

Our ref: 12602792-LTR 11

March 08, 2024

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Michigan Department of Environment Great Lakes & Energy (EGLE)
Remediation and Redevelopment Division – Jackson District Office
301 East Louis Glick Highway
Jackson, Michigan 49201-1556

PCE Area Update
Former Willow Run Powertrain Site
Ypsilanti, Michigan

Dear Ms. Lesser:

GHD Services Inc. (GHD) has prepared this letter on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust to summarize recent groundwater monitoring results and update the proposed monitoring plan for the PCE Area as part of the ongoing Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) at the former Willow Run Powertrain property (Site) in Ypsilanti, Michigan. This letter provides an update to the data shared during the November 30, 2023 meeting between RACER, EGLE and GHD.

1. Introduction

This letter presents a summary of the scope of work and results for groundwater sampling for volatile organic compounds (VOCs) in the “PCE Area” between 2021 – 2023. Additional sampling is required to further evaluate the chlorinated VOC (CVOC) concentrations in groundwater around the PCE Area and around the existing maintenance building. CVOC compounds of concern (COC) include tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC). The PCE Area encompasses the former Plant Engineering Building (Building 19), demolished sometime between 2001 and 2002, former wastewater treatment tanks, demolished in 2017, and extends 100 feet north of former Building 19. The maintenance building is located west of the PCE Area. Figure 1 provides a map of the PCE Area and surrounding area. This letter details a brief history of CVOC impacts in the PCE Area, groundwater analytical results from the PCE Area between 2021 – 2023, historically elevated CVOCs discovered near the existing maintenance building, and the proposed groundwater monitoring plan through June 2024.

1.1 Letter Outline

- Section 2: PCE Area Background and Results
- Section 3: Maintenance Building Area Discussion
- Section 4: Spring 2024 Groundwater Monitoring Workplan
- Section 5: References

2. PCE Area

2.1 Background

In 2012, an elevated concentration of PCE was detected in the intermediate groundwater monitoring well CRA-711I, which is located 10 feet east of former Building 19. Between 2013 and 2014, 23 soil boring cores and 17 groundwater samples were collected within and near former Building 19 to delineate the extent of CVOCs in the subsurface. These initial results indicated that CVOCs had impacted soil and groundwater in the area, and in August of 2016 an additional 65 soil boring cores were collected to further delineate CVOCs. These efforts revealed three distinct source areas, named Area A, Area B, and Area C. Area A is located east of the historic wastewater treatment tanks, Area B is located 100 feet north of former Building 19, Area C is located on the west side of former Building 19. Figure 1 illustrates these distinct PCE source locations.

In November 2018, PCE impacted soils were excavated from Area A. Soil excavation was deemed a cost-effective remediation strategy because impacted soils in Area A were shallow, 0-5 ft below ground surface (bgs). RACER selected active remediation of Area A because of its proximity to the newly constructed French Drain. Removal of impacted soils in Area A was an important measure to prevent possible migration of CVOCs to the French Drain and offsite surface waters. Groundwater monitoring within Area A continued as part of the PCE annual groundwater monitoring activities. Groundwater analytical results show excavation of source materials was an effective remediation strategy. PCE concentrations in groundwater near Area A decreased from 190 ug/L in May 2018, prior to excavation, to an average concentration of 1.88 ug/L between May 2020 and May 2023.

Among the redevelopment and remediation activities conducted on Site, storm sewers surrounding the PCE Area and maintenance building were bulkheaded in November 2017 when the former wastewater treatment plant, which collected storm water at the Site, was demolished. Storm sewers on Site were bulkheaded to prevent groundwater from potentially migrating offsite and discharging to receiving surface waters. Storm sewers range in size from 42 inch to 82 inch in diameter. Bulkheads were constructed via concrete fill to dowel enforced wooden molds. Details of bulkheading and other storm sewer network closure activities are found in *Memo 33 – Rev.1 Former Storm Sewer Closure Summary – Final Update* (GHD, 2019)

2.2 Annual Groundwater Monitoring

In 2018 GHD and RACER presented EGLE an *Interim Measures Work Plan – PCE Area Memorandum* (GHD, 2018) to begin groundwater monitoring of the PCE Area. The work included quarterly groundwater quality and level monitoring of 13 monitoring wells in 2018. The plan also included an outline of contaminated soil excavation in Area A. Based on elevated CVOC results from 2018, GHD proposed two additional groundwater sampling events in May and October 2020 in the PCE Area, while the Site groundwater collection system was active, outlined in *Memo 228 Updated Monitoring Plan – PCE Area* (GHD, 2020). The results of monitoring events prior to 2021, along with overall Site groundwater results, were detailed in *Comprehensive Groundwater Quality Update Report* (GHD, 2021). This report also introduced an annual monitoring plan to be completed between 2021 and 2023. While this annual sampling plan focused on wells located near the Site

boundaries, it also included 18 monitoring wells also on the previous PCE sampling list, therefore the sampling events were conducted concurrently during the 2021 – 2023 annual sampling events. Analytical results from 2021 through 2023 annual and PCE sampling events were reported to EGLE in *2021 Groundwater Sampling Summary & Update* (GHD, 2022), *2022 Groundwater Level Monitoring Update* (GHD, 2022) and *2023 Groundwater Sampling Summary & Update* (GHD, 2023).

The highest concentrations of CVOCs in groundwater are clustered in two locations, centered around monitoring well GHD-1151M in Area B north of former Building 19 and monitoring well GHD-1145M in Area C, on the west side of former Building 19, as shown on Figure 2. In Area C, PCE concentrations have consistently decreased from a maximum concentration of 44,000 ug/L in August 2018 to 10,800 ug/L in May 2021 at the beginning of the monitoring period, further decreasing to 6,100 ug/L in May 2023 at the end of the monitoring period. The observed decrease in PCE is not accompanied by corresponding increased concentrations of PCE's reduction products TCE, cis-1,2-DCE, or VC within the same area.

Area B, on the other hand, does not show a consistent pattern of CVOCs over time. In cases where total CVOC concentrations decreased from one year to the next, there were not consistently observed increases of CVOCs in downgradient wells. In one instance, total CVOCs in monitoring well CRA-106M steadily decreased from 9,700 ug/L in 2020 to 2,971 ug/L in 2023, primarily a decrease in PCE. A downgradient well, GHD-1229M, approximately 100 ft due south of CRA-106M, showed higher total CVOCs, primarily as vinyl chloride (VC), from 150 ug/L in 2020 to 290 ug/L in 2023. This is the only such trend observed between any pair of wells and the magnitude of the relative changes in each well does not suggest that CVOCs are migrating through the subsurface via groundwater flow. However, the increased concentration of VC and DCE may indicate some reductive chlorination of PCE.

Concentration trends in monitoring wells throughout the PCE Area are illustrated in Attachment A. Groundwater analytical data from 2016 through 2023 are included in the attached CVOC concentration plots to illustrate trends over time. CVOC concentration trends show that aqueous CVOCs remain concentrated in Area B and Area C since regular monitoring began in 2018, and that the CVOC plume is static over the monitoring period.

Analytical data from annual groundwater monitoring events in the PCE Area from 2021 – 2023 can be found in Table 1. Results include VOC analysis, field parameters, and natural attenuation parameters (gases and general chemistry). Results are compared to EGLE Part 201 General Cleanup Groundwater Surface Water Interface (GSI) criteria. An existing deed restriction limits the use of groundwater as drinking water on Site, therefore results are not compared to Part 201 Drinking Water Screening Levels.

2.3 December 2023 Sampling Event Results

2.3.1 Groundwater Analytical Results

Groundwater monitoring events around the PCE Area in recent years were typically conducted in May or June. Additional monitoring was conducted in December 2023 to observe possible seasonal variations in groundwater elevation and CVOC concentrations. Twenty-one monitoring wells within the PCE Area and near the maintenance building were sampled and analyzed for select VOCs including PCE, TCE, cis-1,2-DCE, and VC as shown in Figure 2. Analytical results from the December sampling event are presented in Table 1. Generally, total CVOC concentrations in the PCE Area decreased from May 2023 to December 2023. December 2023 results are included in Attachment A plots.

- Area C (GHD-1145M, GHD-859M, CRA858I) total CVOCs decreased, primarily PCE, between May and December 2023 – continuing an existing trend since 2018. PCE exceeded EGLE GSI criteria in monitoring wells GHD-1145M and GHD-859M.
- Area B (CRA-807M, GHD-1134M, GHD-1151M) total CVOCs decreased, primarily PCE, between May and December 2023. No consistent pattern is evident in Area B, though total CVOCs have decreased

since regular monitoring began in 2016. PCE, TCE, cis-1,2-DCE, and VC exceeded GSI criteria in monitoring wells GHD-1134M and GHD-1151M.

- PCE Area Center (between Areas A, B, C) (CRA-711I, GHD-1220M, GHD-1223M, GHD-1226M) total CVOCs decreased, primarily cis-1,2-DCE and VC. VC exceeded GSI criteria in monitoring well GHD-1226M.
- East of Area B (CRA-106M, GHD-1229) total CVOCs decreased between May and December 2023. PCE and TCE in CRA-106M have consistently decreased since 2020. VC and cis-1,2-DCE in GHD-1229 have overall increased in the same period. PCE, TCE, cis-1,2-DCE, and VC exceeded GSI criteria in monitoring well CRA-106M. VC exceeded GSI criteria in monitoring well GHD-1229M.
- CRA-061M, west of Area C, total VOCs increased primarily as VC. VC exceeded GSI criteria in monitoring well CRA-061M.
- North of French Drain (CRA-806M, CRA-756M) total CVOCs decreased, primarily VC.

Continued groundwater monitoring of the PCE Area in Spring 2024 and evaluation of seasonal trends will inform long term strategies related to CVOC impacted groundwater in the area.

2.3.2 Groundwater Elevation

Groundwater elevations were measured in August 2023 as part of ongoing investigations into groundwater levels in and around the PCE Area. Groundwater elevations of all wells sampled in December 2023, in addition to monitoring wells surrounding the PCE Area, were used to generate groundwater contour maps. See Figure 3 and Figure 4 for groundwater contours from August and December, respectively. The maps illustrate that the overall shape of groundwater contours is consistent between seasons. As expected, groundwater levels in August are higher than December by approximately 1 ft. This difference is consistent with previous groundwater water level monitoring results at the Site.

2.4 3-D Conceptual Site Model

GHD prepared a 3-dimensional Conceptual Site Model (3D CSM) of the PCE Area. The model includes groundwater analytical data of PCE, TCE, cis-1,2-DCE, and VC between 2016 to May 2023. Soil analytical data of the same COCs is also included from 2012 to 2017. The model provides a visualization of groundwater plumes and soil impacts in the affected area by linearly interpolating analytical data in time and space. Groundwater plumes can be visualized over time, doing so illustrates that the center of mass of the source plumes remains static and the overall size of the plume has decreased over time. Soil data are treated without temporal consideration – all samples over the time period are included in a single plume as COCs in soil are not expected to migrate. The 3D CSM soil plume indicates regions of high concentration are consistent with hot spots in groundwater plumes. Furthermore, the soil 3D CSM illustrates that the extent of impacted soil is completely enclosed within the sampled region and that the source area has been completely delineated.

3. Maintenance Building Area Discussion

During analysis of the PCE Area annual monitoring data, GHD discovered historically elevated levels of CVOCs in groundwater near the maintenance building. Historical analytical results were screened against current (2024) Michigan Vapor Intrusion to Indoor Air Pathway (VIAP) criteria. PCE and TCE concentrations from monitoring well CRA-267M in 2012 and 2013 exceeded EGLE VIAP Nonresidential in Contact (NRIC) screening levels. CRA-267M was next sampled in August 2018 with exceedances in PCE and TCE. CRA-267M was sampled and analyzed for VOCs in September and December 2023. These results do not exceed the EGLE VIAP screening levels updated in February 2024. These results, as well as EGLE VIAP screening levels, are shown in Table 2 below.

Four other groundwater monitoring wells existed near the maintenance building: CRA-750M, CRA-751M, CRA-752M, and CRA-753M, shown on Figure 2. These four wells were also sampled in 2012 and 2013 along with CRA-267M. Only CRA-750M showed exceedances of the VIAP NRIC criteria for PCE and TCE. Monitoring wells CRA-750M, CRA-751M, CRA-752M, and CRA-753M were not sampled after 2013 and were destroyed during redevelopment of the utility corridor south of the maintenance building.

Table 2 - Comparison of VIAP Criteria to four CVOC concentrations in monitoring well CRA-267M and CRA-750M. Highlighted cells indicate VIAP NRIC exceedances. EGLE VIAP screening levels from 12-hour workday update - February 2024.

ELGE Nonresidential VIAP Screening Levels			Wells Near Maintenance Building						
Substance	12- hour Nonresidential Shallow Groundwater (NRIC) ug/L	12-hour Nonresidential Groundwater not in Contact (NRNIC) ug/L	CRA-267M	CRA-267M	CRA-267M	CRA-267M	CRA-267M	CRA-750M	CRA-750M
	< 5 ft bgs	> 5 ft bgs	4/17/2012	4/4/2013	8/3/2018	9/19/2023	12/11/2023	4/17/2012	4/4/2013
Vinyl Chloride	21 ca	36 ca	7.3	13 U	49	1.2	0.5	8.3 U	5.0 U
cis-1,2-Dichloroethene	28 (J) ca	280 (J) ca	19	6.7 J	420	2.6	0.74	53	51
Trichloroethene	3.3 (DD) dev	20 (DD) dev	6.0 J	5.1 J	13 U	2.4	0.71	14	49
Tetrachloroethene	70 (FF) st	250 (EE) st	230	270	6.0 J	1.1	1 U	180	130

VIAP Screening Level Footnotes -- (ca) = Carcinogenic, (st) = Short-term,

(J) Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.

(DD) Hazardous substance causes developmental effects. Residential VIAP screening levels are protective of both prenatal exposure using a pregnant female receptor and postnatal exposure using a child receptor. Nonresidential VIAP screening levels 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 equations. The hazardous substance may cause adverse human health effects for less than chronic exposures (i.e. short-term or acute). The AAC for these hazardous substances is the acute or intermediate minimum risk level (MRL) developed by the Agency for Toxic Substances and Disease Registry (ATSDR), a United States Environmental Protection Agency Integrated Risk Information System (IRIS) acute reference concentration, or an acute initial threshold screening level (ITSL) by the EGLE's Air Quality Division.

(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 VIAP screening levels are based on modification of the standard equations by the department to develop applicable shallow groundwater VIAP screening levels.

Between 2012 and 2023, PCE and its reduction products near the maintenance building have significantly decreased in concentration, as shown in Table 2 (above) and Figure 5 (below). The observed decrease is consistent with the natural attenuation of PCE. Reduced forms of CVOCs, cis-1,2-DCE and VC, increase from 2013 to 2018. Simultaneously PCE decreased in the same timeframe, suggesting that PCE underwent reductive dechlorination. Then from 2018 to 2023, cis-1,2-DCE and VC concentrations significantly decreased. The most recent groundwater data (December 2023) show CVOC concentrations below VIAP NRIC screening levels. Together these data indicate that CVOCs near the maintenance building have naturally attenuated over time.

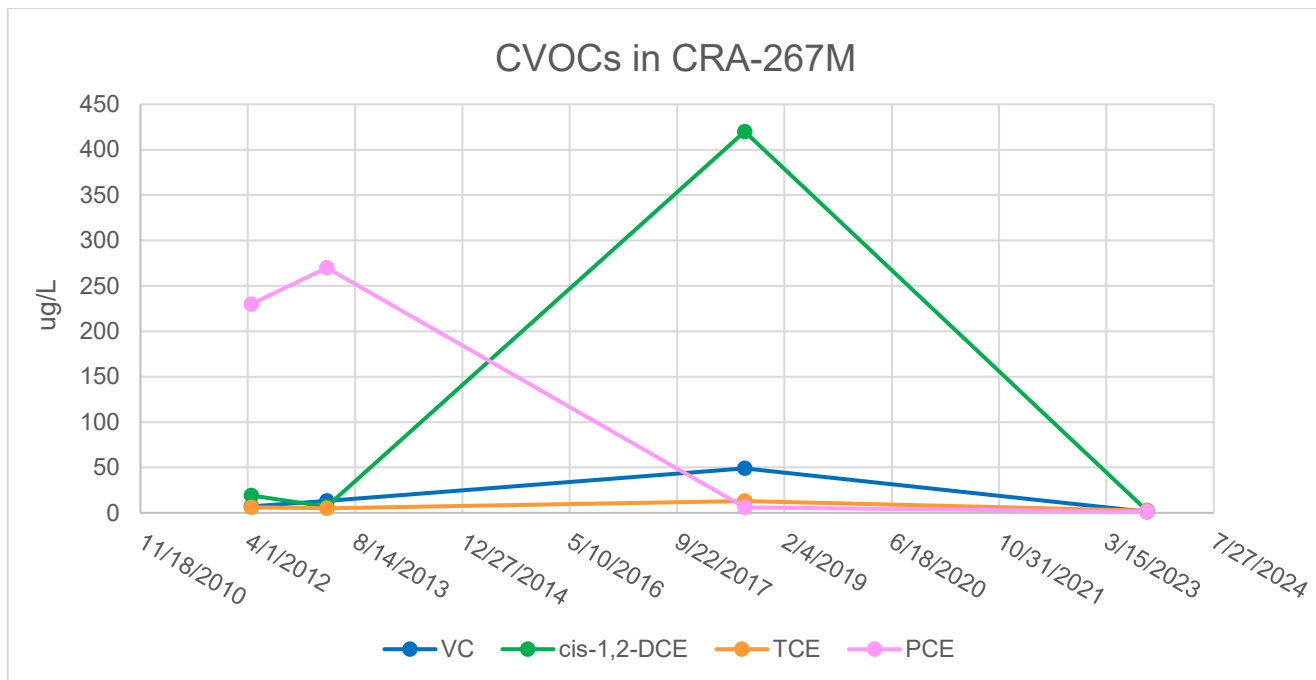


Figure 5: PCE, TCE, cis-1,2-DCE, and VC concentrations over time in monitoring well CRA-267M

At the time of sampling in September 2023 and December 2023, the groundwater at CRA-267M was measured at 5.64 ft bgs and 5.99 ft bgs, respectively. In the past 10 years, groundwater elevation near the maintenance building has risen from its lowest point of 14.17 ft bgs in April 2015 to its highest point of 4.68 ft bgs in August 2023, shown on Figure 6 below. During this timeframe significant decommissioning and demolition, including bulkheading of utilities, have occurred causing the rise in groundwater levels. Recent depth to groundwater measurements near the maintenance building were less than 5 ft bgs, indicating that VIAP NRIC screening levels apply to the maintenance building. GHD surveyed the maintenance building in November 2023. Survey results show the ground surface elevation around the maintenance building ranges between 719.58 ft and 718.83 ft. The ground surface elevation of the maintenance building interior was measured at 719.61 ft in the northwest corner of the building. In comparison, the ground surface elevation of monitoring well CRA-267M is 719.37 ft, which is higher than the lowest point measured around the maintenance building. Taking a conservative approach, these data indicate that VIAP NRIC criteria screening levels apply to groundwater beneath and around the maintenance building. Survey results are shown on Figure 7.

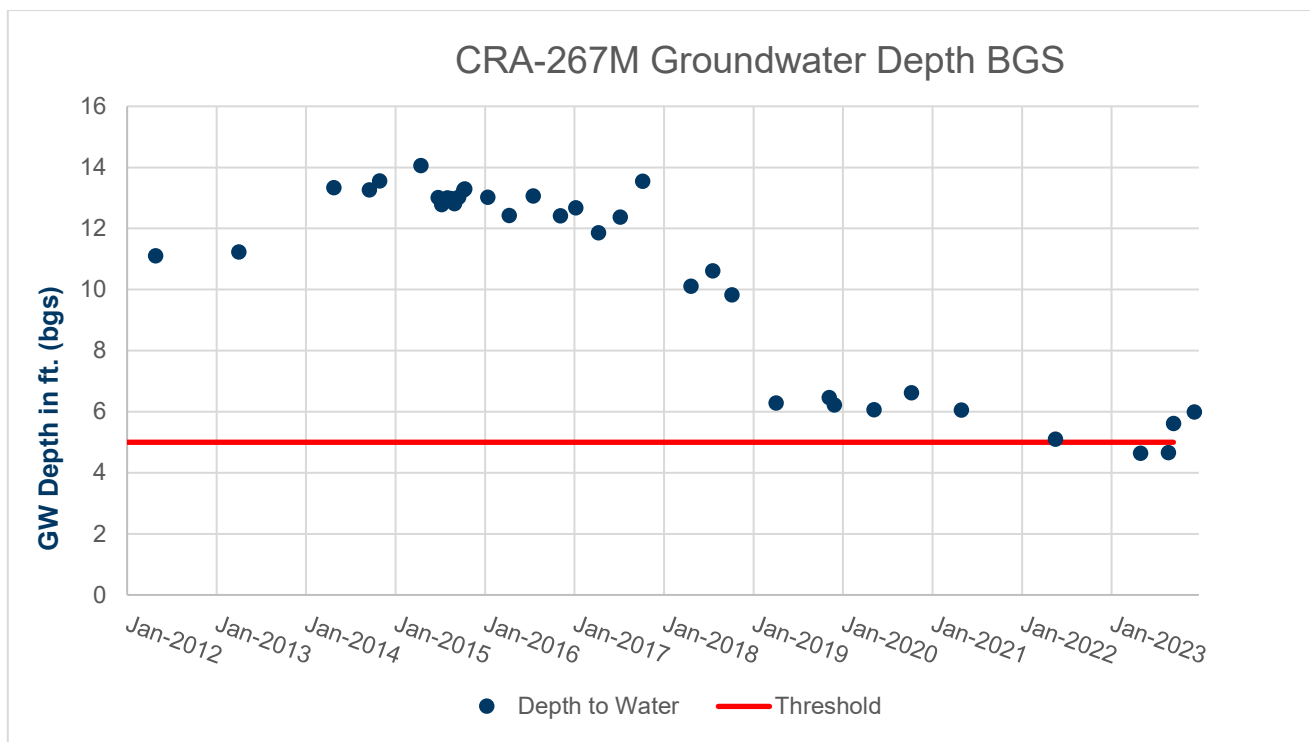


Figure 6: Groundwater depth measured in feet below ground surface [719.37 ft.], of CRA-267M since 2012. Groundwater elevations have increased in part because of remediation or redevelopment activities on site.

Continued groundwater monitoring (sampling and groundwater elevation) of monitoring well CRA-267M is planned as part of the Spring 2024 event. Evaluation of seasonal trends and attenuation of source around the maintenance building will inform long term strategies related to CVOC impacted groundwater in the area and potential vapor intrusion considerations in the maintenance building. Current data trends indicate consistent decreases in CVOCs near the maintenance building. If trends continue, future groundwater monitoring may cease as EGLE VIAP screening levels are not exceeded.

4. Spring 2024 Groundwater Monitoring

To continue the seasonal variation evaluation, an early spring 2024 sampling event will be conducted. Two groundwater monitoring events were planned prior to Summer 2024 to evaluate seasonal variations, the first event was completed in December 2023 according to *Memorandum 5 – PCE Sampling Workplan December 2023* (GHD, 2023), included as Attachment B. The December 2023 sampling event also included resampling of 9 wells for thallium analysis, the results of which are presented *Letter 14 – Thallium Results Summary* (GHD, 2024). This thallium sampling will not be conducted in the Spring 2024 sampling event.

Groundwater samples collected in Spring 2024 will be analyzed for select VOCs (PCE, TCE, cis-1,2-DCE, and VC) as well as MNA analytical parameters ethene, ethane, methane, alkalinity, nitrate, and sulfate. Groundwater level monitoring will include all wells sampled within the PCE Area as well as a subset of wells surrounding the PCE Area. The Spring 2024 sampling and level monitoring event will include the same sample list from December 2023, see Table 3 and Figure 2.

Following completion of the early Spring 2024 monitoring event, GHD will submit to EGLE an update letter with the most recent analytical results. The letter will also include a high-level discussion of continued PCE Area monitoring and/or remediation strategies in the PCE Area and maintenance building area.

5. References

GHD February 2019. Former Storm Sewer Closure Summary-Final Update. Willow Run Powertrain – Willow Run Airport, Ypsilanti, Michigan. Ref: 081613 Memorandum 33 – Revision 1.

GHD April 2018. Interim Measures Work Plan – PCE Area, Former Plant Engineering Building 19, Former Powertrain Plant, Ypsilanti, Michigan. Ref: 017358 Memo 204.

GHD March 2020. Updated Monitoring Plan – PCE Area. Former Plant Engineering Building 19, Former Powertrain Plant, Ypsilanti, MI. Ref: 017358A Memorandum 228.

GHD May 2021. Comprehensive Groundwater Quality Update, Former Willow Run Powertrain Plant, Ypsilanti, MI. Ref: 017358A Report 44.

GHD October 2022, 2021 Groundwater Sampling Summary & Update, Former Willow Run Powertrain Plant, Ypsilanti, Michigan. Ref: 11223073 Letter 10.

GHD October 2022, 2022 Groundwater Sampling Summary & Update, Former Willow Run Powertrain Plant, Ypsilanti, Michigan. Ref: 11223073 Letter 20.

GHD December 2023, 2023 Groundwater Sampling Summary & Updated, Former Willow Run Powertrain Plant, Ypsilanti Michigan. Ref: 12602792 Letter 6

GHD December 2023. PCE Sampling Workplan December 2023, PCE Area & Thallium Sampling, Former Willow Run Powertrain Plant, Ypsilanti, MI. 12602792 Memorandum 5.

GHD February 2024. Thallium Sampling Update Summary, Former Willow Run Powertrain Property, Ypsilanti, Michigan. Ref: 12602792 Letter 11.

Regards,



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DB/lg/LTR-11

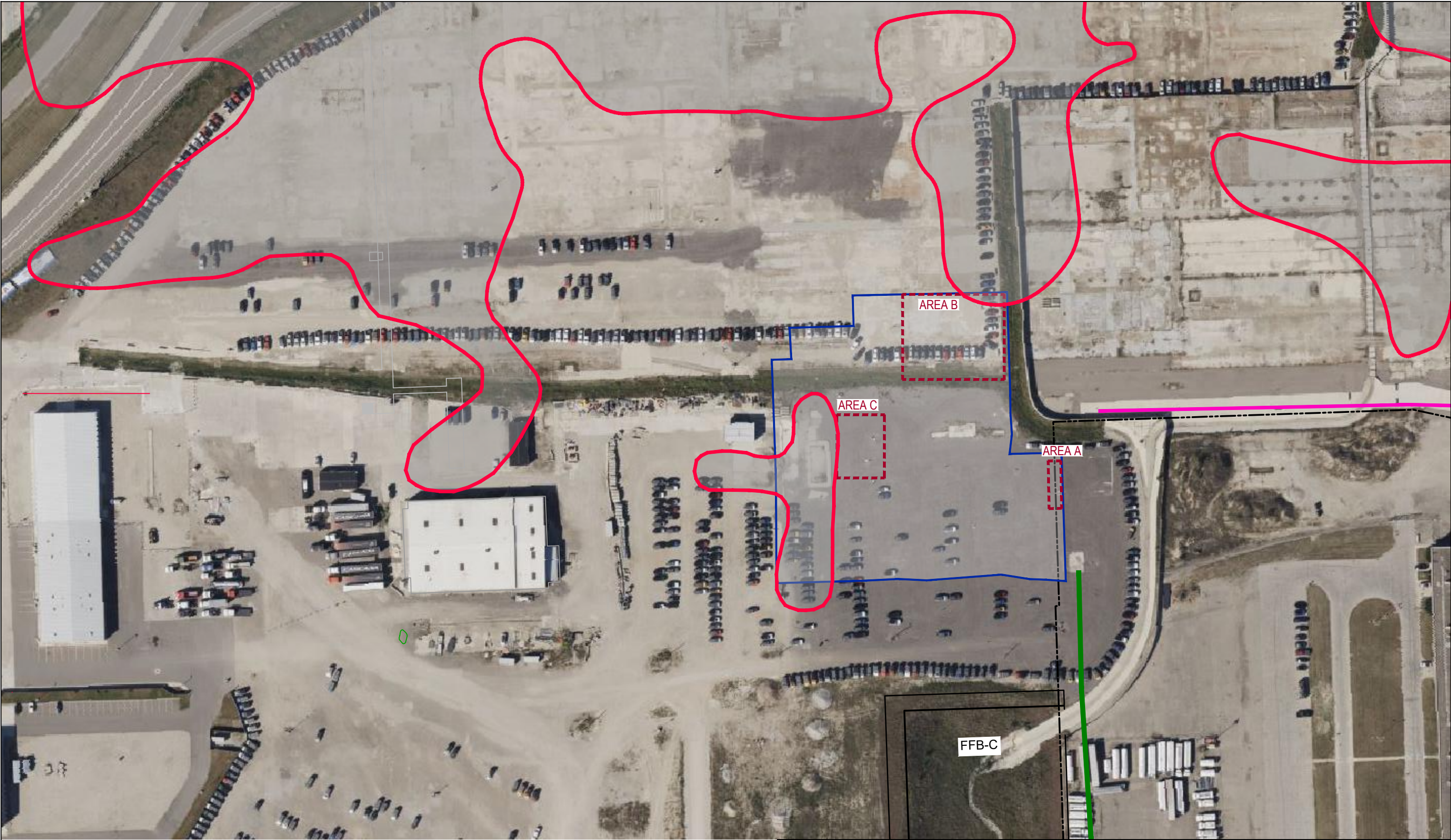
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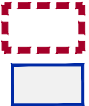
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Figures

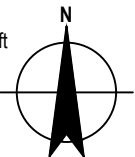
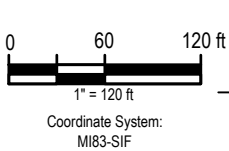


LEGEND

- STORM WATER MAIN LINE - ACTIVE
- APPROXIMATE LNAPL EXTENTS (OCTOBER 2018)
- FRENCH DRAIN



- ESTIMATED EXTENT OF SOURCE AREAS
- PCE RESTRICTION AREA

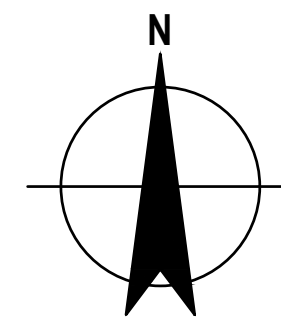
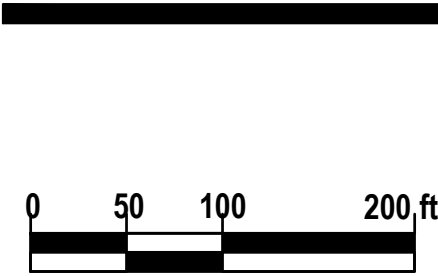
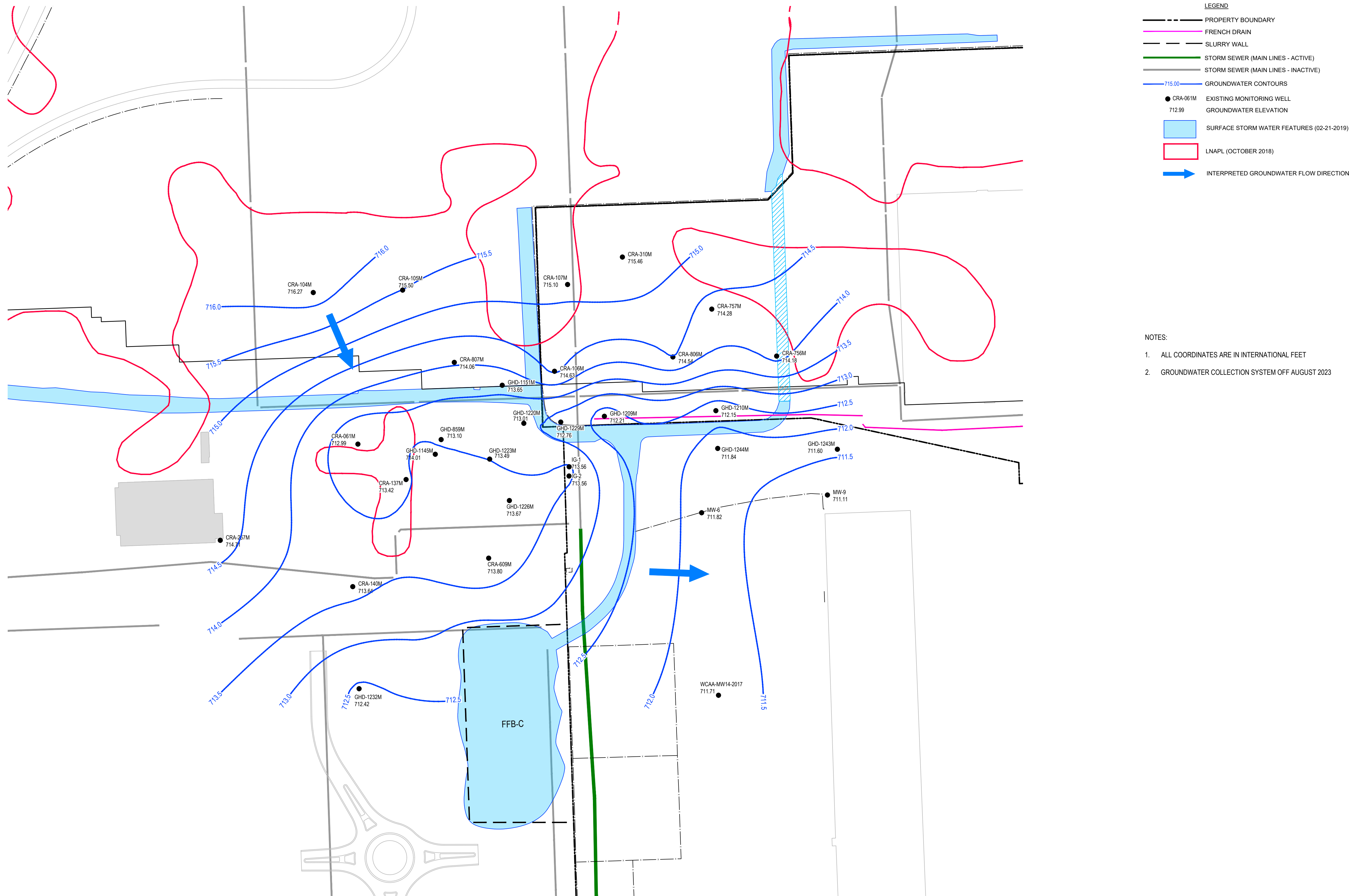


RACER TRUST
FORMER WILLOW RUN POWERTRAIN SITE
YPSILANTI, MICHIGAN

PCE SOURCE AREA

Project No. 12602792
Date February 2024

FIGURE 1

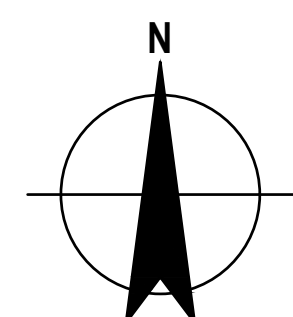
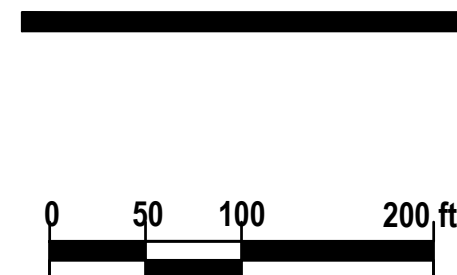
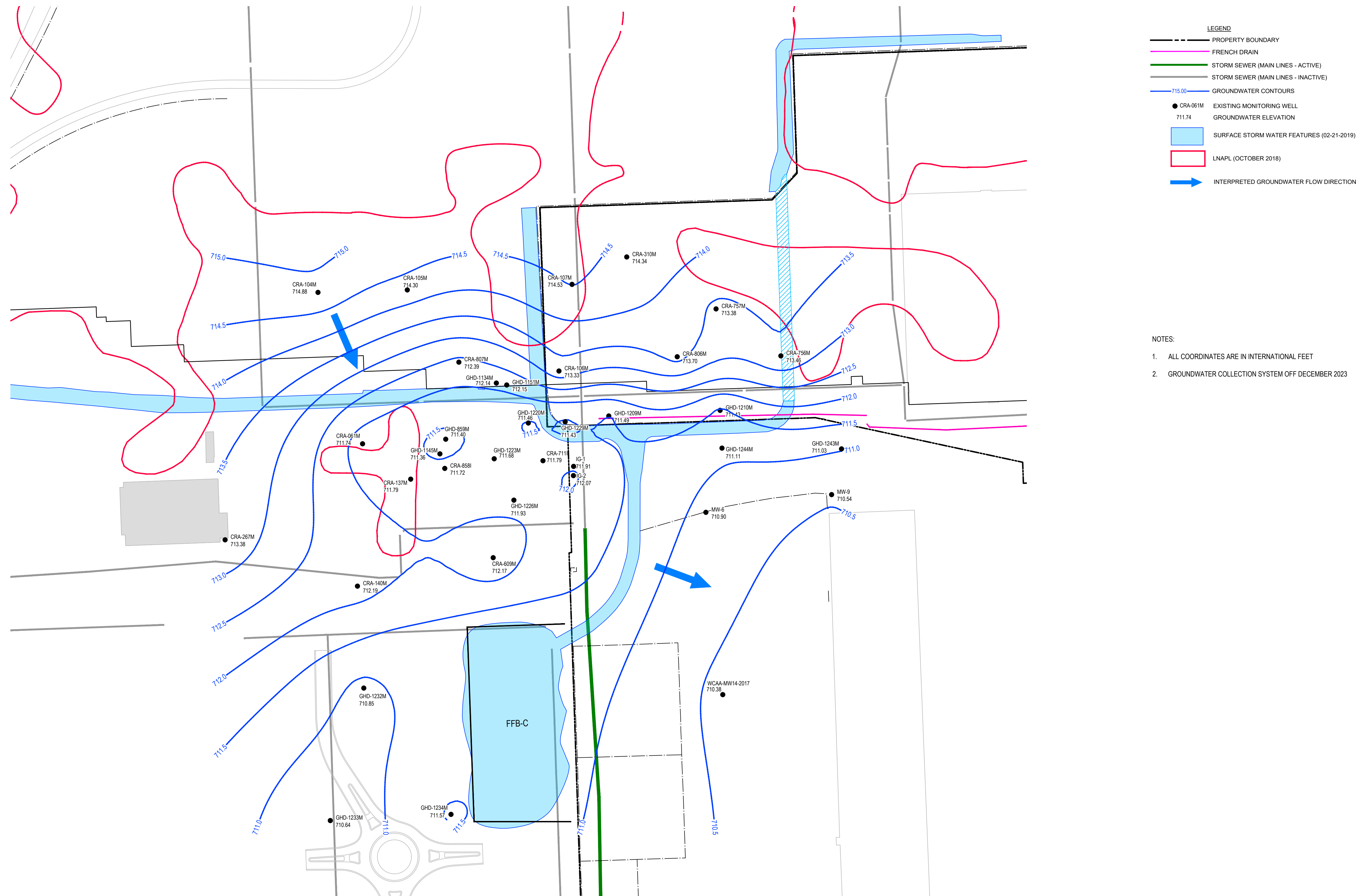


RACER TRUST
FORMER WILLOW RUN POWERTRAIN SITE
YPSILANTI, MICHIGAN

SHALLOW GROUNDWATER ZONE
CONTOURS - AUGUST 2023

Project No. 12602792
Date February 2024

FIGURE 3

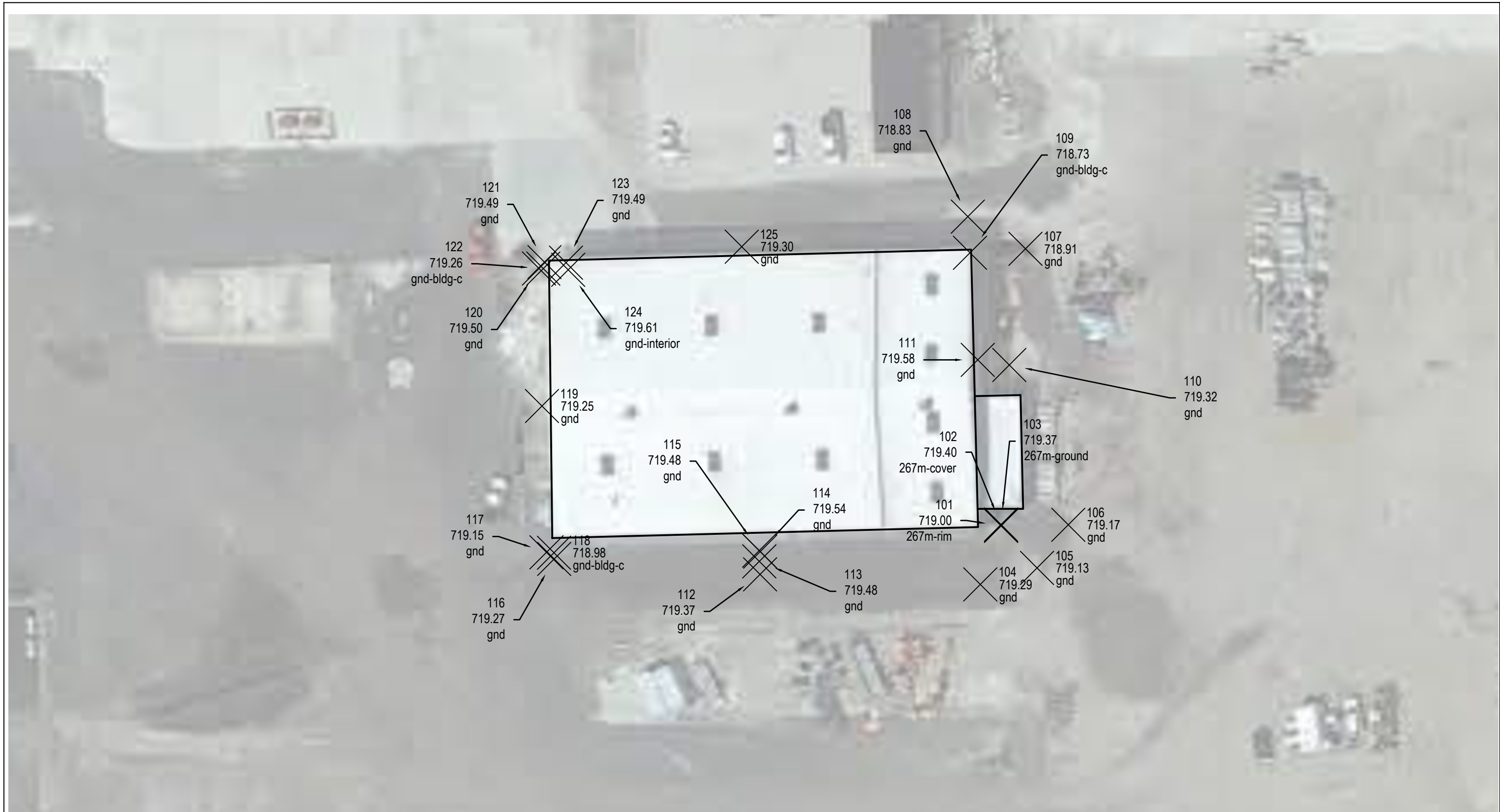


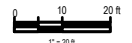
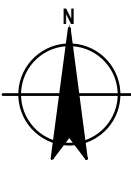
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YPSILANTI, MICHIGAN

SHALLOW GROUNDWATER ZONE
CONTOURS - DECEMBER 2023

Project No. 12602792
Date February 2024

FIGURE 4



 Coordinate System: NAD83 MICHIGAN SOUTH 2113 INTL. FT. SURVEYED ON 11-13-2023			RACER TRUST FORMER WILLOW RUN POWERTRAIN SITE YPSILANTI, MICHIGAN	Project No. 12602792 Date February 2024
			SURVEYED GROUND ELEVATIONS	FIGURE 7

Tables

Table 1

Groundwater Analytical Results: 2021-2023

PCE Area Update
Former Willow Run Powertrain Property
Ypsilanti, Michigan

Sample Location	EGLE (1)		CRA-061M	CRA-061M	CRA-061M	CRA-061M	CRA-106M	CRA-106M	CRA-106M	CRA-106M	CRA-106M	CRA-106M	
Sample Identification			GW-11223073-060421-	GW-11223073-060122-	GW-12602792-051223-	GW-12602792-231212-	GW-11223073-060321-	GW-11223073-060321-	GW-11223073-053122-	GW-11223073-101322-	GW-12602792-051223-	GW-12602792-051223-	
Sample Date			DA-053	AC-035	LK-013	BB-017	DA-043	DA-044	AC-017	MR-015	CM-018	CM-019	
Sample Type			Groundwater	Surface Water	Interface (2)			Duplicate			Duplicate		
geologic_unit_code			Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	
Parameters	Units	c											
Gas													
Ethane	ug/L		--	1.4	--	1.0 U	--	--	22	--	--	--	
Ethene	ug/L		--	0.29 J	--	0.26 J	--	--	16	--	--	--	
Methane	ug/L		--	3300	--	410	--	--	7500	--	--	--	
Volatile Organic Compounds (VOCs)													
1,1,1-Trichloroethane	ug/L	89	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,1,2,2-Tetrachloroethane	ug/L	78	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,1,2-Trichloroethane	ug/L	330	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,1-Dichloroethane	ug/L	740	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,1-Dichloroethene	ug/L	130	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,2,4-Trichlorobenzene	ug/L	99	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	ID	1 U	2.0 U	2.0 U	--	200 U	330 U	130 U	--	100 U	100 U	
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5.7	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,2-Dichlorobenzene	ug/L	13	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,2-Dichloroethane	ug/L	360	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,2-Dichloropropane	ug/L	230	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,3-Dichlorobenzene	ug/L	28	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
1,4-Dichlorobenzene	ug/L	17	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	2200	10 U	10 U	10 U	--	2000 U	3300 U	630 U	--	500 U	500 U	
2-Hexanone	ug/L	ID	10 U	10 U	10 U	--	2000 U	3300 U	630 U	--	500 U	500 U	
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	ID	10 U	10 U	10 U	--	2000 U	3300 U	630 U	--	500 U	500 U	
Acetone	ug/L	1700	29	10 U	10 U	--	2000 U	3300 U	630 U	--	500 U	500 U	
Benzene	ug/L	200	1 U	1.0 U	1.0 U	--	200 U	100 J	63 U	--	50 U	50 U	
Bromodichloromethane	ug/L	ID	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Bromoform	ug/L	ID	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Bromomethane (Methyl bromide)	ug/L	5	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Carbon disulfide	ug/L	ID	5 U	1.0 U	1.0 U	--	1000 U	1700 U	63 U	--	50 U	50 U	
Carbon tetrachloride	ug/L	38	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Chlorobenzene	ug/L	25	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Chloroethane	ug/L	1100	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Chloroform (Trichloromethane)	ug/L	350	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Chloromethane (Methyl chloride)	ug/L	ID	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
cis-1,2-Dichloroethene	ug/L	620	1 U	1.0	1.7	2.2	1100 ^c	530	710 ^c	--	870 ^c	880 ^c	
cis-1,3-Dichloropropene	ug/L		1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Cyclohexane	ug/L		1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Dibromochloromethane	ug/L	ID	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Dichlorodifluoromethane (CFC-12)	ug/L	ID	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Ethylbenzene	ug/L	18	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Isopropyl benzene	ug/L	28	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
m&p-Xylenes	ug/L		2 U	--	--	--	400 U	--	--	--	--	--	
Methyl acetate	ug/L		1 U	10 U	10 U	--	200 U	3300 U	630 U	--	500 U	500 U	
Methyl cyclohexane	ug/L		1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Methyl tert butyl ether (MTBE)	ug/L	7100	5 U	1.0 U	1.0 U	--	1000 U	330 U	63 U	--	50 U	50 U	
Methylene chloride	ug/L	1500	5 U	5.0 U	5.0 U	--	1000 U	1700 U	310 U	--	250 U	250 U	
o-Xylene	ug/L	49	1 U	--	--	--	200 U	--	--	--	--	--	
Styrene	ug/L	80	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Tetrachloroethene	ug/L	60	1 U	1.6	1.2	1.0 U	5800 ^c	6400 ^c	2800 ^c	--	1800 ^c	1600 ^c	
Toluene	ug/L	270	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
trans-1,2-Dichloroethene	ug/L	1500	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
trans-1,3-Dichloropropene	ug/L		1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U	
Trichloroethene	ug/L	200	1 U	0.98 J	2.5	1.0 U	1400 ^c	860 ^c	610 ^c	--	250 ^c	240 ^c	

Table 1
Groundwater Analytical Results: 2021-2023

PCE Area Update
Former Willow Run Powertrain Property
Ypsilanti, Michigan

Sample Location	EGLE (1)		CRA-061M	CRA-061M	CRA-061M	CRA-061M	CRA-106M	CRA-106M	CRA-106M	CRA-106M	CRA-106M	CRA-106M
Sample Identification	Groundwater		GW-11223073-060421-	GW-11223073-060122-	GW-12602792-051223-	GW-12602792-231212-	GW-11223073-060321-	GW-11223073-060321-	GW-11223073-053122-	GW-11223073-101322-	GW-12602792-051223-	GW-12602792-051223-
Sample Date	Surface Water		DA-053	AC-035	LK-013	BB-017	DA-043	DA-044	AC-017	MR-015	CM-018	CM-019
Sample Type	Interface (2)		06/04/2021	06/01/2022	05/12/2023	12/12/2023	06/03/2021	06/03/2021	05/31/2022	10/13/2022	05/12/2023	05/12/2023
geologic_unit_code			Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Duplicate	Shallow	Shallow	Shallow	Duplicate
Parameters	Units	c						Shallow				Shallow
Trichlorofluoromethane (CFC-11)	ug/L		1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U
Trifluorotrichloroethane (CFC-113)	ug/L	32	1 U	1.0 U	1.0 U	--	200 U	330 U	63 U	--	50 U	50 U
Vinyl chloride	ug/L	13	6	2.5	24 ^c	28 ^c	200 U	330 U	100 ^c	--	51 ^c	44 J ^c
Xylenes (total)	ug/L	49	--	2.0 U	2.0 U	--	--	670 U	130 U	--	100 U	100 U
General Chemistry												
Alkalinity, total (as CaCO3)	ug/L		--	310000	--	330000	--	--	340000	--	--	--
Nitrate (as N)	ug/L	ID	--	500 U	--	1000 U	--	--	100 U	--	--	--
Oil and grease (HEM), total	ug/L		--	--	--	--	--	--	--	1800 J	--	--
Phosphorus	ug/L	EE	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L		--	65000	--	170000	--	--	21000	--	--	--
Total organic carbon (TOC)	ug/L		--	11000	--	--	--	--	25000	--	--	--
Field Parameters												
Conductivity, field	mS/cm		2.21	6.187	--	--	0.98	0.98	1.108	1.099	--	--
Conductivity, field	uS/cm		--	--	4439	1600	--	--	--	--	834	834
Dissolved oxygen (DO), field	ug/L	EE	140	570	200	9700	610	610	520	1830	0	0
Flow rate	mL/min		--	--	--	100	--	--	--	--	--	--
Oxidation reduction potential (ORP), field	millivolts		-122.4	-247	-111	-25	-28.6	-28.6	-228.8	-56.8	-127	-127
pH, field	s.u.	6.5-9.0	7.12	7.24	7.55	7.68	7.02	7.02	7.09	7.01	7.28	7.28
Temperature, sample	Deg C		14.28	16.6	14.24	10.11	16.2	16.2	19.3	19.5	19.67	19.67
Turbidity, field	NTU		1.06	11.4	3.53	39.0	4.91	4.91	4.45	1.72	1.76	1.76
Volume purged	gal		--	--	--	2.12	--	--	--	--	--	--

Table 1
Groundwater Analytical Results: 2021-2023
PCE Area Update
Former Willow Run Powertrain Property
Ypsilanti, Michigan

Sample Location		CRA-106M	CRA-137M	CRA-137M	CRA-137M	CRA-137M	CRA-140M	CRA-140M	CRA-140M	CRA-140M	CRA-267M	CRA-267M
Sample Identification		GW-12602792-231211- BB-004	GW-11223073-060421- DA-054	GW-11223073-060122- AC-036	GW-12602792-051123- LK-009	GW-12602792-231212- BB-020	GW-11223073-060421- DA-055	GW-11223073-060122- AC-037	GW-12602792-051223- CM-016	GW-12602792-231211- BB-001	GW-12602792-091923- LK-001	GW-12602792-231211- BB-002
Sample Date		12/11/2023	06/04/2021	06/01/2022	05/11/2023	12/12/2023	06/04/2021	06/01/2022	05/12/2023	12/11/2023	09/19/2023	12/11/2023
Sample Type												
geologic_unit_code		Shallow	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Shallow
Parameters	Units											
Gas												
Ethane	ug/L	18	--	4.4	--	7.9	--	0.40 J	--	1.0 U	--	12
Ethene	ug/L	5.1	--	1.0 U	--	0.42 J	--	1.0 U	--	1.0 U	--	1.0 U
Methane	ug/L	4700	--	2900	--	13000	--	38	--	14	--	8100
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,1,2,2-Tetrachloroethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,1,2-Trichloroethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,1-Dichloroethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	3.3	--
1,1-Dichloroethene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,2,4-Trichlorobenzene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	--	1 U	3.1 U	2.0 U	--	1 U	2.0 U	2.0 U	--	2.0 U	--
1,2-Dibromoethane (Ethylene dibromide)	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,2-Dichlorobenzene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,2-Dichloroethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,2-Dichloropropane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,3-Dichlorobenzene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
1,4-Dichlorobenzene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	--	10 U	1.9 J	10 U	--	10 U	10 U	10 U	--	10 U	--
2-Hexanone	ug/L	--	10 U	15 U	10 U	--	10 U	10 U	10 U	--	10 U	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	--	10 U	15 U	10 U	--	10 U	10 U	10 U	--	10 U	--
Acetone	ug/L	--	54 U	15 U	10 U	--	10 U	10 U	10 U	--	10 U	--
Benzene	ug/L	--	35	49	11	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Bromodichloromethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Bromoform	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Bromomethane (Methyl bromide)	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Carbon disulfide	ug/L	--	5 U	1.5 U	1.0 U	--	5 U	1.0 U	1.0 U	--	1.0 U	--
Carbon tetrachloride	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Chlorobenzene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Chloroethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.5	--
Chloroform (Trichloromethane)	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Chloromethane (Methyl chloride)	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
cis-1,2-Dichloroethene	ug/L	870 ^c	1 U	1.5 U	1.0 U	1.0 U	1 U	0.53 J	0.58 J	1.0 U	2.6	0.74 J
cis-1,3-Dichloropropene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Cyclohexane	ug/L	--	12	11	2.9	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Dibromochloromethane	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Dichlorodifluoromethane (CFC-12)	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Ethylbenzene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Isopropyl benzene	ug/L	--	4	4.0	0.96 J	--	1 U	1.0 U	1.0 U	--	1.0 U	--
m&p-Xylenes	ug/L	--	2 U	--	--	--	2 U	--	--	--	--	--
Methyl acetate	ug/L	--	1 U	15 U	10 U	--	1 U	10 U	10 U	--	10 U	--
Methyl cyclohexane	ug/L	--	5	3.3	0.66 J	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Methyl tert butyl ether (MTBE)	ug/L	--	5 U	1.4 J	1.0 U	--	5 U	1.0 U	1.0 U	--	1.0 U	--
Methylene chloride	ug/L	--	5 U	7.7 U	5.0 U	--	5 U	5.0 U	5.0 U	--	5.0 U	--
o-Xylene	ug/L	--	1 U	--	--	--	1 U	--	--	--	--	--
Styrene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Tetrachloroethene	ug/L	1000 ^c	1 U	1.5 U	1.0 U	1.0 U	1 U	0.52 J	0.96 J	1.0 U	1.1 B	1.0 U
Toluene	ug/L	--	1 U	1.0 J	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
trans-1,2-Dichloroethene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
trans-1,3-Dichloropropene	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U	--
Trichloroethene	ug/L	290 ^c	1 U	1.5 U	1.0 U	1.0 U	1 U	0.85 J	1.1	0.93 J	2.4	0.71 J

Table 1											
Groundwater Analytical Results: 2021-2023											
PCE Area Update											
Former Willow Run Powertrain Property											
Ypsilanti, Michigan											
Sample Location	CRA-106M	CRA-137M	CRA-137M	CRA-137M	CRA-137M	CRA-140M	CRA-140M	CRA-140M	CRA-140M	CRA-267M	CRA-267M
Sample Identification	GW-12602792-231211- BB-004	GW-11223073-060421- DA-054	GW-11223073-060122- AC-036	GW-12602792-051123- LK-009	GW-12602792-231212- BB-020	GW-11223073-060421- DA-055	GW-11223073-060122- AC-037	GW-12602792-051223- CM-016	GW-12602792-231211- BB-001	GW-12602792-091923- LK-001	GW-12602792-231211- BB-002
Sample Date	12/11/2023	06/04/2021	06/01/2022	05/11/2023	12/12/2023	06/04/2021	06/01/2022	05/12/2023	12/11/2023	09/19/2023	12/11/2023
Sample Type											
geologic_unit_code	Shallow	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Shallow
Parameters	Units										
Trichlorofluoromethane (CFC-11)	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	--	1 U	1.5 U	1.0 U	--	1 U	1.0 U	1.0 U	--	1.0 U
Vinyl chloride	ug/L	84 ^c	1 U	1.5 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.2	0.50 J
Xylenes (total)	ug/L	--	--	2.0 J	2.0 U	--	--	2.0 U	2.0 U	--	2.0 U
General Chemistry											
Alkalinity, total (as CaCO3)	ug/L	330000	--	270000	--	450000	--	310000	--	320000	--
Nitrate (as N)	ug/L	100 U	--	100 U	--	500 U	--	1200 H	--	1000 U	--
Oil and grease (HEM), total	ug/L	--	--	--	--	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	6600	--	2800	--	410 J	--	480000	--	750000	--
Total organic carbon (TOC)	ug/L	--	--	13000	--	--	--	15000	--	--	--
Field Parameters											
Conductivity, field	mS/cm	--	0.65	0.75	--	--	1.7	2.077	--	--	2210
Conductivity, field	uS/cm	1330	--	--	1190	1220	--	--	2320	3500	--
Dissolved oxygen (DO), field	ug/L	0	10	360	300	970	420	1330	0	1110	310
Flow rate	mL/min	100	--	--	--	100	--	--	--	150	--
Oxidation reduction potential (ORP), field	millivolts	-70	-133.7	-13.4	-120	-84	-31.2	87	17	59	-131.4
pH, field	s.u.	5.95 ^c	6.95	7.6	6.92	7.32	6.86	7.63	7.27	7.06	7.22
Temperature, sample	Deg C	9.22	16.92	15.8	14.43	10.84	17.61	15.2	16.27	9.45	19.5
Turbidity, field	NTU	5.37	1.01	1.26	1.52	7.4	77.42	138	4.77	2.64	3.5
Volume purged	gal	0.35	--	--	--	1.07	--	--	--	0.85	--

Table 1

Groundwater Analytical Results: 2021-2023

PCE Area Update
Former Willow Run Powertrain Property
Ypsilanti, Michigan

Sample Location		CRA-609M	CRA-609M	CRA-609M	CRA-609M	CRA-609M	CRA-711I	CRA-711I	CRA-711I	CRA-711I	CRA-711I	CRA-756M
Sample Identification		GW-11223073-071921-	GW-11223073-060222-	GW-11223073-060222-	GW-12602792-051123-	GW-12602792-231211-	GW-11223073-060321-	GW-11223073-060321-	GW-11223073-053122-	GW-12602792-051123-	GW-12602792-231213-	GW-11223073-052821-
Sample Date		DA-001	AC-044	AC-045	LK-003	BB-003	DA-047	DA-048	AC-019	LK-001	LK-026	DR-040
Sample Type												
geologic_unit_code		Shallow	Shallow	Duplicate Shallow	Shallow	Shallow	Intermediate	Duplicate Intermediate	Intermediate	Intermediate	Intermediate	Shallow
Parameters	Units											
Gas												
Ethane	ug/L	--	0.56 J	0.60 J	--	1.0 U	--	--	0.36 J	--	0.55 J	--
Ethene	ug/L	--	1.0 U	1.0 U	--	1.0 U	--	--	0.53 J	--	1.0 U	--
Methane	ug/L	--	130	130	--	2.2	--	--	13	--	190	--
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	2	0.69 J	0.81 J	0.94 J	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,1,2,2-Tetrachloroethane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,1,2-Trichloroethane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,1-Dichloroethane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,1-Dichloroethene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,2,4-Trichlorobenzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1 U	2.0 U	2.0 U	2.0 U	--	1 U	1.0 U	2.0 U	2.0 U	--	1 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,2-Dichlorobenzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,2-Dichloroethane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,2-Dichloropropane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,3-Dichlorobenzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
1,4-Dichlorobenzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	10 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	--	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	10 U	10 U	--	10 U
Acetone	ug/L	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	10 U	--	10 U
Benzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Bromodichloromethane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Bromoform	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Bromomethane (Methyl bromide)	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Carbon disulfide	ug/L	5 U	1.0 U	1.0 U	1.0 U	--	5 U	5.0 U	1.0 U	1.0 U	--	5 U
Carbon tetrachloride	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Chlorobenzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Chloroethane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Chloroform (Trichloromethane)	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Chloromethane (Methyl chloride)	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
cis-1,2-Dichloroethene	ug/L	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1
cis-1,3-Dichloropropene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Cyclohexane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Dibromochloromethane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Dichlorodifluoromethane (CFC-12)	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Ethylbenzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Isopropyl benzene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
m&p-Xylenes	ug/L	2 U	--	--	--	--	2 U	--	--	--	--	2 U
Methyl acetate	ug/L	1 U	10 U	10 U	10 U	--	1 U	10 U	10 U	10 U	--	1 U
Methyl cyclohexane	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Methyl tert butyl ether (MTBE)	ug/L	5 U	1.0 U	1.0 U	1.0 U	--	5 U	1.0 U	1.0 U	1.0 U	--	5 U
Methylene chloride	ug/L	5 U	5.0 U	5.0 U	5.0 U	--	5 U	5.0 U	5.0 U	5.0 U	--	5 U
o-Xylene	ug/L	1 U	--	--	--	--	1 U	--	--	--	--	1 U
Styrene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Tetrachloroethene	ug/L	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	5
Toluene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
trans-1,2-Dichloroethene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
trans-1,3-Dichloropropene	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Trichloroethene	ug/L	8	3.6	3.6	4.4	4.2	1 U	1.0 U	1.0 U	1.0 U	1.0 U	2

Table 1
Groundwater Analytical Results: 2021-2023

PCE Area Update
Former Willow Run Powertrain Property
Ypsilanti, Michigan

Sample Location		CRA-609M	CRA-609M	CRA-609M	CRA-609M	CRA-609M	CRA-711I	CRA-711I	CRA-711I	CRA-711I	CRA-711I	CRA-756M
Sample Identification		GW-11223073-071921- DA-001	GW-11223073-060222- AC-044	GW-11223073-060222- AC-045	GW-12602792-051123- LK-003	GW-12602792-231211- BB-003	GW-11223073-060321- DA-047	GW-11223073-060321- DA-048	GW-11223073-053122- AC-019	GW-12602792-051123- LK-001	GW-12602792-231213- LK-026	GW-11223073-052821- DR-040
Sample Date		07/19/2021	06/02/2022	06/02/2022	05/11/2023	12/11/2023	06/03/2021	06/03/2021	05/31/2022	05/11/2023	12/13/2023	05/28/2021
Sample Type				Duplicate				Duplicate				
geologic_unit_code		Shallow	Shallow	Shallow	Shallow	Shallow	Intermediate	Intermediate	Intermediate	Intermediate	Intermediate	Shallow
Parameters	Units											
Trichlorofluoromethane (CFC-11)	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	4.3	--	1 U
Trifluorotrichloroethane (CFC-113)	ug/L	1 U	1.0 U	1.0 U	1.0 U	--	1 U	1.0 U	1.0 U	1.0 U	--	1 U
Vinyl chloride	ug/L	1 U	1.0 U	1.0 U	1.0 U	1.0 U	11	7.9	1.0 U	2.1	2.2	18 ^c
Xylenes (total)	ug/L	--	2.0 U	2.0 U	2.0 U	--	--	2.0 U	2.0 U	2.0 U	--	--
General Chemistry												
Alkalinity, total (as CaCO3)	ug/L	--	310000	300000	--	390000	--	--	110000 B	--	260000 B	--
Nitrate (as N)	ug/L	--	100 U	100 U	--	160 J	--	--	100 U	--	500 U	--
Oil and grease (HEM), total	ug/L	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	--	250000	250000	--	90000	--	--	26000	--	100000	--
Total organic carbon (TOC)	ug/L	--	7800	7700	--	--	--	--	7300	--	--	--
Field Parameters												
Conductivity, field	mS/cm	1.24	1.122	1.122	--	--	0.89	1.89	0.347	--	--	1.24
Conductivity, field	uS/cm	--	--	--	961	1440	--	--	--	814	980	--
Dissolved oxygen (DO), field	ug/L	290	60	60	320	0	120	120	390	380	0	290
Flow rate	mL/min	--	--	--	--	150	--	--	--	--	150	--
Oxidation reduction potential (ORP), field	millivolts	-33.3	-14.3	-14.3	-43	51	-97.8	-97.8	117.5	-136	-102	-9.1
pH, field	s.u.	7.04	7.18	7.18	7.03	7.27	7.41	7.41	8.4	7.32	6.85	6.92
Temperature, sample	Deg C	22	13.3	13.3	18.42	9.79	15.2	15.2	15.4	17.17	9.29	12.7
Turbidity, field	NTU	--	1.37	1.37	2.96	1.44	3.47	3.47	1.53	1.03	2.68	4.65
Volume purged	gal	--	--	--	--	0.45	--	--	--	--	0.41	--

Table 1											
Groundwater Analytical Results: 2021-2023											
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan											
Sample Location	CRA-756M	CRA-756M	CRA-756M	CRA-756M	CRA-756M	CRA-806M	CRA-806M	CRA-806M	CRA-806M	CRA-806M	CRA-806M
Sample Identification	GW-11223073-053122-	GW-11223073-101322-	GW-11223073-101322-	GW-12602792-051223-	GW-12602792-231211-	GW-11223073-052821-	GW-11223073-053122-	GW-11223073-080922-	GW-11223073-080922-	GW-12602792-051223-	GW-12602792-231114-
Sample Date	AC-015	MR-006	MR-007	DR-020	BB-007	DR-041	AC-016	DA-007	DA-008	DR-021	BB-014
Sample Type											
geologic_unit_code	Shallow	Shallow	Duplicate Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Duplicate Shallow	Shallow	Shallow
Parameters	Units										
Gas											
Ethane	ug/L	1.9	--	--	--	1.0 U	--	5.1	--	--	--
Ethene	ug/L	4.2	--	--	--	1.0 U	--	0.90 J	--	--	--
Methane	ug/L	2300	--	--	--	34	--	1300	--	--	--
Volatile Organic Compounds (VOCs)											
1,1,1-Trichloroethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	--	--	2.0 U	--	1 U	2.0 U	--	--	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	1.9 J	--	--	10 U	--	10 U	10 U	--	--	10 U
2-Hexanone	ug/L	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
Acetone	ug/L	14	--	--	10 U	--	10 U	10 U	--	--	10 U
Benzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Bromodichloromethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Bromoform	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Carbon disulfide	ug/L	1.0 U	--	--	1.0 U	--	5 U	1.0 U	--	--	1.0 U
Carbon tetrachloride	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Chlorobenzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Chloroethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
cis-1,2-Dichloroethene	ug/L	2.6	--	--	1.6	3.5	1 U	0.53 J	--	--	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Cyclohexane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Dibromochloromethane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Ethylbenzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Isopropyl benzene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
m&p-Xylenes	ug/L	--	--	--	--	--	2 U	--	--	--	--
Methyl acetate	ug/L	10 U	--	--	10 U	--	1 U	10 U	--	--	10 U
Methyl cyclohexane	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	--	--	1.0 U	--	5 U	1.0 U	--	--	1.0 U
Methylene chloride	ug/L	5.0 U	--	--	5.0 U	--	5 U	5.0 U	--	--	5.0 U
o-Xylene	ug/L	--	--	--	--	--	1 U	--	--	--	--
Styrene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Tetrachloroethene	ug/L	6.2	--	--	5.7	1.3	1 U	1.0 U	--	--	1.0 U
Toluene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
trans-1,2-Dichloroethene	ug/L	3.0	--	--	0.53 J	--	1 U	1.0 U	--	--	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U
Trichloroethene	ug/L	2.5	--	--	1.2	0.93 J	1 U	1.0 U	--	--	1.0 U

Table 1

Groundwater Analytical Results: 2021-2023

PCE Area Update
Former Willow Run Powertrain Property
Ypsilanti, Michigan

Sample Location		CRA-756M	CRA-756M	CRA-756M	CRA-756M	CRA-756M	CRA-806M	CRA-806M	CRA-806M	CRA-806M	CRA-806M	CRA-806M
Sample Identification		GW-11223073-053122- AC-015	GW-11223073-101322- MR-006	GW-11223073-101322- MR-007	GW-12602792-051223- DR-020	GW-12602792-231211- BB-007	GW-11223073-052821- DR-041	GW-11223073-053122- AC-016	GW-11223073-080922- DA-007	GW-11223073-080922- DA-008	GW-12602792-051223- DR-021	GW-12602792-231114- BB-014
Sample Date		05/31/2022	10/13/2022	10/13/2022	05/12/2023	12/11/2023	05/28/2021	05/31/2022	08/09/2022	08/09/2022	05/12/2023	11/14/2023
Sample Type				Duplicate						Duplicate		
geologic_unit_code		Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Parameters	Units											
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U	--
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	--	--	1.0 U	--	1 U	1.0 U	--	--	1.0 U	--
Vinyl chloride	ug/L	8.5	--	--	8.8	1.0 U	59 ^c	38 ^c	--	--	28 ^c	--
Xylenes (total)	ug/L	2.0 U	--	--	2.0 U	--	--	2.0 U	--	--	2.0 U	--
General Chemistry												
Alkalinity, total (as CaCO3)	ug/L	380000	--	--	--	150000	--	310000	--	--	--	--
Nitrate (as N)	ug/L	100 U	--	--	--	100 U	--	100 U	--	--	--	--
Oil and grease (HEM), total	ug/L	--	2400 J	1600 J	--	--	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	160000	--	--	--	23000	--	24000	--	--	--	--
Total organic carbon (TOC)	ug/L	23000	--	--	--	--	--	15000	--	--	--	--
Field Parameters												
Conductivity, field	mS/cm	1.079	1.684	1.684	--	--	1.09	0.642	0.704	0.704	--	--
Conductivity, field	uS/cm	--	--	--	800	706	--	--	--	--	760	770
Dissolved oxygen (DO), field	ug/L	630	840	840	400	0	200	550	20	20	280	940
Flow rate	mL/min	--	--	--	--	100	--	--	--	--	--	100
Oxidation reduction potential (ORP), field	millivolts	-236.1	-95.7	-95.7	-76.3	-41	-73.3	-266.1	-118.1	-118.1	-109.2	-77.3
pH, field	s.u.	6.88	6.91	6.91	6.97	6.36 ^c	7.07	7.2	7.04	7.04	7.10	7.05
Temperature, sample	Deg C	17.3	18.4	18.4	13.2	9.93	13.1	19.5	23	23	13.8	16.5
Turbidity, field	NTU	9.59	3.2	3.2	3.72	14.8	1.07	3.42	4.94	4.94	3.12	6.65
Volume purged	gal	--	--	--	--	1.08	--	--	--	--	--	0.27

Table 1											
Groundwater Analytical Results: 2021-2023											
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan											
Sample Location	CRA-806M	CRA-806M	CRA-807M	CRA-807M	CRA-807M	CRA-807M	CRA-807M	CRA-807M	CRA-858I	CRA-858I	CRA-858I
Sample Identification	GW-12602792-231211- BB-005	GW-12602792-231211- BB-006	GW-11223073-051321- DR-034	GW-11223073-060122- AC-034	GW-11223073-101322- MR-018	GW-12602792-051223- CM-014	GW-12602792-231213- JY-023	GW-11223073-060421- DA-057	GW-11223073-060222- AC-046	GW-12602792-051123- CM-008	GW-12602792-231212- LK-018
Sample Date	12/11/2023	12/11/2023	05/13/2021	06/01/2022	10/13/2022	05/12/2023	12/13/2023	06/04/2021	06/02/2022	05/11/2023	12/12/2023
Sample Type		Duplicate									
geologic_unit_code	Shallow	Shallow	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Intermediate	Intermediate	Intermediate	Intermediate
Parameters	Units										
Gas											
Ethane	ug/L	4.7	5.4	--	37	--	--	92	--	1.0 U	--
Ethene	ug/L	1.8	2.0	--	0.66 J	--	--	1.3	--	0.42 J	--
Methane	ug/L	1300	1400	--	5000	--	--	15000	--	0.60 J	--
Volatile Organic Compounds (VOCs)											
1,1,1-Trichloroethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,1-Dichloroethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,1-Dichloroethene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	--	--	1 U	2.0 U	--	2.0 U	--	1 U	4.0 U	2.0 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,2-Dichloroethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,2-Dichloropropane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	--	--	10 U	10 U	--	10 U	--	10 U	20 U	10 U
2-Hexanone	ug/L	--	--	10 U	10 U	--	10 U	--	10 U	20 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	--	--	10 U	10 U	--	10 U	--	10 U	20 U	10 U
Acetone	ug/L	--	--	27	10 U	--	10 U	--	10 U	20 U	10 U
Benzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Bromodichloromethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Bromoform	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Carbon disulfide	ug/L	--	--	5 U	1.0 U	--	1.0 U	--	5 U	2.0 U	1.0 U
Carbon tetrachloride	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Chlorobenzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Chloroethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	2.0	1.9	5	7.6	--	13	22	1 U	2.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Cyclohexane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Dibromochloromethane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Ethylbenzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Isopropyl benzene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
m&p-Xylenes	ug/L	--	--	2 U	--	--	--	--	2 U	--	--
Methyl acetate	ug/L	--	--	1 U	10 U	--	10 U	--	1 U	20 U	10 U
Methyl cyclohexane	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Methyl tert butyl ether (MTBE)	ug/L	--	--	5 U	1.0 U	--	1.0 U	--	5 U	2.0 U	1.0 U
Methylene chloride	ug/L	--	--	5 U	5.0 U	--	5.0 U	--	5 U	10 U	5.0 U
o-Xylene	ug/L	--	--	1 U	--	--	--	--	1 U	--	--
Styrene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Tetrachloroethene	ug/L	1.0	0.94 J	5	8.7	--	7.1	11	1 U	2.0 U	1.0 U
Toluene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	--	--	1 U	1.0 U	--	0.63 J	--	1 U	2.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	3	4.1	--	3.7	3.4	1 U	2.0 U	1.0 U

Table 1

Groundwater Analytical Results: 2021-2023												
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan												
Sample Location	CRA-806M		CRA-806M	CRA-807M	CRA-807M	CRA-807M	CRA-807M	CRA-807M	CRA-858I	CRA-858I	CRA-858I	CRA-858I
Sample Identification	GW-12602792-231211- BB-005		GW-12602792-231211- BB-006	GW-11223073-051321- DR-034	GW-11223073-060122- AC-034	GW-11223073-101322- MR-018	GW-12602792-051223- CM-014	GW-12602792-231213- JY-023	GW-11223073-060421- DA-057	GW-11223073-060222- AC-046	GW-12602792-051123- CM-008	GW-12602792-231212- LK-018
Sample Date	12/11/2023		12/11/2023	05/13/2021	06/01/2022	10/13/2022	05/12/2023	12/13/2023	06/04/2021	06/02/2022	05/11/2023	12/12/2023
Sample Type			Duplicate									
geologic_unit_code	Shallow		Shallow	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Intermediate	Intermediate	Intermediate	Intermediate
Parameters	Units											
Trichlorofluoromethane (CFC-11)	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U	--
Trifluorotrichloroethane (CFC-113)	ug/L	--	--	1 U	1.0 U	--	1.0 U	--	1 U	2.0 U	1.0 U	--
Vinyl chloride	ug/L	14 ^c	13	5	2.8	--	3.7	6.6	1 U	2.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	--	--	--	2.0 U	--	2.0 U	--	--	4.0 U	2.0 U	--
General Chemistry												
Alkalinity, total (as CaCO3)	ug/L	290000	290000	--	470000	--	--	490000	--	130000	--	250000
Nitrate (as N)	ug/L	100 U	100 U	--	100 U	--	--	500 U	--	100 U	--	1000 U
Oil and grease (HEM), total	ug/L	--	--	--	--	7600	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	19000	18000	--	15000	--	--	3900	--	37000	--	35000
Total organic carbon (TOC)	ug/L	--	--	--	24000	--	--	--	--	36000	--	--
Field Parameters												
Conductivity, field	mS/cm	--	--	1.05	0.843	3.618	--	--	0.45	0.341	--	--
Conductivity, field	uS/cm	1370	1370	--	--	--	1440	1910	--	--	1800	3300
Dissolved oxygen (DO), field	ug/L	730	730	1240	690	1210	0	140	3290	1340	0	0
Flow rate	mL/min	100	100	--	--	--	--	100	--	--	--	150
Oxidation reduction potential (ORP), field	millivolts	-115	-115	-131	-255.3	-113.1	-144	-120	-7.2	22.1	-166	-162
pH, field	s.u.	5.99 ^c	5.99 ^c	7.45	7.24	7.02	7.34	6.76	7.93	7.98	7.59	7.54
Temperature, sample	Deg C	8.20	8.20	11.72	14.7	17.6	17.01	10.5	15.91	14.6	15.72	13.17
Turbidity, field	NTU	2.89	2.89	3.21	3.64	4.21	3.45	1.85	2.14	2.71	0.95	1.58
Volume purged	gal	0	0	--	--	--	--	0.02	--	--	--	0.94

Table 1

Groundwater Analytical Results: 2021-2023												
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan												
Sample Location	GHD-859M	GHD-859M	GHD-859M	GHD-859M	GHD-859M	GHD-859M	GHD-859M	GHD-859M	GHD-1134M	GHD-1134M	GHD-1134M	GHD-1134M
Sample Identification	GW-11223073-051321-DR-038	GW-11223073-051321-DR-039	GW-11223073-060122-AC-027	GW-11223073-060122-AC-028	GW-12602792-051123-LK-007	GW-12602792-231213-BB-029	GW-12602792-231213-BB-030	GW-11223073-051321-DR-035	GW-11223073-060122-AC-032	GW-12602792-051223-CM-012	GW-12602792-231213-JY-024	
Sample Date	05/13/2021	05/13/2021	06/01/2022	06/01/2022	05/11/2023	12/13/2023	12/13/2023	05/13/2021	06/01/2022	05/12/2023	12/13/2023	
Sample Type	Duplicate		Duplicate		Duplicate		Duplicate		Duplicate		Duplicate	
geologic_unit_code	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area
Parameters	Units											
Gas												
Ethane	ug/L	--	--	17	19	--	1.0 U	1.0 U	--	33	--	57
Ethene	ug/L	--	--	0.71 J	0.70 J	--	1.0 U	1.0 U	--	12	--	40
Methane	ug/L	--	--	2000	2400	--	0.34 J	0.34 J	--	13000	--	16000
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,1,2,2-Tetrachloroethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,1,2-Trichloroethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,1-Dichloroethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,1-Dichloroethene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,2,4-Trichlorobenzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	20 U	20 U	130 U	100 U	130 U	--	--	200 U	250 U	1000 U	--
1,2-Dibromoethane (Ethylene dibromide)	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,2-Dichlorobenzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,2-Dichloroethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,2-Dichloropropane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,3-Dichlorobenzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
1,4-Dichlorobenzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	200 U	200 U	670 U	500 U	630 U	--	--	2000 U	1300 U	5000 U	--
2-Hexanone	ug/L	200 U	200 U	670 U	500 U	630 U	--	--	2000 U	1300 U	5000 U	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	200 U	200 U	670 U	500 U	630 U	--	--	2000 U	1300 U	5000 U	--
Acetone	ug/L	200 U	200 U	670 U	500 U	630 U	--	--	2000 U	1300 U	5000 U	--
Benzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Bromodichloromethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Bromoform	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Bromomethane (Methyl bromide)	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Carbon disulfide	ug/L	100 U	100 U	67 U	50 U	63 U	--	--	1000 U	130 U	500 U	--
Carbon tetrachloride	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Chlorobenzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Chloroethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Chloroform (Trichloromethane)	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Chloromethane (Methyl chloride)	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
cis-1,2-Dichloroethene	ug/L	20 U	20	45 J	92	63 U	50 U	50 U	3900°	830°	1600°	2300°
cis-1,3-Dichloropropene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Cyclohexane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Dibromochloromethane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Dichlorodifluoromethane (CFC-12)	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Ethylbenzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Isopropyl benzene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
m&p-Xylenes	ug/L	40 U	40 U	--	--	--	--	--	400 U	--	--	--
Methyl acetate	ug/L	20 U	20 U	670 U	500 U	630 U	--	--	200 U	1300 U	5000 U	--
Methyl cyclohexane	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Methyl tert butyl ether (MTBE)	ug/L	100 U	100 U	67 U	50 U	63 U	--	--	1000 U	130 U	500 U	--
Methylene chloride	ug/L	100 U	100 U	330 U	250 U	310 U	--	--	1000 U	630 U	2500 U	--
o-Xylene	ug/L	20 U	20 U	--	--	--	--	--	200 U	--	--	--
Styrene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Tetrachloroethene	ug/L	1480°	1500°	2400°	1900°	1500°	1100°	1100°	28600°	8400°	18000°	16000°
Toluene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
trans-1,2-Dichloroethene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
trans-1,3-Dichloropropene	ug/L	20 U	20 U	67 U	50 U	63 U	--	--	200 U	130 U	500 U	--
Trichloroethene	ug/L	20 U	20 U	37 J	64	63 U	50 U	50 U	3800°	950°	1600°	1900°

Table 1

Groundwater Analytical Results: 2021-2023																						
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan																						
Sample Location	GHD-859M		GHD-859M		GHD-859M		GHD-859M		GHD-859M		GHD-859M		GHD-1134M		GHD-1134M		GHD-1134M		GHD-1134M			
Sample Identification	GW-11223073-051321-DR-038		GW-11223073-051321-DR-039		GW-11223073-060122-AC-027		GW-11223073-060122-AC-028		GW-12602792-051123-LK-007		GW-12602792-231213-BB-029		GW-12602792-231213-BB-030		GW-11223073-051321-DR-035		GW-11223073-060122-AC-032		GW-12602792-051223-CM-012		GW-12602792-231213-JY-024	
Sample Date	05/13/2021		05/13/2021		06/01/2022		06/01/2022		05/11/2023		12/13/2023		12/13/2023		05/13/2021		06/01/2022		05/12/2023		12/13/2023	
Sample Type	Duplicate		Duplicate		Duplicate		Duplicate		Duplicate		Duplicate		Duplicate		Duplicate		Duplicate		Duplicate		Duplicate	
geologic_unit_code	Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area		Shallow-PCE Area	
Parameters	Units		Units		Units		Units		Units		Units		Units		Units		Units		Units		Units	
Trichlorofluoromethane (CFC-11)	ug/L	20 U	20 U	20 U	67 U	50 U	63 U	--	--	--	--	--	--	200 U	130 U	500 U	--	--	--	--	--	--
Trifluorotrichloroethane (CFC-113)	ug/L	20 U	20 U	20 U	67 U	50 U	63 U	--	--	--	--	--	--	200 U	130 U	500 U	--	--	--	--	--	--
Vinyl chloride	ug/L	20 U	20 U	20 U	67 U	50 U	63 U	50 U	50 U	50 U	50 U	50 U	50 U	300 ^c	83 J ^c	500 U	300 J ^c	300 J ^c	300 J ^c	300 J ^c	300 J ^c	300 J ^c
Xylenes (total)	ug/L	--	--	--	130 U	100 U	130 U	--	--	--	--	--	--	--	250 U	1000 U	--	--	--	--	--	--
General Chemistry																						
Alkalinity, total (as CaCO3)	ug/L	--	--	--	370000	360000	--	280000 B	280000 B	--	--	--	--	470000	--	480000	--	--	--	--	--	--
Nitrate (as N)	ug/L	--	--	--	870 H	840 H	--	600	640	--	--	--	--	100 U	--	500 U	--	--	--	--	--	--
Oil and grease (HEM), total	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	--	--	--	65000	64000	--	77000	77000	--	--	--	--	3400	--	2500	--	--	--	--	--	--
Total organic carbon (TOC)	ug/L	--	--	--	8800	9500	--	--	--	--	--	--	--	24000	--	--	--	--	--	--	--	--
Field Parameters																						
Conductivity, field	mS/cm	1.1	1.1	0.971	0.971	--	--	--	--	--	--	--	--	1.07	0.968	--	--	--	--	--	--	--
Conductivity, field	uS/cm	--	--	--	--	774	1010	1010	1010	--	--	--	--	--	--	1310	2140	--	--	--	--	--
Dissolved oxygen (DO), field	ug/L	1460	1460	800	800	460	0	0	0	650	630	0	450	--	--	--	--	--	--	--	--	--
Flow rate	mL/min	--	--	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--	--	--	--	--
Oxidation reduction potential (ORP), field	millivolts	74	74	76.7	76.7	87	136	136	136	-101	-266	-130	-112	--	--	--	--	--	--	--	--	--
pH, field	s.u.	7.4	7.4	7.23	7.23	7.15	6.73	6.73	6.73	7.47	6.81	7.09	6.70	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	13.72	13.72	17.2	17.2	25.45	10.73	10.73	10.73	14.09	17.4	20.41	10.2	--	--	--	--	--	--	--	--	--
Turbidity, field	NTU	1.09	1.09	2.02	2.02	1.56	1.7	1.7	1.7	4.62	12.01	4.56	1.1	--	--	--	--	--	--	--	--	--
Volume purged	gal	--	--	--	--	--	1.07	1.07	1.07	--	--	--	-0.03	--	--	--	--	--	--	--	--	--

Table 1

Groundwater Analytical Results: 2021-2023												
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan												
Sample Location	GHD-1145M	GHD-1145M	GHD-1145M	GHD-1145M	GHD-1151M	GHD-1151M	GHD-1151M	GHD-1151M	GHD-1209M	GHD-1209M	GHD-1209M	
Sample Identification	GW-11223073-051321- DR-037	GW-11223073-060122- AC-031	GW-12602792-051123- CM-010	GW-12602792-231213- BB-031	GW-11223073-051321- DR-036	GW-11223073-060122- AC-033	GW-12602792-051223- LK-011	GW-12602792-231213- JY-022	GW-11223073-053122- AC-018	GW-12602792-051223- LK-017	GW-12602792-231212- JY-019	
Sample Date	05/13/2021	06/01/2022	05/11/2023	12/13/2023	05/13/2021	06/01/2022	05/12/2023	12/13/2023	05/31/2022	05/12/2023	12/12/2023	
Sample Type												
geologic_unit_code	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Shallow	Shallow	
Parameters	Units											
Gas												
Ethane	ug/L	--	0.41 J	--	1.0 U	--	23	--	27	0.78 J	--	0.30 J
Ethene	ug/L	--	0.40 J	--	2.7	--	7.0	--	24	1.0 U	--	1.0 U
Methane	ug/L	--	7.8	--	13	--	11000	--	13000	250	--	1300
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,1,2,2-Tetrachloroethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,1,2-Trichloroethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,1-Dichloroethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,1-Dichloroethene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,2,4-Trichlorobenzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	100 U	290 U	400 U	--	200 U	1000 U	4000 U	--	2.0 U	2.0 U	--
1,2-Dibromoethane (Ethylene dibromide)	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,2-Dichlorobenzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,2-Dichloroethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,2-Dichloropropane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,3-Dichlorobenzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
1,4-Dichlorobenzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	1000 U	1400 U	2000 U	--	2000 U	5000 U	20000 U	--	10 U	10 U	--
2-Hexanone	ug/L	1000 U	1400 U	2000 U	--	2000 U	5000 U	20000 U	--	10 U	10 U	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1000 U	1400 U	2000 U	--	2000 U	5000 U	20000 U	--	10 U	10 U	--
Acetone	ug/L	1000 U	1400 U	2000 U	--	2000 U	5000 U	20000 U	--	10 U	10 U	--
Benzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Bromodichloromethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Bromoform	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Bromomethane (Methyl bromide)	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Carbon disulfide	ug/L	500 U	140 U	200 U	--	1000 U	500 U	2000 U	--	1.0 U	1.0 U	--
Carbon tetrachloride	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Chlorobenzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Chloroethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Chloroform (Trichloromethane)	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Chloromethane (Methyl chloride)	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
cis-1,2-Dichloroethene	ug/L	300	130 J	250	620	3000 ^c	2900 ^c	4100 ^c	4900 ^c	0.70 J	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Cyclohexane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Dibromochloromethane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Dichlorodifluoromethane (CFC-12)	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Ethylbenzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Isopropyl benzene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
m&p-Xylenes	ug/L	200 U	--	--	--	400 U	--	--	--	--	--	--
Methyl acetate	ug/L	100 U	1400 U	2000 U	--	200 U	5000 U	20000 U	--	10 U	10 U	--
Methyl cyclohexane	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Methyl tert butyl ether (MTBE)	ug/L	500 U	140 U	200 U	--	1000 U	500 U	2000 U	--	1.0 U	1.0 U	--
Methylene chloride	ug/L	500 U	710 U	1000 U	--	1000 U	2500 U	10000 U	--	5.0 U	5.0 U	--
o-Xylene	ug/L	100 U	--	--	--	200 U	--	--	--	--	--	--
Styrene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Tetrachloroethene	ug/L	10800 ^c	7300 ^c	6100 ^c	5600 ^c	25400 ^c	29000 ^c	82000 ^c	29000 ^c	1.0 U	1.0 U	1.0 U
Toluene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
trans-1,2-Dichloroethene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
trans-1,3-Dichloropropene	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Trichloroethene	ug/L	300 ^c	130 J	130 J	100	1800 ^c	1800 ^c	3200 ^c	2000 ^c	1.0 U	1.0 U	1.0 U

Table 1

Groundwater Analytical Results: 2021-2023												
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan												
Sample Location		GHD-1145M	GHD-1145M	GHD-1145M	GHD-1145M	GHD-1151M	GHD-1151M	GHD-1151M	GHD-1151M	GHD-1209M	GHD-1209M	GHD-1209M
Sample Identification		GW-11223073-051321- DR-037	GW-11223073-060122- AC-031	GW-12602792-051123- CM-010	GW-12602792-231213- BB-031	GW-11223073-051321- DR-036	GW-11223073-060122- AC-033	GW-12602792-051223- LK-011	GW-12602792-231213- JY-022	GW-11223073-053122- AC-018	GW-12602792-051223- LK-017	GW-12602792-231212- JY-019
Sample Date		05/13/2021	06/01/2022	05/11/2023	12/13/2023	05/13/2021	06/01/2022	05/12/2023	12/13/2023	05/31/2022	05/12/2023	12/12/2023
Sample Type												
geologic_unit_code		Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Shallow	Shallow
Parameters	Units											
Trichlorofluoromethane (CFC-11)	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Trifluorotrichloroethane (CFC-113)	ug/L	100 U	140 U	200 U	--	200 U	500 U	2000 U	--	1.0 U	1.0 U	--
Vinyl chloride	ug/L	100 U	140 U	200 U	50 U	200 U	500 U	2000 U	300 ^c	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	--	290 U	400 U	--	--	1000 U	4000 U	--	2.0 U	2.0 U	--
General Chemistry												
Alkalinity, total (as CaCO3)	ug/L	--	230000	--	280000 B	--	420000	--	490000	310000	--	200000
Nitrate (as N)	ug/L	--	420 H	--	500 U	--	140 H	--	500 U	100 U	--	100 U
Oil and grease (HEM), total	ug/L	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	--	72000	--	130000	--	12000	--	5700	21000	--	1400
Total organic carbon (TOC)	ug/L	--	15000	--	--	--	18000	--	--	14000	--	--
Field Parameters												
Conductivity, field	mS/cm	0.855	0.696	--	--	0.826	0.73	--	--	0.735	--	--
Conductivity, field	uS/cm	--	--	1370	1320	--	--	1110	1520	--	755	514
Dissolved oxygen (DO), field	ug/L	580	1270	750	0	650	620	280	590	440	180	4590
Flow rate	mL/min	--	--	--	100	--	--	--	100	--	--	100
Oxidation reduction potential (ORP), field	millivolts	9	36.7	-23	61	-71	1.5	-110	-104	157	-109	-78
pH, field	s.u.	7.36	7.27	7.35	6.93	7.45	6.98	6.96	6.59	7.64	7.44	8.41
Temperature, sample	Deg C	14.02	20.6	14.50	8.78	14.69	17	19.44	11.0	17.6	20.26	10.2
Turbidity, field	NTU	1.46	1.9	0.81	1.6	2.72	4.7	2.17	7.95	2.47	2.84	1.91
Volume purged	gal	--	--	--	0.95	--	--	--	0.08	--	--	-0.14

Table 1											
Groundwater Analytical Results: 2021-2023											
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan											
Sample Location	GHD-1220M	GHD-1220M	GHD-1220M	GHD-1220M	GHD-1220M	GHD-1223M	GHD-1223M	GHD-1223M	GHD-1223M	GHD-1226M	GHD-1226M
Sample Identification	GW-11223073-060321- DA-045	GW-11223073-060321- DA-046	GW-11223073-060122- AC-029	GW-12602792-051123- LK-005	GW-12602792-231213- BB-032	GW-11223073-060321- DA-052	GW-11223073-060122- AC-030	GW-12602792-051123- CM-006	GW-12602792-231212- LK-021	GW-11223073-060321- DA-049	GW-11223073-060321- DA-050
Sample Date	06/03/2021	06/03/2021	06/01/2022	05/11/2023	12/13/2023	06/03/2021	06/01/2022	05/11/2023	12/12/2023	06/03/2021	06/03/2021
Sample Type	Duplicate										Duplicate
geologic_unit_code	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Shallow
Parameters	Units										
Gas											
Ethane	ug/L	--	--	0.40 J	--	1.8	--	0.31 J	--	0.31 J	--
Ethene	ug/L	--	--	0.82 J	--	1.0 U	--	0.28 J	--	1.3	--
Methane	ug/L	--	--	520	--	2.8	--	230	--	680	--
Volatile Organic Compounds (VOCs)											
1,1,1-Trichloroethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,1,2,2-Tetrachloroethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,1,2-Trichloroethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,1-Dichloroethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,1-Dichloroethene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,2,4-Trichlorobenzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	20 U	50 U	10 U	17 U	--	1 U	2.0 U	2.0 U	--	1 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,2-Dichlorobenzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,2-Dichloroethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,2-Dichloropropane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,3-Dichlorobenzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
1,4-Dichlorobenzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	200 U	500 U	50 U	83 U	--	10 U	10 U	10 U	--	10 U
2-Hexanone	ug/L	200 U	500 U	50 U	83 U	--	10 U	10 U	10 U	--	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	200 U	500 U	50 U	83 U	--	10 U	10 U	10 U	--	10 U
Acetone	ug/L	200 U	500 U	50 U	83 U	--	10 U	10 U	10 U	--	10 U
Benzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Bromodichloromethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Bromoform	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Bromomethane (Methyl bromide)	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Carbon disulfide	ug/L	100 U	250 U	5.0 U	8.3 U	--	5 U	1.0 U	1.0 U	--	5 U
Carbon tetrachloride	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Chlorobenzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Chloroethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Chloroform (Trichloromethane)	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Chloromethane (Methyl chloride)	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
cis-1,2-Dichloroethene	ug/L	1180 ^c	840 ^c	240	120	42	26	11	11	6.4	1 U
cis-1,3-Dichloropropene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Cyclohexane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Dibromochloromethane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Dichlorodifluoromethane (CFC-12)	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Ethylbenzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Isopropyl benzene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
m&p-Xylenes	ug/L	40 U	--	--	--	--	2 U	--	--	--	2 U
Methyl acetate	ug/L	20 U	500 U	50 U	83 U	--	1 U	10 U	10 U	--	1 U
Methyl cyclohexane	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Methyl tert butyl ether (MTBE)	ug/L	100 U	50 U	5.0 U	8.3 U	--	5 U	1.0 U	1.0 U	--	5 U
Methylene chloride	ug/L	100 U	250 U	25 U	42 U	--	5 U	5.0 U	5.0 U	--	5 U
o-Xylene	ug/L	20 U	--	--	--	--	1 U	--	--	--	1 U
Styrene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Tetrachloroethene	ug/L	20 U	50 U	3.0 J	8.3 U	3.5	6	2.9	1.7	1.6	1 U
Toluene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
trans-1,2-Dichloroethene	ug/L	40	28 J	12	6.4 J	--	1 U	0.90 J	1.6	--	1 U
trans-1,3-Dichloropropene	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U
Trichloroethene	ug/L	20	17 J	8.6	4.0 J	1.5	1 U	1.0 U	0.45 J	0.53 J	1 U

Groundwater Analytical Results: 2021-2023												
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan												
Sample Location	GHD-1220M	GHD-1220M	GHD-1220M	GHD-1220M	GHD-1220M	GHD-1223M	GHD-1223M	GHD-1223M	GHD-1223M	GHD-1226M	GHD-1226M	
Sample Identification	GW-11223073-060321- DA-045	GW-11223073-060321- DA-046	GW-11223073-060122- AC-029	GW-12602792-051123- LK-005	GW-12602792-231213- BB-032	GW-11223073-060321- DA-052	GW-11223073-060122- AC-030	GW-12602792-051123- CM-006	GW-12602792-231212- LK-021	GW-11223073-060321- DA-049	GW-11223073-060321- DA-050	
Sample Date	06/03/2021	06/03/2021	06/01/2022	05/11/2023	12/13/2023	06/03/2021	06/01/2022	05/11/2023	12/12/2023	06/03/2021	06/03/2021	
Sample Type	Duplicate										Duplicate	
geologic_unit_code	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow-PCE Area	Shallow	Shallow	
Parameters	Units											
Trichlorofluoromethane (CFC-11)	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	1.0 U	1.0 U	--	1 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	20 U	50 U	5.0 U	8.3 U	--	1 U	0.43 J	1.0 U	--	1 U	1.0 U
Vinyl chloride	ug/L	250 ^c	200 ^c	30 ^c	14 ^c	1.7	2	2.7	23 ^c	14 ^c	9	6.5
Xylenes (total)	ug/L	--	100 U	10 U	17 U	--	--	2.0 U	2.0 U	--	--	2.0 U
General Chemistry												
Alkalinity, total (as CaCO3)	ug/L	--	--	240000	--	260000 B	--	250000	--	270000	--	--
Nitrate (as N)	ug/L	--	--	510 H	--	500 U	--	92 JH	--	500 U	--	--
Oil and grease (HEM), total	ug/L	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	--	--	58000	--	100000	--	150000	--	180000	--	--
Total organic carbon (TOC)	ug/L	--	--	6000	--	--	--	8000	--	--	--	--
Field Parameters												
Conductivity, field	mS/cm	1.26	1.26	0.64	--	--	0.79	0.815	--	--	0.57	0.57
Conductivity, field	uS/cm	--	--	--	652	1100	--	--	985	1500	--	--
Dissolved oxygen (DO), field	ug/L	740	740	970	400	0	50	460	0	0	0	0
Flow rate	mL/min	--	--	--	--	100	--	--	--	150	--	--
Oxidation reduction potential (ORP), field	millivolts	186.9	186.9	58.6	53	152	101.1	-88.1	-150	-95	-104.9	-104.9
pH, field	s.u.	7.25	7.25	7.74	7.31	7.08	7.02	7.59	7.41	7.43	7.22	7.22
Temperature, sample	Deg C	16.34	16.34	19.3	19.82	7.82	16.02	17.1	19.28	10.85	15.36	15.36
Turbidity, field	NTU	103.5	103.5	21.6	4.56	9.5	2.85	2.79	4.43	2.15	4.37	4.37
Volume purged	gal	--	--	--	--	1.62	--	--	--	0.45	--	--

Table 1												
Groundwater Analytical Results: 2021-2023												
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan												
Sample Location	GHD-1226M	GHD-1226M	GHD-1226M	GHD-1229M	GHD-1229M	GHD-1229M	GHD-1229M	IG-1	IG-1	IG-1	IG-1	
Sample Identification	GW-11223073-053122- AC-021	GW-12602792-051123- CM-004	GW-12602792-231213- JY-025	GW-11223073-052821- DR-042	GW-11223073-053122- AC-025	GW-12602792-051223- LK-015	GW-12602792-231213- LK-028	GW-11223073-060321- DA-051	GW-11223073-053122- AC-020	GW-12602792-051123- CM-002	GW-12602792-231213- LK-027	
Sample Date	05/31/2022	05/11/2023	12/13/2023	05/28/2021	05/31/2022	05/12/2023	12/13/2023	06/03/2021	05/31/2022	05/11/2023	12/13/2023	
Sample Type												
geologic_unit_code	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	
Parameters	Units											
Gas												
Ethane	ug/L	0.51 J	--	0.32 J	--	0.82 J	--	1.3	--	1.0	--	1.0 U
Ethene	ug/L	1.0 U	--	1.0 U	--	2.0	--	3.7	--	1.9	--	1.0 U
Methane	ug/L	35	--	59	--	1200	--	380	--	120	--	3.2
Volatile Organic Compounds (VOCs)												
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	--	1 U	0.87 J	5.0 U	--	1 U	1.0 U	1.0 U	--
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	2.0 U	--	1 U	2.0 U	10 U	--	1 U	2.0 U	2.0 U	--
1,2-Dibromoethane (Ethylene dibromide)	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	--	1	1.6	5.0 U	--	1 U	1.0 U	1.0 U	--
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	--	10 U	10 U	50 U	--	30	4.8 J	12	--
2-Hexanone	ug/L	10 U	10 U	--	10 U	10 U	50 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	50 U	--	10 U	10 U	10 U	--
Acetone	ug/L	10 U	10 U	--	10 U	10 U	50 U	--	12	10 U	10 U	--
Benzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Bromodichloromethane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Bromoform	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	0.44 J	--
Carbon disulfide	ug/L	1.0 U	1.0 U	--	5 U	1.0 U	5.0 U	--	5 U	1.0 U	1.0 U	--
Carbon tetrachloride	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Chlorobenzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Chloroethane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	32	39	26	55	1	0.64 J	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Cyclohexane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Dibromochloromethane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Ethylbenzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Isopropyl benzene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
m&p-Xylenes	ug/L	--	--	--	2 U	--	--	--	2 U	--	--	--
Methyl acetate	ug/L	10 U	10 U	--	1 U	10 U	50 U	--	1 U	10 U	10 U	--
Methyl cyclohexane	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	--	5 U	1.0 U	5.0 U	--	5 U	1.0 U	1.0 U	--
Methylene chloride	ug/L	5.0 U	5.0 U	--	5 U	5.0 U	25 U	--	5 U	5.0 U	5.0 U	--
o-Xylene	ug/L	--	--	--	1 U	--	--	--	1 U	--	--	--
Styrene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.3	1 U	1.0 U	5.0 U	10 U	2	1.0	1.3	0.95 J
Toluene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	--	4	3.8	5.0 U	--	1 U	1.0 U	1.0 U	--
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1 U	1.5	5.0 U	10 U	1 U	1.0 U	1.0 U	1.0 U

Table 1

Groundwater Analytical Results: 2021-2023												
PCE Area Update Former Willow Run Powertrain Property Ypsilanti, Michigan												
Sample Location	GHD-1226M	GHD-1226M	GHD-1226M	GHD-1229M	GHD-1229M	GHD-1229M	GHD-1229M	IG-1	IG-1	IG-1	IG-1	
Sample Identification	GW-11223073-053122- AC-021	GW-12602792-051123- CM-004	GW-12602792-231213- JY-025	GW-11223073-052821- DR-042	GW-11223073-053122- AC-025	GW-12602792-051223- LK-015	GW-12602792-231213- LK-028	GW-11223073-060321- DA-051	GW-11223073-053122- AC-020	GW-12602792-051123- CM-002	GW-12602792-231213- LK-027	
Sample Date	05/31/2022	05/11/2023	12/13/2023	05/28/2021	05/31/2022	05/12/2023	12/13/2023	06/03/2021	05/31/2022	05/11/2023	12/13/2023	
Sample Type												
geologic_unit_code	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	
Parameters	Units											
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	--	1 U	1.0 U	5.0 U	--	1 U	1.0 U	1.0 U	--
Vinyl chloride	ug/L	3.5	2.6	2.0	138 ^c	170 ^c	260 ^c	190 ^c	1	0.45 J	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	--	--	2.0 U	10 U	--	--	2.0 U	2.0 U	--
General Chemistry												
Alkalinity, total (as CaCO3)	ug/L	290000 B	--	300000 B	--	330000 B	--	310000 B	--	93000 B	--	54000 B
Nitrate (as N)	ug/L	100 U	--	100 U	--	41 JH	--	500 U	--	100 U	--	1100
Oil and grease (HEM), total	ug/L	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	ug/L	--	--	--	--	--	--	--	--	--	--	--
Sulfate	ug/L	91000	--	90000	--	68000	--	110000	--	64000	--	43000
Total organic carbon (TOC)	ug/L	9400	--	--	--	7400	--	--	--	20000	--	--
Field Parameters												
Conductivity, field	mS/cm	0.73	--	--	1.08	0.843	--	--	1.02	1.171	--	--
Conductivity, field	uS/cm	--	1090	1000	--	--	797	1430	--	--	394	982
Dissolved oxygen (DO), field	ug/L	380	0	50	220	30	170	5120	150	360	0	0
Flow rate	mL/min	--	--	100	--	--	--	150	--	--	--	150
Oxidation reduction potential (ORP), field	millivolts	114	-76	-32	-53	-78.1	-93	-73	-111.4	21.1	-129	-91
pH, field	s.u.	7.98	7.20	6.85	7.31	7.23	7.32	6.65	11.48 ^c	12.28 ^c	11.21 ^c	6.92
Temperature, sample	Deg C	17.6	16.90	10.7	11.2	15.3	19.07	10.63	18	17.5	16.71	6.45
Turbidity, field	NTU	4.87	4.76	1.52	0.77	0.59	4.42	3.65	0.38	3.97	1.88	3.62
Volume purged	gal	--	--	-0.04	--	--	--	0.44	--	--	--	0.42

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
B - Result detected in associated method blank.
JH - Estimated value, biased high.
E - Result exceeded calibration range.
I - Value is EMPC (estimated maximum possible concentration)

- (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
(2) Facility-Specific Background Concentrations (FSBCs).
(3) A hardness of 391.25 mg/L CaCo3 and pH of 7.25 was used, where required, to calculate a Facility-specific groundwater surface water interface protection (GSIP) criterion

Blanks - Not Available or Not Applicable
ID - Insufficient Data to develop criterion.
NLV - Hazardous substance is Not Likely to Volatilize under most conditions.

300^a - boxed cell denotes exceedance of cleanup criteria screening level identified by superscript.

Table 3

**Proposed Sampling Locations
PCE Area Update
Former Willow Run Powertrain Property
Ypsilanti, Michigan**

Well Locations	Groundwater Zone	Groundwater Analysis	Ground Water Levels	NAPL
CRA-104M	Shallow	N/A	Yes	No
CRA-105M	Shallow	N/A	Yes	No
CRA-107M	Shallow	N/A	Yes	No
CRA-310M	Shallow	N/A	Yes	No
CRA-757M	Shallow	N/A	Yes	No
GHD-1199I	Intermediate	N/A	Yes	No
GHD-1210M	Shallow	N/A	Yes	No
GHD-1232M	Shallow	N/A	Yes	No
GHD-1233M	Shallow	N/A	Yes	No
GHD-1234M	Shallow	N/A	Yes	No
GHD-1243M	Shallow	N/A	Yes	No
GHD-1244M	Shallow	N/A	Yes	No
IG-2	Shallow	N/A	Yes	No
MW-6	Shallow	N/A	Yes	No
MW-9	Shallow	N/A	Yes	No
WCAA-MW14-2017	Shallow	N/A	Yes	No
CRA-061M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-106M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-137M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-140M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-267M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-609M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-711I	Intermediate	Select VOCs, MNA Parameters	Yes	No
CRA-756M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-806M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-807M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-858I	Intermediate	Select VOCs, MNA Parameters	Yes	No
GHD-1134M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1145M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1151M	Shallow	Select VOCs, MNA Parameters	Yes	DNAPL
GHD-1209M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1220M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1223M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1226M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1229M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-859M	Shallow	Select VOCs, MNA Parameters	Yes	No
IG-1	Shallow	Select VOCs, MNA Parameters	Yes	No

Notes:

Standard QA/QC will be completed as follows – duplicate samples and MS/MSD samples every 1 in 20.

Select VOCs include: tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, vinyl chloride

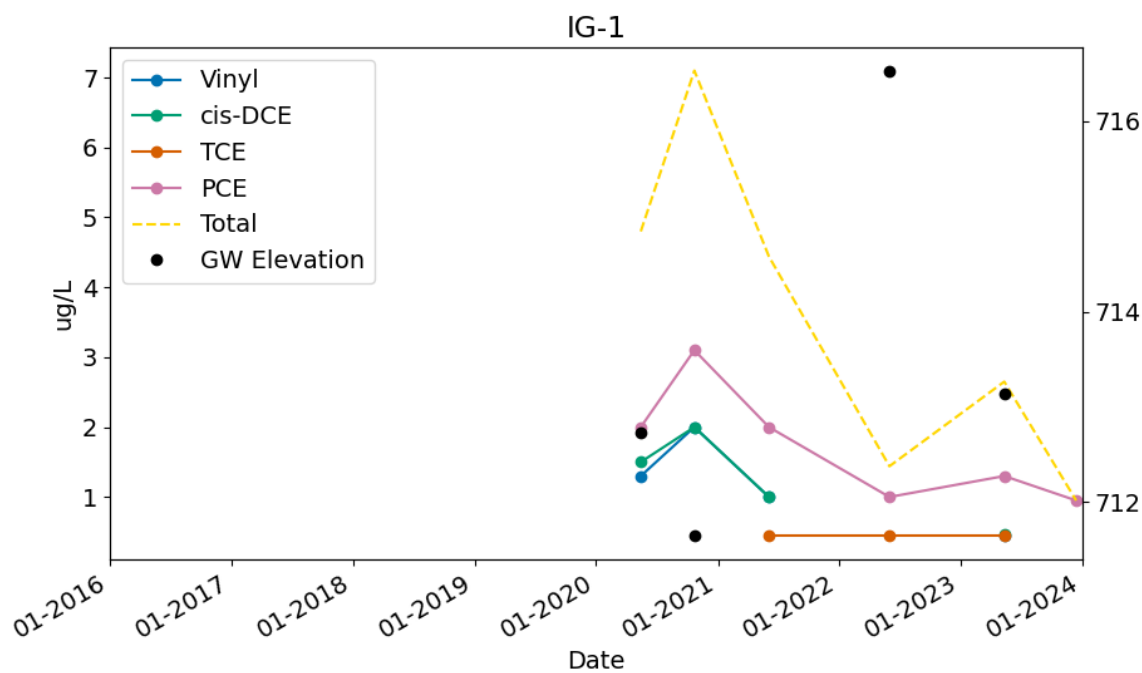
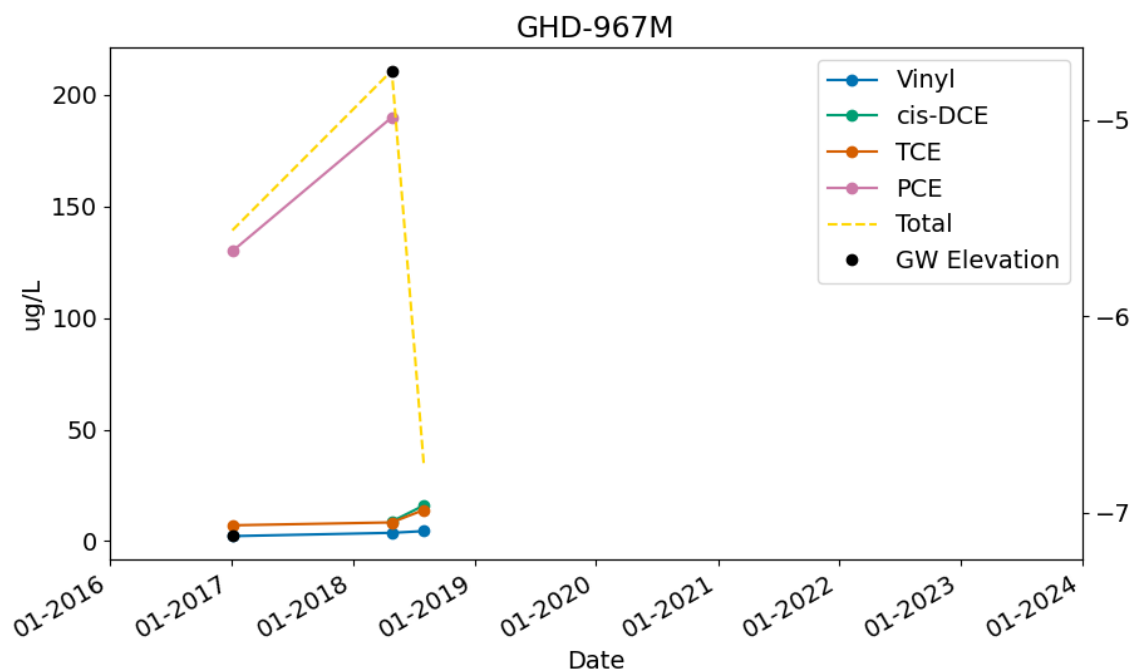
MNA Parameters include: ethene, ethane, methane, nitrate, sulfate, and alkalinity

Attachments

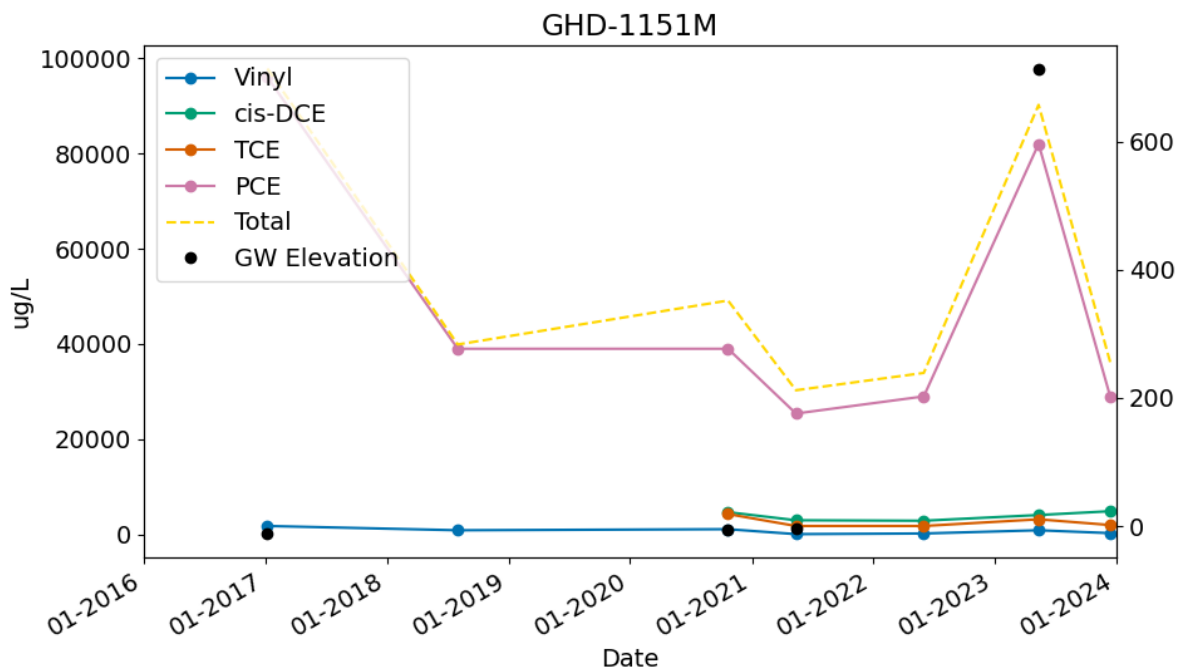
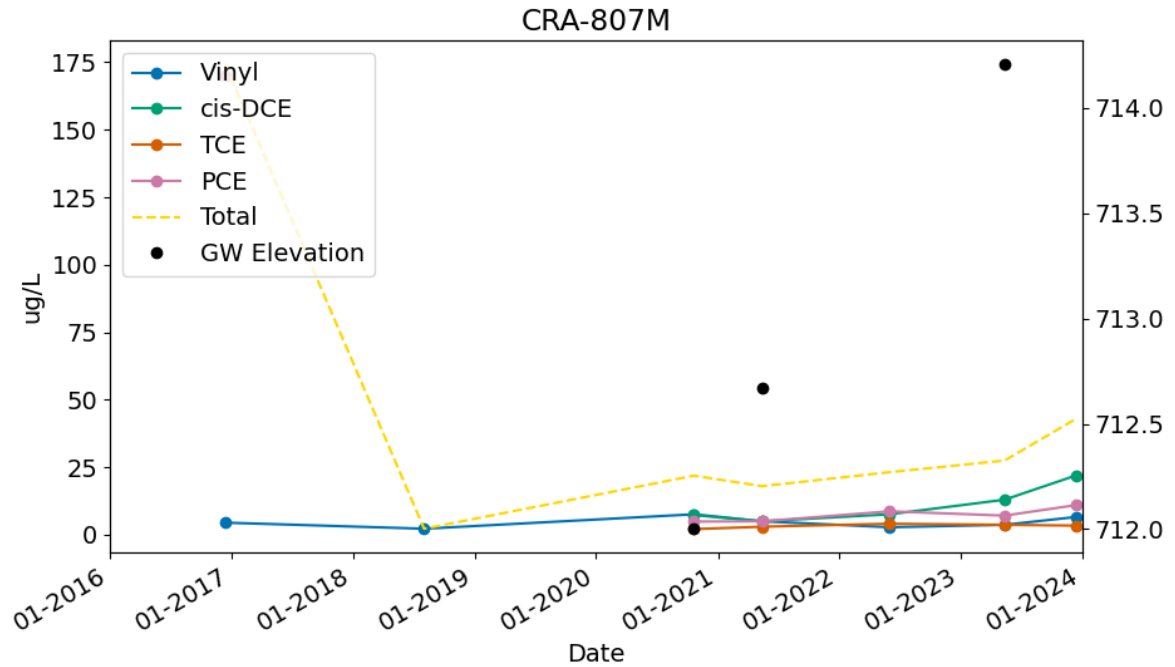
Attachment A

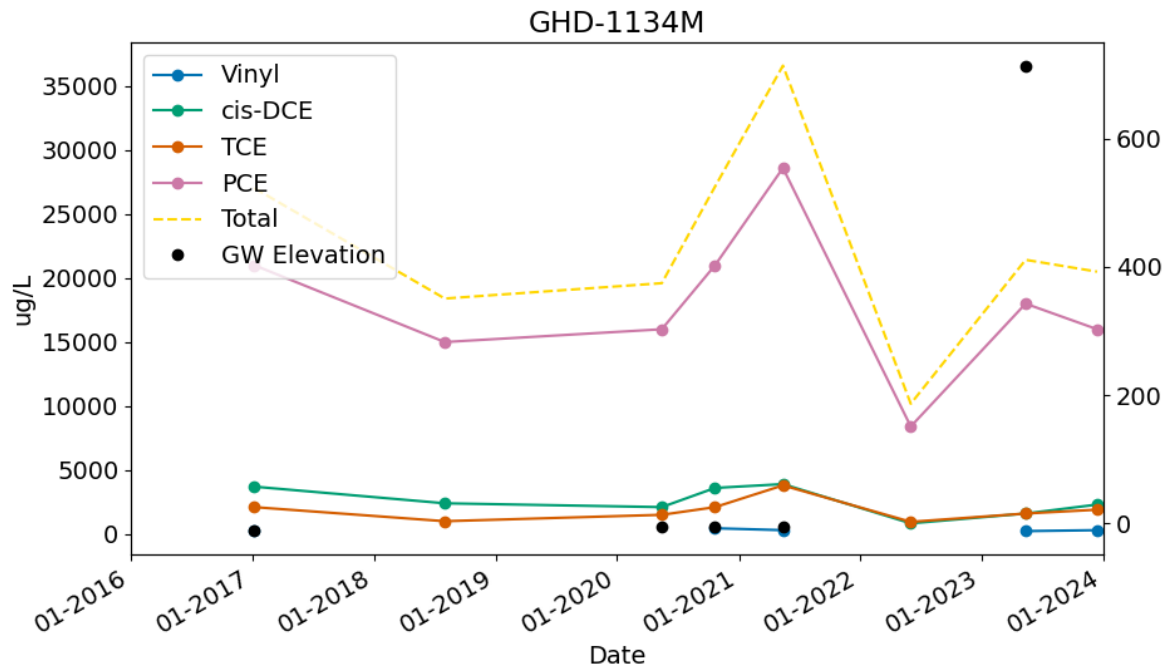
Concentration Trends in Monitoring Wells

Area A

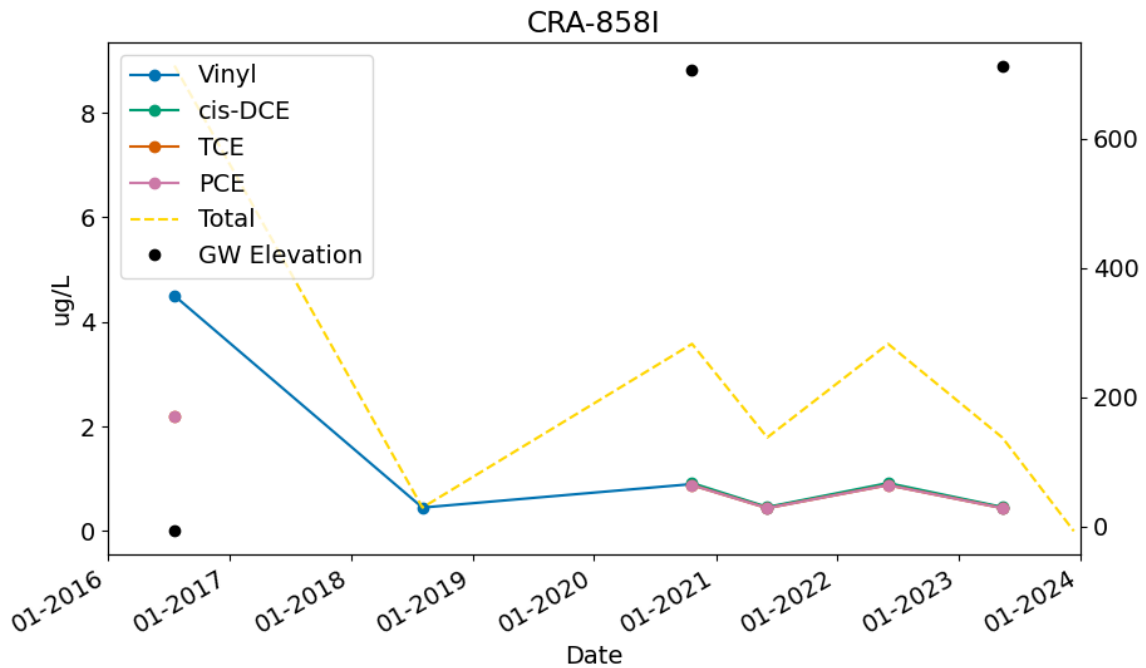


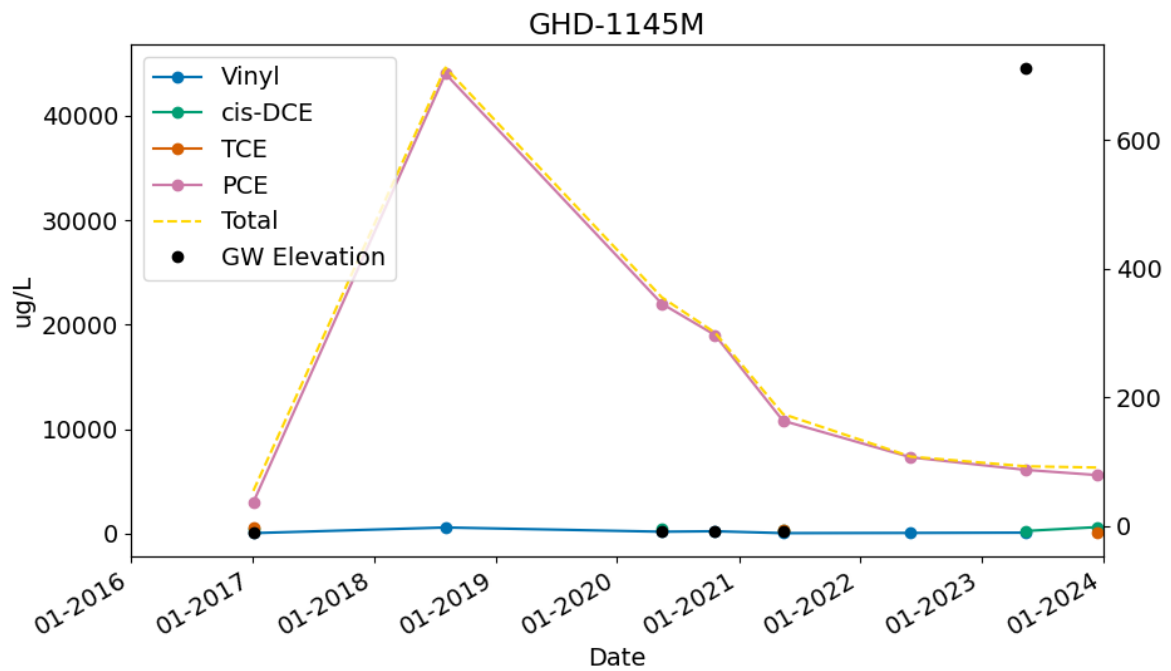
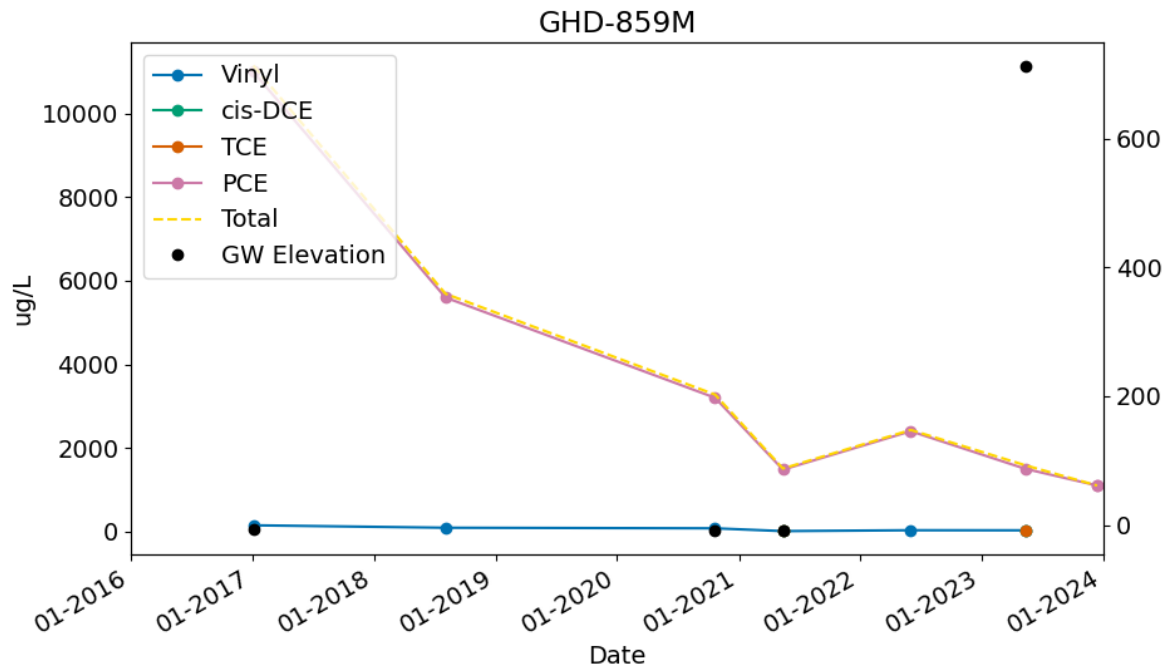
Area B



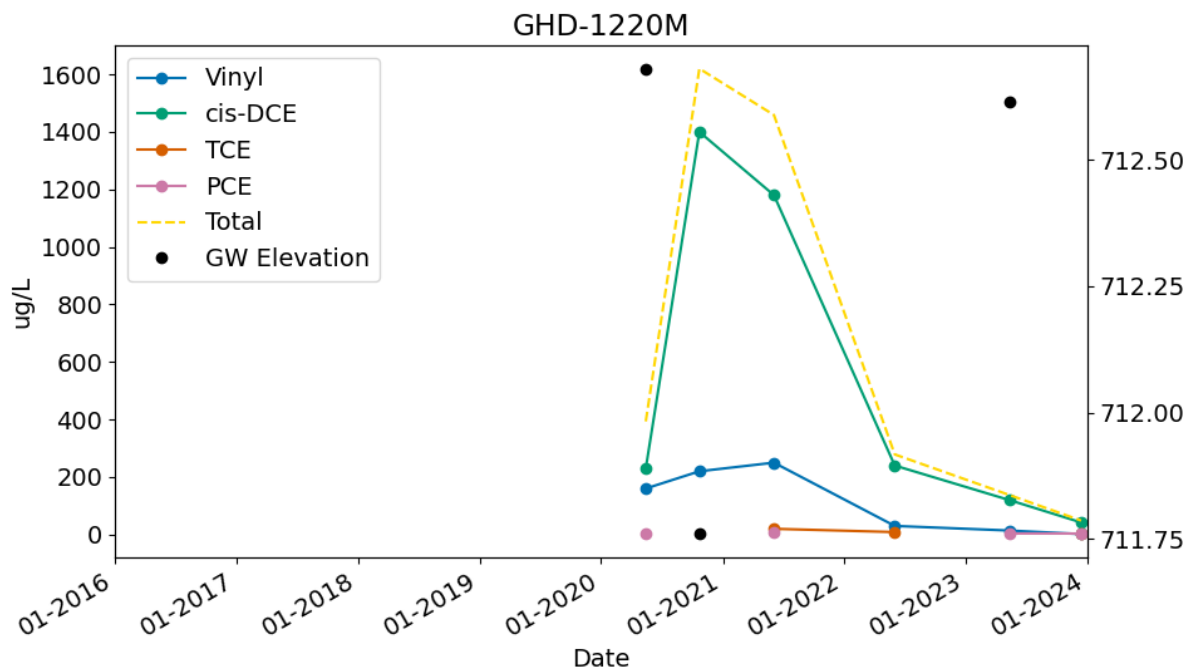
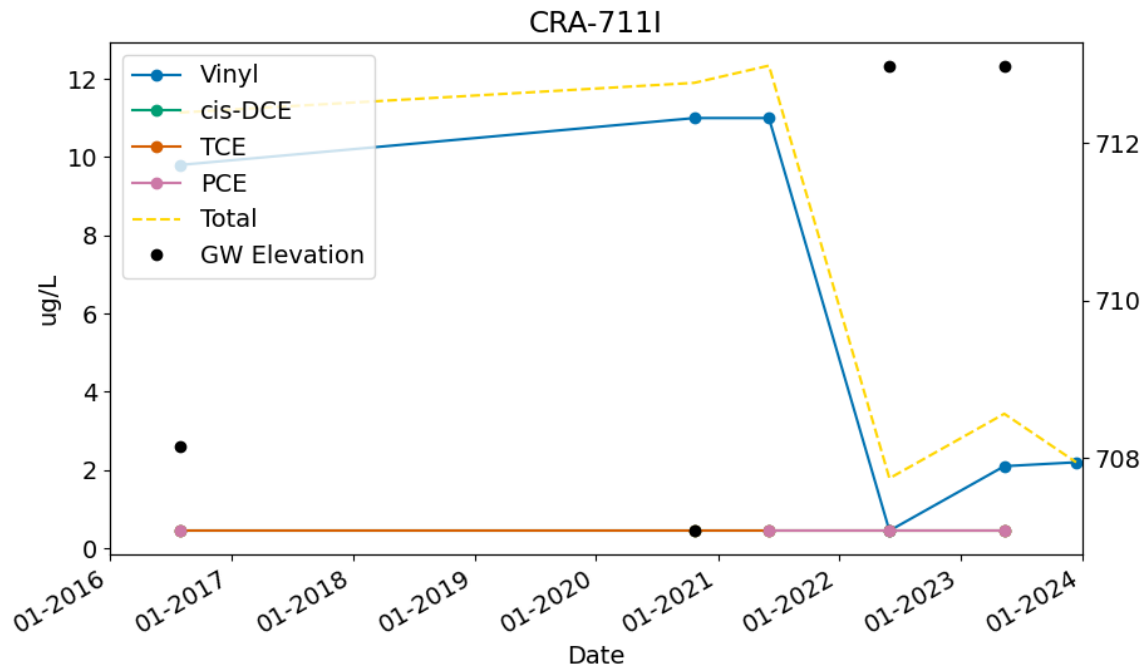


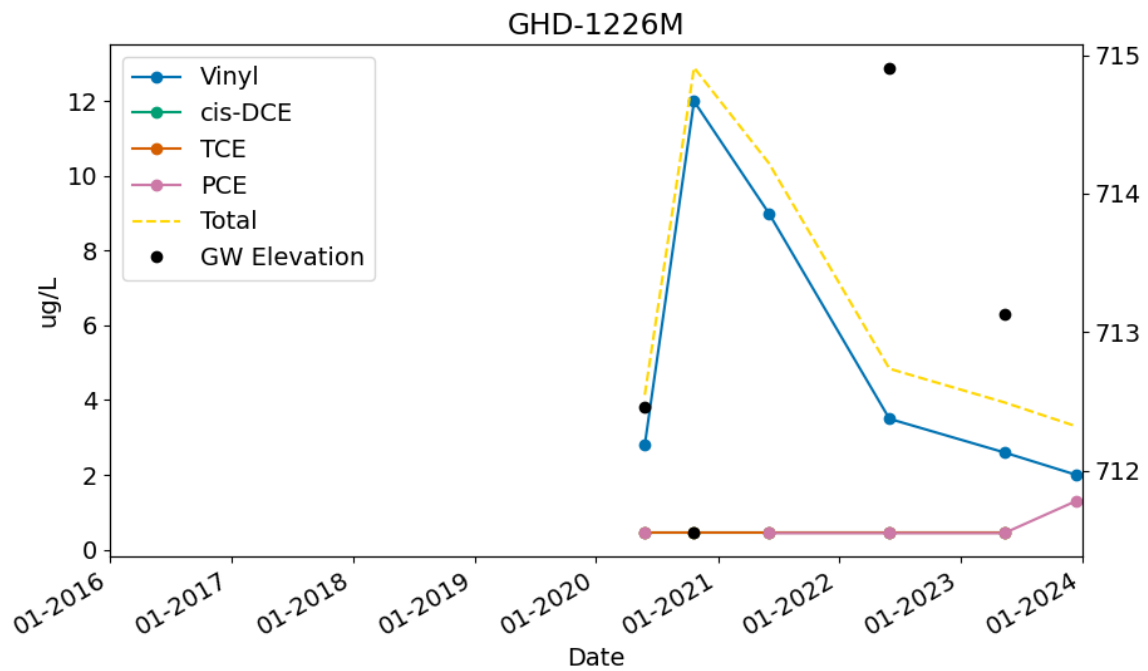
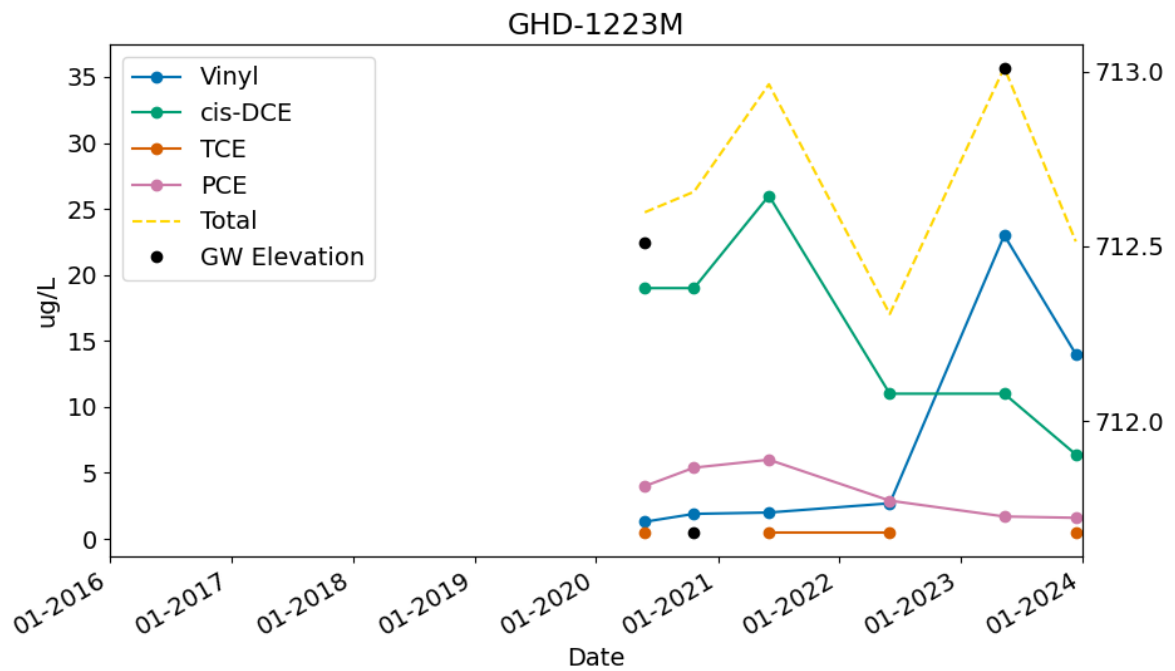
Area C



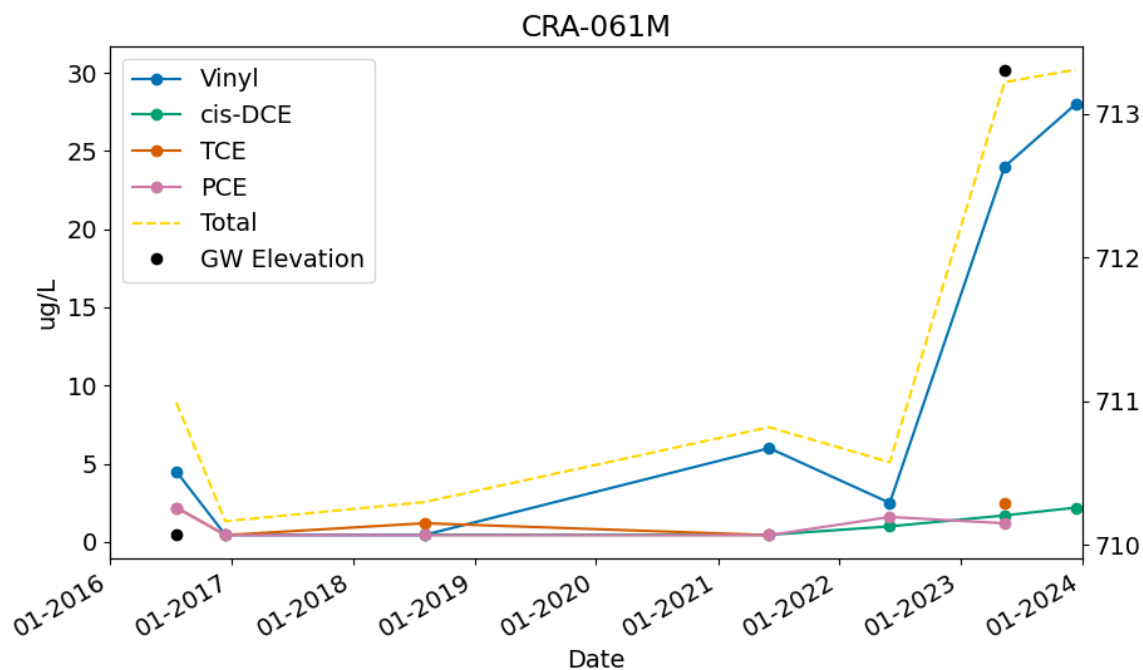
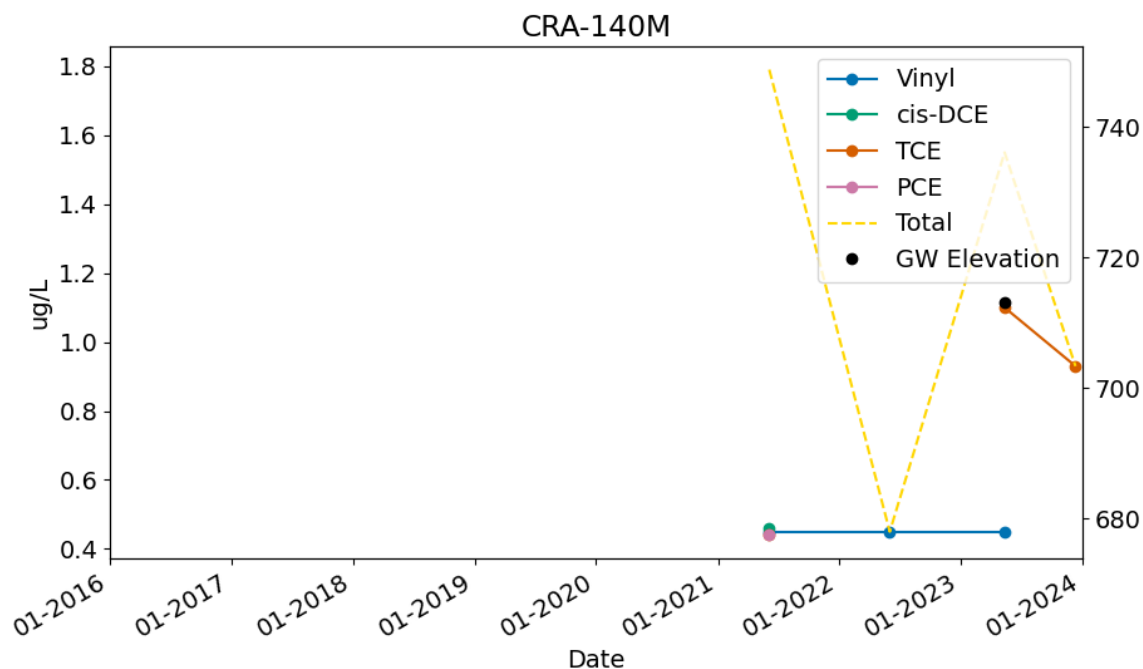


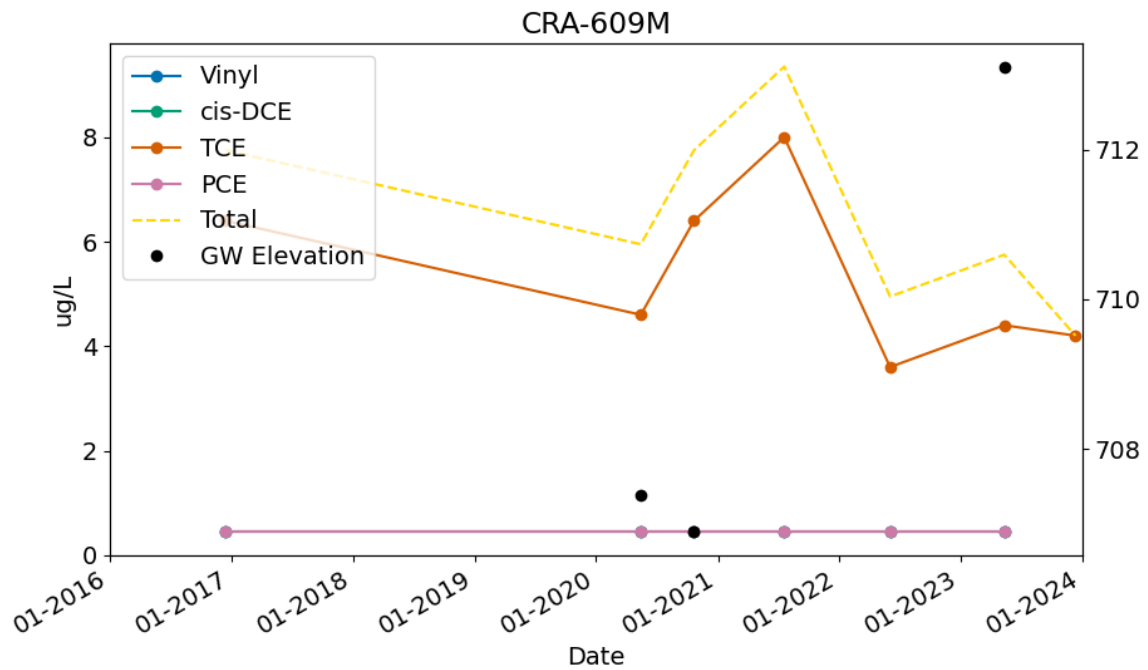
PCE Area Center (between Areas A, B, C)



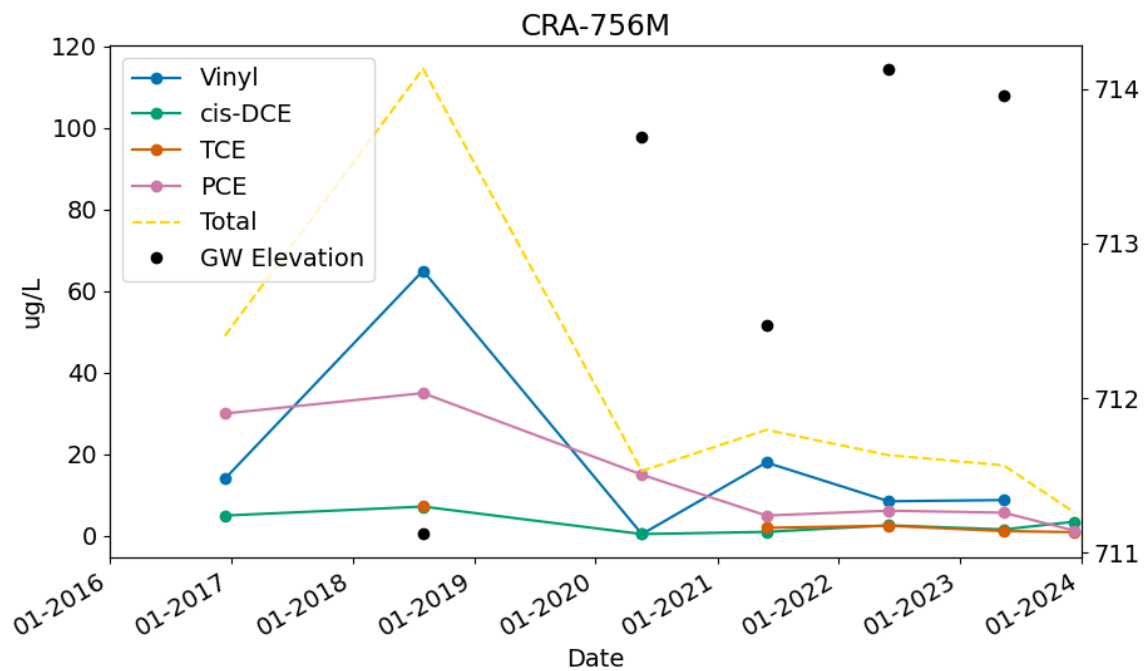


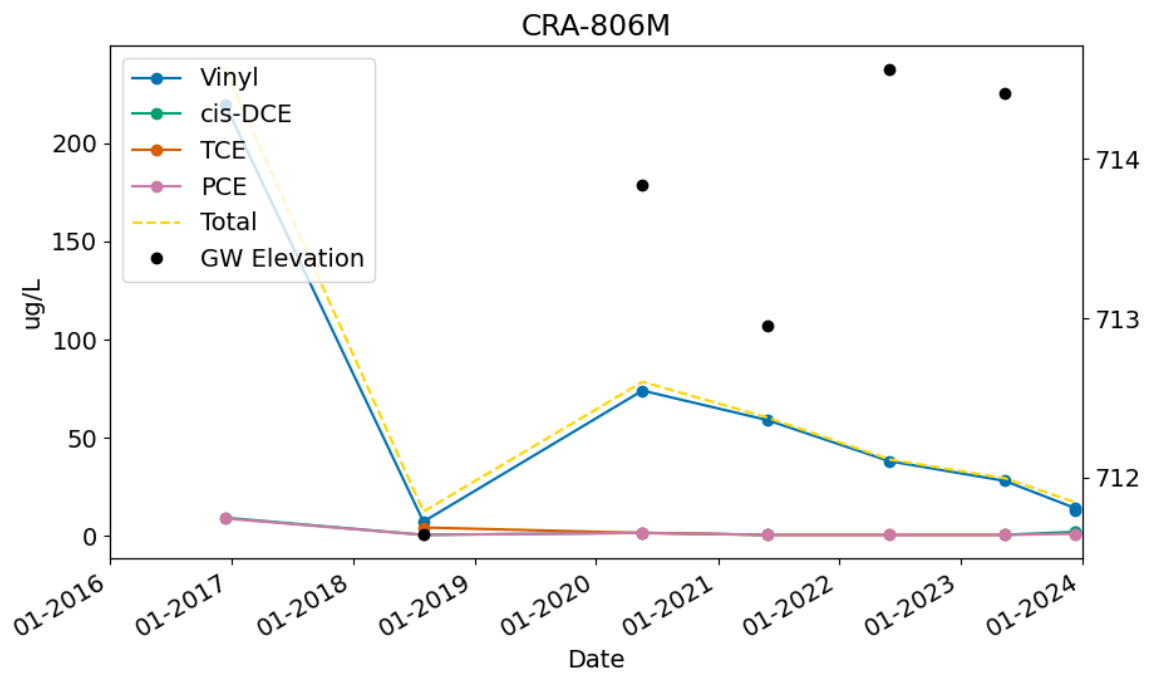
PCE Area Perimeter





North French Drain





Attachment B

**Memorandum 5-PCE Sampling Workplan
December 2023 (GHD 2023)**



Memorandum

December 07, 2023

To	Grant Trigger	Contact No.	+1 248 479 0236
Copy to	Beth Landale, Lauren Kaltz, Field Staff	Email	Bryon.banman@ghd.com
From	Bryon Banman, Daniel Beck/Ig/05	Project No.	12602792
Project Name	RACER Willow Run		
Subject	December 2023 Groundwater Sampling Workplan PCE Area & Thallium Sampling		

1. Purpose

This memorandum presents the scope of work for the December 2023 groundwater sampling at the former Willow Run Powertrain facility (Site). The scope of work includes additional groundwater sampling in the PCE Area and confirmatory sampling of thallium in two areas.

Additional investigation is proposed to evaluate seasonal variations in groundwater elevation and volatile organic compound (VOC) concentrations in the PCE Area and around the maintenance building to the west of the PCE Area. Data collected in previous groundwater investigations in the PCE Area were generally conducted in early summer months; therefore, sampling events in Winter and Spring will allow evaluation of seasonal variations. Evidence to date indicates that VOCs in groundwater are static within the PCE Area and that a source area near the maintenance building is naturally attenuating.

Groundwater samples will be collected from 21 wells and analyzed for select VOCs: tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC). In addition to select VOCs, groundwater samples will also be analyzed for monitored natural attenuation (MNA) parameters: ethene, ethane, methane, nitrate, sulfate, and alkalinity. 20 wells are located within the PCE Area and 1 well is located near the maintenance building. A total of 37 wells, including the 21 that are being sampled, in and around the PCE Area will be measured for water level elevation. The groundwater elevation data will provide groundwater flow direction in the area around the PCE Area.

Groundwater samples and water level measurements will also be collected from nine wells that were previously sampled during the 2023 annual groundwater sampling event. These groundwater samples will be analyzed for thallium. These nine wells will also be measured for water level elevations.

Proposed sampling locations can be found in Table 1. Figure 1 provides a map of locations to be sampled and locations to measure water levels.

2. Health and Safety

The Site-Specific Health and Safety Plan for the Willow Run Powertrain Site (dated February 2023) will be reviewed. Additional onsite review and completion of job safety analysis (JSA) sheets will be completed as needed. Daily tailgate safety meetings will be completed.

3. Sampling Rationale

21 monitoring wells within the PCE Area and near the maintenance building have been selected for sampling. An additional 16 wells surrounding the PCE Area will be measured for water level elevations. The following provides the rationale for resampling of PCE Area wells and the maintenance building well.

- GHD prepared a 3-dimensional conceptual site model that incorporates data from select VOCs between 2016 to the present. This model indicates that the impacted groundwater plume has remained static within the model timeframe throughout a variety of Site conditions. In fact, one source area in the PCE Area, Area C (GHD-1145M, GHD-859M), has shown consistent decreases in PCE in that time. However, there is little data available from winter or spring months. The December 2023 monitoring is proposed to evaluate seasonal variations in plume stability.
- Area B (GHD-1151M, GHD-1134M, and CRA-807M) within the PCE Area does not show consistent trends in CVOC concentrations over time. More data is required to understand the nature of groundwater impacts in this source area.
- Historically elevated concentrations of CVOCs were discovered in monitoring well CRA-267M near the maintenance building while conducting the PCE Area data analysis. These elevated levels exceed Michigan Department of Environment, Great Lakes, and Energy (EGLE) Volatilization to Indoor Air Pathway (VIAP) Nonresidential in Contact (NRIC) screening levels for PCE and TCE. Evidence shows that the source of CVOCs near the maintenance building has naturally attenuated between 2012 and 2023. Continued groundwater monitoring is required to evaluate the extent of natural attenuation and better understand potential vapor intrusion (VI) to the maintenance building.
- Evidence to date suggests natural attenuation of source area is occurring in the PCE Area and near the maintenance building. Therefore, GHD proposes incorporating MNA parameters ethene, ethane, methane, nitrate, sulfate, and alkalinity into the sampling plan. These parameters were previously measured in the PCE Area in 2018 and 2022.
- Three monitoring wells have been added to the PCE Area list based on measured concentrations of VOCs detected during the Annual Groundwater Monitoring event in 2023. These wells are CRA-106M, CRA-806M, and GHD-1229M.

Nine wells will be sampled for thallium. The following provides the rationale for resampling of thallium.

- Nine monitoring wells that were previously sampled during the May 2023 annual groundwater sampling event will be resampled for thallium analysis. The groundwater samples collected from these nine wells will be analyzed by two methods, 6020A and SW846/6010D, to confirm accuracy of results between these methods as both have been used in the past (primarily 6020A).

3.1 Groundwater Sampling Protocol

Prior to sampling each well, GHD will measure the static water level to the nearest 0.01 foot using an electronic water level indicator and record the measurements. Each well will be purged using low flow sampling procedures (LFP).

During LFP, field parameters including pH, temperature, specific conductance, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity will be monitored. The measurement of these field parameters will be used to evaluate when stabilization of the purged groundwater has occurred prior to the collection of groundwater samples.

The field measurements will be recorded at approximate 5-minute intervals. Groundwater stabilization will be considered achieved when three consecutive readings for each of the field parameters are within the following limits:

pH	±0.1 pH units of the average value of the three readings
Temperature	±3 percent of the average value of the three readings
Conductivity	±0.005 milliSiemen per centimeter (mS/cm) of the average value of the three readings for conductivity <1 mS/cm or ±0.01 mS/cm of the average value of the three readings for conductivity >1 mS/cm
ORP	±10 millivolts (mV) of the average value of the three readings
DO	±10 percent of the average value of the three readings
Turbidity	±10 percent of the average value of the three readings, or a final value of less than 5 NTU

If stabilization is not reached, please call Daniel Beck (906-367-6376) to determine how to proceed. Documentation to be provided in field notes.

One well, GHD-1213M, to be sampled is likely to have LNAPL and must follow the LNAPL protocol listed below:

- Install new tubing a minimum of 24 hours prior to sampling that well.
- When installing tubing into the well, hook up to peristaltic pump and run the pump in reverse so air is being pushed “out” of the tubing, let air continue to push through tubing for ~ 1 min after pushing tubing through LNAPL. Turn off pump, disconnect tubing and leave tubing in well overnight.
- Visually confirm prior to conducting low flow sampling procedures that no visible LNAPL is present in the pump discharge.
- Continue regular low flow groundwater sampling protocol as described above.
- Groundwater samples collected from the six wells containing LNAPL will also be analyzed for oil and grease to confirm if any oil was inadvertently collected during low flow sampling.

Unless otherwise specified, all samples collected for VOC analysis during this sampling event will be analyzed for select VOCs by Eurofins utilizing EPA method SW-856 8260D. The sample bottles for EPA 8260D analysis consist of three, 40 mL VOA vials. Care should be taken to fill the VOAs such that no headspace exists in the sealed vial. All VOC samples collected will also be analyzed for MNA parameters ethene, ethane, methane, alkalinity, nitrate, and sulfate which are analyzed by a variety of methods including RSK-175 (nitrate, sulfate), E300 (ethene, ethane, methane), and SM2320B (alkalinity).

All samples collected for thallium analysis during this sampling event will be analyzed utilizing two methods – EPA 6020A and EPA SW846 6010D. Care should be taken to only sample for thallium if groundwater turbidity is measured below 5 NTUs. If groundwater turbidity is not measured below 5 NTU contact Daniel Beck for guidance on next steps. It may be necessary to field filter samples to achieve the required turbidity.

Standard QA/QC will be completed as follows – duplicate samples and MS/MSD samples every 1 in 20. Thallium analytical samples will not have duplicates or MS/MSDs because two samples will be collected for every monitoring well sampled for thallium.

3.2 Field Notes/Other

Field notes are to be completed electronically daily and sent to Bryon Banman (Bryon.Banman@ghd.com) for review. Please include general field notes and complete low flow purge notes.

Please reach out to Daniel Beck with any other questions regarding the scope of work.

Regards,



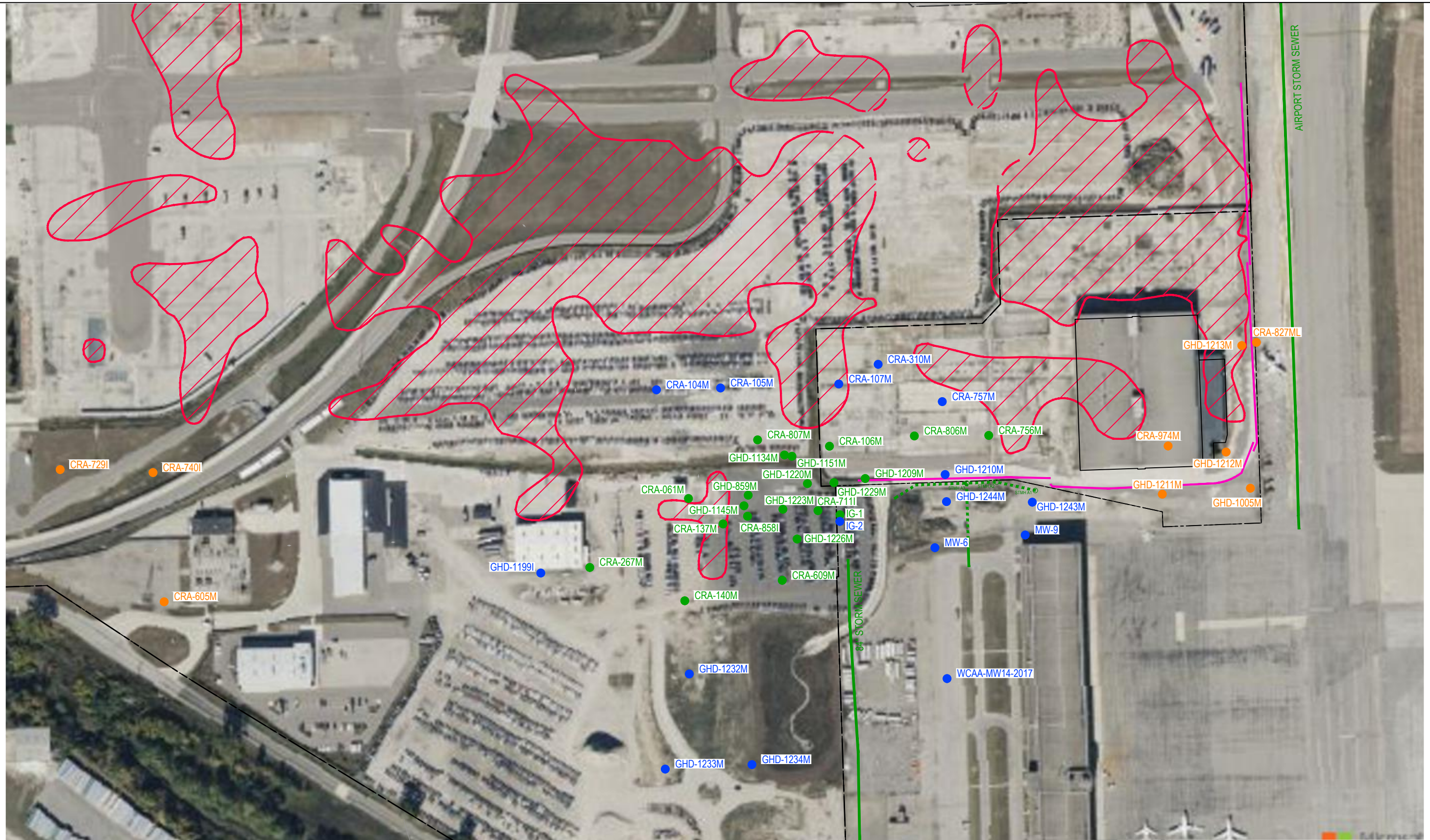
Bryon Banman
Graduate Engineer

248-479-0236
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Daniel Beck
Project Manager

248-893-3383
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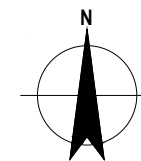
LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE EXTENTS OF LNAPL
- STORM WATER MAIN LINES - ACTIVE
- AIRPORT MOLE HOLE DRAINAGE (BASED ON UNDATED DRAWINGS FROM AIRPORT AND FOUND STRUCTURES)

- FRENCH DRAIN
- WATER LEVEL MONITORING LOCATION (NO SAMPLING)
- VOCs/MNA SAMPLING AND WATER LEVEL LOCATION
- THALLIUM RESAMPLE AND WATER LEVEL LOCATION



Coordinate System:
MICHIGAN SOUTH
INTERNATIONAL FEET NAD83



FORMER WILLOW RUN POWERTRAIN SITE
YPSILANTI, MICHIGAN

PROPOSED SAMPLING LOCATIONS

Project No. 12602792
Date December 2023

FIGURE 1

**Proposed Sampling Locations
Former Willow Run Powertrain
Ypsilanti, Michigan**

Well Locations	Groundwater Zone	Groundwater Analysis	Ground Water Levels	NAPL
CRA-104M	Shallow	N/A	Yes	No
CRA-105M	Shallow	N/A	Yes	No
CRA-107M	Shallow	N/A	Yes	No
CRA-310M	Shallow	N/A	Yes	No
CRA-757M	Shallow	N/A	Yes	No
GHD-1199I	Intermediate	N/A	Yes	No
GHD-1210M	Shallow	N/A	Yes	No
GHD-1232M	Shallow	N/A	Yes	No
GHD-1233M	Shallow	N/A	Yes	No
GHD-1234M	Shallow	N/A	Yes	No
GHD-1243M	Shallow	N/A	Yes	No
GHD-1244M	Shallow	N/A	Yes	No
IG-2	Shallow	N/A	Yes	No
MW-6	Shallow	N/A	Yes	No
MW-9	Shallow	N/A	Yes	No
WCAA-MW14-2017	Shallow	N/A	Yes	No
CRA-061M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-106M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-137M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-140M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-267M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-609M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-711I	Intermediate	Select VOCs, MNA Parameters	Yes	No
CRA-756M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-806M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-807M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-858I	Intermediate	Select VOCs, MNA Parameters	Yes	No
GHD-1134M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1145M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1151M	Shallow	Select VOCs, MNA Parameters	Yes	DNAPL
GHD-1209M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1220M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1223M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1226M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1229M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-859M	Shallow	Select VOCs, MNA Parameters	Yes	No
IG-1	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-605M	Shallow	Thallium	Yes	No
CRA-729I	Intermediate	Thallium	Yes	No
CRA-740I	Intermediate	Thallium	Yes	No
CRA-827ML	Shallow	Thallium	Yes	No
CRA-974M	Shallow	Thallium	Yes	No
GHD-1005M	Shallow	Thallium	Yes	No
GHD-1211M	Shallow	Thallium	Yes	No
GHD-1212M	Shallow	Thallium	Yes	No
GHD-1213M	Shallow	Thallium	Yes	LNAPL

Notes

Standard QA/QC will be completed as follows – duplicate samples and MS/MSD samples every 1 in 20.

Thallium analytical samples will not have duplicates or MS/MSD samples because two analytical samples will be collected for each well location.

Select VOCs include: tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, vinyl chloride

MNA Parameters include: ethene, ethane, methane, nitrate, sulfate, and alkalinity