26/22 16:01	1
<i>Dibromofluoromethane (Surr)</i>	92		73 - 120		04/26/22 16:01	1
<i>4-Bromofluorobenzene (Surr)</i>	83		56 - 136		04/26/22 16:01	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	102		62 - 137		04/26/22 16:01	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-042222-SK-022

Date Collected: 04/22/22 11:00

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 16:27	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/26/22 16:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/26/22 16:27	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 16:27	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/26/22 16:27	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/26/22 16:27	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/26/22 16:27	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/26/22 16:27	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/26/22 16:27	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/26/22 16:27	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/26/22 16:27	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/26/22 16:27	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/26/22 16:27	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/26/22 16:27	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/26/22 16:27	1
2-Hexanone	10	U	10	1.1	ug/L			04/26/22 16:27	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/26/22 16:27	1
Acetone	5.8	J	10	5.4	ug/L			04/26/22 16:27	1
Benzene	1.0	U	1.0	0.42	ug/L			04/26/22 16:27	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/26/22 16:27	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/26/22 16:27	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/26/22 16:27	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/26/22 16:27	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/26/22 16:27	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/26/22 16:27	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/26/22 16:27	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/26/22 16:27	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/26/22 16:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/26/22 16:27	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/26/22 16:27	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/26/22 16:27	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/26/22 16:27	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/26/22 16:27	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/26/22 16:27	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/26/22 16:27	1
Methyl acetate	10	U	10	1.7	ug/L			04/26/22 16:27	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/26/22 16:27	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/26/22 16:27	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/26/22 16:27	1
Styrene	1.0	U	1.0	0.45	ug/L			04/26/22 16:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 16:27	1
Toluene	1.0	U	1.0	0.44	ug/L			04/26/22 16:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/26/22 16:27	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/26/22 16:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 16:27	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/26/22 16:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/26/22 16:27	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/26/22 16:27	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Toluene-d8 (Surr)</i>	96		78 - 122		04/26/22 16:27	1
<i>Dibromofluoromethane (Surr)</i>	92		73 - 120		04/26/22 16:27	1
<i>4-Bromofluorobenzene (Surr)</i>	87		56 - 136		04/26/22 16:27	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		62 - 137		04/26/22 16:27	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: GW-11223416-042222-SK-023

Date Collected: 04/22/22 13:00

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 16:52	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/26/22 16:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/26/22 16:52	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 16:52	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/26/22 16:52	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/26/22 16:52	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/26/22 16:52	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/26/22 16:52	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/26/22 16:52	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/26/22 16:52	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/26/22 16:52	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/26/22 16:52	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/26/22 16:52	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/26/22 16:52	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/26/22 16:52	1
2-Hexanone	10	U	10	1.1	ug/L			04/26/22 16:52	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/26/22 16:52	1
Acetone	10	U	10	5.4	ug/L			04/26/22 16:52	1
Benzene	1.0	U	1.0	0.42	ug/L			04/26/22 16:52	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/26/22 16:52	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/26/22 16:52	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/26/22 16:52	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/26/22 16:52	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/26/22 16:52	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/26/22 16:52	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/26/22 16:52	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/26/22 16:52	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/26/22 16:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/26/22 16:52	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/26/22 16:52	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/26/22 16:52	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/26/22 16:52	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/26/22 16:52	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/26/22 16:52	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/26/22 16:52	1
Methyl acetate	10	U	10	1.7	ug/L			04/26/22 16:52	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/26/22 16:52	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/26/22 16:52	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/26/22 16:52	1
Styrene	1.0	U	1.0	0.45	ug/L			04/26/22 16:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 16:52	1
Toluene	1.0	U	1.0	0.44	ug/L			04/26/22 16:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/26/22 16:52	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/26/22 16:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 16:52	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/26/22 16:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/26/22 16:52	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/26/22 16:52	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Toluene-d8 (Surr)</i>	95		78 - 122		04/26/22 16:52	1
<i>Dibromofluoromethane (Surr)</i>	91		73 - 120		04/26/22 16:52	1
<i>4-Bromofluorobenzene (Surr)</i>	87		56 - 136		04/26/22 16:52	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	102		62 - 137		04/26/22 16:52	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: TB-11223416-042222-SK

Date Collected: 04/22/22 00:00

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 15:36	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/26/22 15:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/26/22 15:36	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 15:36	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/26/22 15:36	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/26/22 15:36	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/26/22 15:36	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/26/22 15:36	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/26/22 15:36	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/26/22 15:36	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/26/22 15:36	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/26/22 15:36	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/26/22 15:36	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/26/22 15:36	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/26/22 15:36	1
2-Hexanone	10	U	10	1.1	ug/L			04/26/22 15:36	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/26/22 15:36	1
Acetone	10	U	10	5.4	ug/L			04/26/22 15:36	1
Benzene	1.0	U	1.0	0.42	ug/L			04/26/22 15:36	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/26/22 15:36	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/26/22 15:36	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/26/22 15:36	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/26/22 15:36	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/26/22 15:36	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/26/22 15:36	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/26/22 15:36	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/26/22 15:36	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/26/22 15:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/26/22 15:36	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/26/22 15:36	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/26/22 15:36	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/26/22 15:36	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/26/22 15:36	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/26/22 15:36	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/26/22 15:36	1
Methyl acetate	10	U	10	1.7	ug/L			04/26/22 15:36	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/26/22 15:36	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/26/22 15:36	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/26/22 15:36	1
Styrene	1.0	U	1.0	0.45	ug/L			04/26/22 15:36	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 15:36	1
Toluene	1.0	U	1.0	0.44	ug/L			04/26/22 15:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/26/22 15:36	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/26/22 15:36	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 15:36	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/26/22 15:36	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/26/22 15:36	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/26/22 15:36	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Toluene-d8 (Surr)</i>	95		78 - 122		04/26/22 15:36	1
<i>Dibromofluoromethane (Surr)</i>	89		73 - 120		04/26/22 15:36	1
<i>4-Bromofluorobenzene (Surr)</i>	84		56 - 136		04/26/22 15:36	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		62 - 137		04/26/22 15:36	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: GW-11223416-042122-SK-018

Date Collected: 04/21/22 13:40

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.0	U F2	1.0	0.39	ug/L		04/28/22 10:10	05/04/22 18:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	92		31 - 126				04/28/22 10:10	05/04/22 18:23	1
Phenol-d5 (Surr)	21		10 - 120				04/28/22 10:10	05/04/22 18:23	1
Nitrobenzene-d5 (Surr)	66		34 - 120				04/28/22 10:10	05/04/22 18:23	1
2-Fluorophenol (Surr)	35		10 - 120				04/28/22 10:10	05/04/22 18:23	1
2-Fluorobiphenyl (Surr)	74		38 - 120				04/28/22 10:10	05/04/22 18:23	1
2,4,6-Tribromophenol (Surr)	72		26 - 120				04/28/22 10:10	05/04/22 18:23	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: GW-11223416-042122-SK-019

Date Collected: 04/21/22 14:20

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.0	U	1.0	0.39	ug/L		04/28/22 10:10	05/04/22 17:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	105		31 - 126				04/28/22 10:10	05/04/22 17:12	1
Phenol-d5 (Surr)	21		10 - 120				04/28/22 10:10	05/04/22 17:12	1
Nitrobenzene-d5 (Surr)	79		34 - 120				04/28/22 10:10	05/04/22 17:12	1
2-Fluorophenol (Surr)	36		10 - 120				04/28/22 10:10	05/04/22 17:12	1
2-Fluorobiphenyl (Surr)	89		38 - 120				04/28/22 10:10	05/04/22 17:12	1
2,4,6-Tribromophenol (Surr)	92		26 - 120				04/28/22 10:10	05/04/22 17:12	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: GW-11223416-042122-SK-015

Date Collected: 04/21/22 09:50

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	160		50	34	ug/L		04/26/22 12:00	04/27/22 17:58	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 17:58	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 17:58	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: GW-11223416-042122-SK-016

Date Collected: 04/21/22 11:45

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		04/26/22 12:00	04/27/22 18:33	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:33	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:33	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: GW-11223416-042122-SK-017

Date Collected: 04/21/22 11:55

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		04/26/22 12:00	04/27/22 18:38	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:38	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:38	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: GW-11223416-042222-SK-020

Date Collected: 04/22/22 08:45

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200		50	34	ug/L		04/26/22 12:00	04/27/22 18:43	1
Lead	6.3		1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:43	1
Vanadium	1.7	J	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:43	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: GW-11223416-042222-SK-021

Date Collected: 04/22/22 09:30

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		04/26/22 12:00	04/27/22 18:45	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:45	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:45	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: GW-11223416-042122-SK-015

Date Collected: 04/21/22 09:50

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	51		50	34	ug/L		04/26/22 12:00	04/27/22 18:08	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:08	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:08	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: GW-11223416-042122-SK-016

Date Collected: 04/21/22 11:45

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		04/26/22 12:00	04/27/22 18:35	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:35	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:35	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: GW-11223416-042122-SK-017

Date Collected: 04/21/22 11:55

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		04/26/22 12:00	04/27/22 18:40	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:40	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:40	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: GW-11223416-042222-SK-021

Date Collected: 04/22/22 09:30

Date Received: 04/23/22 09:45

Lab Sample ID: 240-165506-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		04/26/22 12:00	04/27/22 18:48	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 18:48	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 18:48	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

GC/MS VOA

Analysis Batch: 524039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165506-13	GW-11223416-042122-SK-019	Total/NA	Water	8260C	
240-165506-16	GW-11223416-042222-SK-022	Total/NA	Water	8260C	
240-165506-17	GW-11223416-042222-SK-023	Total/NA	Water	8260C	
240-165506-18	TB-11223416-042222-SK	Total/NA	Water	8260C	
MB 240-524039/9	Method Blank	Total/NA	Water	8260C	
LCS 240-524039/5	Lab Control Sample	Total/NA	Water	8260C	
240-165506-13 MS	GW-11223416-042122-SK-019	Total/NA	Water	8260C	
240-165506-13 MSD	GW-11223416-042122-SK-019	Total/NA	Water	8260C	

Analysis Batch: 524140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165506-1	GW-11223416-041822-SK-007	Total/NA	Water	8260C	
240-165506-2	GW-11223416-041822-SK-008	Total/NA	Water	8260C	
240-165506-3	GW-11223416-041822-SK-009	Total/NA	Water	8260C	
240-165506-4	GW-11223416-041822-SK-010	Total/NA	Water	8260C	
240-165506-5	GW-11223416-041822-SK-011	Total/NA	Water	8260C	
240-165506-6	GW-11223416-041922-SK-012	Total/NA	Water	8260C	
240-165506-7	GW-11223416-041922-SK-013	Total/NA	Water	8260C	
240-165506-8	GW-11223416-041922-SK-014	Total/NA	Water	8260C	
240-165506-12	GW-11223416-042122-SK-018	Total/NA	Water	8260C	
MB 240-524140/8	Method Blank	Total/NA	Water	8260C	
LCS 240-524140/5	Lab Control Sample	Total/NA	Water	8260C	
240-165506-7 MS	GW-11223416-041922-SK-013	Total/NA	Water	8260C	
240-165506-7 MSD	GW-11223416-041922-SK-013	Total/NA	Water	8260C	
240-165506-12 MS	GW-11223416-042122-SK-018	Total/NA	Water	8260C	
240-165506-12 MSD	GW-11223416-042122-SK-018	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 524207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165506-12	GW-11223416-042122-SK-018	Total/NA	Water	3510C	
240-165506-13	GW-11223416-042122-SK-019	Total/NA	Water	3510C	
MB 240-524207/20-A	Method Blank	Total/NA	Water	3510C	
LCS 240-524207/21-A	Lab Control Sample	Total/NA	Water	3510C	
240-165506-12 MS	GW-11223416-042122-SK-018	Total/NA	Water	3510C	
240-165506-12 MSD	GW-11223416-042122-SK-018	Total/NA	Water	3510C	
240-165506-13 MS	GW-11223416-042122-SK-019	Total/NA	Water	3510C	
240-165506-13 MSD	GW-11223416-042122-SK-019	Total/NA	Water	3510C	

Analysis Batch: 524756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-524207/20-A	Method Blank	Total/NA	Water	8270D	524207
LCS 240-524207/21-A	Lab Control Sample	Total/NA	Water	8270D	524207

Analysis Batch: 525044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165506-12	GW-11223416-042122-SK-018	Total/NA	Water	8270D	524207
240-165506-13	GW-11223416-042122-SK-019	Total/NA	Water	8270D	524207
240-165506-12 MS	GW-11223416-042122-SK-018	Total/NA	Water	8270D	524207
240-165506-12 MSD	GW-11223416-042122-SK-018	Total/NA	Water	8270D	524207

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QC Association Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

GC/MS Semi VOA (Continued)

Analysis Batch: 525044 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165506-13 MS	GW-11223416-042122-SK-019	Total/NA	Water	8270D	524207
240-165506-13 MSD	GW-11223416-042122-SK-019	Total/NA	Water	8270D	524207

Metals

Prep Batch: 524005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165506-9	GW-11223416-042122-SK-015	Dissolved	Water	3005A	524005
240-165506-9	GW-11223416-042122-SK-015	Total Recoverable	Water	3005A	
240-165506-10	GW-11223416-042122-SK-016	Dissolved	Water	3005A	524005
240-165506-10	GW-11223416-042122-SK-016	Total Recoverable	Water	3005A	
240-165506-11	GW-11223416-042122-SK-017	Dissolved	Water	3005A	524005
240-165506-11	GW-11223416-042122-SK-017	Total Recoverable	Water	3005A	
240-165506-14	GW-11223416-042222-SK-020	Total Recoverable	Water	3005A	524005
240-165506-15	GW-11223416-042222-SK-021	Dissolved	Water	3005A	
240-165506-15	GW-11223416-042222-SK-021	Total Recoverable	Water	3005A	524005
MB 240-524005/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-524005/2-A	Lab Control Sample	Total Recoverable	Water	3005A	524005
240-165506-9 MS	GW-11223416-042122-SK-015	Dissolved	Water	3005A	
240-165506-9 MS	GW-11223416-042122-SK-015	Total Recoverable	Water	3005A	524005
240-165506-9 MSD	GW-11223416-042122-SK-015	Dissolved	Water	3005A	
240-165506-9 MSD	GW-11223416-042122-SK-015	Total Recoverable	Water	3005A	524005

Analysis Batch: 524399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165506-9	GW-11223416-042122-SK-015	Dissolved	Water	6020	524005
240-165506-9	GW-11223416-042122-SK-015	Total Recoverable	Water	6020	
240-165506-10	GW-11223416-042122-SK-016	Dissolved	Water	6020	524005
240-165506-10	GW-11223416-042122-SK-016	Total Recoverable	Water	6020	
240-165506-11	GW-11223416-042122-SK-017	Dissolved	Water	6020	524005
240-165506-11	GW-11223416-042122-SK-017	Total Recoverable	Water	6020	
240-165506-14	GW-11223416-042222-SK-020	Total Recoverable	Water	6020	524005
240-165506-15	GW-11223416-042222-SK-021	Dissolved	Water	6020	
240-165506-15	GW-11223416-042222-SK-021	Total Recoverable	Water	6020	524005
MB 240-524005/1-A	Method Blank	Total Recoverable	Water	6020	
LCS 240-524005/2-A	Lab Control Sample	Total Recoverable	Water	6020	524005
240-165506-9 MS	GW-11223416-042122-SK-015	Dissolved	Water	6020	
240-165506-9 MS	GW-11223416-042122-SK-015	Total Recoverable	Water	6020	524005
240-165506-9 MSD	GW-11223416-042122-SK-015	Dissolved	Water	6020	
240-165506-9 MSD	GW-11223416-042122-SK-015	Total Recoverable	Water	6020	524005

QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-524039/9

Matrix: Water

Analysis Batch: 524039

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 14:46	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/26/22 14:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/26/22 14:46	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/26/22 14:46	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/26/22 14:46	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/26/22 14:46	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/26/22 14:46	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/26/22 14:46	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/26/22 14:46	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/26/22 14:46	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/26/22 14:46	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/26/22 14:46	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/26/22 14:46	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/26/22 14:46	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/26/22 14:46	1
2-Hexanone	10	U	10	1.1	ug/L			04/26/22 14:46	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/26/22 14:46	1
Acetone	10	U	10	5.4	ug/L			04/26/22 14:46	1
Benzene	1.0	U	1.0	0.42	ug/L			04/26/22 14:46	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/26/22 14:46	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/26/22 14:46	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/26/22 14:46	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/26/22 14:46	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/26/22 14:46	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/26/22 14:46	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/26/22 14:46	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/26/22 14:46	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/26/22 14:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/26/22 14:46	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/26/22 14:46	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/26/22 14:46	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/26/22 14:46	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/26/22 14:46	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/26/22 14:46	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/26/22 14:46	1
Methyl acetate	10	U	10	1.7	ug/L			04/26/22 14:46	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/26/22 14:46	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/26/22 14:46	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/26/22 14:46	1
Styrene	1.0	U	1.0	0.45	ug/L			04/26/22 14:46	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 14:46	1
Toluene	1.0	U	1.0	0.44	ug/L			04/26/22 14:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/26/22 14:46	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/26/22 14:46	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/26/22 14:46	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/26/22 14:46	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/26/22 14:46	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/26/22 14:46	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-524039/9

Matrix: Water

Analysis Batch: 524039

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		78 - 122		04/26/22 14:46	1
Dibromofluoromethane (Surr)	88		73 - 120		04/26/22 14:46	1
4-Bromofluorobenzene (Surr)	87		56 - 136		04/26/22 14:46	1
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		04/26/22 14:46	1

Lab Sample ID: LCS 240-524039/5

Matrix: Water

Analysis Batch: 524039

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	25.0	25.4		ug/L		101	64 - 131
1,1,1,2-Tetrachloroethane	25.0	24.4		ug/L		97	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	25.1		ug/L		100	51 - 146
1,1,2-Trichloroethane	25.0	25.5		ug/L		102	70 - 138
1,1-Dichloroethane	25.0	22.0		ug/L		88	72 - 127
1,1-Dichloroethene	25.0	19.0		ug/L		76	63 - 134
1,2,4-Trichlorobenzene	25.0	24.0		ug/L		96	44 - 147
1,2-Dibromo-3-Chloropropane	25.0	21.5		ug/L		86	53 - 135
Ethylene Dibromide	25.0	26.1		ug/L		105	71 - 134
1,2-Dichlorobenzene	25.0	24.6		ug/L		98	78 - 120
1,2-Dichloroethane	25.0	24.1		ug/L		96	66 - 128
1,2-Dichloropropane	25.0	24.4		ug/L		98	75 - 133
1,3-Dichlorobenzene	25.0	25.7		ug/L		103	80 - 120
1,4-Dichlorobenzene	25.0	25.9		ug/L		104	80 - 120
2-Butanone (MEK)	50.0	53.5		ug/L		107	54 - 156
2-Hexanone	50.0	56.9		ug/L		114	43 - 167
4-Methyl-2-pentanone (MIBK)	50.0	55.4		ug/L		111	46 - 158
Acetone	50.0	64.2		ug/L		128	50 - 149
Benzene	25.0	23.7		ug/L		95	77 - 123
Dichlorobromomethane	25.0	24.5		ug/L		98	69 - 126
Bromoform	25.0	22.1		ug/L		89	57 - 129
Bromomethane	25.0	25.1		ug/L		100	36 - 142
Carbon disulfide	25.0	18.4		ug/L		74	43 - 140
Carbon tetrachloride	25.0	27.3		ug/L		109	55 - 137
Chlorobenzene	25.0	25.4		ug/L		101	80 - 121
Chloroethane	25.0	22.5		ug/L		90	38 - 152
Chloroform	25.0	23.5		ug/L		94	74 - 122
Chloromethane	25.0	23.5		ug/L		94	47 - 143
cis-1,2-Dichloroethene	25.0	23.7		ug/L		95	77 - 123
cis-1,3-Dichloropropene	25.0	24.4		ug/L		98	64 - 130
Cyclohexane	25.0	23.0		ug/L		92	58 - 146
Chlorodibromomethane	25.0	25.6		ug/L		102	70 - 124
Dichlorodifluoromethane	25.0	18.6		ug/L		74	34 - 153
Ethylbenzene	25.0	24.8		ug/L		99	80 - 121
Isopropylbenzene	25.0	25.7		ug/L		103	74 - 128
Methyl acetate	50.0	49.5		ug/L		99	42 - 169
Methyl tert-butyl ether	25.0	22.1		ug/L		88	65 - 126
Methylcyclohexane	25.0	24.3		ug/L		97	62 - 136

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-524039/5

Matrix: Water

Analysis Batch: 524039

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	25.0	21.5		ug/L		86	71 - 125
Styrene	25.0	26.9		ug/L		108	80 - 135
Tetrachloroethene	25.0	26.6		ug/L		106	76 - 123
Toluene	25.0	24.2		ug/L		97	80 - 123
trans-1,2-Dichloroethene	25.0	23.0		ug/L		92	75 - 124
trans-1,3-Dichloropropene	25.0	24.7		ug/L		99	57 - 129
Trichloroethene	25.0	24.9		ug/L		100	70 - 122
Trichlorofluoromethane	25.0	36.2		ug/L		145	30 - 170
Vinyl chloride	25.0	20.9		ug/L		83	60 - 144
Xylenes, Total	50.0	51.1		ug/L		102	80 - 121
m-Xylene & p-Xylene	25.0	26.4		ug/L		105	80 - 120
o-Xylene	25.0	24.7		ug/L		99	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	94		78 - 122
Dibromofluoromethane (Surr)	93		73 - 120
4-Bromofluorobenzene (Surr)	92		56 - 136
1,2-Dichloroethane-d4 (Surr)	95		62 - 137

Lab Sample ID: 240-165506-13 MS

Matrix: Water

Analysis Batch: 524039

Client Sample ID: GW-11223416-042122-SK-019

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	11		25.0	37.1		ug/L		105	60 - 130
1,1,2,2-Tetrachloroethane	1.0	U	25.0	24.6		ug/L		98	54 - 145
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	25.0	25.5		ug/L		102	41 - 147
1,1,2-Trichloroethane	1.0	U	25.0	25.5		ug/L		102	69 - 131
1,1-Dichloroethane	1.0	U	25.0	21.1		ug/L		85	68 - 125
1,1-Dichloroethene	1.0	U	25.0	19.5		ug/L		78	56 - 135
1,2,4-Trichlorobenzene	1.0	U	25.0	22.6		ug/L		91	29 - 156
1,2-Dibromo-3-Chloropropane	2.0	U	25.0	22.1		ug/L		88	41 - 129
Ethylene Dibromide	1.0	U	25.0	25.7		ug/L		103	69 - 125
1,2-Dichlorobenzene	1.0	U	25.0	24.2		ug/L		97	73 - 120
1,2-Dichloroethane	1.0	U	25.0	24.6		ug/L		99	63 - 126
1,2-Dichloropropane	1.0	U	25.0	24.7		ug/L		99	69 - 130
1,3-Dichlorobenzene	1.0	U	25.0	24.4		ug/L		97	73 - 120
1,4-Dichlorobenzene	1.0	U	25.0	24.2		ug/L		97	74 - 120
2-Butanone (MEK)	10	U	50.0	50.3		ug/L		101	40 - 151
2-Hexanone	10	U	50.0	57.0		ug/L		114	35 - 156
4-Methyl-2-pentanone (MIBK)	10	U	50.0	57.7		ug/L		115	31 - 153
Acetone	10	U	50.0	59.1		ug/L		118	33 - 149
Benzene	1.0	U	25.0	23.0		ug/L		92	64 - 128
Dichlorobromomethane	1.0	U	25.0	24.9		ug/L		100	62 - 125
Bromoform	1.0	U	25.0	22.3		ug/L		89	47 - 125
Bromomethane	1.0	U	25.0	22.0		ug/L		88	28 - 150
Carbon disulfide	1.0	U	25.0	16.5		ug/L		66	38 - 140
Carbon tetrachloride	1.0	U	25.0	27.0		ug/L		108	51 - 133

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-165506-13 MS

Matrix: Water

Analysis Batch: 524039

Client Sample ID: GW-11223416-042122-SK-019

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorobenzene	1.0	U	25.0	24.2		ug/L		97	74 - 121
Chloroethane	1.0	U	25.0	22.7		ug/L		91	10 - 199
Chloroform	1.0	U	25.0	24.6		ug/L		98	70 - 122
Chloromethane	1.0	U	25.0	23.8		ug/L		95	32 - 149
cis-1,2-Dichloroethene	1.0	U	25.0	23.1		ug/L		92	66 - 128
cis-1,3-Dichloropropene	1.0	U	25.0	23.9		ug/L		96	47 - 125
Cyclohexane	1.0	U	25.0	22.3		ug/L		89	42 - 147
Chlorodibromomethane	1.0	U	25.0	24.4		ug/L		98	65 - 120
Dichlorodifluoromethane	1.0	U	25.0	16.6		ug/L		66	38 - 139
Ethylbenzene	1.0	U	25.0	23.5		ug/L		94	67 - 127
Isopropylbenzene	1.0	U	25.0	24.2		ug/L		97	64 - 129
Methyl acetate	10	U	50.0	47.1		ug/L		94	37 - 155
Methyl tert-butyl ether	1.0	U	25.0	21.7		ug/L		87	47 - 134
Methylcyclohexane	1.0	U	25.0	24.5		ug/L		98	39 - 144
Methylene Chloride	5.0	U	25.0	21.6		ug/L		86	62 - 129
Styrene	1.0	U	25.0	26.3		ug/L		105	70 - 139
Tetrachloroethene	1.0	U	25.0	25.9		ug/L		104	62 - 131
Toluene	1.0	U	25.0	22.2		ug/L		89	58 - 135
trans-1,2-Dichloroethene	1.0	U	25.0	21.5		ug/L		86	56 - 136
trans-1,3-Dichloropropene	1.0	U	25.0	23.7		ug/L		95	47 - 120
Trichloroethene	34		25.0	55.5		ug/L		86	61 - 124
Trichlorofluoromethane	1.0	U	25.0	35.1		ug/L		140	24 - 177
Vinyl chloride	1.0	U	25.0	20.2		ug/L		81	43 - 157
Xylenes, Total	2.0	U	50.0	47.9		ug/L		96	71 - 123
m-Xylene & p-Xylene	2.0	U	25.0	24.3		ug/L		97	71 - 123
o-Xylene	1.0	U	25.0	23.6		ug/L		94	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	92		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120
4-Bromofluorobenzene (Surr)	94		56 - 136
1,2-Dichloroethane-d4 (Surr)	96		62 - 137

Lab Sample ID: 240-165506-13 MSD

Matrix: Water

Analysis Batch: 524039

Client Sample ID: GW-11223416-042122-SK-019

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	11		25.0	35.6		ug/L		100	60 - 130	4	17
1,1,2,2-Tetrachloroethane	1.0	U	25.0	24.2		ug/L		97	54 - 145	2	15
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	25.0	23.3		ug/L		93	41 - 147	9	35
1,1,2-Trichloroethane	1.0	U	25.0	24.6		ug/L		99	69 - 131	4	14
1,1-Dichloroethane	1.0	U	25.0	20.8		ug/L		83	68 - 125	2	13
1,1-Dichloroethene	1.0	U	25.0	16.6		ug/L		66	56 - 135	16	26
1,2,4-Trichlorobenzene	1.0	U	25.0	22.4		ug/L		90	29 - 156	1	19
1,2-Dibromo-3-Chloropropane	2.0	U	25.0	21.7		ug/L		87	41 - 129	2	22
Ethylene Dibromide	1.0	U	25.0	25.6		ug/L		102	69 - 125	0	14
1,2-Dichlorobenzene	1.0	U	25.0	22.6		ug/L		91	73 - 120	7	14

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-165506-13 MSD

Client Sample ID: GW-11223416-042122-SK-019

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 524039

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	1.0	U	25.0	23.6		ug/L		94	63 - 126	4	12
1,2-Dichloropropane	1.0	U	25.0	24.2		ug/L		97	69 - 130	2	13
1,3-Dichlorobenzene	1.0	U	25.0	22.8		ug/L		91	73 - 120	7	14
1,4-Dichlorobenzene	1.0	U	25.0	22.8		ug/L		91	74 - 120	6	15
2-Butanone (MEK)	10	U	50.0	50.5		ug/L		101	40 - 151	0	20
2-Hexanone	10	U	50.0	54.8		ug/L		110	35 - 156	4	17
4-Methyl-2-pentanone (MIBK)	10	U	50.0	54.0		ug/L		108	31 - 153	7	15
Acetone	10	U	50.0	55.2		ug/L		110	33 - 149	7	34
Benzene	1.0	U	25.0	22.4		ug/L		90	64 - 128	3	14
Dichlorobromomethane	1.0	U	25.0	24.1		ug/L		97	62 - 125	3	13
Bromoform	1.0	U	25.0	21.3		ug/L		85	47 - 125	4	15
Bromomethane	1.0	U	25.0	22.2		ug/L		89	28 - 150	1	26
Carbon disulfide	1.0	U	25.0	16.7		ug/L		67	38 - 140	1	23
Carbon tetrachloride	1.0	U	25.0	25.9		ug/L		103	51 - 133	4	24
Chlorobenzene	1.0	U	25.0	23.4		ug/L		94	74 - 121	3	14
Chloroethane	1.0	U	25.0	20.7		ug/L		83	10 - 199	9	30
Chloroform	1.0	U	25.0	23.4		ug/L		93	70 - 122	5	14
Chloromethane	1.0	U	25.0	22.3		ug/L		89	32 - 149	7	27
cis-1,2-Dichloroethene	1.0	U	25.0	22.6		ug/L		90	66 - 128	2	14
cis-1,3-Dichloropropene	1.0	U	25.0	22.8		ug/L		91	47 - 125	5	13
Cyclohexane	1.0	U	25.0	20.7		ug/L		83	42 - 147	8	35
Chlorodibromomethane	1.0	U	25.0	24.2		ug/L		97	65 - 120	1	13
Dichlorodifluoromethane	1.0	U	25.0	16.8		ug/L		67	38 - 139	1	35
Ethylbenzene	1.0	U	25.0	22.8		ug/L		91	67 - 127	3	15
Isopropylbenzene	1.0	U	25.0	22.5		ug/L		90	64 - 129	7	18
Methyl acetate	10	U	50.0	46.2		ug/L		92	37 - 155	2	18
Methyl tert-butyl ether	1.0	U	25.0	21.4		ug/L		86	47 - 134	1	16
Methylcyclohexane	1.0	U	25.0	22.5		ug/L		90	39 - 144	8	35
Methylene Chloride	5.0	U	25.0	20.6		ug/L		82	62 - 129	5	17
Styrene	1.0	U	25.0	24.2		ug/L		97	70 - 139	8	18
Tetrachloroethene	1.0	U	25.0	25.8		ug/L		103	62 - 131	0	20
Toluene	1.0	U	25.0	22.3		ug/L		89	58 - 135	0	14
trans-1,2-Dichloroethene	1.0	U	25.0	21.4		ug/L		86	56 - 136	0	15
trans-1,3-Dichloropropene	1.0	U	25.0	23.2		ug/L		93	47 - 120	2	14
Trichloroethene	34		25.0	55.3		ug/L		85	61 - 124	0	15
Trichlorofluoromethane	1.0	U	25.0	33.0		ug/L		132	24 - 177	6	34
Vinyl chloride	1.0	U	25.0	20.6		ug/L		82	43 - 157	2	24
Xylenes, Total	2.0	U	50.0	45.3		ug/L		91	71 - 123	6	15
m-Xylene & p-Xylene	2.0	U	25.0	23.1		ug/L		92	71 - 123	5	16
o-Xylene	1.0	U	25.0	22.2		ug/L		89	70 - 125	6	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	94		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120
4-Bromofluorobenzene (Surr)	90		56 - 136
1,2-Dichloroethane-d4 (Surr)	96		62 - 137

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-524140/8

Matrix: Water

Analysis Batch: 524140

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 11:41	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.60	ug/L			04/27/22 11:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			04/27/22 11:41	1
1,1,2-Trichloroethane	1.0	U	1.0	0.48	ug/L			04/27/22 11:41	1
1,1-Dichloroethane	1.0	U	1.0	0.47	ug/L			04/27/22 11:41	1
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			04/27/22 11:41	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.77	ug/L			04/27/22 11:41	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.91	ug/L			04/27/22 11:41	1
Ethylene Dibromide	1.0	U	1.0	0.41	ug/L			04/27/22 11:41	1
1,2-Dichlorobenzene	1.0	U	1.0	0.48	ug/L			04/27/22 11:41	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			04/27/22 11:41	1
1,2-Dichloropropane	1.0	U	1.0	0.47	ug/L			04/27/22 11:41	1
1,3-Dichlorobenzene	1.0	U	1.0	0.45	ug/L			04/27/22 11:41	1
1,4-Dichlorobenzene	1.0	U	1.0	0.41	ug/L			04/27/22 11:41	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			04/27/22 11:41	1
2-Hexanone	10	U	10	1.1	ug/L			04/27/22 11:41	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.99	ug/L			04/27/22 11:41	1
Acetone	10	U	10	5.4	ug/L			04/27/22 11:41	1
Benzene	1.0	U	1.0	0.42	ug/L			04/27/22 11:41	1
Dichlorobromomethane	1.0	U	1.0	0.17	ug/L			04/27/22 11:41	1
Bromoform	1.0	U	1.0	0.76	ug/L			04/27/22 11:41	1
Bromomethane	1.0	U	1.0	0.42	ug/L			04/27/22 11:41	1
Carbon disulfide	1.0	U	1.0	0.59	ug/L			04/27/22 11:41	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			04/27/22 11:41	1
Chlorobenzene	1.0	U	1.0	0.38	ug/L			04/27/22 11:41	1
Chloroethane	1.0	U	1.0	0.83	ug/L			04/27/22 11:41	1
Chloroform	1.0	U	1.0	0.47	ug/L			04/27/22 11:41	1
Chloromethane	1.0	U	1.0	0.63	ug/L			04/27/22 11:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			04/27/22 11:41	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			04/27/22 11:41	1
Cyclohexane	1.0	U	1.0	0.48	ug/L			04/27/22 11:41	1
Chlorodibromomethane	1.0	U	1.0	0.39	ug/L			04/27/22 11:41	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			04/27/22 11:41	1
Ethylbenzene	1.0	U	1.0	0.42	ug/L			04/27/22 11:41	1
Isopropylbenzene	1.0	U	1.0	0.49	ug/L			04/27/22 11:41	1
Methyl acetate	10	U	10	1.7	ug/L			04/27/22 11:41	1
Methyl tert-butyl ether	1.0	U	1.0	0.47	ug/L			04/27/22 11:41	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			04/27/22 11:41	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			04/27/22 11:41	1
Styrene	1.0	U	1.0	0.45	ug/L			04/27/22 11:41	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 11:41	1
Toluene	1.0	U	1.0	0.44	ug/L			04/27/22 11:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			04/27/22 11:41	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			04/27/22 11:41	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			04/27/22 11:41	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			04/27/22 11:41	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			04/27/22 11:41	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			04/27/22 11:41	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-524140/8

Matrix: Water

Analysis Batch: 524140

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		78 - 122		04/27/22 11:41	1
Dibromofluoromethane (Surr)	103		73 - 120		04/27/22 11:41	1
4-Bromofluorobenzene (Surr)	93		56 - 136		04/27/22 11:41	1
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		04/27/22 11:41	1

Lab Sample ID: LCS 240-524140/5

Matrix: Water

Analysis Batch: 524140

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	19.2		ug/L		96	64 - 131
1,1,1,2-Tetrachloroethane	20.0	19.3		ug/L		96	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	19.2		ug/L		96	51 - 146
1,1,2-Trichloroethane	20.0	19.1		ug/L		95	70 - 138
1,1-Dichloroethane	20.0	18.0		ug/L		90	72 - 127
1,1-Dichloroethene	20.0	18.0		ug/L		90	63 - 134
1,2,4-Trichlorobenzene	20.0	18.2		ug/L		91	44 - 147
1,2-Dibromo-3-Chloropropane	20.0	17.3		ug/L		87	53 - 135
Ethylene Dibromide	20.0	18.9		ug/L		94	71 - 134
1,2-Dichlorobenzene	20.0	20.4		ug/L		102	78 - 120
1,2-Dichloroethane	20.0	19.5		ug/L		98	66 - 128
1,2-Dichloropropane	20.0	18.5		ug/L		92	75 - 133
1,3-Dichlorobenzene	20.0	19.7		ug/L		98	80 - 120
1,4-Dichlorobenzene	20.0	19.6		ug/L		98	80 - 120
2-Butanone (MEK)	40.0	35.0		ug/L		87	54 - 156
2-Hexanone	40.0	34.6		ug/L		87	43 - 167
4-Methyl-2-pentanone (MIBK)	40.0	35.7		ug/L		89	46 - 158
Acetone	40.0	33.8		ug/L		85	50 - 149
Benzene	20.0	19.0		ug/L		95	77 - 123
Dichlorobromomethane	20.0	19.0		ug/L		95	69 - 126
Bromoform	20.0	16.3		ug/L		82	57 - 129
Bromomethane	20.0	13.4		ug/L		67	36 - 142
Carbon disulfide	20.0	16.9		ug/L		84	43 - 140
Carbon tetrachloride	20.0	18.6		ug/L		93	55 - 137
Chlorobenzene	20.0	19.4		ug/L		97	80 - 121
Chloroethane	20.0	22.1		ug/L		110	38 - 152
Chloroform	20.0	19.1		ug/L		96	74 - 122
Chloromethane	20.0	16.6		ug/L		83	47 - 143
cis-1,2-Dichloroethene	20.0	19.3		ug/L		96	77 - 123
cis-1,3-Dichloropropene	20.0	18.1		ug/L		91	64 - 130
Cyclohexane	20.0	17.7		ug/L		88	58 - 146
Chlorodibromomethane	20.0	17.4		ug/L		87	70 - 124
Dichlorodifluoromethane	20.0	23.8		ug/L		119	34 - 153
Ethylbenzene	20.0	19.3		ug/L		96	80 - 121
Isopropylbenzene	20.0	18.5		ug/L		92	74 - 128
Methyl acetate	40.0	32.0		ug/L		80	42 - 169
Methyl tert-butyl ether	20.0	18.2		ug/L		91	65 - 126
Methylcyclohexane	20.0	16.6		ug/L		83	62 - 136

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-524140/5

Matrix: Water

Analysis Batch: 524140

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	20.0	17.2		ug/L		86	71 - 125
Styrene	20.0	19.4		ug/L		97	80 - 135
Tetrachloroethene	20.0	19.8		ug/L		99	76 - 123
Toluene	20.0	18.3		ug/L		91	80 - 123
trans-1,2-Dichloroethene	20.0	17.4		ug/L		87	75 - 124
trans-1,3-Dichloropropene	20.0	18.0		ug/L		90	57 - 129
Trichloroethene	20.0	20.8		ug/L		104	70 - 122
Trichlorofluoromethane	20.0	23.8		ug/L		119	30 - 170
Vinyl chloride	20.0	19.5		ug/L		98	60 - 144
Xylenes, Total	40.0	37.9		ug/L		95	80 - 121
m-Xylene & p-Xylene	20.0	18.9		ug/L		94	80 - 120
o-Xylene	20.0	19.0		ug/L		95	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	94		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120
4-Bromofluorobenzene (Surr)	96		56 - 136
1,2-Dichloroethane-d4 (Surr)	93		62 - 137

Lab Sample ID: 240-165506-7 MS

Matrix: Water

Analysis Batch: 524140

Client Sample ID: GW-11223416-041922-SK-013

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	1.0	U	20.0	17.0		ug/L		85	60 - 130
1,1,2,2-Tetrachloroethane	1.0	U	20.0	16.6		ug/L		83	54 - 145
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	20.0	16.4		ug/L		82	41 - 147
1,1,2-Trichloroethane	1.0	U	20.0	16.9		ug/L		84	69 - 131
1,1-Dichloroethane	1.0	U	20.0	16.0		ug/L		80	68 - 125
1,1-Dichloroethene	1.0	U	20.0	16.2		ug/L		81	56 - 135
1,2,4-Trichlorobenzene	1.0	U	20.0	15.5		ug/L		77	29 - 156
1,2-Dibromo-3-Chloropropane	2.0	U	20.0	14.6		ug/L		73	41 - 129
Ethylene Dibromide	1.0	U	20.0	16.7		ug/L		84	69 - 125
1,2-Dichlorobenzene	1.0	U	20.0	16.8		ug/L		84	73 - 120
1,2-Dichloroethane	1.0	U	20.0	17.2		ug/L		86	63 - 126
1,2-Dichloropropane	1.0	U	20.0	16.5		ug/L		82	69 - 130
1,3-Dichlorobenzene	1.0	U	20.0	16.5		ug/L		82	73 - 120
1,4-Dichlorobenzene	1.0	U	20.0	16.7		ug/L		83	74 - 120
2-Butanone (MEK)	10	U	40.0	30.6		ug/L		76	40 - 151
2-Hexanone	10	U	40.0	29.8		ug/L		75	35 - 156
4-Methyl-2-pentanone (MIBK)	10	U	40.0	31.1		ug/L		78	31 - 153
Acetone	10	U	40.0	28.8		ug/L		72	33 - 149
Benzene	1.0	U	20.0	16.8		ug/L		84	64 - 128
Dichlorobromomethane	1.0	U	20.0	16.8		ug/L		84	62 - 125
Bromoform	1.0	U	20.0	14.0		ug/L		70	47 - 125
Bromomethane	1.0	U	20.0	8.78		ug/L		44	28 - 150
Carbon disulfide	1.0	U	20.0	15.4		ug/L		77	38 - 140
Carbon tetrachloride	1.0	U	20.0	16.3		ug/L		81	51 - 133

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-165506-7 MS

Matrix: Water

Analysis Batch: 524140

Client Sample ID: GW-11223416-041922-SK-013

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorobenzene	1.0	U	20.0	17.0		ug/L		85	74 - 121
Chloroethane	1.0	U	20.0	22.7		ug/L		113	10 - 199
Chloroform	1.0	U	20.0	17.2		ug/L		86	70 - 122
Chloromethane	1.0	U	20.0	15.8		ug/L		79	32 - 149
cis-1,2-Dichloroethene	1.0	U	20.0	17.1		ug/L		85	66 - 128
cis-1,3-Dichloropropene	1.0	U	20.0	15.7		ug/L		78	47 - 125
Cyclohexane	1.0	U	20.0	14.9		ug/L		74	42 - 147
Chlorodibromomethane	1.0	U	20.0	15.1		ug/L		75	65 - 120
Dichlorodifluoromethane	1.0	U	20.0	21.0		ug/L		105	38 - 139
Ethylbenzene	1.0	U	20.0	16.6		ug/L		83	67 - 127
Isopropylbenzene	1.0	U	20.0	15.4		ug/L		77	64 - 129
Methyl acetate	10	U	40.0	28.2		ug/L		70	37 - 155
Methyl tert-butyl ether	1.0	U	20.0	16.4		ug/L		82	47 - 134
Methylcyclohexane	1.0	U	20.0	13.4		ug/L		67	39 - 144
Methylene Chloride	5.0	U	20.0	15.6		ug/L		78	62 - 129
Styrene	1.0	U	20.0	16.5		ug/L		82	70 - 139
Tetrachloroethene	1.0	U	20.0	17.0		ug/L		85	62 - 131
Toluene	1.0	U	20.0	15.9		ug/L		79	58 - 135
trans-1,2-Dichloroethene	1.0	U	20.0	15.6		ug/L		78	56 - 136
trans-1,3-Dichloropropene	1.0	U	20.0	15.3		ug/L		76	47 - 120
Trichloroethene	1.0	U	20.0	17.8		ug/L		89	61 - 124
Trichlorofluoromethane	1.0	U	20.0	21.0		ug/L		105	24 - 177
Vinyl chloride	1.0	U	20.0	18.2		ug/L		91	43 - 157
Xylenes, Total	2.0	U	40.0	32.3		ug/L		81	71 - 123
m-Xylene & p-Xylene	2.0	U	20.0	16.0		ug/L		80	71 - 123
o-Xylene	1.0	U	20.0	16.3		ug/L		81	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	104		73 - 120
4-Bromofluorobenzene (Surr)	96		56 - 136
1,2-Dichloroethane-d4 (Surr)	94		62 - 137

Lab Sample ID: 240-165506-7 MSD

Matrix: Water

Analysis Batch: 524140

Client Sample ID: GW-11223416-041922-SK-013

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	1.0	U	20.0	18.6		ug/L		93	60 - 130	9	17
1,1,2,2-Tetrachloroethane	1.0	U	20.0	18.4		ug/L		92	54 - 145	10	15
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	20.0	18.9		ug/L		95	41 - 147	14	35
1,1,2-Trichloroethane	1.0	U	20.0	18.9		ug/L		94	69 - 131	11	14
1,1-Dichloroethane	1.0	U	20.0	17.7		ug/L		88	68 - 125	10	13
1,1-Dichloroethene	1.0	U	20.0	17.4		ug/L		87	56 - 135	7	26
1,2,4-Trichlorobenzene	1.0	U	20.0	17.1		ug/L		85	29 - 156	10	19
1,2-Dibromo-3-Chloropropane	2.0	U	20.0	15.7		ug/L		78	41 - 129	7	22
Ethylene Dibromide	1.0	U	20.0	18.4		ug/L		92	69 - 125	9	14
1,2-Dichlorobenzene	1.0	U	20.0	18.6		ug/L		93	73 - 120	10	14

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-165506-7 MSD

Client Sample ID: GW-11223416-041922-SK-013

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 524140

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	1.0	U	20.0	19.4		ug/L		97	63 - 126	12	12
1,2-Dichloropropane	1.0	U	20.0	18.4		ug/L		92	69 - 130	11	13
1,3-Dichlorobenzene	1.0	U	20.0	18.0		ug/L		90	73 - 120	9	14
1,4-Dichlorobenzene	1.0	U	20.0	18.3		ug/L		91	74 - 120	9	15
2-Butanone (MEK)	10	U	40.0	33.3		ug/L		83	40 - 151	9	20
2-Hexanone	10	U	40.0	33.0		ug/L		83	35 - 156	10	17
4-Methyl-2-pentanone (MIBK)	10	U	40.0	33.5		ug/L		84	31 - 153	7	15
Acetone	10	U	40.0	31.6		ug/L		79	33 - 149	9	34
Benzene	1.0	U	20.0	18.1		ug/L		91	64 - 128	8	14
Dichlorobromomethane	1.0	U	20.0	18.3		ug/L		91	62 - 125	9	13
Bromoform	1.0	U	20.0	15.5		ug/L		78	47 - 125	11	15
Bromomethane	1.0	U	20.0	10.7		ug/L		54	28 - 150	20	26
Carbon disulfide	1.0	U	20.0	16.6		ug/L		83	38 - 140	7	23
Carbon tetrachloride	1.0	U	20.0	17.9		ug/L		90	51 - 133	10	24
Chlorobenzene	1.0	U	20.0	18.3		ug/L		92	74 - 121	7	14
Chloroethane	1.0	U	20.0	22.8		ug/L		114	10 - 199	0	30
Chloroform	1.0	U	20.0	18.6		ug/L		93	70 - 122	8	14
Chloromethane	1.0	U	20.0	16.1		ug/L		80	32 - 149	2	27
cis-1,2-Dichloroethene	1.0	U	20.0	18.8		ug/L		94	66 - 128	10	14
cis-1,3-Dichloropropene	1.0	U	20.0	17.3		ug/L		86	47 - 125	10	13
Cyclohexane	1.0	U	20.0	17.0		ug/L		85	42 - 147	13	35
Chlorodibromomethane	1.0	U	20.0	16.7		ug/L		83	65 - 120	10	13
Dichlorodifluoromethane	1.0	U	20.0	22.2		ug/L		111	38 - 139	6	35
Ethylbenzene	1.0	U	20.0	18.3		ug/L		92	67 - 127	10	15
Isopropylbenzene	1.0	U	20.0	17.2		ug/L		86	64 - 129	11	18
Methyl acetate	10	U	40.0	30.0		ug/L		75	37 - 155	6	18
Methyl tert-butyl ether	1.0	U	20.0	18.0		ug/L		90	47 - 134	9	16
Methylcyclohexane	1.0	U	20.0	15.8		ug/L		79	39 - 144	17	35
Methylene Chloride	5.0	U	20.0	16.8		ug/L		84	62 - 129	8	17
Styrene	1.0	U	20.0	18.0		ug/L		90	70 - 139	9	18
Tetrachloroethene	1.0	U	20.0	18.3		ug/L		92	62 - 131	8	20
Toluene	1.0	U	20.0	17.3		ug/L		87	58 - 135	9	14
trans-1,2-Dichloroethene	1.0	U	20.0	17.1		ug/L		86	56 - 136	9	15
trans-1,3-Dichloropropene	1.0	U	20.0	17.0		ug/L		85	47 - 120	10	14
Trichloroethene	1.0	U	20.0	19.4		ug/L		97	61 - 124	8	15
Trichlorofluoromethane	1.0	U	20.0	21.5		ug/L		107	24 - 177	2	34
Vinyl chloride	1.0	U	20.0	18.5		ug/L		93	43 - 157	2	24
Xylenes, Total	2.0	U	40.0	35.2		ug/L		88	71 - 123	9	15
m-Xylene & p-Xylene	2.0	U	20.0	17.4		ug/L		87	71 - 123	8	16
o-Xylene	1.0	U	20.0	17.8		ug/L		89	70 - 125	9	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	94		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120
4-Bromofluorobenzene (Surr)	94		56 - 136
1,2-Dichloroethane-d4 (Surr)	95		62 - 137

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-165506-12 MS

Matrix: Water

Analysis Batch: 524140

Client Sample ID: GW-11223416-042122-SK-018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	15		20.0	34.3		ug/L		95	60 - 130
1,1,2,2-Tetrachloroethane	1.0	U	20.0	19.9		ug/L		100	54 - 145
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	20.0	18.5		ug/L		92	41 - 147
1,1,2-Trichloroethane	1.0	U	20.0	19.6		ug/L		98	69 - 131
1,1-Dichloroethane	1.0	U	20.0	18.8		ug/L		94	68 - 125
1,1-Dichloroethene	1.0	U	20.0	18.6		ug/L		93	56 - 135
1,2,4-Trichlorobenzene	1.0	U	20.0	17.2		ug/L		86	29 - 156
1,2-Dibromo-3-Chloropropane	2.0	U	20.0	16.7		ug/L		84	41 - 129
Ethylene Dibromide	1.0	U	20.0	19.5		ug/L		97	69 - 125
1,2-Dichlorobenzene	1.0	U	20.0	19.1		ug/L		95	73 - 120
1,2-Dichloroethane	1.0	U	20.0	20.6		ug/L		103	63 - 126
1,2-Dichloropropane	1.0	U	20.0	19.6		ug/L		98	69 - 130
1,3-Dichlorobenzene	1.0	U	20.0	18.4		ug/L		92	73 - 120
1,4-Dichlorobenzene	1.0	U	20.0	18.6		ug/L		93	74 - 120
2-Butanone (MEK)	10	U	40.0	35.7		ug/L		89	40 - 151
2-Hexanone	10	U	40.0	35.4		ug/L		88	35 - 156
4-Methyl-2-pentanone (MIBK)	10	U	40.0	37.5		ug/L		94	31 - 153
Acetone	10	U	40.0	34.5		ug/L		86	33 - 149
Benzene	1.0	U	20.0	19.7		ug/L		98	64 - 128
Dichlorobromomethane	1.0	U	20.0	19.8		ug/L		99	62 - 125
Bromoform	1.0	U	20.0	16.8		ug/L		84	47 - 125
Bromomethane	1.0	U	20.0	12.3		ug/L		62	28 - 150
Carbon disulfide	1.0	U	20.0	17.4		ug/L		87	38 - 140
Carbon tetrachloride	1.0	U	20.0	18.6		ug/L		93	51 - 133
Chlorobenzene	1.0	U	20.0	19.3		ug/L		96	74 - 121
Chloroethane	1.0	U	20.0	22.7		ug/L		113	10 - 199
Chloroform	1.0	U	20.0	20.6		ug/L		103	70 - 122
Chloromethane	1.0	U	20.0	17.2		ug/L		86	32 - 149
cis-1,2-Dichloroethene	1.0	U	20.0	20.1		ug/L		101	66 - 128
cis-1,3-Dichloropropene	1.0	U	20.0	18.5		ug/L		92	47 - 125
Cyclohexane	1.0	U	20.0	17.4		ug/L		87	42 - 147
Chlorodibromomethane	1.0	U	20.0	17.6		ug/L		88	65 - 120
Dichlorodifluoromethane	1.0	U	20.0	22.2		ug/L		111	38 - 139
Ethylbenzene	1.0	U	20.0	18.7		ug/L		94	67 - 127
Isopropylbenzene	1.0	U	20.0	17.6		ug/L		88	64 - 129
Methyl acetate	10	U	40.0	32.0		ug/L		80	37 - 155
Methyl tert-butyl ether	1.0	U	20.0	19.5		ug/L		97	47 - 134
Methylcyclohexane	1.0	U	20.0	15.5		ug/L		78	39 - 144
Methylene Chloride	5.0	U	20.0	18.0		ug/L		90	62 - 129
Styrene	1.0	U	20.0	19.0		ug/L		95	70 - 139
Tetrachloroethene	1.0	U	20.0	18.8		ug/L		94	62 - 131
Toluene	1.0	U	20.0	18.1		ug/L		91	58 - 135
trans-1,2-Dichloroethene	1.0	U	20.0	18.0		ug/L		90	56 - 136
trans-1,3-Dichloropropene	1.0	U	20.0	17.9		ug/L		89	47 - 120
Trichloroethene	44		20.0	62.4	E	ug/L		92	61 - 124
Trichlorofluoromethane	1.0	U	20.0	22.0		ug/L		110	24 - 177
Vinyl chloride	1.0	U	20.0	19.8		ug/L		99	43 - 157
Xylenes, Total	2.0	U	40.0	36.6		ug/L		92	71 - 123

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-165506-12 MS

Matrix: Water

Analysis Batch: 524140

Client Sample ID: GW-11223416-042122-SK-018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
m-Xylene & p-Xylene	2.0	U	20.0	17.9		ug/L		90	71 - 123
o-Xylene	1.0	U	20.0	18.7		ug/L		94	70 - 125
Surrogate	MS %Recovery	MS Qualifier	Limits						
Toluene-d8 (Surr)	93		78 - 122						
Dibromofluoromethane (Surr)	101		73 - 120						
4-Bromofluorobenzene (Surr)	95		56 - 136						
1,2-Dichloroethane-d4 (Surr)	96		62 - 137						

Lab Sample ID: 240-165506-12 MSD

Matrix: Water

Analysis Batch: 524140

Client Sample ID: GW-11223416-042122-SK-018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	15		20.0	32.2		ug/L		85	60 - 130	6	17
1,1,2,2-Tetrachloroethane	1.0	U	20.0	18.7		ug/L		94	54 - 145	6	15
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	20.0	16.8		ug/L		84	41 - 147	10	35
1,1,2-Trichloroethane	1.0	U	20.0	18.5		ug/L		93	69 - 131	6	14
1,1-Dichloroethane	1.0	U	20.0	17.8		ug/L		89	68 - 125	5	13
1,1-Dichloroethene	1.0	U	20.0	17.0		ug/L		85	56 - 135	9	26
1,2,4-Trichlorobenzene	1.0	U	20.0	15.9		ug/L		79	29 - 156	8	19
1,2-Dibromo-3-Chloropropane	2.0	U	20.0	16.3		ug/L		81	41 - 129	3	22
Ethylene Dibromide	1.0	U	20.0	18.4		ug/L		92	69 - 125	6	14
1,2-Dichlorobenzene	1.0	U	20.0	17.8		ug/L		89	73 - 120	7	14
1,2-Dichloroethane	1.0	U	20.0	19.6		ug/L		98	63 - 126	5	12
1,2-Dichloropropane	1.0	U	20.0	17.9		ug/L		89	69 - 130	9	13
1,3-Dichlorobenzene	1.0	U	20.0	17.1		ug/L		85	73 - 120	7	14
1,4-Dichlorobenzene	1.0	U	20.0	17.4		ug/L		87	74 - 120	7	15
2-Butanone (MEK)	10	U	40.0	34.6		ug/L		86	40 - 151	3	20
2-Hexanone	10	U	40.0	33.7		ug/L		84	35 - 156	5	17
4-Methyl-2-pentanone (MIBK)	10	U	40.0	35.1		ug/L		88	31 - 153	7	15
Acetone	10	U	40.0	32.9		ug/L		82	33 - 149	5	34
Benzene	1.0	U	20.0	18.0		ug/L		90	64 - 128	9	14
Dichlorobromomethane	1.0	U	20.0	18.4		ug/L		92	62 - 125	7	13
Bromoform	1.0	U	20.0	15.8		ug/L		79	47 - 125	6	15
Bromomethane	1.0	U	20.0	13.0		ug/L		65	28 - 150	6	26
Carbon disulfide	1.0	U	20.0	15.7		ug/L		78	38 - 140	10	23
Carbon tetrachloride	1.0	U	20.0	17.2		ug/L		86	51 - 133	8	24
Chlorobenzene	1.0	U	20.0	17.9		ug/L		89	74 - 121	7	14
Chloroethane	1.0	U	20.0	20.2		ug/L		101	10 - 199	12	30
Chloroform	1.0	U	20.0	18.9		ug/L		94	70 - 122	9	14
Chloromethane	1.0	U	20.0	16.1		ug/L		80	32 - 149	7	27
cis-1,2-Dichloroethene	1.0	U	20.0	18.7		ug/L		94	66 - 128	7	14
cis-1,3-Dichloropropene	1.0	U	20.0	16.9		ug/L		84	47 - 125	9	13
Cyclohexane	1.0	U	20.0	15.3		ug/L		77	42 - 147	13	35
Chlorodibromomethane	1.0	U	20.0	16.8		ug/L		84	65 - 120	5	13
Dichlorodifluoromethane	1.0	U	20.0	20.4		ug/L		102	38 - 139	9	35
Ethylbenzene	1.0	U	20.0	17.0		ug/L		85	67 - 127	10	15

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-165506-12 MSD

Matrix: Water

Analysis Batch: 524140

Client Sample ID: GW-11223416-042122-SK-018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Isopropylbenzene	1.0	U	20.0	15.8		ug/L		79	64 - 129	11	18
Methyl acetate	10	U	40.0	29.6		ug/L		74	37 - 155	8	18
Methyl tert-butyl ether	1.0	U	20.0	18.0		ug/L		90	47 - 134	8	16
Methylcyclohexane	1.0	U	20.0	13.7		ug/L		68	39 - 144	13	35
Methylene Chloride	5.0	U	20.0	16.6		ug/L		83	62 - 129	8	17
Styrene	1.0	U	20.0	17.4		ug/L		87	70 - 139	9	18
Tetrachloroethene	1.0	U	20.0	17.6		ug/L		88	62 - 131	7	20
Toluene	1.0	U	20.0	16.7		ug/L		84	58 - 135	8	14
trans-1,2-Dichloroethene	1.0	U	20.0	16.8		ug/L		84	56 - 136	7	15
trans-1,3-Dichloropropene	1.0	U	20.0	16.9		ug/L		84	47 - 120	6	14
Trichloroethene	44		20.0	58.9		ug/L		75	61 - 124	6	15
Trichlorofluoromethane	1.0	U	20.0	20.3		ug/L		101	24 - 177	8	34
Vinyl chloride	1.0	U	20.0	17.8		ug/L		89	43 - 157	10	24
Xylenes, Total	2.0	U	40.0	33.7		ug/L		84	71 - 123	8	15
m-Xylene & p-Xylene	2.0	U	20.0	16.5		ug/L		82	71 - 123	8	16
o-Xylene	1.0	U	20.0	17.2		ug/L		86	70 - 125	9	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120
4-Bromofluorobenzene (Surr)	98		56 - 136
1,2-Dichloroethane-d4 (Surr)	98		62 - 137

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-524207/20-A

Matrix: Water

Analysis Batch: 524756

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 524207

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.0	U	1.0	0.39	ug/L		04/28/22 10:10	05/02/22 15:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	110		31 - 126	04/28/22 10:10	05/02/22 15:31	1
Phenol-d5 (Surr)	35		10 - 120	04/28/22 10:10	05/02/22 15:31	1
Nitrobenzene-d5 (Surr)	85		34 - 120	04/28/22 10:10	05/02/22 15:31	1
2-Fluorophenol (Surr)	54		10 - 120	04/28/22 10:10	05/02/22 15:31	1
2-Fluorobiphenyl (Surr)	90		38 - 120	04/28/22 10:10	05/02/22 15:31	1
2,4,6-Tribromophenol (Surr)	61		26 - 120	04/28/22 10:10	05/02/22 15:31	1

Lab Sample ID: LCS 240-524207/21-A

Matrix: Water

Analysis Batch: 524756

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 524207

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	20.0	6.44		ug/L		32	10 - 120

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-524207/21-A

Matrix: Water

Analysis Batch: 524756

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 524207

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Terphenyl-d14 (Surr)	115		31 - 126
Phenol-d5 (Surr)	48		10 - 120
Nitrobenzene-d5 (Surr)	98		34 - 120
2-Fluorophenol (Surr)	65		10 - 120
2-Fluorobiphenyl (Surr)	98		38 - 120
2,4,6-Tribromophenol (Surr)	96		26 - 120

Lab Sample ID: 240-165506-12 MS

Matrix: Water

Analysis Batch: 525044

Client Sample ID: GW-11223416-042122-SK-018

Prep Type: Total/NA

Prep Batch: 524207

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	1.0	U F2	20.4	4.53		ug/L		22	10 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
Terphenyl-d14 (Surr)	102		31 - 126						
Phenol-d5 (Surr)	32		10 - 120						
Nitrobenzene-d5 (Surr)	96		34 - 120						
2-Fluorophenol (Surr)	50		10 - 120						
2-Fluorobiphenyl (Surr)	96		38 - 120						
2,4,6-Tribromophenol (Surr)	97		26 - 120						

Lab Sample ID: 240-165506-12 MSD

Matrix: Water

Analysis Batch: 525044

Client Sample ID: GW-11223416-042122-SK-018

Prep Type: Total/NA

Prep Batch: 524207

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
1,4-Dioxane	1.0	U F2	20.4	3.39	F2	ug/L		17	10 - 120	29	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Terphenyl-d14 (Surr)	105		31 - 126								
Phenol-d5 (Surr)	27		10 - 120								
Nitrobenzene-d5 (Surr)	95		34 - 120								
2-Fluorophenol (Surr)	44		10 - 120								
2-Fluorobiphenyl (Surr)	98		38 - 120								
2,4,6-Tribromophenol (Surr)	104		26 - 120								

Lab Sample ID: 240-165506-13 MS

Matrix: Water

Analysis Batch: 525044

Client Sample ID: GW-11223416-042122-SK-019

Prep Type: Total/NA

Prep Batch: 524207

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	1.0	U	20.4	3.50		ug/L		17	10 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
Terphenyl-d14 (Surr)	100		31 - 126						
Phenol-d5 (Surr)	28		10 - 120						

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-165506-13 MS

Matrix: Water

Analysis Batch: 525044

Client Sample ID: GW-11223416-042122-SK-019

Prep Type: Total/NA

Prep Batch: 524207

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Nitrobenzene-d5 (Surr)	90		34 - 120
2-Fluorophenol (Surr)	43		10 - 120
2-Fluorobiphenyl (Surr)	92		38 - 120
2,4,6-Tribromophenol (Surr)	95		26 - 120

Lab Sample ID: 240-165506-13 MSD

Matrix: Water

Analysis Batch: 525044

Client Sample ID: GW-11223416-042122-SK-019

Prep Type: Total/NA

Prep Batch: 524207

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	1.0	U	20.0	3.36		ug/L		17	10 - 120	4	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Terphenyl-d14 (Surr)	95		31 - 126								
Phenol-d5 (Surr)	26		10 - 120								
Nitrobenzene-d5 (Surr)	88		34 - 120								
2-Fluorophenol (Surr)	42		10 - 120								
2-Fluorobiphenyl (Surr)	93		38 - 120								
2,4,6-Tribromophenol (Surr)	96		26 - 120								

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-524005/1-A

Matrix: Water

Analysis Batch: 524399

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 524005

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		04/26/22 12:00	04/27/22 17:19	1
Lead	1.0	U	1.0	0.45	ug/L		04/26/22 12:00	04/27/22 17:19	1
Vanadium	4.0	U	4.0	0.82	ug/L		04/26/22 12:00	04/27/22 17:19	1

Lab Sample ID: LCS 240-524005/2-A

Matrix: Water

Analysis Batch: 524399

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 524005

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	5000	5390		ug/L		108	80 - 120
Lead	500	549		ug/L		110	80 - 120
Vanadium	500	557		ug/L		111	80 - 120

Lab Sample ID: 240-165506-9 MS

Matrix: Water

Analysis Batch: 524399

Client Sample ID: GW-11223416-042122-SK-015

Prep Type: Total Recoverable

Prep Batch: 524005

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	160		5000	5210		ug/L		101	75 - 125
Lead	1.0	U	500	522		ug/L		104	75 - 125
Vanadium	4.0	U	500	531		ug/L		106	75 - 125

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 240-165506-9 MSD

Matrix: Water

Analysis Batch: 524399

Client Sample ID: GW-11223416-042122-SK-015

Prep Type: Total Recoverable

Prep Batch: 524005

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	160		5000	5020		ug/L		97	75 - 125	4	20
Lead	1.0	U	500	498		ug/L		100	75 - 125	5	20
Vanadium	4.0	U	500	509		ug/L		102	75 - 125	4	20

Lab Sample ID: 240-165506-9 MS

Matrix: Water

Analysis Batch: 524399

Client Sample ID: GW-11223416-042122-SK-015

Prep Type: Dissolved

Prep Batch: 524005

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	51		5000	4690		ug/L		93	75 - 125		
Lead	1.0	U	500	478		ug/L		96	75 - 125		
Vanadium	4.0	U	500	490		ug/L		98	75 - 125		

Lab Sample ID: 240-165506-9 MSD

Matrix: Water

Analysis Batch: 524399

Client Sample ID: GW-11223416-042122-SK-015

Prep Type: Dissolved

Prep Batch: 524005

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	51		5000	4770		ug/L		94	75 - 125	2	20
Lead	1.0	U	500	477		ug/L		95	75 - 125	0	20
Vanadium	4.0	U	500	490		ug/L		98	75 - 125	0	20

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (78-122)	DBFM (73-120)	BFB (56-136)	DCA (62-137)
240-165506-1	GW-11223416-041822-SK-007	94	104	90	93
240-165506-2	GW-11223416-041822-SK-008	92	103	92	95
240-165506-3	GW-11223416-041822-SK-009	94	104	92	95
240-165506-4	GW-11223416-041822-SK-010	94	103	90	91
240-165506-5	GW-11223416-041822-SK-011	95	107	94	99
240-165506-6	GW-11223416-041922-SK-012	94	104	91	91
240-165506-7	GW-11223416-041922-SK-013	94	106	91	97
240-165506-7 MS	GW-11223416-041922-SK-013	95	104	96	94
240-165506-7 MSD	GW-11223416-041922-SK-013	94	101	94	95
240-165506-8	GW-11223416-041922-SK-014	96	102	91	92
240-165506-12	GW-11223416-042122-SK-018	92	104	91	98
240-165506-12 MS	GW-11223416-042122-SK-018	93	101	95	96
240-165506-12 MSD	GW-11223416-042122-SK-018	96	105	98	98
240-165506-13	GW-11223416-042122-SK-019	93	92	83	102
240-165506-13 MS	GW-11223416-042122-SK-019	92	95	94	96
240-165506-13 MSD	GW-11223416-042122-SK-019	94	95	90	96
240-165506-16	GW-11223416-042222-SK-022	96	92	87	103
240-165506-17	GW-11223416-042222-SK-023	95	91	87	102
240-165506-18	TB-11223416-042222-SK	95	89	84	103
LCS 240-524039/5	Lab Control Sample	94	93	92	95
LCS 240-524140/5	Lab Control Sample	94	100	96	93
MB 240-524039/9	Method Blank	95	88	87	100
MB 240-524140/8	Method Blank	94	103	93	93

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (31-126)	PHL (10-120)	NBZ (34-120)	2FP (10-120)	FBP (38-120)	TBP (26-120)
240-165506-12	GW-11223416-042122-SK-018	92	21	66	35	74	72
240-165506-12 MS	GW-11223416-042122-SK-018	102	32	96	50	96	97
240-165506-12 MSD	GW-11223416-042122-SK-018	105	27	95	44	98	104
240-165506-13	GW-11223416-042122-SK-019	105	21	79	36	89	92
240-165506-13 MS	GW-11223416-042122-SK-019	100	28	90	43	92	95
240-165506-13 MSD	GW-11223416-042122-SK-019	95	26	88	42	93	96
LCS 240-524207/21-A	Lab Control Sample	115	48	98	65	98	96
MB 240-524207/20-A	Method Blank	110	35	85	54	90	61

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)

PHL = Phenol-d5 (Surr)

NBZ = Nitrobenzene-d5 (Surr)

2FP = 2-Fluorophenol (Surr)

FBP = 2-Fluorobiphenyl (Surr)

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Surrogate Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation
TBP = 2,4,6-Tribromophenol (Surr)

Job ID: 240-165506-1

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Client Sample ID: GW-11223416-041822-SK-007

Lab Sample ID: 240-165506-1

Date Collected: 04/18/22 12:05

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 14:32	HMB	TAL CAN

Client Sample ID: GW-11223416-041822-SK-008

Lab Sample ID: 240-165506-2

Date Collected: 04/18/22 14:00

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 14:57	HMB	TAL CAN

Client Sample ID: GW-11223416-041822-SK-009

Lab Sample ID: 240-165506-3

Date Collected: 04/18/22 15:15

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 15:21	HMB	TAL CAN

Client Sample ID: GW-11223416-041822-SK-010

Lab Sample ID: 240-165506-4

Date Collected: 04/18/22 16:25

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 15:46	HMB	TAL CAN

Client Sample ID: GW-11223416-041822-SK-011

Lab Sample ID: 240-165506-5

Date Collected: 04/18/22 17:10

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 16:10	HMB	TAL CAN

Client Sample ID: GW-11223416-041922-SK-012

Lab Sample ID: 240-165506-6

Date Collected: 04/19/22 10:35

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 16:35	HMB	TAL CAN

Client Sample ID: GW-11223416-041922-SK-013

Lab Sample ID: 240-165506-7

Date Collected: 04/19/22 11:25

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 16:59	HMB	TAL CAN

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Client Sample ID: GW-11223416-041922-SK-014

Lab Sample ID: 240-165506-8

Date Collected: 04/19/22 13:30

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 18:13	HMB	TAL CAN

Client Sample ID: GW-11223416-042122-SK-015

Lab Sample ID: 240-165506-9

Date Collected: 04/21/22 09:50

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Dissolved	Analysis	6020		1	524399	04/27/22 18:08	RKT	TAL CAN
Total Recoverable	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020		1	524399	04/27/22 17:58	RKT	TAL CAN

Client Sample ID: GW-11223416-042122-SK-016

Lab Sample ID: 240-165506-10

Date Collected: 04/21/22 11:45

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Dissolved	Analysis	6020		1	524399	04/27/22 18:35	RKT	TAL CAN
Total Recoverable	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020		1	524399	04/27/22 18:33	RKT	TAL CAN

Client Sample ID: GW-11223416-042122-SK-017

Lab Sample ID: 240-165506-11

Date Collected: 04/21/22 11:55

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Dissolved	Analysis	6020		1	524399	04/27/22 18:40	RKT	TAL CAN
Total Recoverable	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020		1	524399	04/27/22 18:38	RKT	TAL CAN

Client Sample ID: GW-11223416-042122-SK-018

Lab Sample ID: 240-165506-12

Date Collected: 04/21/22 13:40

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524140	04/27/22 18:37	HMB	TAL CAN
Total/NA	Prep	3510C			524207	04/28/22 10:10	BMB	TAL CAN
Total/NA	Analysis	8270D		1	525044	05/04/22 18:23	JMG	TAL CAN

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Client Sample ID: GW-11223416-042122-SK-019

Lab Sample ID: 240-165506-13

Date Collected: 04/21/22 14:20

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524039	04/26/22 16:01	SAM	TAL CAN
Total/NA	Prep	3510C			524207	04/28/22 10:10	BMB	TAL CAN
Total/NA	Analysis	8270D		1	525044	05/04/22 17:12	JMG	TAL CAN

Client Sample ID: GW-11223416-042222-SK-020

Lab Sample ID: 240-165506-14

Date Collected: 04/22/22 08:45

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020		1	524399	04/27/22 18:43	RKT	TAL CAN

Client Sample ID: GW-11223416-042222-SK-021

Lab Sample ID: 240-165506-15

Date Collected: 04/22/22 09:30

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Dissolved	Analysis	6020		1	524399	04/27/22 18:48	RKT	TAL CAN
Total Recoverable	Prep	3005A			524005	04/26/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020		1	524399	04/27/22 18:45	RKT	TAL CAN

Client Sample ID: GW-11223416-042222-SK-022

Lab Sample ID: 240-165506-16

Date Collected: 04/22/22 11:00

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524039	04/26/22 16:27	SAM	TAL CAN

Client Sample ID: GW-11223416-042222-SK-023

Lab Sample ID: 240-165506-17

Date Collected: 04/22/22 13:00

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524039	04/26/22 16:52	SAM	TAL CAN

Client Sample ID: TB-11223416-042222-SK

Lab Sample ID: 240-165506-18

Date Collected: 04/22/22 00:00

Matrix: Water

Date Received: 04/23/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	524039	04/26/22 15:36	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Eurofins Canton

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: 11223416, PCC Validation

Job ID: 240-165506-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	06-02-22
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	05-31-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	06-09-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	06-06-22
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	05-24-22
Oregon	NELAP	4062	05-24-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-22-17	06-09-22
Virginia	NELAP	11570	05-31-22
Washington	State	C971	06-05-22
West Virginia DEP	State	210	12-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

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3.7/3.7

Chain of Custody Record

MICHIGAN
190

Client Information		Sampler: <u>Scott Kipper</u>		Lab PM: <u>Heckler, Denise D</u>	Carnet Tracking No(s): <u>Fed Ex</u>	COC No: <u>240-93886-34660 2</u>								
Client Contact: <u>Mr. James Abston</u>		Phone: <u>(248) 756-7587</u>		E-Mail: <u>Denise Heckler@Eurofins.com</u>	State of Origin: <u>Michigan</u>	Page <u>2</u> of <u>4</u>								
Company: <u>GHD Services Inc.</u>		PWSID: _____		Job # _____										
Address: <u>26850 Haggerty Rd.</u>		Analysis Requested												
City: <u>Farmington Hills</u>		Due Date Requested: _____												
State, Zip: <u>MI, 48331</u>		TAT Requested (days): <u>2 week standard</u>												
Phone: <u>248-893-3381 (Tel)</u>		Compliance Project: <u>Δ Yes Δ No</u>												
Email: <u>James.abston@ghd.com</u>		Purchase Order Requested: _____												
Project Name: <u>11223416, PCC Validation</u>		WO #: <u>11223416</u>												
Site: <u>Pontiac, Michigan</u>		Project #: <u>24020174</u>												
SSOW#: <u>11223416-2022-Admin-001</u>		Field Filtered Sample (Yes or No) <u>Field MS/MSD (Yes or No)</u>												
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Soil, Other)	Field Filtered Sample (Yes or No)	Field MS/MSD (Yes or No)	8260C - VOCs	8270D - 1,4-Dioxane	6020 - Al, Pb, V-Diox, field filtere	6020 - Al, Pb, V	6020 - Al, Pb, V-Diox, field filtere	Total Number of Containers	Special Instructions/Note:
GW-11223416-041822-SK-007		4-18-22	12:05	G	Water			X					3	
↓ -008			14:00		Water			X					3	
↓ -009			15:15		Water			X					3	
↓ -010			16:25		Water			X					3	
↓ -011			17:10		Water			X					3	
GW-11223416-041922-SK-012		4-19-22	10:35		Water			X					3	
↓ -013			11:25		Water			X					9	
↓ -014			13:30		Water			X					3	
GW-11223416-042122-SK-015		4-21-22	9:50		Water			X					4	
↓ -016			11:45		Water			X					2	
↓ -017			11:55		Water			X					2	
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)												
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological		☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months												
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:												
Empty Kit Relinquished by: _____		Method of Shipment: _____												
Relinquished by: <u>R. Scott Kipper</u>		Date/Time: <u>4-22-22 15:00</u>	Received by: <u>[Signature]</u>									Date/Time: <u>4-23-22 945</u>	Company: <u>FEHVC</u>	
Relinquished by: _____		Date/Time: _____	Received by: _____									Date/Time: _____	Company: _____	
Relinquished by: _____		Date/Time: _____	Received by: _____									Date/Time: _____	Company: _____	
Custody Seals Intact: <u>Δ Yes Δ No</u>		Cooler Temperature(s) °C and Other Remarks: _____												

[illegible]

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 165506

Client GHD Site Name _____ Cooler unpacked by: Mat
 Cooler Received on 4-23-22 Opened on 4-25-22
 FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 7A Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Water Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☒ See Multiple Cooler Form
 IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-15 (CF -0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC157842
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes  Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01048016 Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

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- 14

WI-NC-099 Cooler Receipt Form Page 2 - Multiple Coolers

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservative</u>	
			<u>pH</u>	<u>Temp</u>	<u>Added (mls)</u>	<u>Lot #</u>
GW-11223416-042122-SK-015	240-165506-A-9	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
GW-11223416-042122-SK-015	240-165506-B-9	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
GW-11223416-042122-SK-015	240-165506-C-9	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____	_____
GW-11223416-042122-SK-015	240-165506-D-9	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____	_____
GW-11223416-042122-SK-016	240-165506-A-10	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
GW-11223416-042122-SK-016	240-165506-B-10	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____	_____
GW-11223416-042122-SK-017	240-165506-A-11	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
GW-11223416-042122-SK-017	240-165506-B-11	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____	_____
GW-11223416-042222-SK-020	240-165506-A-14	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
GW-11223416-042222-SK-021	240-165506-A-15	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
GW-11223416-042222-SK-021	240-165506-B-15	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____	_____

Appendix E

**Historical Groundwater Analytical
Results - 2018 through 2022**

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	EGLE Generic Groundwater Cleanup Criteria: Residential and Nonresidential ⁽¹⁾							EGLE ⁽²⁾		SSVIAC ⁽³⁾		MW-2-07	MW-2-07	MW-2-07
Sample Identification	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Water Solubility	Flammability and Explosivity Screening Levels	Residential Health-Based Drinking Water	Nonresidential Health-Based Drinking Water	Table 1 - NonResidential Volatilization to Indoor Air	Table 2 - Residential Volatilization to Indoor Air	GW-17322A-060518-DS-003	GW-17322A-060518-DS-004	GW-17322A-091718-DS-003
Sample Date												06/05/2018	06/05/2018	09/17/2018
Sample Type														
Parameters	a	b	c	d	e	f	g	i	j	m	n		Duplicate	
Volatile Organic Compounds (VOCs)														
1,1,1-Trichloroethane	ug/L	200	200	89	660000	1300000	1330000	ID		190000 (EE) st	11000 (EE) st	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	8.5	35	78	12000	77000	2970000	ID		1900 ca	59 ca	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	5	5	330	17000	110000	4420000			190 nc	9.9 nc	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	880	2500	740	1000000	2300000	5060000	380000		2500 ca	81 ca	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	7	130	200	1300	2250000	97000		3900 nc	200 nc	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	70	70	99	300000	300000	300000					1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	0.2		220	1200	1230					1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	0.05	5.7	2400	15000	4200000	ID		120 ca	3.6 ca	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	600	600	13	160000	160000	156000					1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	5	5	360	9600	59000	8520000	2500000		770 ca	25 ca	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	5	5	230	16000	36000	2800000	550000				1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	6.6	19	28	18000	41000	111000	ID				1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	75	75	17	16000	74000	73800					1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13000	38000	2200	240000000	240000000	240000000	ID				3.2 J	2.7 J	5.0 U
2-Hexanone	ug/L	1000	2900	ID	4200000	8700000	16000000					10 U	10 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1800	5200	ID	20000000	20000000	20000000	ID				0.61 J	0.69 J	5.0 U
Acetone	ug/L	730	2100	1700	1000000000	1000000000	1000000000	15000000				11	13	5.0 U
Benzene	ug/L	5	5	200	5600	35000	1750000	68000		520 ca	17 ca	0.20 J	0.22 J	1.0 U
Bromodichloromethane	ug/L	80	80	ID	4800	37000	6740000	ID				1.0 U	1.0 U	1.0 U
Bromoform	ug/L	80	80	ID	470000	3100000	3100000	ID				1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	10	29	5	4000	9000	14500000	ID				1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	800	2300	ID	250000	550000	1190000	13000				5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	5	5	38	370	2400	793000	ID				1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	100	100	25	210000	470000	472000	160000		13000 nc	660 nc	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	430	1700	1100	5700000	5700000	5740000	110000		150000 nc	8000 nc	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	80	80	350	28000	180000	7920000	ID		280 ca	9.2 ca	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	260	1100	ID	8600	45000	6340000	36000		3500 nc	180 nc	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	70	620	93000	210000	3500000	530000		1100 nc	58 nc	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L											1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L									25000 nc	1300 nc	1.0 U	1.0 U	5.0 U
Dibromochloromethane	ug/L	80	80	ID	14000	110000	2600000	ID				1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1700	4800	ID	220000	300000	300000	ID				1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	74	74	18	110000	170000	169000	43000	700	700	1700 ca	55 ca	1.0 U	1.0 U
Isopropyl benzene	ug/L	800	2300	28	56000	56000	56000	29000		380 ca	12 ca	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L											10 U	10 U	5.0 U
Methyl cyclohexane	ug/L											1.0 U	1.0 U	5.0 U
Methyl tert butyl ether (MTBE)	ug/L	40	40	7100	47000000	47000000	46800000	ID	240	690	150000 ca	4900 ca	1.0 U	1.0 U
Methylene chloride	ug/L	5	5	1500	220000	1400000	17000000	ID					5.0 U	5.0 U
Styrene	ug/L	100	100	80	170000	310000	310000	140000			21000 ca	680 ca	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	5	60	25000	170000	200000	ID			1600 (EE) st	120 (EE) st	1.0 U	1.0 U
Toluene	ug/L	790	790	270	530000	530000	526000	61000	1000	1000	520000 (EE) st	28000 nc	0.27 J	0.28 J
trans-1,2-Dichloroethene	ug/L	100	100	1500	85000	200000	6300000	230000			4600 nc	240 nc	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L											1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	5	200	2200	4900	1100000	ID			98 (DD) dev	7.5 (DD) dev	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	2600	7300		1100000	1100000	1100000	ID				1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	170000	170000	32	170000	170000	170000	ID				1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	2	2	13	1100	13000	2760000	33000			120 ca	1.1 (MM) mut	1.0 U	1.0 U
Xylenes (total)	ug/L	280	280	49	190000	190000	186000	70000	10000	10000	28000 nc	1500 nc	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07
Sample Identification	GW-17322A-091718-DS-004	GW-17322-120318-DS-003	GW-17322A-031919-JY-003	GW-17322A-031919-JY-004	GW-17322-062519-SK-001	GW-17322-093019-JY-011	GW-17322-110619-JY-005	GW-17322-030420-JY-005	GW-17322-062220-DA-004	GW-11223416-061621-SK-012	GW-11223416-041522-SK-005
Sample Date	09/17/2018	12/03/2018	03/19/2019		06/25/2019	09/30/2019	11/06/2019	03/04/2020	06/22/2020	06/16/2021	04/15/2022
Sample Type	Duplicate			Duplicate							
Parameters	Units										
Volatile Organic Compounds (VOCs)											
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U
2-Hexanone	ug/L	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U
Acetone	ug/L	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U
Methyl cyclohexane	ug/L	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	0.21 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	0.13 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07
Sample Identification	GW-17322A-060518-DS-002	GW-17322A-091718-DS-002	GW-17322-120418-DS-007	GW-17322A-032019-JY-006	GW-17322-062519-SK-005	GW-17322-093019-JY-008	GW-17322-110619-JY-004	GW-17322-030420-JY-006	GW-17322-030420-JY-007	GW-17322-062320-DA-009	GW-11223416-061421-SK-003	GW-11223416-042122-SK-015
Sample Date	06/05/2018	09/17/2018	12/04/2018	03/20/2019	06/25/2019	09/30/2019	11/06/2019	03/04/2020	03/04/2020	06/23/2020	06/14/2021	04/21/2022
Sample Type									Duplicate			
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,1-Dichloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,1-Dichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,2,4-Trichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,2-Dichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,2-Dichloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,2-Dichloropropane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,3-Dichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
1,4-Dichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	-	-	-	-	10 U	-	-	-	-	-	-
2-Hexanone	ug/L	-	-	-	-	10 U	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MBK)	ug/L	-	-	-	-	10 U	-	-	-	-	-	-
Acetone	ug/L	-	-	-	-	10 U	-	-	-	-	-	-
Benzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Bromodichloromethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Bromoform	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Bromomethane (Methyl bromide)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Carbon disulfide	ug/L	-	-	-	-	5.0 U	-	-	-	-	-	-
Carbon tetrachloride	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Chlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Chloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Chloroform (Trichloromethane)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Chloromethane (Methyl chloride)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
cis-1,2-Dichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
cis-1,3-Dichloropropene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Cyclohexane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Dibromochloromethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Ethylbenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Isopropyl benzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Methyl acetate	ug/L	-	-	-	-	10 U	-	-	-	-	-	-
Methyl cyclohexane	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Methylene chloride	ug/L	-	-	-	-	5.0 U	-	-	-	-	-	-
Styrene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Tetrachloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Toluene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
trans-1,2-Dichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
trans-1,3-Dichloropropene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Trichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Trichlorofluoromethane (CFC-11)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Trifluorotrichloroethane (CFC-113)	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Vinyl chloride	ug/L	-	-	-	-	1.0 U	-	-	-	-	-	-
Xylenes (total)	ug/L	-	-	-	-	2.0 U	-	-	-	-	-	-

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-21-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07
Sample Identification	GW-11223416-042222-S K-020	GW-17322A-060518-DS-001	GW-17322A-091718-DS-001	GW-17322-120418-DS-005	GW-17322A-031919-JY-005	GW-17322-062519-S K-006	GW-17322-093019-JY-006	GW-17322-093019-JY-007	GW-17322-110619-JY-002	GW-17322-110619-JY-003	GW-17322-030520-JY-011	GW-17322-062320-DA-007	
Sample Date	04/22/2022	06/05/2018	09/17/2018	12/04/2018	03/19/2019	06/25/2019	09/30/2019	09/30/2019	11/06/2019	11/06/2019	03/05/2020	06/23/2020	
Sample Type								Duplicate		Duplicate			
Parameters	Units												
Volatile Organic Compounds (VOCs)													
1,1,1-Trichloroethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,1,2,2-Tetrachloroethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,1,2-Trichloroethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,1-Dichloroethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,1-Dichloroethene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,2,4-Trichlorobenzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,2-Dibromoethane (Ethylene dibromide)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,2-Dichlorobenzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,2-Dichloroethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,2-Dichloropropane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,3-Dichlorobenzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
1,4-Dichlorobenzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	—	—	—	—	—	10 U	10 U	—	—	—	—	—
2-Hexanone	ug/L	—	—	—	—	—	10 U	10 U	—	—	—	—	—
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	—	—	—	—	—	10 U	10 U	—	—	—	—	—
Acetone	ug/L	—	—	—	—	—	10 U	10 U	—	—	—	—	—
Benzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Bromodichloromethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Bromoforn	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Bromomethane (Methyl bromide)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Carbon disulfide	ug/L	—	—	—	—	—	5.0 U	5.0 U	—	—	—	—	—
Carbon tetrachloride	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Chlorobenzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Chloroethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Chloroform (Trichloromethane)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Chloromethane (Methyl chloride)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
cis-1,2-Dichloroethene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
cis-1,3-Dichloropropene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Cyclohexane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Dibromochloromethane	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Dichlorodifluoromethane (CFC-12)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Ethylbenzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Isopropyl benzene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Methyl acetate	ug/L	—	—	—	—	—	10 U	10 U	—	—	—	—	—
Methyl cyclohexane	ug/L	—	—	—	—	—	0.63 J	1.0 U	—	—	—	—	—
Methyl tert butyl ether (MTBE)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Methylene chloride	ug/L	—	—	—	—	—	5.0 U	5.0 U	—	—	—	—	—
Styrene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Tetrachloroethene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Toluene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
trans-1,2-Dichloroethene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
trans-1,3-Dichloropropene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Trichloroethene	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Trichlorofluoromethane (CFC-11)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Trifluorotrichloroethane (CFC-113)	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Vinyl chloride	ug/L	—	—	—	—	—	1.0 U	1.0 U	—	—	—	—	—
Xylenes (total)	ug/L	—	—	—	—	—	2.0 U	2.0 U	—	—	—	—	—

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-33-07	MW-33-07	MW-33-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-48-22R	MW-64-08
Sample Identification	GW-11223416-061421-S-K-004	GW-11223416-042122-S-K-016	GW-11223416-042122-S-K-017	GW-17322-062619-S-K-011	GW-17322-092719-JY-005	GW-17322-110619-JY-001	GW-17322-030520-JY-010	GW-17322-062320-DA-008	GW-11223416-042222-S-K-021	GW-11223416-042222-S-K-023	GW-17322A-060518-DS-005	
Sample Date	06/14/2021	04/21/2022	04/21/2022	06/26/2019	09/27/2019	11/06/2019	03/05/2020	06/23/2020	04/22/2022	04/22/2022	06/05/2018	
Sample Type			Duplicate									
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	-	-	-	-	1.0 UJ	-	-	-	-	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	-	-	-	-	1.0 UJ	-	-	-	-	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	-	-	-	-	1.0 U	-	-	-	-	2.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	-	-	-	-	1.0 UJ	-	-	-	-	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	-	-	-	-	10 U	-	-	-	-	10 U	10 U
2-Hexanone	ug/L	-	-	-	-	10 U	-	-	-	-	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MBK)	ug/L	-	-	-	-	10 U	-	-	-	-	10 U	10 U
Acetone	ug/L	-	-	-	-	10 U	-	-	-	-	10 U	10 U
Benzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Bromodichloromethane	ug/L	-	-	-	-	1.0 UJ	-	-	-	-	1.0 U	1.0 U
Bromoform	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Carbon disulfide	ug/L	-	-	-	-	5.0 U	-	-	-	-	1.0 U	5.0 U
Carbon tetrachloride	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Chlorobenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Chloroethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Cyclohexane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Dibromochloromethane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Ethylbenzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Isopropyl benzene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Methyl acetate	ug/L	-	-	-	-	10 U	-	-	-	-	10 U	10 U
Methyl cyclohexane	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Methylene chloride	ug/L	-	-	-	-	5.0 U	-	-	-	-	5.0 U	5.0 U
Styrene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Tetrachloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Toluene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	-	-	-	-	1.0 UJ	-	-	-	-	1.0 U	1.0 U
Trichloroethene	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Vinyl chloride	ug/L	-	-	-	-	1.0 U	-	-	-	-	1.0 U	1.0 U
Xylenes (total)	ug/L	-	-	-	-	2.0 U	-	-	-	-	2.0 U	2.0 U

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08
Sample Identification	GW-17322A-091818-DS-008	GW-17322-120318-DS-001	GW-17322A-031919-JY-001	GW-17322-062619-S-K-008	GW-17322-092719-JY-001	GW-17322-110719-JY-007	GW-17322-030420-JY-001	GW-17322-062220-DA-002	GW-17322-062220-DA-003	GW-11223416-061621-S-K-009	GW-11223416-061621-S-K-010	
Sample Date	09/18/2018	12/03/2018	03/19/2019	06/26/2019	09/27/2019	11/07/2019	03/04/2020	06/22/2020	06/22/2020	06/16/2021	06/16/2021	
Sample Type									Duplicate		Duplicate	
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	5.0 U	10 U	10 U	10 U	25 U	10 U	10 U	5.0 U	5.0 U	10 U	10 U
2-Hexanone	ug/L	5.0 U	10 U	10 U	10 U	25 U	10 U	10 U	5.0 U	5.0 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	5.0 U	10 U	10 U	10 U	25 U	10 U	10 U	5.0 U	5.0 U	10 U	10 U
Acetone	ug/L	5.0 U	10 U	10 U	10 U	25 U	10 U	10 U	5.0 U	5.0 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	13 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	5.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	5.0 U	10 U	10 U	10 U	25 U	10 U	10 U	5.0 U	5.0 U	10 U	10 U
Methyl cyclohexane	ug/L	5.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	13 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	3.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-64-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-74-22R	MW-74-22R	MW-74D-22R
Sample Identification	GW-11223416-041922-S K-013	GW-17322-062619-S K-010	GW-17322-092719-JY-003	GW-17322-110719-JY-009	GW-17322-030520-JY-008	GW-17322-062320-DA-011	GW-11223416-061521-S K-006	GW-11223416-041522-S K-001	GW-11223416-042122-S K-018	GW-11223416-042122-S K-019	GW-11223416-041522-S K-006	
Sample Date	04/19/2022	06/26/2019	09/27/2019	11/07/2019	03/05/2020	06/23/2020	06/15/2021	04/15/2022	04/21/2022	04/21/2022	04/15/2022	
Sample Type										Duplicate		
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	15	11	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MBK)	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	44 ^{abn}	34 ^{abn}	0.57 J
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19
Sample Identification	GW-17322-062519-S-K-004	GW-17322-093019-JY-010	GW-17322-110719-JY-011	GW-17322-030420-JY-004	GW-17322-062220-DA-005	GW-17322-090420-S-K-002	GW-017322-121420-S-K-002	GW-017322-121420-S-K-003	GW-11223416-031121-S-K-003	GW-11223416-061421-S-K-002	GW-11223416-092421-S-K-002	
Sample Date	06/25/2019	09/30/2019	11/07/2019	03/04/2020	06/22/2020	09/04/2020	12/14/2020	12/14/2020	03/11/2021	06/14/2021	09/24/2021	
Sample Type								Duplicate				
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MBK)	ug/L	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoforn	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-79D-19	MW-79D-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19
Sample Identification	GW-11223416-092421-S-K-003	GW-11223416-041522-S-K-004	GW-17322-062519-S-K-002	GW-17322-062519-S-K-003	GW-17322-093019-JY-009	GW-17322-110619-JY-006	GW-17322-030420-JY-003	GW-17322-062220-DA-006	GW-17322-090420-S-K-001	GW-017322-121420-S-K-001	GW-11223416-031121-S-K-001	
Sample Date	09/24/2021	04/15/2022	06/25/2019	06/25/2019	09/30/2019	11/06/2019	03/04/2020	06/22/2020	09/04/2020	12/14/2020	03/11/2021	
Sample Type	Duplicate			Duplicate								
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	0.30 J	0.24 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	7.2	7.0	0.50 J	0.99 J	2.9	2.3	0.30 J	1.2	0.18 J
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	0.48 J	0.47 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	8.0 ^{abn}	8.2 ^{abn}	0.77 J	1.4	2.9	2.8	0.34 J	1.1	0.25 J
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-80-12
Sample Identification	GW-11223416-031121-S-K-002	GW-11223416-061421-S-K-001	GW-11223416-092421-S-K-001	GW-11223416-041522-S-K-002	GW-11223416-041522-S-K-003	GW-17322A-060618-DS-011	GW-17322A-091718-DS-005	GW-17322-120418-DS-011	GW-17322A-032019-JY-009	GW-17322-062719-S-K-016	GW-17322-093019-JY-016
Sample Date	03/11/2021	06/14/2021	09/24/2021	04/15/2022	04/15/2022	06/06/2018	09/17/2018	12/04/2018	03/20/2019	06/27/2019	09/30/2019
Sample Type	Duplicate			Duplicate							
Parameters	Units										
Volatile Organic Compounds (VOCs)											
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	0.21 J	1.0 U	1.3	0.71 J	0.68 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	0.55 J	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	0.23 J	1.0 U	0.73 J	0.58 J	0.61 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12
Sample Identification	GW-17322-110719-JY-012	GW-17322-030520-JY-012	GW-17322-062420-DA-012	GW-11223416-061621-S-K-013	GW-11223416-041822-S-K-008	GW-17322A-060618-DS-007	GW-17322A-091818-DS-011	GW-17322-120418-DS-008	GW-17322-120418-DS-009	GW-17322A-032019-JY-008	GW-17322-062719-S-K-015	GW-17322-093019-JY-014	
Sample Date	11/07/2019	03/05/2020	06/24/2020	06/16/2021	04/18/2022	06/06/2018	09/18/2018	12/04/2018	12/04/2018	03/29/2019	06/27/2019	09/30/2019	
Sample Type										Duplicate			
Parameters	Units												
Volatile Organic Compounds (VOCs)													
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	5.0 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	5.0 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	5.0 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	5.0 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	5.0 U	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12
Sample Identification	GW-17322-110819-JY-013	GW-17322-030620-JY-014	GW-17322-062420-DA-016	GW-17322-062420-DA-017	GW-11223416-061521-S-K-008	GW-11223416-041922-S-K-014	GW-17322A-060518-DS-006	GW-17322A-091818-DS-007	GW-17322-120318-DS-002	GW-17322A-031919-JY-002	GW-17322-062619-S-K-007	GW-17322-092719-JY-002	
Sample Date	11/08/2019	03/06/2020	06/24/2020	06/24/2020	06/15/2021	04/19/2022	06/05/2018	09/18/2018	12/03/2018	03/19/2019	06/26/2019	09/27/2019	
Sample Type				Duplicate									
Parameters	Units												
Volatile Organic Compounds (VOCs)													
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	50 U	10 U	25 U	
2-Hexanone	ug/L	10 U	10 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	50 U	10 U	25 U	
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	50 U	10 U	25 U	
Acetone	ug/L	10 U	10 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	50 U	10 U	25 U	
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Carbon disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	13 U	
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.13 J	5.0 U	1.0 U	0.34 J	
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Methyl acetate	ug/L	10 U	10 U	5.0 U	5.0 U	10 U	10 U	5.0 U	10 U	50 U	10 U	25 U	
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	25 U	5.0 U	13 U	
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.23 J	0.69 J	5.0 U	0.61 J	2.5 U	
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.5 U	
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	10 U	2.0 U	5.0 U	

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-87-12	MW-87-12	MW-87-12	MW-87-12	MW-87-12	MW-87-12
Sample Identification	GW-17322-110719-JY-008	GW-17322-030420-JY-002	GW-17322-062220-DA-001	GW-11223416-061621-S-K-011	GW-11223416-041922-S-K-012	GW-17322-062619-S-K-009	GW-17322-092719-JY-004	GW-17322-110719-JY-010	GW-17322-030520-JY-009	GW-17322-062320-DA-010	GW-11223416-061521-S-K-005
Sample Date	11/07/2019	03/04/2020	06/22/2020	06/16/2021	04/19/2022	06/26/2019	09/27/2019	11/07/2019	03/05/2020	06/23/2020	06/15/2021
Sample Type											
Parameters	Units										
Volatile Organic Compounds (VOCs)											
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	5.0 U	10 U	10 U	2.6 J	10 U	10 U	5.0 U	10 U
2-Hexanone	ug/L	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	5.0 U	10 U	10 U	12 J	10 U	10 U	5.0 U	10 U
Acetone	ug/L	10 U	10 U	5.0 U	10 U	10 U	24	10 U	10 U	12	5.6
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.16 J	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	0.35 J	5.0 U	5.0 U	1.0 U	0.34 J	5.0 U	5.0 U	0.29 J	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	14 ⁿ	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.29 J	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.16 J	1.0 U	1.0 U	0.39 J	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.37 J	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.14 J	1.0 U	1.0 U	0.15 J	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.12 J	1.0 U	0.13 J	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.62 J	0.26 J	0.20 J	2.2	2.0 U

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-87-12	MW-88-22R	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13
Sample Identification	GW-11223416-041822-S.K-007	GW-11223416-042222-S.K-022	GW-17322A-060618-DS-008	GW-17322A-091818-DS-009	GW-17322-120318-DS-005	GW-17322A-032119-JY-010	GW-17322-062719-S.K-013	GW-17322-093019-JY-013	GW-17322-110819-JY-014	GW-17322-030620-JY-015	GW-17322-062420-DA-015	
Sample Date	04/18/2022	04/22/2022	06/06/2018	09/18/2018	12/03/2018	03/21/2019	06/27/2019	09/30/2019	11/08/2019	03/06/2020	06/24/2020	
Sample Type												
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MBK)	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Acetone	ug/L	10 U	5.8 J	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	0.33 J	0.33 J	0.23 J	0.20 J	0.35 J	0.40 J	0.18 J	0.24 J
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	0.83 J	1.4 ⁿ	1.4 ⁿ	0.66 J	1.1	0.94 J	1.2 ⁿ	0.91 J	0.89 J
Xylenes (total)	ug/L	1.0 J	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-921-13	MW-921-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13
Sample Identification	GW-11223416-061721-S-K-015	GW-11223416-041822-S-K-011	GW-17322A-060618-DS-009	GW-17322A-091818-DS-010	GW-17322-120318-DS-004	GW-17322A-032119-JY-011	GW-17322-062719-S-K-014	GW-17322-093019-JY-012	GW-17322-110819-JY-015	GW-17322-030620-JY-016	GW-17322-062420-DA-014	
Sample Date	06/17/2021	04/18/2022	06/06/2018	09/18/2018	12/03/2018	03/21/2019	06/27/2019	09/30/2019	11/08/2019	03/06/2020	06/24/2020	
Sample Type												
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MBK)	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Acetone	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	0.93 J+	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.21 J	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-92S-13	MW-92S-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13
Sample Identification	GW-11223416-061721-S-K-014	GW-11223416-041822-S-K-010	GW-17322A-060618-DS-010	GW-17322A-091718-DS-006	GW-17322-120418-DS-010	GW-17322A-032019-JY-007	GW-17322-062719-S-K-012	GW-17322-093019-JY-015	GW-17322-110819-JY-016	GW-17322-030520-JY-013	GW-17322-062420-DA-013	
Sample Date	06/17/2021	04/18/2022	06/06/2018	09/17/2018	12/04/2018	03/20/2019	06/27/2019	09/30/2019	11/08/2019	03/05/2020	06/24/2020	
Sample Type												
Parameters	Units											
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Acetone	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	ug/L	10 U	10 U	10 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	0.27 J	1.0 U	1.0 U	1.0 U	0.23 J	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Appendix E

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-931-13	MW-931-13
Sample Identification	GW-11223416-061521-S-K-007	GW-11223416-041822-S-K-009
Sample Date	06/15/2021	04/18/2022
Sample Type		
Parameters	Units	
Volatile Organic Compounds (VOCs)		
1,1,1-Trichloroethane	ug/L	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U
1,1-Dichloroethane	ug/L	1.0 U
1,1-Dichloroethene	ug/L	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U
1,2-Dichloroethane	ug/L	1.0 U
1,2-Dichloropropane	ug/L	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U
2-Hexanone	ug/L	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U
Acetone	ug/L	10 U
Benzene	ug/L	1.0 U
Bromodichloromethane	ug/L	1.0 U
Bromoforn	ug/L	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U
Carbon disulfide	ug/L	5.0 U
Carbon tetrachloride	ug/L	1.0 U
Chlorobenzene	ug/L	1.0 U
Chloroethane	ug/L	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U
Cyclohexane	ug/L	1.0 U
Dibromochloromethane	ug/L	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U
Ethylbenzene	ug/L	1.0 U
Isopropyl benzene	ug/L	1.0 U
Methyl acetate	ug/L	10 U
Methyl cyclohexane	ug/L	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U
Methylene chloride	ug/L	5.0 U
Styrene	ug/L	1.0 U
Tetrachloroethene	ug/L	1.0 U
Toluene	ug/L	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U
Trichloroethene	ug/L	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U
Vinyl chloride	ug/L	1.0 U
Xylenes (total)	ug/L	2.0 U

Appendix E

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	Sample Identification	Sample Date	Sample Type	Parameters	Units	EGLE Generic Groundwater Cleanup Criteria: Residential and Nonresidential ⁽¹⁾							EGLE ⁽²⁾		SSVIAC ⁽³⁾		MW-2-07 GW-17322A-060518-DS-003 06/05/2018	MW-2-07 GW-17322A-060518-DS-004 06/05/2018 Duplicate	MW-2-07 GW-17322A-091718-DS-003 09/17/2018
						Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface ⁽⁴⁾	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Water Solubility	Flammability and Explosivity Screening Levels	Residential Health-Based Drinking Water	Nonresidential Health-Based Drinking Water	Table 1 - NonResidential Volatilization to Indoor Air <50,000 ft ² , slab-on-grade	Table 2 - Residential Volatilization to Indoor Air Basement			
						a	b	c	d	e	f	g	i	j	m	n			
				Semi-Volatile Organic Compounds (SVOCs)															
				1,4-Dioxane	ug/L	7.2	350	280	NLV	NLV	900000000	140000000					-	-	-
				Metals															
				Aluminum	ug/L	50	50		NLV	NLV		ID	300	4100			-	-	-
				Aluminum (dissolved)	ug/L	50	50		NLV	NLV		ID	300	4100			-	-	-
				Lead	ug/L	4	4	58	NLV	NLV		ID	15	15			-	-	-
				Lead (dissolved)	ug/L	4	4	58	NLV	NLV		ID	15	15			-	-	-
				Vanadium	ug/L	4.5	62	27	NLV	NLV		ID					-	-	-
				Vanadium (dissolved)	ug/L	4.5	62	27	NLV	NLV		ID					-	-	-
				Field Parameters															
				Conductivity, field	mS/cm												-	-	-
				Dissolved oxygen (DO), field	ug/L												-	-	-
				Oxidation reduction potential (ORP), field	millivolts												-	-	-
				pH, field	s.u.	6.5 - 8.5	6.5 - 8.5										-	-	-
				Temperature, ambient	Deg C												-	-	-
				Temperature, sample	Deg C												-	-	-
				Turbidity, field	NTU												-	-	-

Appendix E

Historical Groundwater Analytical Results
June 2018 through April 2022
Racer PCC Validation
Pontiac, Michigan

Sample Location		MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07	MW-2-07
Sample Identification		GW-17322A-091718-DS-004	GW-17322-120318-DS-003	GW-17322A-031919-JY-003	GW-17322A-031919-JY-004	GW-17322-062519-SK-001	GW-17322-093019-JY-011	GW-17322-110619-JY-005	GW-17322-030420-JY-005	GW-17322-062220-DA-004	GW-11223416-061621-SK-012	GW-11223416-041522-SK-005
Sample Date		09/17/2018	12/03/2018	03/19/2019	03/19/2019	06/25/2019	09/30/2019	11/06/2019	03/04/2020	06/22/2020	06/16/2021	04/15/2022
Sample Type		Duplicate			Duplicate							
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Field Parameters												
Conductivity, field	mS/cm	-	-	-	-	-	1.97	1.97	2.04	2.06	1.88	-
Dissolved oxygen (DO), field	ug/L	-	-	-	-	-	40	140	10	1850	0	-
Oxidation reduction potential (ORP), field	millivolts	-	-	-	-	-	-110.3	17	59	-30.9	13.7	-
pH, field	s.u.	-	-	-	-	-	7.04	7.11	7.09	7.05	6.97	-
Temperature, ambient	Deg C	-	-	-	-	-	-	-	1.67	-	-	-
Temperature, sample	Deg C	-	-	-	-	-	16.55	13.3	9.8	17.99	15.18	-
Turbidity, field	NTU	-	-	-	-	-	0.42	0.79	0.34	1.15	1.25	-

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location		MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	MW-10-07	
Sample Identification		GW-17322A-060518-DS-002	GW-17322A-091718-DS-002	GW-17322-120418-DS-007	GW-17322A-032019-JY-006	GW-17322-062519-SK-005	GW-17322-093019-JY-008	GW-17322-110619-JY-004	GW-17322-030420-JY-006	GW-17322-030420-JY-007	GW-17322-062320-DA-009	GW-11223416-061421-SK-003	GW-11223416-042122-SK-015
Sample Date		06/05/2018	09/17/2018	12/04/2018	03/20/2019	06/25/2019	09/30/2019	11/06/2019	03/04/2020	03/04/2020	06/23/2020	06/14/2021	04/21/2022
Sample Type													
Parameters	Units									Duplicate			
Semi-Volatile Organic Compounds (SVOCs)													
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Metals													
Aluminum	ug/L	1800 ^{ab}	1270 ^{ab}	740 ^{ab}	2200 ^{ab}	2200 ^{ab}	110 ^{ab}	950 ^{ab}	200 ^{ab}	600 ^{ab}	210 ^{ab}	480 ^{ab}	160 ^{ab}
Aluminum (dissolved)	ug/L	-	116 ^{ab}	-	340 ^{ab}	-	50 U	50 U	130 ^{ab}	180 ^{ab}	50 U	50 U	51 ^{ab}
Lead	ug/L	0.87 J	50.0 U	1.0 U	1.1 U	0.98 J	1.0 U	1.7	1.0 U	1.0 U	1.1	1.0 U	1.0 U
Lead (dissolved)	ug/L	-	50.0 U	-	1.0 U	-	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	ug/L	3.3 J	10.0 U	1.9 J	5.0 ^a	5.3 ^a	4.0 U	2.5 J	4.0 U	1.6 J	0.92 J	-	4.0 U
Vanadium (dissolved)	ug/L	-	10.0 U	-	1.4 J	-	4.0 U	4.0 U	4.0 U	0.83 J	4.0 U	-	4.0 U
Field Parameters													
Conductivity, field	mS/cm	-	-	-	-	-	1.574	1.59	1.69	1.69	1.62	1.56	-
Dissolved oxygen (DO), field	ug/L	-	-	-	-	-	400	80	120	120	140	4660	-
Oxidation reduction potential (ORP), field	millivolts	-	-	-	-	-	200	-11	27	27	143.6	75.9	-
pH, field	s.u.	-	-	-	-	-	7.69	8.11	8.02	8.02	7.86	7.9	-
Temperature, ambient	Deg C	-	-	-	-	-	-	-	1.67	1.67	-	-	-
Temperature, sample	Deg C	-	-	-	-	-	14.8	13	11.7	11.7	15.8	0.5	-
Turbidity, field	NTU	-	-	-	-	-	3.44	9.14	6.78	6.78	2.99	12.7	-

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-21-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07	MW-33-07
Sample Identification	GW-11223416-042222-S K-020	GW-17322A-060518-DS-001	GW-17322A-091718-DS-001	GW-17322-120418-DS-006	GW-17322A-031919-JY-005	GW-17322-062519-S K-006	GW-17322-093019-JY-006	GW-17322-093019-JY-007	GW-17322-110619-JY-002	GW-17322-110619-JY-003	GW-17322-030520-JY-011	GW-17322-062320-DA-007	
Sample Date	04/22/2022	06/05/2018	09/17/2018	12/04/2018	03/19/2019	06/25/2019	09/30/2019	09/30/2019	11/06/2019	11/06/2019	03/05/2020	06/23/2020	
Sample Type													
Parameters	Units												
Semi-Volatile Organic Compounds (SVOCs)													
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Metals													
Aluminum	ug/L	1200 ^{ab1}	50 U	50.0 U	50 U	170 ^{ab}	50 U	50 U	50 U	50 U	50 U	50 U	49 J
Aluminum (dissolved)	ug/L	-	-	50.0 U	-	-	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Lead	ug/L	6.3 ^{ab}	1.0 U	50.0 U	1.0 U	1.0 U	0.53 J	1.0 U	1.0 U	1.0 U	1.0 U	0.74 J	1.0 U
Lead (dissolved)	ug/L	-	-	50.0 U	-	-	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.53 J	1.0 U
Vanadium	ug/L	1.7 J	5.0 U	10.0 U	5.0 U	4.0 U	0.89 J	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Vanadium (dissolved)	ug/L	-	-	10.0 U	-	-	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Field Parameters													
Conductivity, field	mS/cm	-	-	-	-	-	1.357	1.357	2.11	2.11	3.01	0.54	
Dissolved oxygen (DO), field	ug/L	-	-	-	-	-	1550	1550	80	80	80	6510	
Oxidation reduction potential (ORP), field	millivolts	-	-	-	-	-	202	202	18	18	-21	42.7	
pH, field	s.u.	-	-	-	-	-	7.05	7.05	7.28	7.28	7.25	7.75	
Temperature, ambient	Deg C	-	-	-	-	-	-	-	-	-	-1.67	-	
Temperature, sample	Deg C	-	-	-	-	-	14	14	12.9	12.9	12.1	17.31	
Turbidity, field	NTU	-	-	-	-	-	2.19	2.19	0.91	0.91	0.58	5.39	

Appendix E

Historical Groundwater Analytical Results
June 2018 through April 2022
Racer PCC Validation
Pontiac, Michigan

Sample Location	MW-33-07	MW-33-07	MW-33-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-38-07	MW-48-22R	MW-64-08
Sample Identification	GW-11223416-061421-S-K-004	GW-11223416-042122-S-K-016	GW-11223416-042122-S-K-017	GW-17322-062619-S-K-011	GW-17322-092719-JY-005	GW-17322-110619-JY-001	GW-17322-030520-JY-010	GW-17322-062320-DA-008	GW-11223416-042222-S-K-021	GW-11223416-042222-S-K-023	GW-17322A-060518-DS-005	
Sample Date	06/14/2021	04/21/2022	04/21/2022	06/26/2019	09/27/2019	11/06/2019	03/05/2020	06/23/2020	04/22/2022	04/22/2022	06/05/2018	
Sample Type	Duplicate											
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Metals												
Aluminum	ug/L	50 U	50 U	50 U	50 U	160 ^{ab} 260 ^{ab}		50 U	50 U	50 U	-	-
Aluminum (dissolved)	ug/L	50 U	50 U	50 U	-	50 U	50 U	50 U	50 U	50 U	-	-
Lead	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	0.52 U	0.63 U	1.0 U	1.0 U	1.0 U	-	-
Lead (dissolved)	ug/L	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	-	-
Vanadium	ug/L	-	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	-	-
Vanadium (dissolved)	ug/L	-	4.0 U	4.0 U	-	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	-	-
Field Parameters												
Conductivity, field	mS/cm	2.67	-	-	-	3.19	3.28	3.22	3.26	-	-	-
Dissolved oxygen (DO), field	ug/L	20	-	-	-	20	80	1720	0	-	-	-
Oxidation reduction potential (ORP), field	millivolts	35.8	-	-	-	155	136	58	34.8	-	-	-
pH, field	s.u.	6.95	-	-	-	6.88	6.88	7.1	6.89	-	-	-
Temperature, ambient	Deg C	-	-	-	-	-	-	-1.67	-	-	-	-
Temperature, sample	Deg C	16.56	-	-	-	17.5	11.8	11.5	15.04	-	-	-
Turbidity, field	NTU	1.45	-	-	-	1.29	-	-	2.04	-	-	-

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Historical Groundwater Analytical Results
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Racer PCC Validation
Pontiac, Michigan

Sample Location		MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	MW-64-08	
Sample Identification		GW-17322A-091818-DS-008	GW-17322-120318-DS-001	GW-17322A-031919-JY-001	GW-17322-062619-SK-008	GW-17322-092719-JY-001	GW-17322-110719-JY-007	GW-17322-030420-JY-001	GW-17322-062220-DA-002	GW-17322-062220-DA-003	GW-11223416-061621-SK-009	GW-11223416-061621-SK-010	
Sample Date		09/18/2018	12/03/2018	03/19/2019	06/26/2019	09/27/2019	11/07/2019	03/04/2020	06/22/2020	06/22/2020	06/16/2021	06/16/2021	
Sample Type													
Parameters		Units										Duplicate	Duplicate
Semi-Volatile Organic Compounds (SVOCs)													
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-	
Metals													
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-	
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-	
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-	
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters													
Conductivity, field	mS/cm	-	-	-	-	1.054	0.84	1.29	0.83	0.83	0.81	0.81	
Dissolved oxygen (DO), field	ug/L	-	-	-	-	520	2350	240	0	0	310	310	
Oxidation reduction potential (ORP), field	millivolts	-	-	-	-	15.6	-30	72	-95.5	-95.5	-30	-30	
pH, field	s.u.	-	-	-	-	6.86	2.35 ^{1b}	7.01	6.89	6.89	7.02	7.02	
Temperature, ambient	Deg C	-	-	-	-	-	-	1.67	-	-	-	-	
Temperature, sample	Deg C	-	-	-	-	15.7	13.3	7.7	13.96	13.96	13.95	13.95	
Turbidity, field	NTU	-	-	-	-	0.75	2.43	3.09	2.11	2.11	4.21	4.21	

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Historical Groundwater Analytical Results
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Racer PCC Validation
Pontiac, Michigan

Sample Location		MW-64-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-68-08	MW-74-22R	MW-74-22R	MW-74D-22R
Sample Identification		GW-11223416-041922-S-K-013	GW-17322-062619-S-K-010	GW-17322-092719-JY-003	GW-17322-110719-JY-009	GW-17322-030520-JY-008	GW-17322-062320-DA-011	GW-11223416-061521-S-K-006	GW-11223416-041522-S-K-001	GW-11223416-042122-S-K-018	GW-11223416-042122-S-K-019	GW-11223416-041522-S-K-006
Sample Date		04/19/2022	06/26/2019	09/27/2019	11/07/2019	03/05/2020	06/23/2020	06/15/2021	04/15/2022	04/21/2022	04/21/2022	04/15/2022
Sample Type											Duplicate	
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	1.0 U	1.0 U	-
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Field Parameters												
Conductivity, field	mS/cm	-	-	0.82	0.83	0.93	0.88	0.8	-	-	-	-
Dissolved oxygen (DO), field	ug/L	-	-	130	2910	1040	0	1630	-	-	-	-
Oxidation reduction potential (ORP), field	millivolts	-	-	177	8	39	-113.1	-17.7	-	-	-	-
pH, field	s.u.	-	-	6.87	7.29	7.24	7.16	7.07	-	-	-	-
Temperature, ambient	Deg C	-	-	-	-	-1.67	-	-	-	-	-	-
Temperature, sample	Deg C	-	-	16.6	12	8.9	15.56	15.42	-	-	-	-
Turbidity, field	NTU	-	-	11	0.9	6.04	1.3	1.42	-	-	-	-

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Historical Groundwater Analytical Results

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Racer PCC Validation

Pontiac, Michigan

Sample Location		MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19	MW-79D-19
Sample Identification		GW-17322-062519-S-K-004	GW-17322-093019-JY-010	GW-17322-110719-JY-011	GW-17322-030420-JY-004	GW-17322-062220-DA-005	GW-17322-090420-S-K-002	GW-017322-121420-S-K-002	GW-017322-121420-S-K-003	GW-11223416-031121-S-K-003	GW-11223416-061421-S-K-002	GW-11223416-092421-S-K-002
Sample Date		06/25/2019	09/30/2019	11/07/2019	03/04/2020	06/22/2020	09/04/2020	12/14/2020	12/14/2020	03/11/2021	06/14/2021	09/24/2021
Sample Type									Duplicate			
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Field Parameters												
Conductivity, field	mS/cm	-	3.36	3.14	3.46	3.22	3.13	3.26	3.26	6.16	2.78	3.18
Dissolved oxygen (DO), field	ug/L	-	110	0	120	0	40	0	0	120	0	0
Oxidation reduction potential (ORP), field	millivolts	-	-221.7	-80	-76	-137.5	-78.4	-71.2	-71.2	-28.2	19.8	-122.1
pH, field	s.u.	-	7.12	7.32	7.27	7.25	7.13	7.13	7.13	9.96 ^{ab}	7.2	7.18
Temperature, ambient	Deg C	-	-	-	1.67	-	-	-	-	-	-	-
Temperature, sample	Deg C	-	15.69	11.8	10.8	16.4	15.97	11.33	11.33	13.98	15.33	14.45
Turbidity, field	NTU	-	0.42	0.89	2.89	2.18	4.67	1.29	1.29	8.34	1.48	4.42

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Historical Groundwater Analytical Results
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Racer PCC Validation
Pontiac, Michigan

Sample Location	MW-79D-19	MW-79D-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19	MW-79I-19
Sample Identification	GW-11223416-092421-S-K-003	GW-11223416-041522-S-K-004	GW-17322-062519-S-K-002	GW-17322-062519-S-K-003	GW-17322-093019-JY-009	GW-17322-110619-JY-006	GW-17322-030420-JY-003	GW-17322-062220-DA-006	GW-17322-090420-S-K-001	GW-017322-121420-S-K-001	GW-11223416-031121-S-K-001	
Sample Date	09/24/2021	04/15/2022	06/25/2019	06/25/2019	09/30/2019	11/06/2019	03/04/2020	06/22/2020	09/04/2020	12/14/2020	03/11/2021	
Sample Type	Duplicate			Duplicate								
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Field Parameters												
Conductivity, field	mS/cm	3.18	-	-	-	1.03	1.47	1.4	1.4	1.55	1.38	3.17
Dissolved oxygen (DO), field	ug/L	0	-	-	-	80	0	210	0	20	60	650
Oxidation reduction potential (ORP), field	millivolts	-122.1	-	-	-	195.2	1	55	-80	43.8	7.14	154.9
pH, field	s.u.	7.18	-	-	-	7.05	7.32	7.41	7.32	7.07	7.14	9.89 ^{ab}
Temperature, ambient	Deg C	-	-	-	-	-	-	1.67	-	-	-	-
Temperature, sample	Deg C	14.45	-	-	-	15.22	12.4	9.7	15.45	16.14	10.83	13.04
Turbidity, field	NTU	4.42	-	-	-	0.22	1.17	2.22	4.77	2.14	1.73	2.12

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Pontiac, Michigan

Sample Location	MW-79L-19	MW-79L-19	MW-79L-19	MW-79L-19	MW-79L-19	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-80-12
Sample Identification	GW-11223416-031121-S-K-002	GW-11223416-061421-S-K-001	GW-11223416-092421-S-K-001	GW-11223416-041522-S-K-002	GW-11223416-041522-S-K-003	GW-17322A-060618-DS-011	GW-17322A-091718-DS-005	GW-17322-120418-DS-011	GW-17322A-032019-JY-009	GW-17322-062719-S-K-016	GW-17322-093019-JY-016
Sample Date	03/11/2021	06/14/2021	09/24/2021	04/15/2022	04/15/2022	06/06/2018	09/17/2018	12/04/2018	03/20/2019	06/27/2019	09/30/2019
Sample Type	Duplicate				Duplicate						
Parameters	Units										
Semi-Volatile Organic Compounds (SVOCs)											
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-
Metals											
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-
Field Parameters											
Conductivity, field	mS/cm	3.17	1.53	1.5	-	-	-	-	-	-	3.23
Dissolved oxygen (DO), field	ug/L	650	30	0	-	-	-	-	-	-	90
Oxidation reduction potential (ORP), field	millivolts	154.9	71.5	20.3	-	-	-	-	-	-	-75
pH, field	s.u.	9.89 ^{ab}	7.11	7.12	-	-	-	-	-	-	7.1
Temperature, ambient	Deg C	-	-	-	-	-	-	-	-	-	-
Temperature, sample	Deg C	13.04	15.34	14.75	-	-	-	-	-	-	20.79
Turbidity, field	NTU	2.12	1.09	1.21	-	-	-	-	-	-	0.66

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Historical Groundwater Analytical Results
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Racer PCC Validation
Pontiac, Michigan

Sample Location	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-80-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12
Sample Identification	GW-17322-110719-JY-012	GW-17322-030520-JY-012	GW-17322-062420-DA-012	GW-11223416-061621-S-K-013	GW-11223416-041822-S-K-008	GW-17322A-060618-DS-007	GW-17322A-091818-DS-011	GW-17322-120418-DS-008	GW-17322-120418-DS-009	GW-17322A-032019-JY-008	GW-17322-062719-S-K-015	GW-17322-093019-JY-014	
Sample Date	11/07/2019	03/05/2020	06/24/2020	06/16/2021	04/19/2022	06/06/2018	09/18/2018	12/04/2018	12/04/2018	03/20/2019	06/27/2019	09/30/2019	
Sample Type										Duplicate			
Parameters	Units												
Semi-Volatile Organic Compounds (SVOCs)													
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Metals													
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Field Parameters													
Conductivity, field	mS/cm	4.12	1.41	1.45	2.43	-	-	-	-	-	-	-	3.29
Dissolved oxygen (DO), field	ug/L	70	300	0	20	-	-	-	-	-	-	-	20
Oxidation reduction potential (ORP), field	millivolts	2	55	161.2	63.8	-	-	-	-	-	-	-	-163.3
pH, field	s.u.	7.12	7.37	6.89	7.11	-	-	-	-	-	-	-	6.9
Temperature, ambient	Deg C	-	-1.67	-	-	-	-	-	-	-	-	-	-
Temperature, sample	Deg C	12.2	8	12.5	17.22	-	-	-	-	-	-	-	17.61
Turbidity, field	NTU	0.26	0.93	2.02	2.19	-	-	-	-	-	-	-	3.88

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Pontiac, Michigan

Sample Location		MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-81-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12
Sample Identification		GW-17322-110819-JY-013	GW-17322-030620-JY-014	GW-17322-062420-DA-016	GW-17322-062420-DA-017	GW-11223416-061521-S-K-008	GW-11223416-041922-S-K-014	GW-17322A-060518-DS-006	GW-17322A-091818-DS-007	GW-17322-120318-DS-002	GW-17322A-031919-JY-002	GW-17322-062619-S-K-007	GW-17322-092719-JY-002
Sample Date		11/08/2019	03/06/2020	06/24/2020	06/24/2020	06/15/2021	04/19/2022	06/05/2018	09/18/2018	12/03/2018	03/19/2019	06/26/2019	09/27/2019
Sample Type					Duplicate								
Parameters	Units												
Semi-Volatile Organic Compounds (SVOCs)													
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Metals													
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Field Parameters													
Conductivity, field	mS/cm	3.16	2.35	3.12	3.12	2.85	-	-	-	-	-	-	0.825
Dissolved oxygen (DO), field	ug/L	40	50	0	0	0	-	-	-	-	-	-	110
Oxidation reduction potential (ORP), field	millivolts	-55	-111	-221.9	-221.9	-69.2	-	-	-	-	-	-	20
pH, field	s.u.	7.09	7.88	7.87	7.87	6.96	-	-	-	-	-	-	8.34
Temperature, ambient	Deg C	-	0.56	-	-	-	-	-	-	-	-	-	-
Temperature, sample	Deg C	12.3	10	14.03	14.03	19.44	-	-	-	-	-	-	17.4
Turbidity, field	NTU	0.86	3.07	1.99	1.99	7.17	-	-	-	-	-	-	10.9

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Pontiac, Michigan

Sample Location	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-85-12	MW-87-12	MW-87-12	MW-87-12	MW-87-12	MW-87-12	MW-87-12	
Sample Identification	GW-17322-110719-JY-008	GW-17322-030420-JY-002	GW-17322-062220-DA-001	GW-11223416-061621-S-K-011	GW-11223416-041922-S-K-012	GW-17322-062619-S-K-009	GW-17322-092719-JY-004	GW-17322-110719-JY-010	GW-17322-030520-JY-009	GW-17322-062320-DA-010	GW-11223416-061521-S-K-005	
Sample Date	11/07/2019	03/04/2020	06/22/2020	06/16/2021	04/19/2022	06/26/2019	09/27/2019	11/07/2019	03/05/2020	06/23/2020	06/15/2021	
Sample Type												
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	
Field Parameters												
Conductivity, field	mS/cm	1.22	1.12	0.96	0.68	-	-	1.411	1.29	0.68	0.97	0.56
Dissolved oxygen (DO), field	ug/L	2350	190	100	370	-	-	890	40	20	0	10
Oxidation reduction potential (ORP), field	millivolts	-3	61	119.6	15.7	-	-	166	-220	58	-310.1	-107.5
pH, field	s.u.	9.99 ^{ab}	10.15 ^{ab}	9.52 ^{ab}	9.27 ^{ab}	-	-	8.29	8.73 ^{ab}	11.26 ^{ab}	10.5 ^{ab}	7.5
Temperature, ambient	Deg C	-	1.67	-	-	-	-	-	-	-1.67	-	-
Temperature, sample	Deg C	11	4.9	15.9	16.29	-	-	17	13.7	7.5	14.71	14.9
Turbidity, field	NTU	20.3	7.2	10.49	10.5	-	-	1.79	1.81	2.53	1.8	19.4

Appendix E

Historical Groundwater Analytical Results
June 2018 through April 2022
Racer PCC Validation
Pontiac, Michigan

Sample Location	MW-87-12	MW-88-22R	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13	MW-92-13
Sample Identification	GW-11223416-041822-S.K-007	GW-11223416-042222-S.K-022	GW-17322A-060618-DS-008	GW-17322A-091818-DS-009	GW-17322-120318-DS-005	GW-17322A-032119-JY-010	GW-17322-062719-S.K-013	GW-17322-093019-JY-013	GW-17322-110819-JY-014	GW-17322-030620-JY-015	GW-17322-062420-DA-015	
Sample Date	04/18/2022	04/22/2022	06/06/2018	09/18/2018	12/03/2018	03/21/2019	06/27/2019	09/30/2019	11/08/2019	03/06/2020	06/24/2020	
Sample Type												
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Field Parameters												
Conductivity, field	mS/cm	-	-	-	-	-	-	-	2.275	2.16	2.76	3.18
Dissolved oxygen (DO), field	ug/L	-	-	-	-	-	-	-	160	0	40	0
Oxidation reduction potential (ORP), field	millivolts	-	-	-	-	-	-	-	164	-93	-59	-141.9
pH, field	s.u.	-	-	-	-	-	-	-	7.01	7.3	7.19	7.11
Temperature, ambient	Deg C	-	-	-	-	-	-	-	-	-	0.56	-
Temperature, sample	Deg C	-	-	-	-	-	-	-	16.3	12.5	8.4	12.89
Turbidity, field	NTU	-	-	-	-	-	-	-	2.59	3.07	3.1	2.41

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Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location	MW-921-13	MW-921-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13	MW-925-13
Sample Identification	GW-11223416-061721-S.K-015	GW-11223416-041822-S.K-011	GW-17322A-060618-DS-009	GW-17322A-091818-DS-010	GW-17322-120318-DS-004	GW-17322A-032119-JY-011	GW-17322-062719-S.K-014	GW-17322-093019-JY-012	GW-17322-110819-JY-015	GW-17322-030620-JY-016	GW-17322-062420-DA-014	
Sample Date	06/17/2021	04/18/2022	06/06/2018	09/18/2018	12/03/2018	03/21/2019	06/27/2019	09/30/2019	11/08/2019	03/06/2020	06/24/2020	
Sample Type												
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Field Parameters												
Conductivity, field	mS/cm	2.2	-	-	-	-	-	2.037	2.17	2.06	1.87	
Dissolved oxygen (DO), field	ug/L	10	-	-	-	-	-	280	0	60	0	
Oxidation reduction potential (ORP), field	millivolts	-90.4	-	-	-	-	-	171	-76	-122	-120.1	
pH, field	s.u.	7.12	-	-	-	-	-	6.75	6.97	6.92	6.81	
Temperature, ambient	Deg C	-	-	-	-	-	-	-	-	0.56	-	
Temperature, sample	Deg C	14.23	-	-	-	-	-	16.4	14.1	7.2	13.35	
Turbidity, field	NTU	5.71	-	-	-	-	-	2.05	2.98	3.48	2.17	

Appendix E

Historical Groundwater Analytical Results

June 2018 through April 2022

Racer PCC Validation

Pontiac, Michigan

Sample Location		MW-92S-13	MW-92S-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13	MW-93I-13
Sample Identification		GW-11223416-061721-S-K-014	GW-11223416-041822-S-K-010	GW-17322A-060618-DS-010	GW-17322A-091718-DS-006	GW-17322-120418-DS-010	GW-17322A-032019-JY-007	GW-17322-062719-S-K-012	GW-17322-093019-JY-015	GW-17322-110819-JY-016	GW-17322-030520-JY-013	GW-17322-062420-DA-013
Sample Date		06/17/2021	04/18/2022	06/06/2018	09/17/2018	12/04/2018	03/20/2019	06/27/2019	09/30/2019	11/08/2019	03/05/2020	06/24/2020
Sample Type												
Parameters	Units											
Semi-Volatile Organic Compounds (SVOCs)												
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Metals												
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-
Field Parameters												
Conductivity, field	mS/cm	3.43	-	-	-	-	-	-	1.996	1.86	2.27	2.64
Dissolved oxygen (DO), field	ug/L	0	-	-	-	-	-	-	370	0	410	0
Oxidation reduction potential (ORP), field	millivolts	19.6	-	-	-	-	-	-	180	8	0	-19.5
pH, field	s.u.	6.6	-	-	-	-	-	-	6.77	7	6.87	6.75
Temperature, ambient	Deg C	-	-	-	-	-	-	-	-	-	-1.67	-
Temperature, sample	Deg C	15.29	-	-	-	-	-	-	16.4	12.3	10	13.01
Turbidity, field	NTU	6.68	-	-	-	-	-	-	1.32	0.93	0.95	2.02

Appendix E

Historical Groundwater Analytical Results
June 2018 through April 2022
Racer PCC Validation
Pontiac, Michigan

Sample Location	MW-931-13	MW-931-13
Sample Identification	GW-11223416-061521-SK-007	GW-11223416-041822-SK-009
Sample Date	06/15/2021	04/18/2022
Sample Type		
Parameters		
Semi-Volatile Organic Compounds (SVOCs)		

1,4-Dioxane	ug/L	-	-
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Metals

Aluminum	ug/L	-	-
Aluminum (dissolved)	ug/L	-	-
Lead	ug/L	-	-
Lead (dissolved)	ug/L	-	-
Vanadium	ug/L	-	-
Vanadium (dissolved)	ug/L	-	-

Field Parameters

Conductivity, field	mS/cm	2.03	-
Dissolved oxygen (DO), field	ug/L	0	-
Oxidation reduction potential (ORP), field	millivolts	32.8	-
pH, field	s.u.	6.73	-
Temperature, ambient	Deg C	-	-
Temperature, sample	Deg C	16.06	-
Turbidity, field	NTU	1.56	-

Notes:

(1) EGLE - Michigan

Department of Environment,

(2) EGLE R 299.49 Footnote for Generic Cleanup Criteria Tables, Footnote E

(3) EGLE Site-Specific Volatilization to Indoor Air Criteria (VIAC) for M1 Concourse Phase 4 - Building 16, March 2020.

(4) A hardness of 300 mg/L and pH of 7.4 was assumed, where required, to calculate site-specific groundwater surface water interface (SSWI) criteria. Hardness and pH were approximated using EGLE's Water Chemistry Monitoring Program Report, dated November 2019. Calculated utilizing EGLE's "Footnote (3) GS/IGS/IPC Calculation" spreadsheet, dated June 25, 2018.

Acceptable Air Values (AAV) endpoint basis used for SSVIAC: (ca) = Carcinogenic; (nc) = Non-Carcinogenic; (dev) = Developmental; (mut) = Mutagenic cancer; (st) = Short-term (i.e., less than chronic exposure).

(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.

(EE) - The acceptable air concentration (AAC) for the volatile hazardous substances is not derived using standard methods. 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 EGLE's Air Quality Division acute initial threshold screening level (ITSL).

(Mf) - 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.

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UU - Not detected; associated reporting limit is estimated.

J+ - Estimated concentration, result may be biased high.

NLV - means hazardous substance is not likely to volatilize under most conditions.

ID - means insufficient data to develop criterion.

- Indicates concentration exceeded criteria

Appendix F

**Site Specific Volatilization to
Indoor Air Criteria**

DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

INTEROFFICE COMMUNICATION

TO: Matt Williams, Vapor Intrusion Specialist, RRD

FROM: Shane Morrison, Senior Toxicologist, RRD

DATE: March 6, 2020

SUBJECT: M1 Concourse Phase 4 - Building 16 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 volatilization to indoor air pathway (VIAP) model document language. As indicated in this document, when groundwater volatilization to indoor air inhalation criteria (GVIIC) and soil volatilization to indoor air inhalation criteria (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.

Nonresidential site-specific criteria may be adjusted for some hazardous substances to reflect a reasonable maximum worker exposure of 12-hour per day; however, if a person does not exceed the provided nonresidential site-specific criteria, no adjustment is necessary.

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. 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
Paul Owens, District Supervisor, RRD
Cheryl Wilson, Assistant District Supervisor, RRD
Kevin Wojciechowski, Senior Environmental Quality Analyst, RRD

Table 1. Nonresidential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a nonresidential structure **< 50,000 ft²** with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 15 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m ³)
83329	Acenaphthene	3,900 (S) sol	3.6E+06 nc	11,000 nc
208968	Acenaphthylene	710 (CC) nc	DATA	11,000 nc
994058	t-Amyl methyl ether (TAME)	34,000 nc	600 nc	3,200 nc
120127	Anthracene	43 (S) sol	2.2E+08 nc	51,000 nc
71432	Benzene	520 ca	47 (M) ca	260 ca
56553	Benzo(a)anthracene	9.4 (S) sol	1.1E+07 ca	33 ca
75650	t-Butyl alcohol	4.0E+06 nc	57,000 nc	3,700 nc
104518	n-Butylbenzene	12,000 (S) sol	9,800 nc	10,000 nc
135988	sec-Butylbenzene	18,000 (S) sol	66,000 (C) nc (49,000)	20 nc
98066	t-Butylbenzene	31 nc	11 (M) nc	20 nc
108907	Chlorobenzene	13,000 nc	1,400 nc	2,600 nc
75003	Chloroethane	1.5E+05 nc	5,800 nc	2.0E+05 nc
67663	Chloroform	280 ca	7.4 (M) ca	87 ca
74873	Chloromethane	3,500 nc	120 (M) nc	4,600 nc
110827	Cyclohexane	25,000 nc	5,600 nc	3.1E+05 nc
75343	1,1-Dichloroethane	2,500 ca	74 ca	1,200 ca
107062	1,2-Dichloroethane	770 ca	23 (M) ca	77 ca
75354	1,1-Dichloroethylene	3,900 nc	220 nc	10,000 nc
156592	cis-1,2-Dichloroethylene	1,100 nc	37 (M) nc	410 nc
156605	trans-1,2-Dichloroethylene	4,600 nc	210 nc	4,100 nc
60297	Diethyl ether	4.2E+05 nc	6,200 nc	51,000 nc
108203	Diisopropyl ether	1.3E+05 (DD) dev	2,300 (DD) dev	23,000 (DD) dev
64175	Ethanol	9.7E+08 (EE) st	1.6E+07 (EE) st	6.3E+05 (EE) st
637923	Ethyl-tert-butyl ether (ETBE)	580 (CC) nc	DATA	19,000 nc
100414	Ethylbenzene	1,700 ca	340 ca	800 ca
106934	Ethylene dibromide	120 ca	2.1 (M) ca	3.3 ca

Table 1. Nonresidential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a nonresidential structure **< 50,000 ft²** with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 15 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m ³)
86737	Fluorene	1,700 (S) sol	8.3E+06 nc	7,200 nc
142825	n-Heptane	3,400 (S) (GW) sol	2,300 nc	1.8E+05 nc
110543	n-Hexane	1,000 (GW) nc	440 nc	36,000 nc
67630	Isopropyl alcohol	1.1E+07 nc	1.7E+05 nc	10,000 nc
98828	Isopropyl benzene	380 ca	110 (M) ca	190 ca
Varies	Mercury (Total)	34 nc	390 nc	15 nc
1634044	Methyl-tert-butyl ether (MTBE)	1.5E+05 ca	2,100 ca	7,700 ca
96377	Methylcyclopentane	1,200 nc	510 (M) nc	36,000 nc
91576	2-Methylnaphthalene	25,000 (S) sol	30,000 nc	510 nc
91203	Naphthalene	2,900 ca	1,900 ca	59 ca
109660	Pentane	1,400 (GW) nc	630 (M) nc	51,000 nc
85018	Phenanthrene	1,200 (S) sol	29,000 nc	5.1 nc
1336363	Polychlorinated biphenyls (PCBs)	0.97 (CC) (J) ca	DATA	20 (J) ca
103651	n-Propylbenzene	52,000 (S) (DD) sol	21,000 (DD) dev	33,000 (DD) dev
129000	Pyrene	140 (S) sol	4.4E+08 nc	5,100 nc
100425	Styrene	21,000 ca	4,300 ca	3,500 ca
630206	1,1,1,2-Tetrachloroethane	2,600 ca	91 (M) ca	270 ca
79345	1,1,2,2-Tetrachloroethane	1,900 ca	77 ca	34 ca
127184	Tetrachloroethylene	1,600 (EE) st	74 (EE) st	1,400 (EE) st
108883	Toluene	5.2E+05 (EE) st	64,000 (EE) st	2.5E+05 (EE) st
71556	1,1,1-Trichloroethane	1.9E+05 (EE) st	7,500 (EE) st	2.3E+05 (EE) st
79005	1,1,2-Trichloroethane	190 nc	6.6 (M) nc	10 nc
79016	Trichloroethylene	98 (DD) dev	4.0 (M) (DD) dev	67 (DD) dev
540841	2,2,4-Trimethyl pentane	2,400 (S) (GW) sol	2,200 (M) nc	1.8E+05 nc
526738	1,2,3-Trimethylbenzene	19,000 (JT) nc	4,800 (JT) nc	3,100 (JT) nc
95636	1,2,4-Trimethylbenzene	10,000 (JT) nc	2,600 (JT) nc	3,100 (JT) nc

Table 1. Nonresidential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a nonresidential structure **< 50,000 ft²** with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 15 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m ³)
108678	1,3,5-Trimethylbenzene	7,400 (JT) nc	1,800 (JT) nc	3,100 (JT) nc
75014	Vinyl chloride	120 ca	8.2 (M) ca	450 ca
1330207	Xylenes	28,000 (J) nc	5,000 (J) nc	11,000 (J) nc

Table 2. 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. 15 ft), and USDA soil type of sand.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (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 (CC) nc	DATA	7,300 nc
994058	t-Amyl methyl ether (TAME)	1,800 nc	34 (M) nc	2,200 nc
120127	Anthracene	43 (S) sol	1.3E+07 nc	35,000 nc
71432	Benzene	17 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
75650	t-Butyl alcohol	1.8E+05 nc	3,200 nc	2,500 nc
104518	n-Butylbenzene	970 nc	550 nc	7,000 nc
135988	sec-Butylbenzene	3,700 nc	3,800 nc	14 nc
98066	t-Butylbenzene	1.6 nc	0.64 (M) nc	14 nc
108907	Chlorobenzene	660 nc	82 nc	1,700 nc
75003	Chloroethane	8,000 nc	330 nc	1.4E+05 nc
67663	Chloroform	9.2 ca	0.26 (M) ca	37 ca
74873	Chloromethane	180 nc	6.9 (M) nc	3,100 nc
110827	Cyclohexane	1,300 nc	320 (M) nc	2.1E+05 nc
75343	1,1-Dichloroethane	81 ca	2.6 (M) ca	530 ca
107062	1,2-Dichloroethane	25 ca	0.82 (M) ca	33 ca
75354	1,1-Dichloroethylene	200 nc	12 (M) nc	7,000 nc
156592	cis-1,2-Dichloroethylene	58 nc	2.1 (M) nc	280 nc
156605	trans-1,2-Dichloroethylene	240 nc	12 (M) nc	2,800 nc
60297	Diethyl ether	22,000 nc	350 nc	35,000 nc
108203	Diisopropyl ether	9,700 (DD) dev	190 (M) (DD) dev	23,000 (DD) dev
64175	Ethanol	6.7E+07 (EE) st	1.3E+06 (EE) st	6.3E+05 (EE) st
637923	Ethyl-tert-butyl ether (ETBE)	22 (CC) nc	DATA	13,000 nc
100414	Ethylbenzene	55 ca	12 (M) ca	340 ca
106934	Ethylene dibromide	3.6 ca	7.4E-02 (M) ca	1.4 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 basement, the depth to groundwater submitted for this site (i.e. 15 ft), and USDA soil type of sand.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m ³)
86737	Fluorene	1,700 (S) sol	4.7E+05 nc	4,900 nc
142825	n-Heptane	150 (GW) nc	130 nc	1.2E+05 nc
110543	n-Hexane	29 (GW) nc	25 nc	24,000 nc
67630	Isopropyl alcohol	5.3E+05 nc	9,800 nc	7,000 nc
98828	Isopropyl benzene	12 ca	3.8 (M) ca	81 ca
Varies	Mercury (Total)	1.8 nc	22 nc	10 nc
1634044	Methyl-tert-butyl ether (MTBE)	4,900 ca	74 (M) ca	3,300 ca
96377	Methylcyclopentane	62 nc	29 (M) nc	24,000 nc
91576	2-Methylnaphthalene	1,600 nc	1,700 nc	350 nc
91203	Naphthalene	92 ca	67 (M) ca	25 ca
109660	Pentane	40 (M) (GW) nc	36 (M) nc	35,000 nc
85018	Phenanthrene	180 nc	1,700 nc	3.5 nc
1336363	Polychlorinated biphenyls (PCBs)	3.1E-02 (M) (CC) (J) ca	DATA	8.5 (J) ca
103651	n-Propylbenzene	5,000 (DD) dev	1,800 (DD) dev	33,000 (DD) dev
129000	Pyrene	140 (S) sol	2.5E+07 nc	3,500 nc
100425	Styrene	680 ca	150 ca	1,500 ca
630206	1,1,1,2-Tetrachloroethane	85 ca	3.2 (M) ca	110 ca
79345	1,1,2,2-Tetrachloroethane	59 ca	2.7 (M) ca	15 ca
127184	Tetrachloroethylene	120 (EE) st	6.2 (M) (EE) st	1,400 (EE) st
108883	Toluene	28,000 nc	3,700 nc	1.7E+05 nc
71556	1,1,1-Trichloroethane	11,000 (EE) st	450 (EE) st	1.7E+05 (EE) st
79005	1,1,2-Trichloroethane	9.9 nc	0.37 (M) nc	7.0 nc
79016	Trichloroethylene	7.5 (DD) dev	0.33 (M) (DD) dev	67 (DD) dev
540841	2,2,4-Trimethyl pentane	160 (GW) nc	130 (M) nc	1.2E+05 nc
526738	1,2,3-Trimethylbenzene	980 (JT) nc	270 (JT) nc	2,100 (JT) nc
95636	1,2,4-Trimethylbenzene	540 (JT) nc	150 (JT) nc	2,100 (JT) nc

Table 2. 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. 15 ft), and USDA soil type of sand.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m ³)
108678	1,3,5-Trimethylbenzene	380 (JT) nc	100 (JT) nc	2,100 (JT) nc
75014	Vinyl chloride	1.1 (MM) mut	8.2E-02 (MM) (M) mut	54 (MM) mut
1330207	Xylenes	1,500 (J) nc	280 (J) nc	7,600 (J) nc

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**) = Carcinogenic; (**nc**) = Non-Carcinogenic; (**dev**) = Developmental; (**mut**) = Mutagenic cancer; (**st**) = Short-term (i.e., less than chronic exposure).
- Footnote (#): Acceptable air concentrations (AAC) cannot be adjusted to a 12-hour exposure time for hazardous substance.
- 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**) of 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 methods. 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 methods. 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 EGLE's Air Quality Division acute initial threshold screening level (ITSL).
- 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 methods 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.



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