

MEMO

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Date:
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Arcadis Project No.:
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Subject:

RACER Pontiac North Campus - 1,4-Dioxane Supplemental Investigation
Memorandum

INTRODUCTION

Arcadis of Michigan, LLC (Arcadis) has prepared this 1,4-Dioxane Supplemental Investigation Memorandum (Memo) on behalf of Revitalizing Auto Communities Environmental Response Trust (RACER) for the Pontiac North Campus Site (the Site) located in Pontiac, Michigan. A Site location map is included as **Figure 1**. This memo summarizes the activities completed in 2016 and 2017 to characterize the extent of 1,4-dioxane in groundwater at the Site. The Michigan Department of Environmental Quality (MDEQ) has recently issued revised cleanup criteria, and the results of the evaluation have been compared to the most recent criteria available for the potential exposure pathways. Results of the investigation are compared to the 2017 draft Michigan Part 201 Residential Drinking Water (Res DW) and Non-residential Drinking Water (NR DW) Criteria, Michigan Rule 57 Human Chronic Value (HCV) for surface water used as a drinking water source, and 2017 draft Tier I Vapor Intrusion (VI) Groundwater Screening Levels. The revised Michigan Part 201 Res DW Criteria for 1,4-dioxane has been established at 7.2 micrograms per liter ($\mu\text{g/L}$), compared to the previous value of 85 $\mu\text{g/L}$.

Concentrations of 1,4-dioxane exceed the 2017 draft NR DW Criteria (37 $\mu\text{g/L}$) on-site and the Res DW Criteria (7.2 $\mu\text{g/L}$) at the Former Fiero Assembly Site (Fiero) property boundary. However, based on the 1,4-dioxane investigation results, existing groundwater use restrictions in the area, and the water well survey findings, there are no known receptors for 1,4-dioxane in groundwater either on or off-site, and therefore the groundwater exposure pathway for 1,4-dioxane is incomplete.

Exceedances of the 2017 draft Tier I VI Groundwater Screening Levels for tetrachloroethene (PCE), trichloroethene (TCE), and 1,1-dichloroethane (DCA) have been observed at the Fiero property boundary. However, the Draft 2017 Tier 1 GW VI exceedances do not exceed the Residential Media-Specific Volatilization to Indoor Air Interim Action Screening Levels (MDEQ, August 2017) for groundwater not in contact with a building foundation. Depth to groundwater at the Fiero property boundary is approximately 25 feet below grade. The ground surface slopes moving south from the Fiero property boundary and additional evaluation will be required to confirm downgradient depth to groundwater, and potentially building construction, to eliminate the VI pathway.

INVESTIGATION ACTIVITIES

During ongoing Site investigation and data evaluation activities completed in early to mid-2016, 1,4-dioxane was detected in groundwater at the Site in two separate areas: Fiero and the current U.S. Postal Service (USPS) area; specifically, light non-aqueous phase liquid (LNAPL) Area 1/7 (Area of Interest [AOI] W-1) and LNAPL Area 10 (AOI W-8). These areas are shown on **Figure 2**. The characterization of 1,4-dioxane was completed during the following phases of work:

- Supplemental Site Characterization – In May 2016, select monitoring wells in areas where 1,1,1-trichloroethane (TCA) had previously been identified were sampled for 1,4-dioxane.
- 1,4-Dioxane Supplemental Investigation – After 1,4-dioxane was detected in groundwater in May 2016, supplemental investigation activities were completed from November to December 2016 to further characterize the nature and extent of 1,4-dioxane. The scope of work included:
 - o Sampling additional existing monitoring wells in the Fiero area for 1,4-dioxane.
 - o Completion of Hydraulic Profiling Tool (HPT) borings and vertical aquifer profile (VAP) sampling along the southern Fiero area property boundary.
 - o Sampling of additional existing monitoring wells downgradient of LNAPL Areas 1/7 and LNAPL Area 10 for 1,4-dioxane.
- 1,4-Dioxane Phase 2 Supplemental Investigation – In April and July 2017, additional monitoring wells were sampled to further assess the extent of 1,4-dioxane. New and existing monitoring wells were sampled in the Fiero area and downgradient of LNAPL Area 1/7.

All field activities were performed in accordance with the sampling methodologies and analytical procedures set forth in the Field Sampling Plan (FSP; Encore 2001a) and Quality Assurance Project Plan (QAPP; Encore 2001b). The data collected as part of the 1,4-dioxane characterization activities will be used to update the conceptual site model (CSM) in support of evaluating potential exposure pathways and developing corrective measures.

Background

The compound 1,4-dioxane is an important emerging groundwater contaminant identified as a potential risk at sites that formally used 1,4-dioxane or other chlorinated solvents. 1,4-Dioxane is a common co-contaminant with chlorinated solvents due to its use as a stabilizer in TCA. 1,4-Dioxane was also used as a stabilizer in paint strippers, greases, and waxes; as stand-alone solvent in various manufacturing processes; and is also a minor ingredient or by-product in common consumer products such as soaps and detergents. As regulations evolve, 1,4-dioxane may become a regulatory driver at many chlorinated

solvent sites alongside the already established contaminants of concern. For these reasons, RACER decided to proactively investigate 1,4-dioxane so that it can evaluate potential exposure pathways and corrective measures. 1,4-Dioxane was first detected at the Site in May 2016, following the sampling of select monitoring wells that had historically shown impacts related to chlorinated ethanes (e.g., TCA).

Ongoing groundwater monitoring activities are completed on an annual basis. Historically, the primary constituents of concern at the site consist of target compound list (TCL) volatile organic compounds (VOCs) using USEPA Method 8260B, polychlorinated biphenyls (PCBs) using USEPA Method 8082, and select site-specific parameter list (SSPL) metals using USEPA Method 6020 and 7470A. Based on the results of the 1,4-dioxane characterization, additional sampling events for 1,4-dioxane are scheduled for October 2017 and January 2018. Based on the results of the 1,4-dioxane sampling, the monitoring plan may be amended to include several existing and new monitoring wells for 1,4-dioxane and VOCs, as appropriate, to evaluate plume stability and geochemical conditions.

SUPPLEMENTAL SITE CHARACTERIZATION (MAY 2016)

Select monitoring wells where TCA was detected in groundwater were sampled for 1,4-dioxane analysis. Three of the samples analyzed for 1,4-dioxane exceeded the Michigan Part 201 Residential Criteria and/or the draft 2017 Non-residential DW Criteria (7.2 micrograms per liter [$\mu\text{g/L}$] and 37 $\mu\text{g/L}$, respectively). The results were previously provided in the Supplemental Site Characterization Summary (Arcadis 2016a). Groundwater analytical results and the comparison criteria are provided for reference in **Table 1**. Light blue shading on **Figure 3** indicates the wells sampled during May 2016. The analytical results are also summarized on **Figure 3**.

1,4-DIOXANE SUPPLEMENTAL INVESTIGATION (NOVEMBER – DECEMBER 2016)

The initial monitoring well sampling during May 2016 suggested the potential for off-site migration of 1,4-dioxane at concentrations above Residential DW criteria. Supplemental investigation activities were designed to further characterize the nature and extent of 1,4-dioxane and evaluate the concentrations of 1,4-dioxane migrating off-site. All field activities occurred between November 28 and December 21, 2016. These activities were performed in accordance with the *Work Plan to Investigate the Presence of 1,4-Dioxane* (Workplan; Arcadis 2016b). A preliminary status update provided to the USEPA in the *1,4-Dioxane Supplemental Investigation Scope of Work* (Arcadis 2017). A more detailed summary of these investigation activities is provided in the following sections.

Fiero Area Vertical Aquifer Profile Characterization

All field activities were completed along an east-west transect near the southern property boundary of the former Fiero powerhouse, as shown on **Figure 2**. The borings were completed along a transect, first using a Geoprobe® HPT to map zones of higher permeability within the saturated zone. Then, based on the HPT results, VAP groundwater sampling was performed at each boring location, biased to the more permeable zones. The transect was approximately 800 feet long, and was composed of borings spaced approximately 100 feet apart, totaling nine collocated HPT and VAP borings, with one confirmation soil boring logged for lithology.

Pre-Investigation Activities

Before drilling, Arcadis contracted Ground Penetrating Radar Systems, Inc. (GPRS) for pre-clearing of each borehole location. GPR and electromagnetic (EM) locators were used to identify underground utilities

on November 28, 2016. A hand auger and/or an air knife was used to clear all boring locations to 6.5-7.0 feet below ground surface (bgs) on November 29 to 30, 2016.

Fiero Area HPT Survey

Continuous real-time profiling of relative permeability was completed using the Geoprobe® HPT. The HPT uses standard direct-push drilling equipment to advance the HPT probe into the soil. The probe injects a small continuous jet of water into the soil while simultaneously measuring the fluid back-pressure due to injection and the flow rate at a high frequency. Because the HPT pressure and flow response are functions of aquifer permeability, the HPT data are used to locate and define zones of elevated hydraulic conductivity, which may serve as potential groundwater migration pathways. The HPT probe is also equipped with an electrical conductivity (EC) dipole that can be used as a second line of evidence to correlate stratigraphic units. The HPT logs are included as **Appendix A**.

In addition to the response tests, HPT dissipation tests were completed at each boring. A dissipation test consists of pausing the HPT boring, turning off the flow, and allowing the pressure to return to a static condition. These data were used to verify the elevation of the water table, correct for hydrostatic pressure, and calculate the estimated hydraulic conductivity (Est K). At least one pressure dissipation test was completed per boring. The tests were biased to more conductive zones to ensure achievement of a static condition within a reasonable timeframe.

A calibration soil boring with continuous soil descriptions (SB-01-16) was advanced adjacent to HPT/VAP-06-16 to verify correlation between soil type and HPT response. The calibration soil boring log is included as **Appendix B**. In addition, HPT boring HPT-08-16 was advanced near existing monitoring well MWF12-02, which provided additional correlation between soil type (from the previously logged soil boring) and HPT response. The HPT resolved permeability differences within the permeable glacial outwash sand and gravel and also provided a clear indication of the contact between the permeable zone and the underlying glaciolacustrine silts/clays.

Fiero Area Vertical Aquifer Profile Groundwater Sampling

Based on the results of the HPT borings, the VAP borings were completed in an immediately adjacent borehole (VAP-01-16 through VAP-09-16), with sample intervals targeting zones of higher permeability where applicable. Three to five discrete depth intervals were sampled at each location, as shown in **Table 1**. The VAP samples were collected using a 40-inch-long, sheathed screen point sampler driven to the specified sampling interval by a direct-push drilling rig. The drive rod tool string was then retracted, exposing a stainless-steel screen to the formation and allowing water to enter the screened section and the rods.

Groundwater sample intervals were purged with a peristaltic pump until relatively free of fine-grained sediments. Groundwater turbidity and pH were monitored continuously, and samples were collected when turbidity fell below 10.0 nephelometric turbidity units (NTU) or after a 30-minute purge time. Groundwater samples were collected and sent to Merit Labs for analysis of the following:

- Volatile organic compounds (VOCs) using USEPA Method 8260C
- 1,4-Dioxane using USEPA Method 8260C Selective Ion Monitoring (SIM).

Purge water was containerized in drums and stored on Site for characterization and off-site disposal. VAP boreholes were grouted to ground surface upon completion.

Fiero Area VAP Results

The extent of 1,4-dioxane at concentrations above Residential DW Criteria (7.2 µg/L, 2016) is shown on **Figure 3**. There are two lobes near the downgradient Fiero property boundary, where 1,4-dioxane has the potential to migrate off-site. These lobes extend downgradient from the suspected source area north of the former Fiero Powerhouse. VAP-01-16 and VAP-05-16 contained one or more sample intervals that exceeded 7.2 µg/L. However, the downgradient off-site area is within a groundwater restriction zone per a City of Pontiac Ordinance, and no water supply wells were identified in the downgradient area based on a 2014 well survey. Groundwater analytical results for sampling intervals from VAP-01-16 through VAP-09-16 are summarized in **Table 1**. Results are posted in plain view on **Figure 3** and in cross-section view on **Figure 4**. Laboratory reports are included in **Appendix C**. Several other chlorinated VOCs were detected in the VAP samples in excess of draft 2017 Residential DW Criteria or Tier 1 GW VI screening levels. As noted, the Tier 1 GW VI exceedances do not exceed the Residential Media-Specific Volatilization to Indoor Air Interim Action Screening Levels for groundwater not in contact with a building foundation.

Additional Sampling of Existing Monitoring Wells

Groundwater samples were collected on December 20 through December 22, 2016 from an existing monitoring well in the Fiero area as well as existing monitoring wells downgradient of LNAPL Area 1/7 (AOI W-1) and within LNAPL Area 10 (AOI W-8). None of the proposed wells (MWF16-06, MWF16-18, MWF16-21, and MWF16-23) in the Former Fiero Plant 17 area could be located. Therefore, well MWF8-01 (located on the north side of the Fiero area) was sampled instead. In addition, proposed monitoring well MW0S-04 south of LNAPL Area 1/7 could not be located.

Groundwater samples were collected using low-flow sampling procedures in a manner consistent with the low-flow sampling techniques outlined in the FSP (Encore 2001a), Arcadis' procedures for low-flow sample collection, and generally consistent with the Michigan Department of Environmental Protection's (MDEQ's) Remediation and Redevelopment Division Op Memo 2, Attachment 5. 1,4-Dioxane and other VOCs were not detected at concentrations above Residential DW Criteria in any of the monitoring wells sampled as part of this scope of work. These wells provided 1,4-dioxane delineation points in the northern portion of the Fiero area and downgradient of LNAPL Area 1/7. Groundwater analytical results for existing wells are included in **Table 1**. Results are also included on **Figure 3**. Laboratory reports are included in **Appendix C**.

1,4-DIOXANE PHASE 2 SUPPLEMENTAL INVESTIGATION (APRIL – JULY 2017)

Based on the 1,4-Dioxane Supplemental Investigation results, additional work was completed to further delineate and evaluate the 1,4-dioxane impacts near the downgradient property boundaries in the Fiero Area and downgradient of LNAPL Area 1/7. The 1,4-Dioxane Phase 2 Supplemental Investigation scope of work included installation and sampling of new monitoring wells and sampling of additional existing monitoring wells in April and July 2017 in accordance with the 1,4-Dioxane Supplemental Investigation Scope of Work (Arcadis 2017). Subsequent sampling events are scheduled for October 2017 and January 2018. The new monitoring wells are shown in red on **Figure 2**. The specific tasks for this scope of work included the following:

- Installation of monitoring well MW-01-17 downgradient of LNAPL Area 1/7 near the southwest USPS property boundary to verify that 1,4-dioxane is not moving off-site in this area. This location is downgradient from monitoring wells with 1,4-dioxane exceedances between existing wells TW-MD-01 and MWW1-04 along the property boundary.

- Installation of monitoring well MW-02-17 adjacent to VAP-01-16 (western lobe in Fiero Area), which was the location with the highest 1,4-dioxane concentrations along the HPT/VAP transect. The purpose of this well is to evaluate seasonal 1,4-dioxane concentrations at the property boundary.
- Measurement of groundwater elevations at monitoring wells on Fiero, south of Fiero, and in AOI M-2 to verify groundwater flow direction.
- Sampling of groundwater to evaluate 1,4-dioxane for one year. The following monitoring wells are included in the 1,4-Dioxane Phase 2 Supplemental Investigation:
 - o Fiero Area
 - Quarterly sampling of new well MW-02-17
 - Quarterly sampling of existing wells MWF1R, MWF12-01, and MWF12-02
 - Semi-annual sampling of existing upgradient wells MWF7-01, MWF7-02, MWF7-03, and MWF16-15
 - o Downgradient of LNAPL Area 1/7
 - Quarterly sampling of new well MW-01-17
 - Quarterly sampling of existing wells MWW1-06 and MWW1-15
 - Semi-annual sampling of existing upgradient wells MWW10-SEN02 and MWW10-SEN03.

A summary of the groundwater analytical results is provided as **Table 1**. Table 1 includes both the April and July 2017 VOC results from Fiero and the southern portion of the Site, as well as the results from the 2016 investigation. The analytical laboratory reports are included in **Appendix C**. Exceedances of the draft Part 201 Criteria are shown on **Figure 3**.

Monitoring Well installation

The locations of monitoring wells MW-01-17 and MW-02-17 are included on **Figure 2**. Before drilling, Arcadis contracted Fibertec for pre-clearing of each borehole location. GPR and EM locators were used to identify underground utilities on April 17, 2017. A hand auger was used to clear all boring locations to 6.5 feet bgs. Each soil boring was completed to a depth of 25 to 30 feet bgs, and soil samples were collected continuously with a 5-foot macro core sampler. The borings were then converted to wells installed with 4.25-inch hollow-stem augers. The wells were constructed of 2-inch polyvinyl chloride (PVC) materials; 5-foot, 10 slot screens; and expanding lockable caps. Filter material was inserted around the well screens from the bottom to 1 to 2 feet above the top followed by a bentonite seal. One well was completed with an 8-inch flush-mount well cover (MW-02-17) and the other (MW-01-17) with an above-grade locking stick-up, both set in concrete pads. Each well was developed using surge-and-purge techniques with a submersible pump. Boring and well construction logs are included in **Appendix B**.

Groundwater Sampling

During the April 2017 semi-annual sampling event, 14 groundwater samples were collected from within Fiero and the LNAPL Area 1/7 using low-flow sampling procedures. During the July 2017 quarterly sampling event, six (6) groundwater samples were collected. During sampling, purge water was monitored for dissolved oxygen (DO), temperature, specific conductivity, turbidity, oxygen reduction

potential (ORP), and pH. These water quality measurements were used to determine groundwater sample stability prior to collecting the samples.

Groundwater samples were collected and sent to Merit for analysis of:

- Target Compound List (TCL) VOCs using USEPA Method 8260C
- 1,4-Dioxane using USEPA Method 8260C SIM.

Purge water was containerized in drums and stored on-site for characterization and off-site disposal.

Additional Well Gauging

Groundwater and LNAPL level measurements were recorded from selected monitoring wells during these field events from Fiero, south of Fiero, AOI M-2, and within the USPS property and adjacent. Groundwater and LNAPL levels were measured to the nearest 0.01 foot with an oil/water interface probe. Groundwater elevations were calculated using surveyed top-of-well casing elevations. Equivalent groundwater elevations were calculated for wells where LNAPL was present. A summary of water levels and groundwater elevations is presented in **Table 2**. Apparent shallow groundwater flow across the Site is generally to the south and southwest, as shown on **Figure 5**. In general, since the Storm Sewer Bulkheading Event in 2012, groundwater levels have increased up to 5 feet in the area downgradient of the Plant 14 bulkhead locations.

CONCLUSIONS AND RECOMMENDATIONS

Multiple phases of investigation were undertaken to define the nature and extent of 1,4-dioxane in two separate areas: The Former Fiero Area and the Former Demolition Area (LNAPL Area 1/7 [AOI W-1] and LNAPL Area 10 [AOI W-8]). Even though there are no known drinking water wells and therefore no complete exposure pathway, results were compared to the draft 2017 Michigan Part 201 Residential and Non-residential DW Criteria. Results for 1,4-dioxane and other VOCs were also compared to the draft 2017 Tier I VI Groundwater Screening Levels and the Michigan Rule 57 HCV for surface water used as a drinking water source.

Arcadis offers the following conclusions:

- DW Criteria - 1,4-Dioxane has been detected above the Residential DW criterion of 7.2 µg/L and PCE has been detected above the non-Residential DW criterion of 5 µg/L at the Fiero southern property boundary. However, the downgradient off-site area is within a groundwater restriction zone per a City of Pontiac Ordinance, and no water supply wells are present downgradient of the Fiero property. This is the first time 1,4-dioxane and PCE DW exceedances have been observed at the Fiero southern property boundary. The PCE DW exceedance was observed at MW-02-17 installed as part of this investigation. Samples from MWF1R were not analyzed for 1,4-dioxane prior to this investigation. Two other monitoring wells are located along the Fiero southern property boundary. MWF12-02 has not had any VOC exceedances since installation in 2001. Well MWF12-01 had a single 1,1-dichloroethene non-res DW exceedance in 2004.
- Tier I VI groundwater screening levels – Exceedances of the 2017 draft Tier I VI Groundwater Screening Levels for PCE, TCE, and DCA have been observed at the property boundary. However, the Draft 2017 Tier 1 GW VI exceedances do not exceed the Residential Media-Specific Volatilization to Indoor Air Interim Action Screening Levels (August 2017) for groundwater not in contact with a building foundation. Depth to groundwater at the Fiero property boundary is approximately 25 feet

below grade. The ground surface slopes moving south from the Fiero property boundary and additional evaluation will be required to confirm downgradient depth to groundwater, and potentially building construction, to eliminate the VI pathway.

- Surface Water Criteria - PCE was detected at a concentration of 12 µg/L at the southern property boundary, above the Rule 57 criterion of 11 µg/L, during April 2017. There were no Rule 57 exceedances of 1,4-dioxane or other VOCs during July 2017. Additional sampling events will be completed to assess potential Rule 57 exceedances at the property boundary. Due to the sporadic PCE exceedances and distance to the nearest down-gradient surface water body, the surface water pathway is not likely to be complete.
- Follow-up sampling events of monitoring wells along the southern Fiero property boundary suggest the concentrations of 1,4-dioxane and VOCs vary seasonally. Additional sampling events are required to provide sufficient data for an initial evaluation of 1,4-dioxane monitoring well trends. There are three monitoring wells along the Fiero southern property boundary with sufficient data to evaluate VOC trends. Two of these monitoring wells (MWF1R and MWF12-02) have not had any VOC exceedances. MWF12-01 had sporadic DCA exceedances from 2002-2017 of the 2017 proposed Tier I VI screening level, a non-res DW exceedance of 1,1-dichlorethene in 2004, and a Tier 1 VI Groundwater screening level exceedance of TCE in 2001.

The 1,4-Dioxane Supplemental Investigation scope of work includes two subsequent quarterly monitoring events (Arcadis 2017). The third quarterly sampling event was completed in October 2017 and the fourth quarterly event is scheduled for January 2018. A brief summary of results will be provided after each quarterly sampling event. Recommendations for additional work, if any, will be provided once the last two sampling events are complete and the data have been evaluated.

REFERENCES

Arcadis. 2016a. Supplemental Site Characterization Summary, RACER Pontiac North Campus Site, Pontiac, Michigan, July 21

Arcadis. 2016b. Work Plan to Investigate the Presence of 1,4-Dioxane, RACER Pontiac North Campus Site, Pontiac, Michigan, November 21

Arcadis. 2017. 1,4-Dioxane Supplemental Investigation Scope of Work, RACER Pontiac North Campus Site, Pontiac, Michigan, March 28.

Encore. 2001a. Field Sampling Plan, Pontiac North Campus. General Motors Corporation, Pontiac, Michigan. May 2001.

Encore. 2001b. RFI Work Plan, Pontiac North Campus. General Motors Corporation, Pontiac, Michigan. May 15, 2001.

ATTACHMENTS

Tables

Table 1 – Summary of Groundwater Analytical Results

Table 2 – Groundwater Elevation Summary, April 2017

Figures

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Figure 1 – Site Location

Figure 2 – Site Detail

Figure 3 – 1,4-Dioxane and Other VOC Results

Figure 4 – Cross-Section A-A'

Figure 5 – Groundwater Elevation Contour – April 2017

Appendices

A HPT Logs

B Boring and Well Construction Logs

C Analytical Data

TABLES



Table 1
Summary of Groundwater Analytical Results
RACER Trust
Pontiac North Campus



Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	MW-01-17 04/26/17 MW-01-17_GW-042617	MW-01-17 07/20/17 MW-01-17_GW-072017	MW-02-17 04/21/17 MW-02-17_GW-042117	MW-02-17 07/20/17 MW-02-17_GW-072017	MW-40-99 09/20/16 MW40-99_092016	MW-40-99 12/21/16 MW-40-99-GW-122116	MWF1R 09/20/16 MWF1R_092016	MWF1R 04/21/17 MWF1R_GW-042117	MWF1R 07/20/17 MWF1R_GW-072017	MWF7-01 05/19/16 MWF7-01-GW-051916
Volatile Organics															
1,2,3-Trimethylbenzene	130	130	43	290	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	5 U	NA	5 U	NA	NA	NA
Acrylonitrile	1.3	6.8	4.6	0.21	--	NA	NA	NA	NA	2 U	NA	2 U	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	5 U	NA	5 U	NA	NA	NA
Iodomethane	--	--	--	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
m&p-Xylene	--	--	--	--	--	2 U	2 U	2 U	2 U [2 U]	2 U	2 U	2 U	2 U	2 U	NA
Tetrahydrofuran	3,600	17,000	45,000	350	--	NA	NA	NA	NA	90 U	NA	90 U	NA	NA	NA
trans-1,4-Dichloro-2-butene	--	--	--	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
Acetone	5,300	17,000	50,000	1,700	12,000,000	50 U	50 U	50 U	50 U [50 U]	50 U	50 U	50 U	50 U	50 U	NA
Benzene	5	5	1	12	14	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Bromobenzene	47	150	62	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
Bromodichloromethane	80	80	1.2	6.8	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Bromoform	80	80	89	52	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Bromomethane	120	380	2.1	4.2	--	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
2-Butanone	2,400	11,000	2,600	2,200	--	25 U	25 U	25 U	25 U [25 U]	25 U	25 U	25 U	25 U	25 U	NA
n-Butylbenzene	270	870	44	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
sec-Butylbenzene	590	1,900	270	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
tert-Butylbenzene	590	1,900	0.077	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
Carbon Disulfide	440	1,800	92	1,000	--	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
Carbon Tetrachloride	5	5	0.41	4.7	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
CFC-11	1,800	5,700	22	--	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
CFC-12	30	94	13	2,900	--	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
Chlorobenzene	100	100	33	25	540	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Chlorobromomethane	--	--	--	1,000	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
Chlorodibromomethane	80	80	0.78	6.8	--	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
Chloroethane	240	760	620	170	6,700	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
Chloroform	80	80	0.49	350	7.6	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Chloromethane	220	1,100	15	110	160	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
Cyclohexane	--	--	290	--	--	1 U	1 U	1 U	1 U [1 U]	NA	1 U	NA	1 U	1 U	NA
Cymene	--	--	--	--	--	NA	NA	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2-Dibromo-3-chloropropane	0.2	0.2	0.00045	0.24	--	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
1,2-Dibromoethane	0.05	0.05	0.13	0.17	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Dibromomethane	18	57	8.8	--	--	NA	NA	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2-Dichlorobenzene	600	600	370	13	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
1,3-Dichlorobenzene	12	38	2.6	28	52	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
1,4-Dichlorobenzene	75	75	5.9	17	120	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
1,1-Dichloroethane	130	650	4.7	740	67	1 U	1 U	2	2 [2]	1 U	1 U	1 U	1 U	1 U	NA
1,2-Dichloroethane	5	5	1.4	6	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
1,1-Dichloroethene	7	7	18	130	170	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
cis-1,2-Dichloroethene	70	70	3.4	620	48	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
trans-1,2-Dichloroethene	100	100	27	470	650	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Dichloromethane	5	5	79	47	3,900	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
1,2-Dichloropropane	5	5	2.6	9.1	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
cis-1,3-Dichloropropene	--	--	--	3.3	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
trans-1,3-Dichloropropene	--	--	--	3.3	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Diethyl Ether	1.2	1.2	1,200	14,000	--	NA	NA	NA	NA	10 U	NA	10 U	NA	NA	NA
1,4-Dioxane	7.2	37	1,900	34	--	3 U	3 U	3 U	3 U [3 U]	NA	3 U	4	18	3 U	22 [29]
Ethylbenzene	74	74	2.8	18	45	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Isopropylbenzene	590	1,900	0.6	28	--	1 U	1 U	1 U	1 U [1 U]	5 U	1 U	5 U	1 U	1 U	NA
Methyl acetate	--	--	--	--	--	10 U	10 U	10 U	10 U [10 U]	NA	10 U	NA	10 U	10 U	NA
Methyl N-Butyl Ketone	30	94	660	9,700	--	50 U	50 U	50 U	50 U [50 U]	50 U	50 U	50 U	50 U	50 U	NA
Methylcyclohexane	--	--	--	--	--	1 U	--	1 U	1 U [1 U]	NA	1 U	NA	1 U	1 U	NA
4-Methyl-2-pentanone	300	940	720	--	--	50 U	50 U	50 U	50 U [50 U]	50 U	50 U	50 U	50 U	50 U	NA
Methyl tert-butyl ether	40	40	250	100	4,000	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	5 U	NA	5 U	NA	NA	NA
n-Propylbenzene	590	1,900	43	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
Styrene	100	100	33	20	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
1,1,1,2-Tetrachloroethane	28	140	3.1	19	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
1,1,1,2,2-Tetrachloroethane	3.6	18	2.4	3.2	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA

See Notes on last page.

Table 1
Summary of Groundwater Analytical Results
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Pontiac North Campus

Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	MW-01-17 04/26/17 MW-01-17_GW-042617	MW-01-17 07/20/17 MW-01-17_GW-072017	MW-02-17 04/21/17 MW-02-17_GW-042117	MW-02-17 07/20/17 MW-02-17_GW-072017	MW-40-99 09/20/16 MW40-99_092016	MW-40-99 12/21/16 MW-40-99-GW-122116	MWF1R 09/20/16 MWF1R_092016	MWF1R 04/21/17 MWF1R_GW-042117	MWF1R 07/20/17 MWF1R_GW-072017	MWF7-01 05/19/16 MWF7-01-GW-051916
Tetrachloroethene	5	5	1.5	11	96	1 U	1 U	12	5 [5]	1 U	1 U	1 U	1 U	1 U	NA
Toluene	790	790	300	270	23,000	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
1,2,3-Trichlorobenzene	16	51	58	55	--	NA	NA	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2,4-Trichlorobenzene	70	70	3.8	80	95	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	NA
1,1,1-Trichloroethane	200	200	180	89	8,600	1 U	1 U	1 U	3 [4]	1 U	1 U	1 U	1 U	1 U	NA
1,1,2-Trichloroethane	5	5	0.00047	12	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Trichloroethene	5	5	0.073	29	6.1	1 U	1 U	1	2 [2]	1 U	1 U	1 U	1 U	1 U	NA
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	1 U	1 U	1 U	1 U [1 U]	NA	1 U	NA	1 U	1 U	NA
1,2,4-Trimethylbenzene	63	63	25	17	440	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
1,3,5-Trimethylbenzene	72	72	18	45	310	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
Vinyl Chloride	2	2	0.12	0.25	0.96	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
o-Xylene	--	--	--	--	--	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	NA
Total Xylenes	280	280	75	49	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	32	130	45	18	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	800	3,800	--	76	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	12	38	0.12	56	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	3	9.4	--	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	--	--	--	25	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	--	--	200	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	360	1,100	3,900	38	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	360	1,100	65	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	43	43	1,900	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	3	3	--	7.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	2,000	9,400	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	7.4	38	--	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	2	2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Diethylphthalate	4,700	15,000	- -	110	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	260	- -	1.6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	760	1,700	12	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	760	3,800	- -	310	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	12	38	68	4.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	180	570	0.077	1.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1,200	5,700	- -	450	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	140	140	15	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Tetrachloroethene	5	5	1.5	11	96	1 U	1 U	34 J	27	1 UJ	1 U	1 U	1 U	NA	1 U [1 U]
Toluene	790	790	300	270	23,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U [1 U]
1,2,3-Trichlorobenzene	16	51	58	55	--	5 U	NA	5 U	NA	5 U	NA	5 U	NA	NA	5 U [5 U]
1,2,4-Trichlorobenzene	70	70	3.8	80	95	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U [5 U]
1,1,1-Trichloroethane	200	200	180	89	8,600	9	8	106	52	1 U	1 U	1 U	1 U	NA	16 [17]
1,1,2-Trichloroethane	5	5	0.00047	12	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U [1 U]
Trichloroethene	5	5	0.073	29	6.1	1 U	1 U	4	3	1 U	1 U	1 U	1 U	NA	1 U [1 U]
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	1 U	NA	1 U	NA	1 U	NA	1 U	NA	NA	1 U [1 U]
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	NA	1 U	NA	1 U	NA	1 U	NA	1 U	NA	NA
1,2,4-Trimethylbenzene	63	63	25	17	440	1 U	NA	1 U	NA	1 U	NA	1 U	NA	NA	1 U [1 U]
1,3,5-Trimethylbenzene	72	72	18	45	310	1 U	NA	1 U	NA	1 U	NA	1 U	NA	NA	1 U [1 U]
Vinyl Chloride	2	2	0.12	0.25	0.96	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U [1 U]
o-Xylene	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U [1 U]
Total Xylenes	280	280	75	49	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	32	130	45	18	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	800	3,800	--	76	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	12	38	0.12	56	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	3	9.4	--	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	--	--	--	25	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	--	--	200	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	360	1,100	3,900	38	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	360	1,100	65	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	43	43	1,900	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	3	3	--	7.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	2,000	9,400	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	7.4	38	--	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	2	2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 1
Summary of Groundwater Analytical Results
RACER Trust
Pontiac North Campus

Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	MWF7-01 09/22/16 MWF7-01_092216	MWF7-01 04/21/17 MWF7-01_GW-042117	MWF7-02 09/22/16 MWF7-02_092226	MWF7-02 04/21/17 MWF7-02_GW-042117	MWF7-03 09/22/16 MWF7-03_092226	MWF7-03 04/27/17 MWF7-03_GW-042717	MWF8-01 09/21/16 MWF8-01_092116	MWF8-01 12/22/16 MWF8-01-GW-122116	MWF12-01 05/19/16 MWF12-01-GW-051916	MWF12-01 09/21/16 MWF12-01_092116
Diethylphthalate	4,700	15,000	- -	110	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	260	- -	1.6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	760	1,700	12	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	760	3,800	- -	310	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	12	38	68	4.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	180	570	0.077	1.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1,200	5,700	- -	450	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	140	140	15	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1
Summary of Groundwater Analytical Results
RACER Trust
Pontiac North Campus



Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	MWF12-01 04/26/17 MWF12-01_GW-042617	MWF12-01 07/21/17 MWF12-01_GW-072117	MWF12-02 09/21/16 MWF12-02_092116	MWF12-02 09/22/16 MWF12-02_092226	MWF12-02 04/26/17 MWF12-02_GW-042617	MWF12-02 07/21/17 MWF12-02_GW-072117	MWF16-06 04/28/17 MWF16-06_GW-042817	MWF16-15 09/22/16 MWF16-15_092226	MWF16-15 04/27/17 MWF16-15_GW-042717	MWF16-19 04/28/17 MWF16-19_GW-042817
Tetrachloroethene	5	5	1.5	11	96	1 U	1 U	1 U	1 U	1 U	1 U	43	1 UJ	1 U [1 U]	5 UY
Toluene	790	790	300	270	23,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	5 UY
1,2,3-Trichlorobenzene	16	51	58	55	--	NA	NA	5 U	5 U	NA	NA	NA	5 U	NA	NA
1,2,4-Trichlorobenzene	70	70	3.8	80	95	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U [5 U]	30 UY
1,1,1-Trichloroethane	200	200	180	89	8,600	1 U	24	4	3	2	2	1 U	9	1 U [1 U]	5 UY
1,1,2-Trichloroethane	5	5	0.00047	12	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	5 UY
Trichloroethene	5	5	0.073	29	6.1	1 U	1 U	1 U	1 U	1 U	1 U	11	1 U	2 [2]	5 UY
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	NA	NA	1 U	1 U	NA	NA	NA	1 U	NA	NA
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	1 U	1 U	NA	NA	1 U	1 U	1 U	NA	1 U [1 U]	5 UY
1,2,4-Trimethylbenzene	63	63	25	17	440	NA	NA	1 U	1 U	NA	NA	NA	1 U	NA	NA
1,3,5-Trimethylbenzene	72	72	18	45	310	NA	NA	1 U	1 U	NA	NA	NA	1 U	NA	NA
Vinyl Chloride	2	2	0.12	0.25	0.96	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	5 UY
o-Xylene	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	5 UY
Total Xylenes	280	280	75	49	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	32	130	45	18	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	800	3,800	--	76	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	12	38	0.12	56	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	3	9.4	--	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	--	--	--	25	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	--	--	200	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	360	1,100	3,900	38	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	360	1,100	65	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	43	43	1,900	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	3	3	--	7.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	2,000	9,400	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	7.4	38	--	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	2	2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Pontiac North Campus

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Diethylphthalate	4,700	15,000	- -	110	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	260	- -	1.6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	760	1,700	12	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	760	3,800	- -	310	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	12	38	68	4.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	180	570	0.077	1.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1,200	5,700	- -	450	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	140	140	15	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Pontiac North Campus



Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	MWM2-04 05/18/16 MWM2-04-GW-051816	MWM10-09 05/19/16 MWM10-09-GW-051916	MWOS-02 09/19/16 MW0S-02_091916	MWOS-03 09/19/16 MW0S-03_091916	MWW1-04 12/21/16 MWW1-04-GW-122116	MWW1-04 04/19/17 MWW1-04_GW-041917	MWW1-04 07/20/17 MWW1-04_GW-072017	MWW01-SEN01 05/18/16 WW10-SEN01-GW-0518	MWW01-SEN02 09/20/16 MWW10-SEN02_092016	MWW01-SEN02 04/26/17 WW10-SEN02_GW-0426
Diethylphthalate	4,700	15,000	- -	110	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	1.0 JB	0.81 JB	NA	NA	NA	NA	NA	0.40 JB	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Fluoranthene	240	260	- -	1.6	--	1.0 U	0.96 U	NA	NA	NA	NA	NA	0.96 U	NA	NA
Fluorene	240	760	1,700	12	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	0.25 J	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	0.21 U	0.19 U	NA	NA	NA	NA	NA	0.19 U	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	2.1 U	1.9 U	NA	NA	NA	NA	NA	1.9 U	NA	NA
Isophorone	760	3,800	- -	310	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Nitrobenzene	12	38	68	4.7	--	3.1 U	2.9 U	NA	NA	NA	NA	NA	2.9 U	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Phenanthrene	180	570	0.077	1.7	--	2.1 U	1.9 U	NA	NA	NA	NA	NA	1.9 U	NA	NA
Phenol	1,200	5,700	- -	450	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Pyrene	140	140	140	15	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	1.0 U	0.96 U	NA	NA	NA	NA	NA	0.96 U	NA	NA
Naphthalene	590	1,900	4.2	11	--	5.2 U	4.8 U	NA	NA	NA	NA	NA	4.8 U	NA	NA

See Notes on last page.

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Pontiac North Campus



Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	MWW01-SEN03 05/18/16 WW10-SEN03-GW-0518	MWW01-SEN03 09/21/16 MWW10-SEN03_092116	MWW01-SEN03 04/27/17 MWW10-SEN03_GW-0427	MWW01-SEN04 05/18/16 MWW10-SEN04-GW-0518	MWW01-SEN04 09/20/16 MWW10-SEN04_092016	MWW5-01 05/19/16 MWW5-01-GW-051916	MWW5-01 09/20/16 MWW5-01_092016	MWW10-04 05/18/16 MWW10-04-GW-051816	SB-62-14 05/19/16 SB-62-14-GW-051916	TW01-03 09/20/16 TW-01-03_092016
Tetrachloroethene	5	5	1.5	11	96	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U	NA
Toluene	790	790	300	270	23,000	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	0.93 J	NA
1,2,3-Trichlorobenzene	16	51	58	55	--	NA	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2,4-Trichlorobenzene	70	70	3.8	80	95	1.0 U	5 U	5 U	1.0 U	5 U	1.0 U	5 U	1.0 U	1.0 U	NA
1,1,1-Trichloroethane	200	200	180	89	8,600	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U	NA
1,1,2-Trichloroethane	5	5	0.00047	12	--	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U	NA
Trichloroethene	5	5	0.073	29	6.1	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U	NA
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	NA	1 U	NA	NA	1 U	NA	1 U	NA	NA	NA
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	1.0 U	NA	1 U	1.0 U	NA	1.0 U	NA	1.0 U	1.0 U	NA
1,2,4-Trimethylbenzene	63	63	25	17	440	NA	1 U	NA	NA	1 U	NA	1 U	NA	NA	NA
1,3,5-Trimethylbenzene	72	72	18	45	310	NA	1 U	NA	NA	1 U	NA	1 U	NA	NA	NA
Vinyl Chloride	2	2	0.12	0.25	0.96	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U	NA
o-Xylene	--	--	--	--	--	NA	1 U	1 U	NA	1 U	NA	1 U	NA	NA	NA
Total Xylenes	280	280	75	49	1,200	2.0 U	NA	NA	2.0 U	NA	2.0 U	NA	2.0 U	2.1	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	NA	NA	NA	NA	NA	NA	NA	3.8 U	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	NA	NA	NA	NA	NA	NA	NA	9.6 U	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	NA	NA	NA	NA	NA	NA	NA	19 U	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
2-Chlorophenol	32	130	45	18	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	NA	NA	NA	NA	1.4 J	NA
2-Methylphenol	800	3,800	--	76	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
2-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	19 U	NA
2-Nitrophenol	12	38	0.12	56	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
3-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	19 U	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	19 U	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
4-Chloroaniline	3	9.4	--	2	--	NA	NA	NA	NA	NA	NA	NA	NA	1.9 U	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
4-Methylphenol	--	--	--	25	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
4-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	19 U	NA
4-Nitrophenol	--	--	--	200	--	NA	NA	NA	NA	NA	NA	NA	NA	19 U	NA
Acenaphthene	360	1,100	3,900	38	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Acenaphthylene	360	1,100	65	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
Anthracene	43	43	43	1,900	--	NA	NA	NA	NA	NA	NA	NA	NA	0.24 J	NA
Atrazine	3	3	--	7.3	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
Benzaldehyde	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.31 J	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.34 J	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.55 J	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	NA	NA	NA	NA	NA	NA	NA	2.4 JB	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Caprolactam	2,000	9,400	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Carbazole	7.4	38	--	4	--	NA	NA	NA	NA	NA	NA	NA	NA	9.6 U	NA
Chrysene	2	2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.39 J	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	1.9 U	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	NA	NA	NA	NA	NA	NA	NA	3.8 U	NA

See Notes on last page.

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RACER Trust
Pontiac North Campus

Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	MWW01-SEN03 05/18/16 WW10-SEN03-GW-0518	MWW01-SEN03 09/21/16 MWW10-SEN03_092116	MWW01-SEN03 04/27/17 WW10-SEN03_GW-0427	MWW01-SEN04 05/18/16 WW10-SEN04-GW-0518	MWW01-SEN04 09/20/16 MWW10-SEN04_092016	MWW5-01 05/19/16 MWW5-01-GW-051916	MWW5-01 09/20/16 MWW5-01_092016	MWW10-04 05/18/16 MWW10-04-GW-051816	SB-62-14 05/19/16 SB-62-14-GW-051916	TW01-03 09/20/16 TW-01-03_092016
Diethylphthalate	4,700	15,000	- -	110	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	0.89 JB	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Fluoranthene	240	260	- -	1.6	--	NA	NA	NA	NA	NA	NA	NA	NA	0.76 J	NA
Fluorene	240	760	1,700	12	--	NA	NA	NA	NA	NA	NA	NA	NA	0.24 J	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	NA	NA	NA	NA	NA	NA	NA	0.19 U	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	1.9 U	NA
Isophorone	760	3,800	- -	310	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Nitrobenzene	12	38	68	4.7	--	NA	NA	NA	NA	NA	NA	NA	NA	2.9 U	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Phenanthrene	180	570	0.077	1.7	--	NA	NA	NA	NA	NA	NA	NA	NA	0.91 J	NA
Phenol	1,200	5,700	- -	450	--	NA	NA	NA	NA	NA	NA	NA	NA	4.8 U	NA
Pyrene	140	140	140	15	--	NA	NA	NA	NA	NA	NA	NA	NA	0.86 J	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	NA	NA	NA	NA	NA	NA	NA	0.96 U	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	NA	NA	NA	NA	1.3 J	NA

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Tetrachloroethene	5	5	1.5	11	96	1 U	1.0 U	1 U	1.0 U	1 U	NA	1 U	1 U	NA	1 U
Toluene	790	790	300	270	23,000	26	1.0 U	1 U	3.4	1 U	NA	1 U	1 U	NA	1 U
1,2,3-Trichlorobenzene	16	51	58	55	--	5 U	NA	5 U	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	70	3.8	80	95	5 U	1.0 U	5 U	1.0 U	5 U	NA	5 U	5 U	NA	5 U
1,1,1-Trichloroethane	200	200	180	89	8,600	1 U	1.0 U	1 U	1.0 U	1 U	NA	1 U	1 U	NA	1 U
1,1,2-Trichloroethane	5	5	0.00047	12	--	1 U	1.0 U	1 U	1.0 U	1 U	NA	1 U	1 U	NA	1 U
Trichloroethene	5	5	0.073	29	6.1	1 U	1.0 U	1 U	0.24 J	1 U	NA	1 U	1 U	NA	1 U
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	NA	1.0 U	NA	1.0 U	1 U	NA	1 U	1 U	NA	1 U
1,2,4-Trimethylbenzene	63	63	25	17	440	1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	72	18	45	310	1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	2	0.12	0.25	0.96	2	1.0 U	1 U	1.0 U	1 U	NA	1 U	1 U	NA	1 U
o-Xylene	--	--	--	--	--	3	NA	1 U	NA	1 U	NA	1 U	1 U	NA	1 U
Total Xylenes	280	280	75	49	1,200	NA	2.0 U	NA	14	NA	NA	NA	NA	NA	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	3.8 U	NA	15 U	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	9.6 U	NA	37 U	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	19 U	NA	74 U	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
2-Chlorophenol	32	130	45	18	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	2.5 J	NA	19 U	NA	NA	NA	NA	NA	NA
2-Methylphenol	800	3,800	--	76	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	--	--	--	--	NA	19 U	NA	74 U	NA	NA	NA	NA	NA	NA
2-Nitrophenol	12	38	0.12	56	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	--	--	--	--	NA	19 U	NA	74 U	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	19 U	NA	74 U	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
4-Chloroaniline	3	9.4	--	2	--	NA	1.9 U	NA	7.4 U	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
4-Methylphenol	--	--	--	25	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--	--	--	--	NA	19 U	NA	74 U	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	--	--	200	--	NA	19 U	NA	74 U	NA	NA	NA	NA	NA	NA
Acenaphthene	360	1,100	3,900	38	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Acenaphthylene	360	1,100	65	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Anthracene	43	43	43	1,900	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Atrazine	3	3	--	7.3	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Benzaldehyde	--	--	--	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Caprolactam	2,000	9,400	--	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Carbazole	7.4	38	--	4	--	NA	9.6 U	NA	37 U	NA	NA	NA	NA	NA	NA
Chrysene	2	2	--	--	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	1.9 U	NA	7.4 U	NA	NA	NA	NA	NA	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	3.8 U	NA	15 U	NA	NA	NA	NA	NA	NA

See Notes on last page.

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Diethylphthalate	4,700	15,000	- -	110	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	0.80 JB	NA	19 U	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Fluoranthene	240	260	- -	1.6	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Fluorene	240	760	1,700	12	--	NA	1.1 J	NA	1.1 J	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	0.19 U	NA	0.74 U	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	1.9 U	NA	7.4 U	NA	NA	NA	NA	NA	NA
Isophorone	760	3,800	- -	310	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Nitrobenzene	12	38	68	4.7	--	NA	2.9 U	NA	11 U	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Phenanthrene	180	570	0.077	1.7	--	NA	1.8 J	NA	7.4 U	NA	NA	NA	NA	NA	NA
Phenol	1,200	5,700	- -	450	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Pyrene	140	140	140	15	--	NA	4.8 U	NA	19 U	NA	NA	NA	NA	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	0.96 U	NA	3.7 U	NA	NA	NA	NA	NA	NA
Naphthalene	590	1,900	4.2	11	--	NA	0.81 J	NA	3.5 J	NA	NA	NA	NA	NA	NA

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Tetrachloroethene	5	5	1.5	11	96	NA	1 U	43	4	1 U	1 U [1 U]	5	1 U	1 U	1 U
Toluene	790	790	300	270	23,000	NA	1 U	1 U	1 U	1 U	1 U [1 U]	1	1 U	1 U	1 U
1,2,3-Trichlorobenzene	16	51	58	55	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	70	3.8	80	95	NA	5 U	5 U	5 U	5 U	5 U [5 U]	5 U	5 U	5 UJ	5 U
1,1,1-Trichloroethane	200	200	180	89	8,600	NA	1 U	56	14	1 U	1 U [1 U]	6	30	1 U	1 U
1,1,2-Trichloroethane	5	5	0.00047	12	--	NA	1 U	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U
Trichloroethene	5	5	0.073	29	6.1	NA	1 U	3	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	NA	1 U	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	63	63	25	17	440	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	72	18	45	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	2	0.12	0.25	0.96	NA	1 U	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U
o-Xylene	--	--	--	--	--	NA	1 U	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U
Total Xylenes	280	280	75	49	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	32	130	45	18	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	800	3,800	--	76	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	12	38	0.12	56	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	3	9.4	--	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	--	--	--	25	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	--	--	200	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	360	1,100	3,900	38	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	360	1,100	65	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	43	43	1,900	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	3	3	--	7.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	2,000	9,400	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	7.4	38	--	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	2	2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 1
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RACER Trust
Pontiac North Campus

Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	TW-MD-05 12/20/16 TWMD-05-GW-122016D	TW-MD-07 12/20/16 TWMD-07-GW-122016D	Unknown-1 04/28/17 UNKNOWN-1_GW-04281	VAP-01-16 26 - 29 12/20/16 VAP-01-16_26-29	VAP-01-16 32 - 35 12/20/16 VAP-01-16_32-35	VAP-01-16 37 - 40 12/20/16 VAP-01-16_37-40	VAP-02-16 26 - 29 12/19/16 VAP-02-16_26-29	VAP-02-16 31 - 34 12/19/16 VAP-02-16_31-34	VAP-02-16 35 - 38 12/19/16 VAP-02-16_35-38	VAP-02-16 39 - 42 12/19/16 VAP-02-16_39-42
Diethylphthalate	4,700	15,000	- -	110	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	260	- -	1.6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	760	1,700	12	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	760	3,800	- -	310	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	12	38	68	4.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	180	570	0.077	1.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1,200	5,700	- -	450	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	140	140	15	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Pontiac North Campus

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Tetrachloroethene	5	5	1.5	11	96	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	790	790	300	270	23,000	1 U [1 U]	2	1 U	1 U	1 U	1	1	1 U	1 U	1 U
1,2,3-Trichlorobenzene	16	51	58	55	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	70	3.8	80	95	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	200	200	180	89	8,600	12 [9]	13	1 U	2	1 U	62	89	10	11	1 U
1,1,2-Trichloroethane	5	5	0.00047	12	--	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	5	0.073	29	6.1	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	2	1 U	1 U	1 U
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	63	63	25	17	440	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	72	18	45	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	2	0.12	0.25	0.96	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
o-Xylene	--	--	--	--	--	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total Xylenes	280	280	75	49	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	32	130	45	18	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	800	3,800	--	76	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	12	38	0.12	56	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	3	9.4	--	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	--	--	--	25	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	--	--	200	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	360	1,100	3,900	38	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	360	1,100	65	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	43	43	1,900	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	3	3	--	7.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	2,000	9,400	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	7.4	38	--	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	2	2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Diethylphthalate	4,700	15,000	- -	110	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	260	- -	1.6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	760	1,700	12	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	760	3,800	- -	310	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	12	38	68	4.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	180	570	0.077	1.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1,200	5,700	- -	450	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	140	140	15	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Pontiac North Campus

Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	VAP-06-16 29 - 32 12/13/16 VAP-06-16_29-32	VAP-07-16 18 - 21 12/13/16 VAP-07-16_18-21	VAP-07-16 22 - 25 12/13/16 VAP-07-16_22-25	VAP-07-16 26 - 29 12/13/16 VAP-07-16_26-29	VAP-08-16 20 - 23 12/12/16 VAP-08-16_20-23	VAP-08-16 23 - 26 12/12/16 VAP-08-16_23-26	VAP-08-16 27 - 30 12/12/16 VAP-08-16_27-30	VAP-09-16 17 - 20 12/09/16 VAP-09-16_17-20	VAP-09-16 21 - 24 12/09/16 VAP-09-16_21-24	VAP-09-16 24 - 27 12/09/16 VAP-09-16_24-27
Tetrachloroethene	5	5	1.5	11	96	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	790	790	300	270	23,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	16	51	58	55	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	70	3.8	80	95	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	200	200	180	89	8,600	1 U	1 U	1 U	1 U	2	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5	0.00047	12	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	5	0.073	29	6.1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-Trichloropropane	0.0075	0.12	1.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-trichloro-1,2,2-trifluoroethane	160,000	170,000	840	32	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	63	63	25	17	440	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	72	18	45	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	2	0.12	0.25	0.96	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
o-Xylene	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total Xylenes	280	280	75	49	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics															
1,1'-Biphenyl	--	--	--	13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	--	--	--	6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	180	570	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	40	170	--	5	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	80	380	--	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	120	380	--	380	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	12	38	--	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	1.1	5.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	470	1,500	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	32	130	45	18	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	24	76	66	19	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	800	3,800	--	76	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	12	38	0.12	56	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.6	8.2	--	0.14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4	7.6	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	400	1,700	--	7.4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	3	9.4	--	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	--	--	--	25	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	--	--	200	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	360	1,100	3,900	38	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	360	1,100	65	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	3,200	13,000	8,700	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	43	43	1,900	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	3	3	--	7.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.3	9.4	9.4	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	1.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.26	0.26	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	0.8	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	0.66	3.3	6.8	0.79	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	6	--	14	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	80	330	--	6.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	2,000	9,400	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	7.4	38	--	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	2	2	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.23	2.5	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	5.9	19	3,100	4	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 1
Summary of Groundwater Analytical Results
RACER Trust
Pontiac North Campus

Location ID: Sample Depth: Date Collected: Sample Name:	MDEQ 2017 DRAFT Res DW	MDEQ 2017 DRAFT Non- Res DW	MDEQ 2017 DRAFT Tier 1 VI GW SLs	RULE 57 Values for Surface Water	MDEQ 2017 DRAFT Res GW VIA RIASLs	VAP-06-16 29 - 32 12/13/16 VAP-06-16_29-32	VAP-07-16 18 - 21 12/13/16 VAP-07-16_18-21	VAP-07-16 22 - 25 12/13/16 VAP-07-16_22-25	VAP-07-16 26 - 29 12/13/16 VAP-07-16_26-29	VAP-08-16 20 - 23 12/12/16 VAP-08-16_20-23	VAP-08-16 23 - 26 12/12/16 VAP-08-16_23-26	VAP-08-16 27 - 30 12/12/16 VAP-08-16_27-30	VAP-09-16 17 - 20 12/09/16 VAP-09-16_17-20	VAP-09-16 21 - 24 12/09/16 VAP-09-16_21-24	VAP-09-16 24 - 27 12/09/16 VAP-09-16_24-27
Diethylphthalate	4,700	15,000	- -	110	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	590	1,900	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	27	110	- -	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	22	22	22	240	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	260	- -	1.6	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	760	1,700	12	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	1	0.11	0.0003	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	50	0.03	140	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.2	13	1.5	5.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.19	0.19	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	760	3,800	- -	310	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	12	38	68	4.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.1	0.53	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	150	750	- -	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	1	- -	1.8	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	180	570	0.077	1.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1,200	5,700	- -	450	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	140	140	15	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloro-1,3-Butadiene	5.9	19	0.32	0.053	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	590	1,900	4.2	11	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Yellow shaded values exceed 2017 DRAFT Residential Drinking Water criteria.
Orange shaded values exceed 2017 DRAFT Non-Residential Drinking Water criteria.
Bold values exceed 2017 DRAFT Tier 1 Vapor Intrusion Groundwater Screening Levels.
Red values exceed Rule 57 Water Quality Values for Surface Water.
Italic values exceed 2017 DRAFT Residential Groundwater Volatilization to Indoor Air Recommended Interim Action Screening Levels appropriate for exposures less than 12 hours.
Duplicate analyses are presented in brackets
All units are measured in micrograms per liter (µg/L).

Footnotes:
¹ Criteria listed are from the Draft Proposed Michigan Department of Environmental Quality (MDEQ) Clean Up Criteria Requirements Table 1: Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels and Table 4. VI Tier 1 Groundwater, Soil, and Vapor Screening Levels Part 201 Generic Screening Levels/Part 213 Risk-Based Screening Levels, August 29, 2017 as well as the minimum values from the Rule 57 Water Quality Values, Surface Water Assessment Section, Michigan DQ dated 10/21/2016.

² The Residential Drinking Water criterion and the Residential Vapor Intrusion Screening criterion for 1,4-dioxane were established on October 27, 2016 and are no longer proposed criteria.

Abbreviations:
B Analyte was also detected in the associated method blank.
J Indicates an estimated value.
U Compound analyzed for but not detected above the detection limit.
Y Elevated reporting limit due to high target concentration.
NA Not analyzed
VI Vapor intrusion

Table 2
Groundwater Elevation Summary, April and July 2017
RACER Trust Pontiac North Campus
Pontiac, Michigan

Well ID	Date	Well Elevation ¹	Depth to Water (ft)	Depth to LNAPL (ft)	Groundwater Elevation	LNAPL Thickness (ft)	Equivalent Groundwater Elevation ²	Comments	
SITEWIDE									
MWF1R	4/21/2017	971.74	25.77	NA	945.97	---	---	newly installed	
	7/21/2017	971.74	25.62	NA	946.12	---	---		
MW-02-17	4/21/2017	973.53	26.53	NA	947.00	---	---		
	7/21/2017	973.53	26.35	NA	947.18	---	---		
OFFSITE									
MWOS-01	4/19/2017	943.79	7.20	NA	936.59	---	---	Likely transcription error; GWE is deeper than bottom of well screen	
MWOS-02	4/19/2017	943.46	6.94	NA	936.52	---	---		
MWOS-03	4/19/2017	944.35	7.00	NA	937.35				
FIERO									
UNKNOWN-01	4/26/2017	NA	19.38	NA	NA	---	---		
UNKNOWN-02	4/27/2017	NA	21.43	NA	NA	---	---		
MWF2	4/19/2017	971.74	33.44	NA	938.30	---	---		
F-7									
MWF7-01	4/21/2017	970.30	20.95	NA	949.35	---	---		
MWF7-02	4/21/2017	970.58	20.80	NA	949.78	---	---		
MWF7-03	4/27/2017	973.63	22.52	NA	951.11	---	---		
F-8									
MWF8-01	4/19/2017	972.94	20.66	NA	952.28	---	---		
F-12									
MWF12-01	4/26/2017	965.39	17.82	NA	947.57	---	---		
	7/21/2017	965.39	17.90	NA	947.49	---	---		
MWF12-02	4/26/2017	966.81	18.64	NA	948.17	---	---		
	7/21/2017	966.81	18.83	NA	947.98	---	---		
F-16									
MWF16-06	4/28/2017	974.02	15.30	NA	958.72	---	---		
MWF16-07	4/27/2017	973.34	5.25	NA	968.09	---	---		
MWF16-13	4/21/2017	972.45	DRY	NA	NA	---	---		
MWF16-15	4/27/2017	972.71	23.02	NA	949.69	---	---		
MWF16-19	4/28/2017	973.19	14.21	NA	958.98	---	---		
MWF16-23	4/19/2017	973.39	25.09	NA	948.30	---	---		
MWF16-25	4/19/2017	975.24	27.14	NA	948.10	---	---		
DEMOLITION AREA									
W-1									
MWW1-01	4/19/2017	963.65	7.72	NA	955.93	---	---		Well converted to stick-up, needs re-surveyed
	7/21/2017	NA	9.04	NA	NA	---	---		
MWW1-04	4/19/2017	944.20	3.69	NA	940.51	---	---		
TW-01-03	4/19/2017	969.06	15.56	NA	953.50	---	---		
MWW01-SEN03	4/27/2017	981.67	38.29	NA	943.38	---	---		
W-5									
MWW5-01	4/28/2017	970.57	16.12	NA	954.45	---	---		

See Notes on last page.

Table 2
Groundwater Elevation Summary, April and July 2017
RACER Trust Pontiac North Campus
Pontiac, Michigan

Well ID	Date	Well Elevation ¹	Depth to Water (ft)	Depth to LNAPL (ft)	Groundwater Elevation	LNAPL Thickness (ft)	Equivalent Groundwater Elevation ²	Comments
W-8								
TW-10-01	4/19/2017	971.91	20.41	NA	951.50	---	---	
W-10								
MWW10-06	4/19/2017	963.98	13.89	NA	950.09	---	---	
MWW10-09	4/19/2017	966.81	6.20	NA	960.61	---	---	
MWW10-SEN02	4/26/2017	967.68	23.97	NA	943.71	---	---	
TW-MD-01	4/26/2017	946.20	3.31	NA	942.89	---	---	
TW-MD-04	4/24/2017	946.98	3.42	NA	943.56	---	---	
TW-MD-05	4/24/2017	946.71	3.17	NA	943.54	---	---	
TW-MD-06	4/24/2017	947.08	3.52	NA	943.56	---	---	
TW-MD-07	4/24/2017	947.08	3.47	NA	943.61	---	---	newly installed well
MW-01-17	4/26/2017	949.68	6.82	NA	942.86	---	---	
	7/21/2017	949.68	7.34	NA	942.34	---	---	
MFD								
M-2								
MWM2-04	4/25/2017	967.68	14.91	NA	952.77	---	---	
MWM2-08	4/25/2017	967.56	14.51	NA	953.05	---	---	
MWM2-19	4/25/2017	967.75	15.00	NA	952.75	---	---	
MWM2-22	4/25/2017	967.56	14.47	NA	953.09	---	---	
MWM2-28	4/25/2017	967.70	13.86	NA	953.84	---	---	
MWM2-36	4/25/2017	967.59	45.63	NA	921.96	---	---	
TWM2-01	4/25/2017	967.23	4.06	NA	963.17	---	---	
TWM2-03	4/25/2017	967.76	17.08	12.88	950.68	4.20	951.52	
TWM2-04	4/25/2017	967.64	2.44	NA	965.20	---	---	
TWM2-05	4/25/2017	967.69	6.08	5.02	961.61	1.06	961.82	
TWM2-06	4/25/2017	967.53	7.52	NA	960.01	---	---	
M-16								
MWM16-21	4/25/2017	980.81	NA	NA	NA	--	--	Concrete/paved over
MWM16-37	4/25/2017	980.37	24.31	NA	956.06	---	---	

Notes:

NA Not applicable
LNAPL Light non-aqueous phase liquid
MFD Metal Fabrication Division
ft Feet

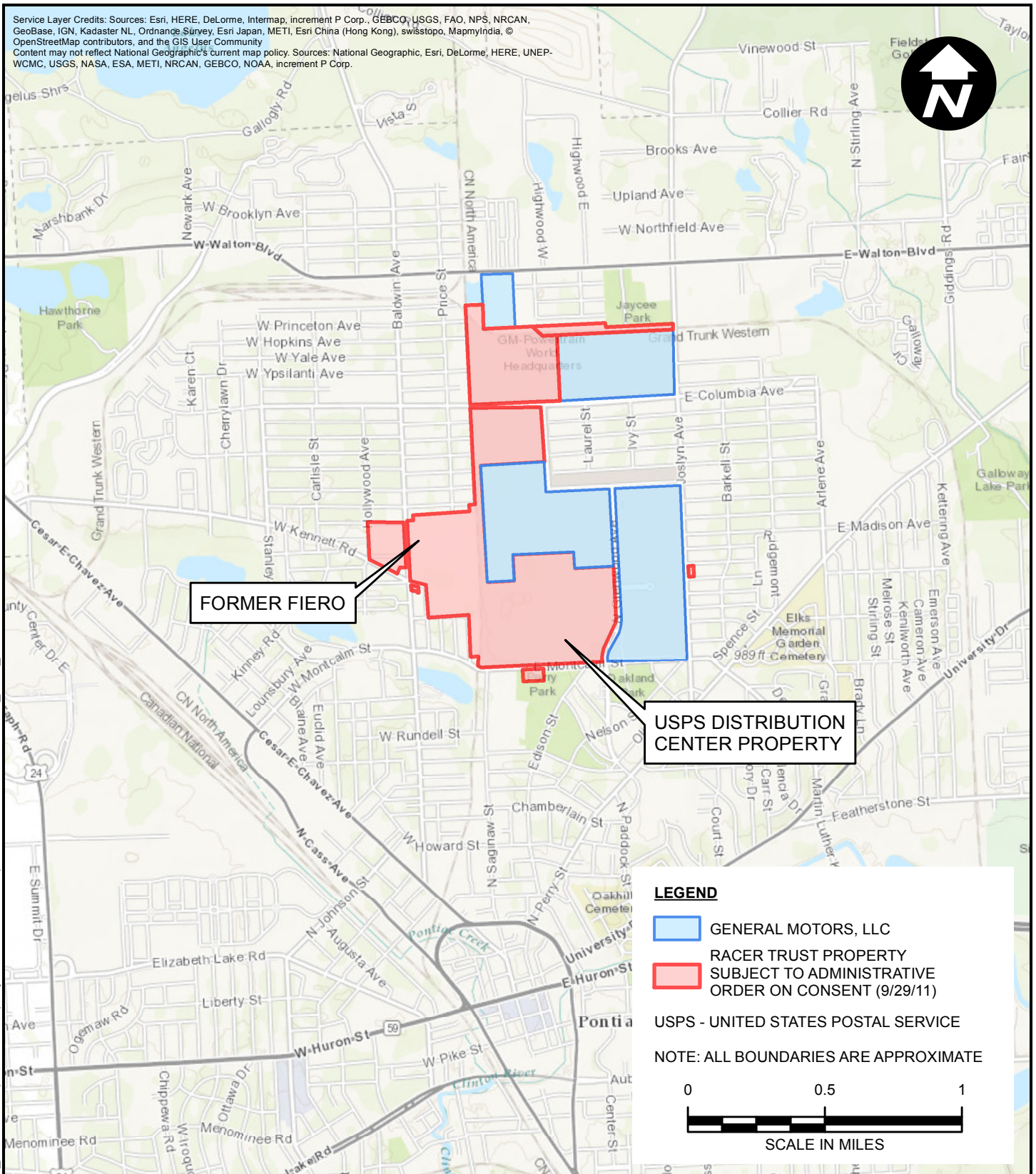
Footnotes:

- ¹ Top of Casing Elevation is in feet National Vertical Geodetic Datum (1988)
² The equivalent groundwater (GW) elevation is calculated where LNAPL is present using the LNAPL surface elevation, the thickness of LNAPL and the approximate specific density of the LNAPL (0.8). The calculation is as follows:
Equivalent GW elevation = LNAPL surface elevation - ((1-specific density of the LNAPL) x LNAPL thickness)

FIGURES



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PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

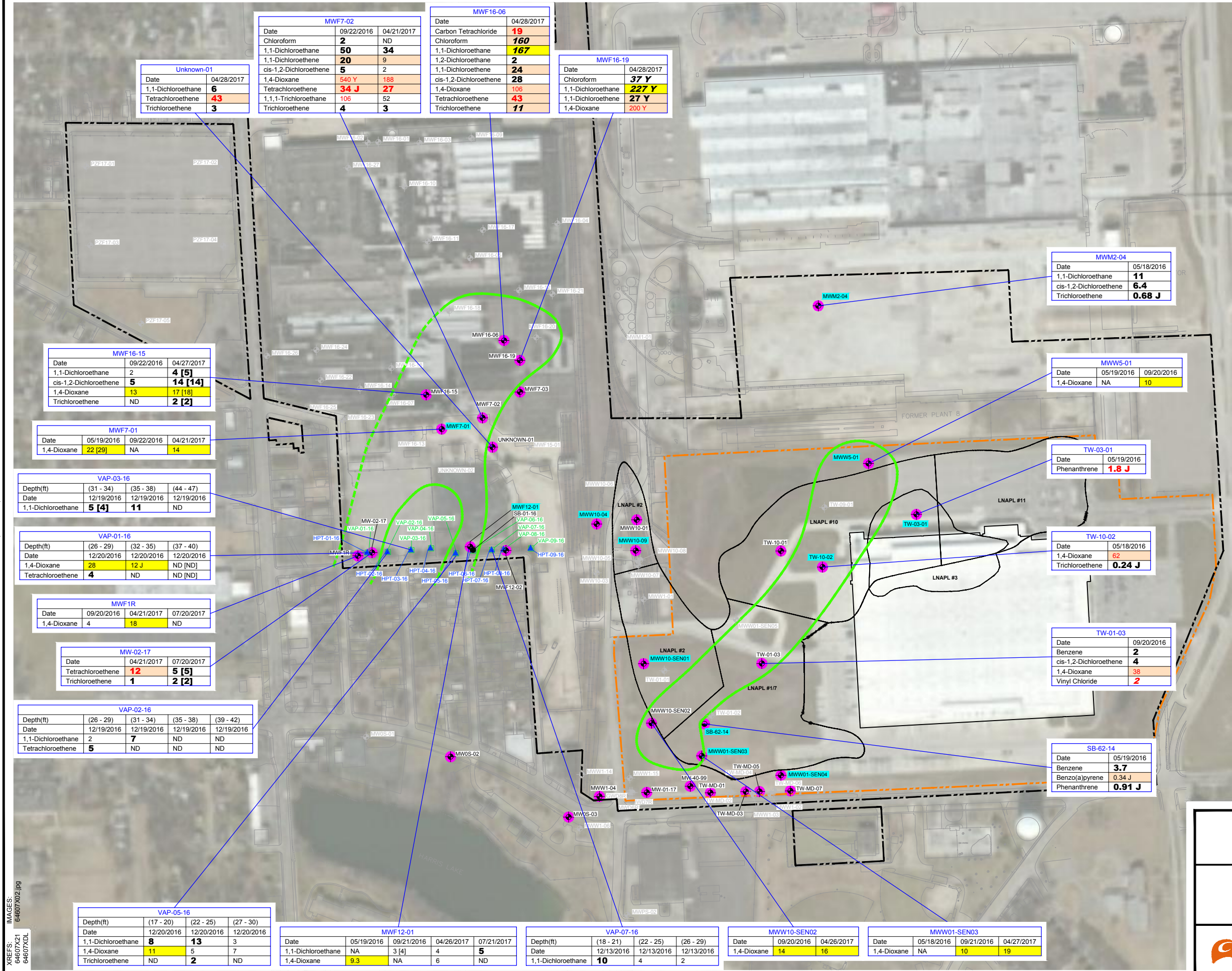
SITE LOCATION

Design & Consultancy
for natural and
built assets

FIGURE

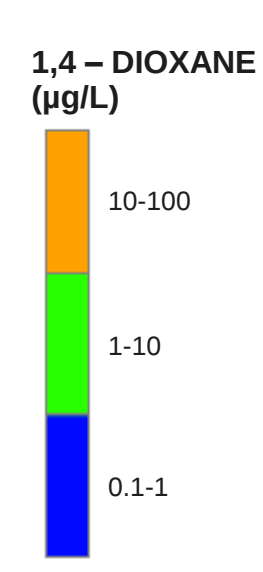
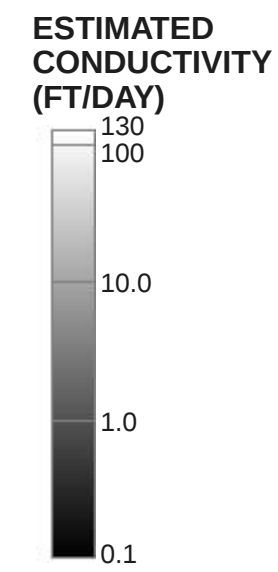
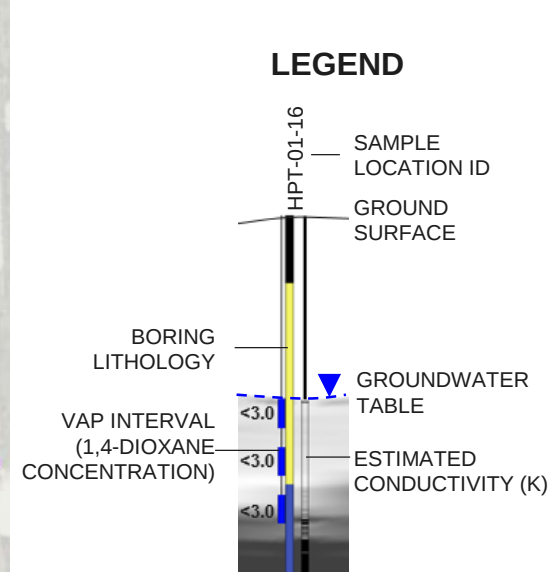
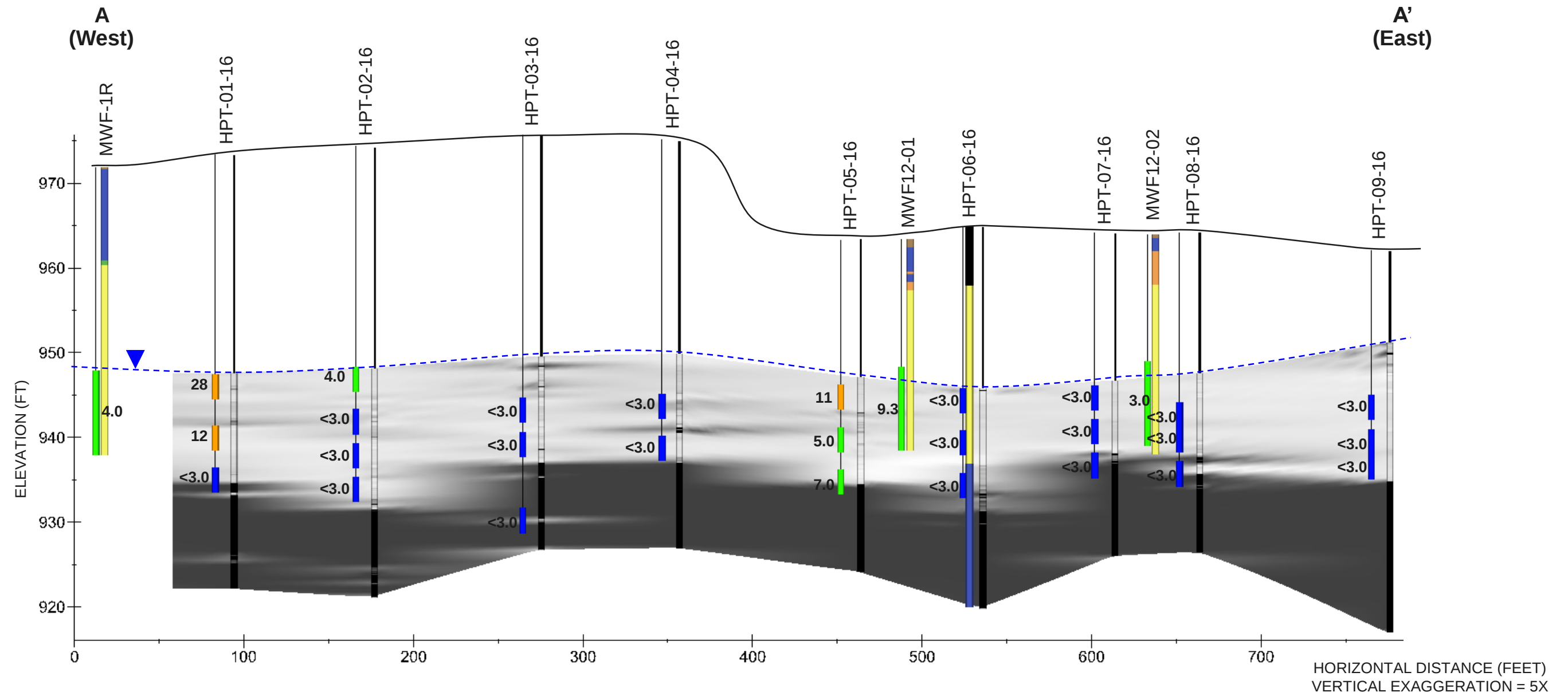
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RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

1,4-DIOXANE AND
OTHER VOC RESULTS



RACER PONTIAC NORTH CAMPUS

CROSS SECTION A-A'
(WEST - EAST)

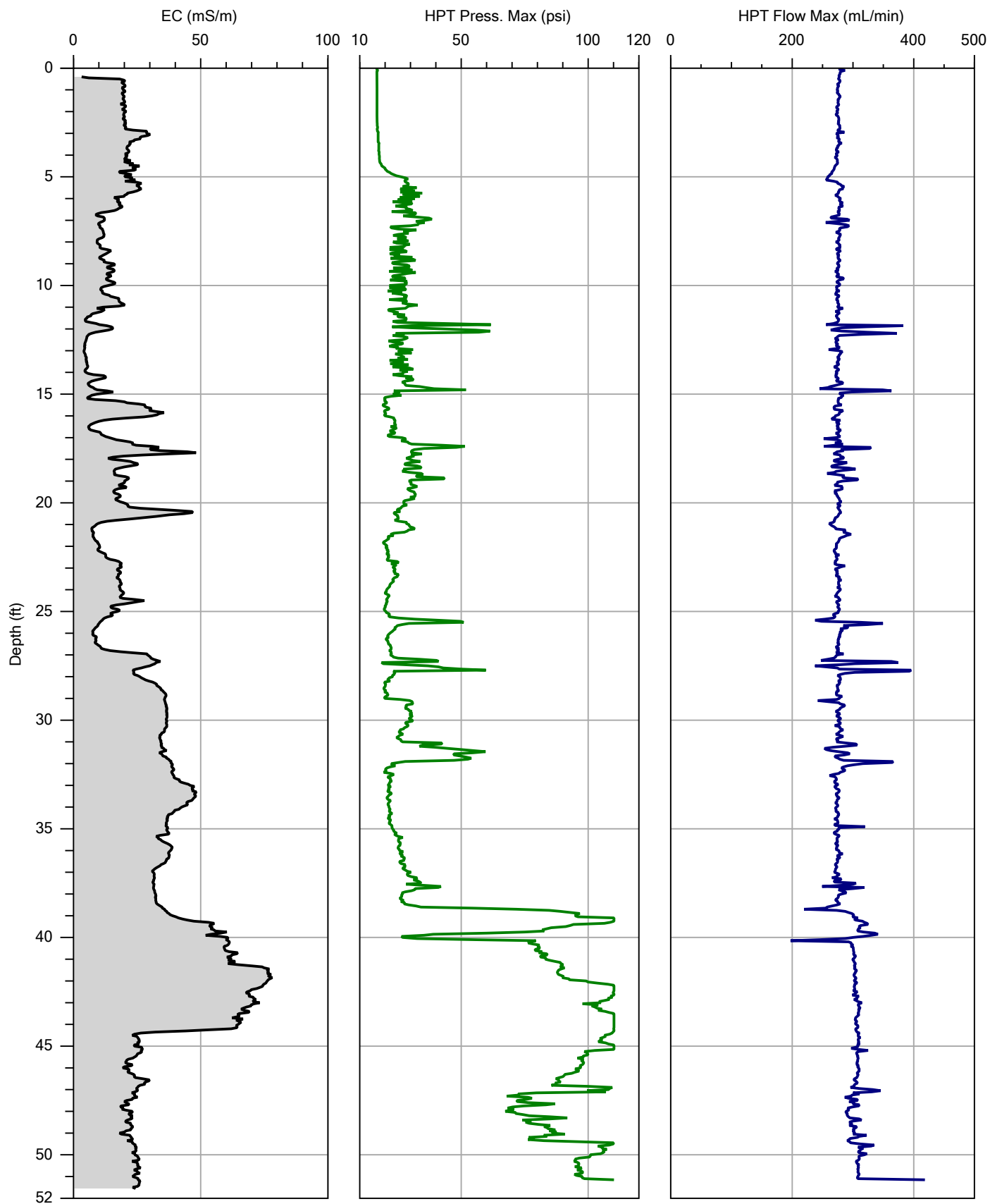
Design & Consultancy
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built assets

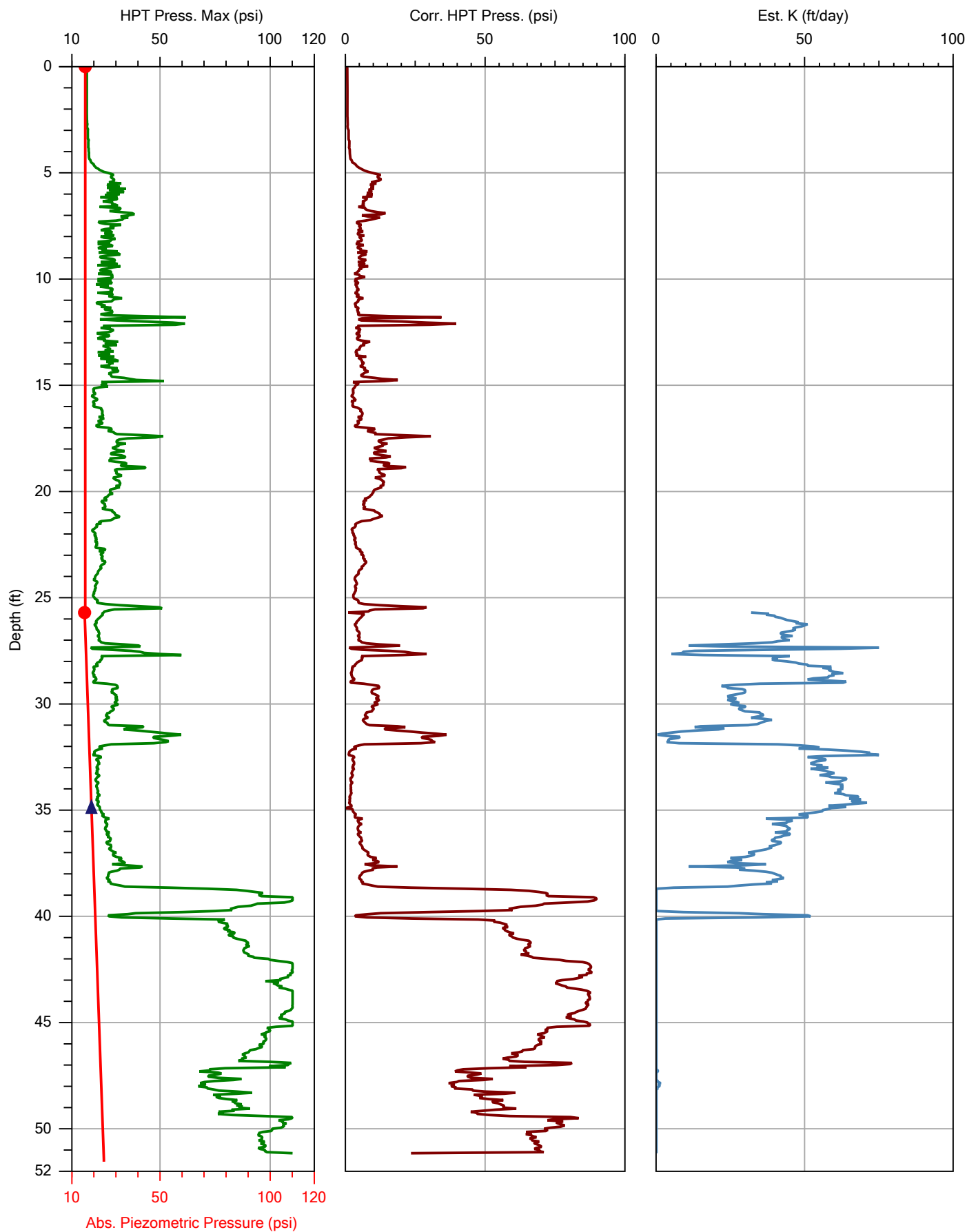
FIGURE
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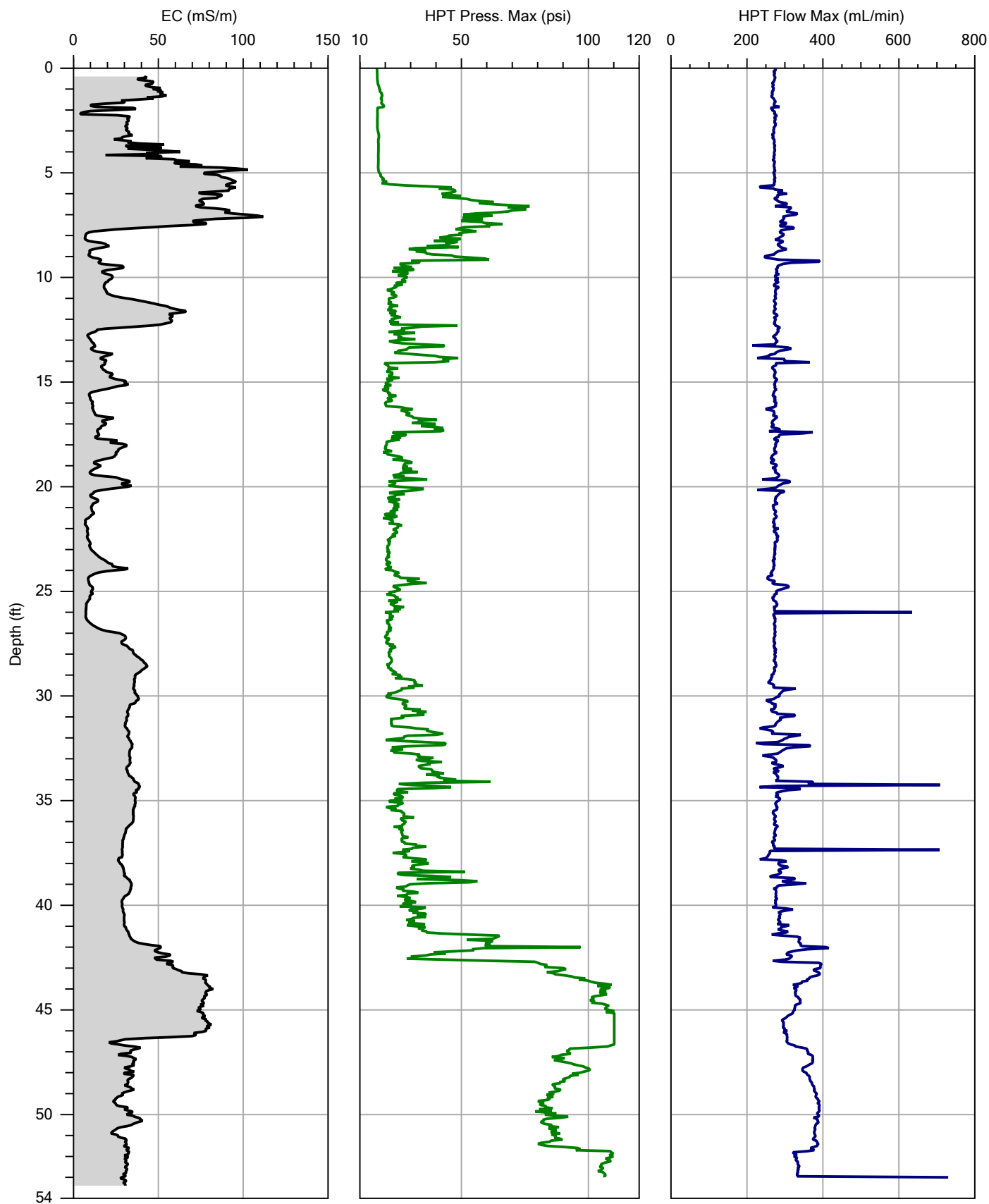
APPENDIX A

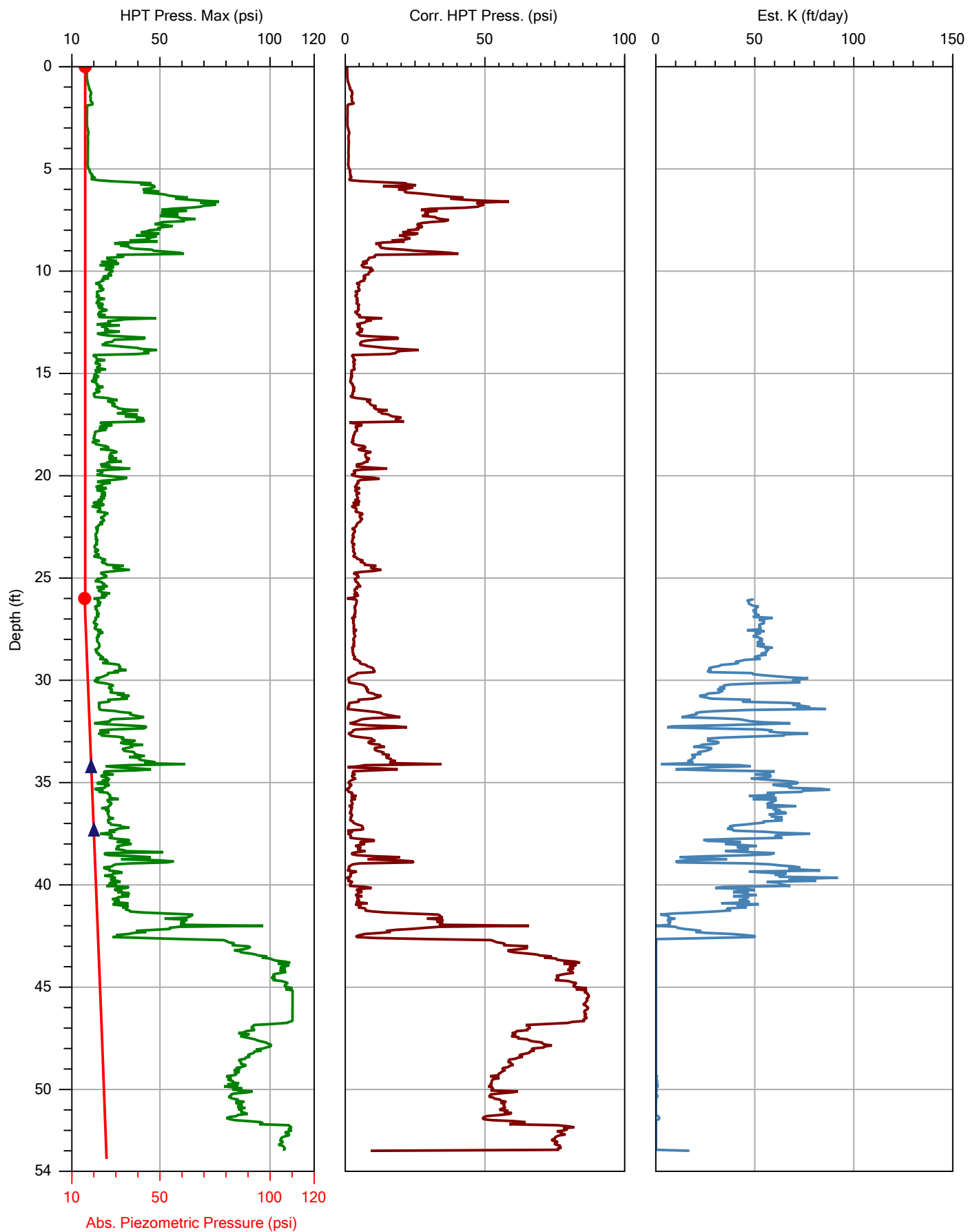
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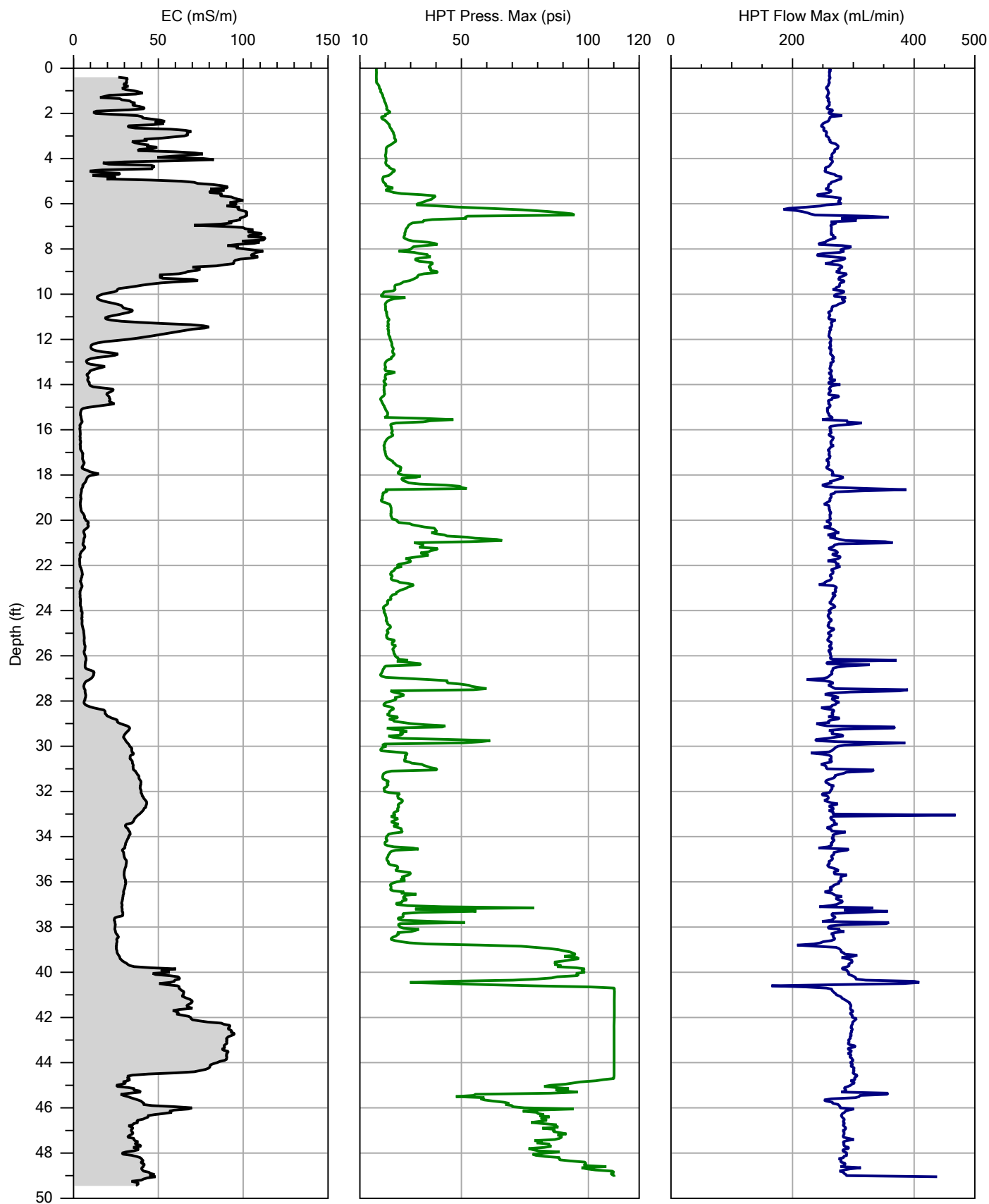


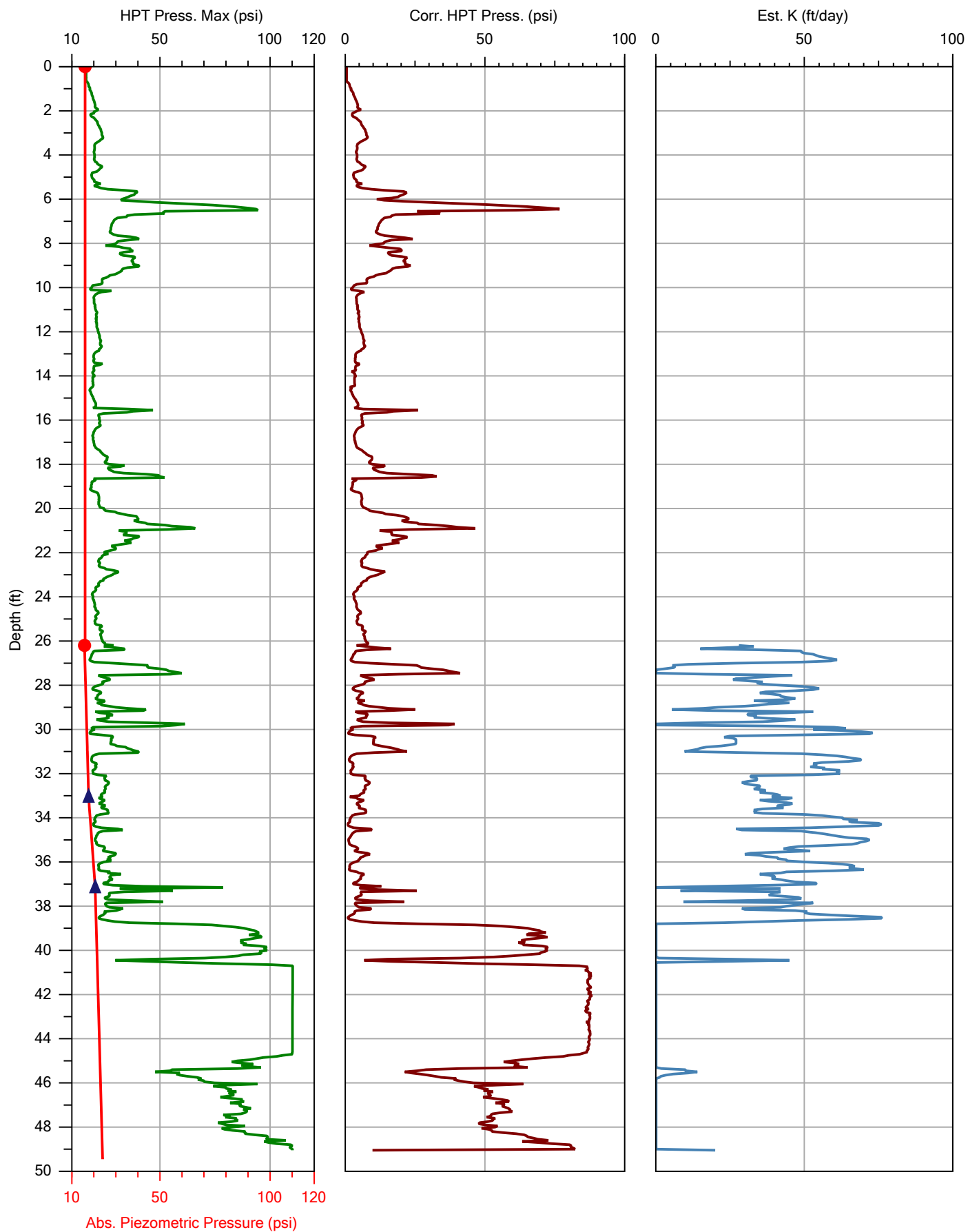


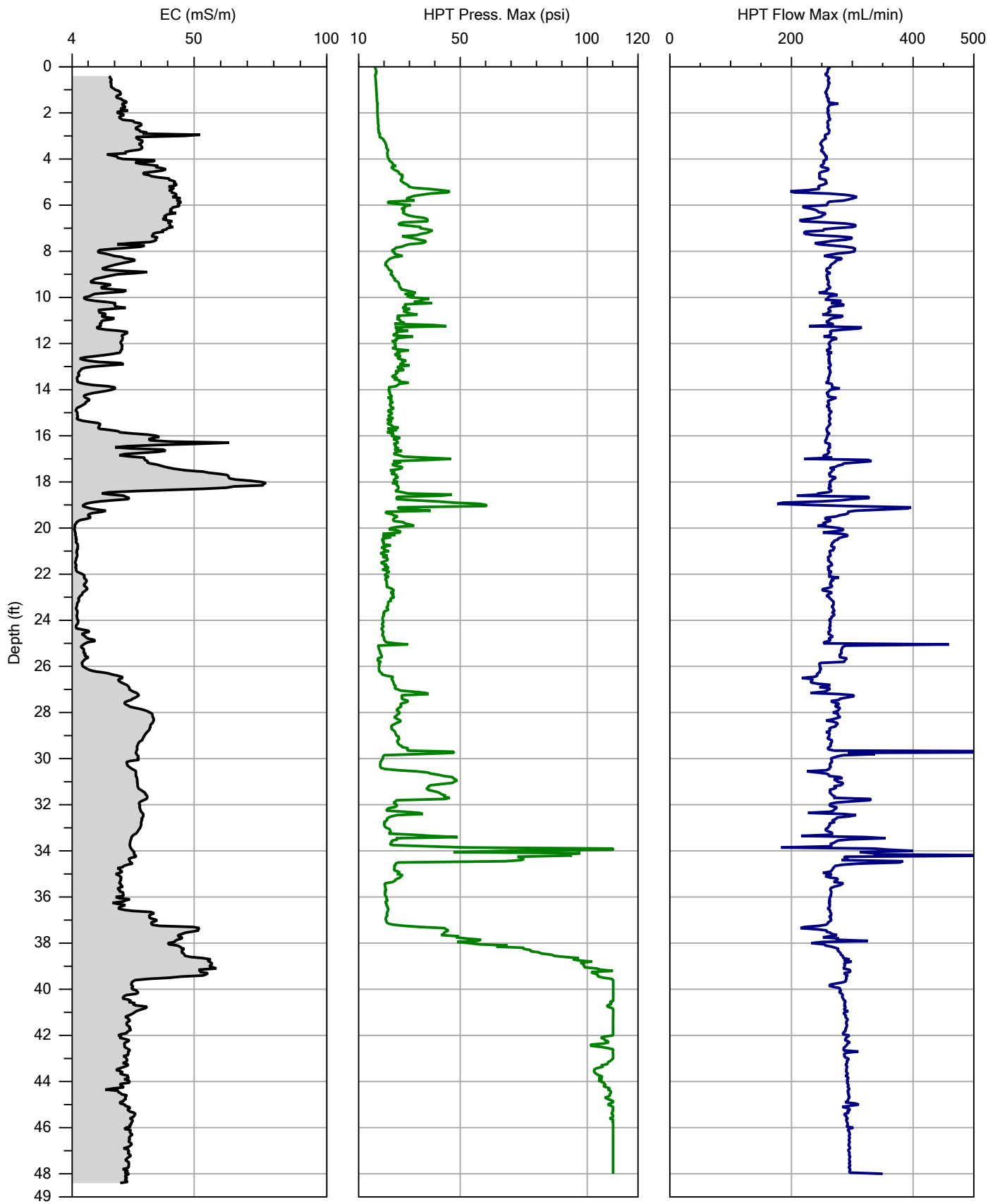


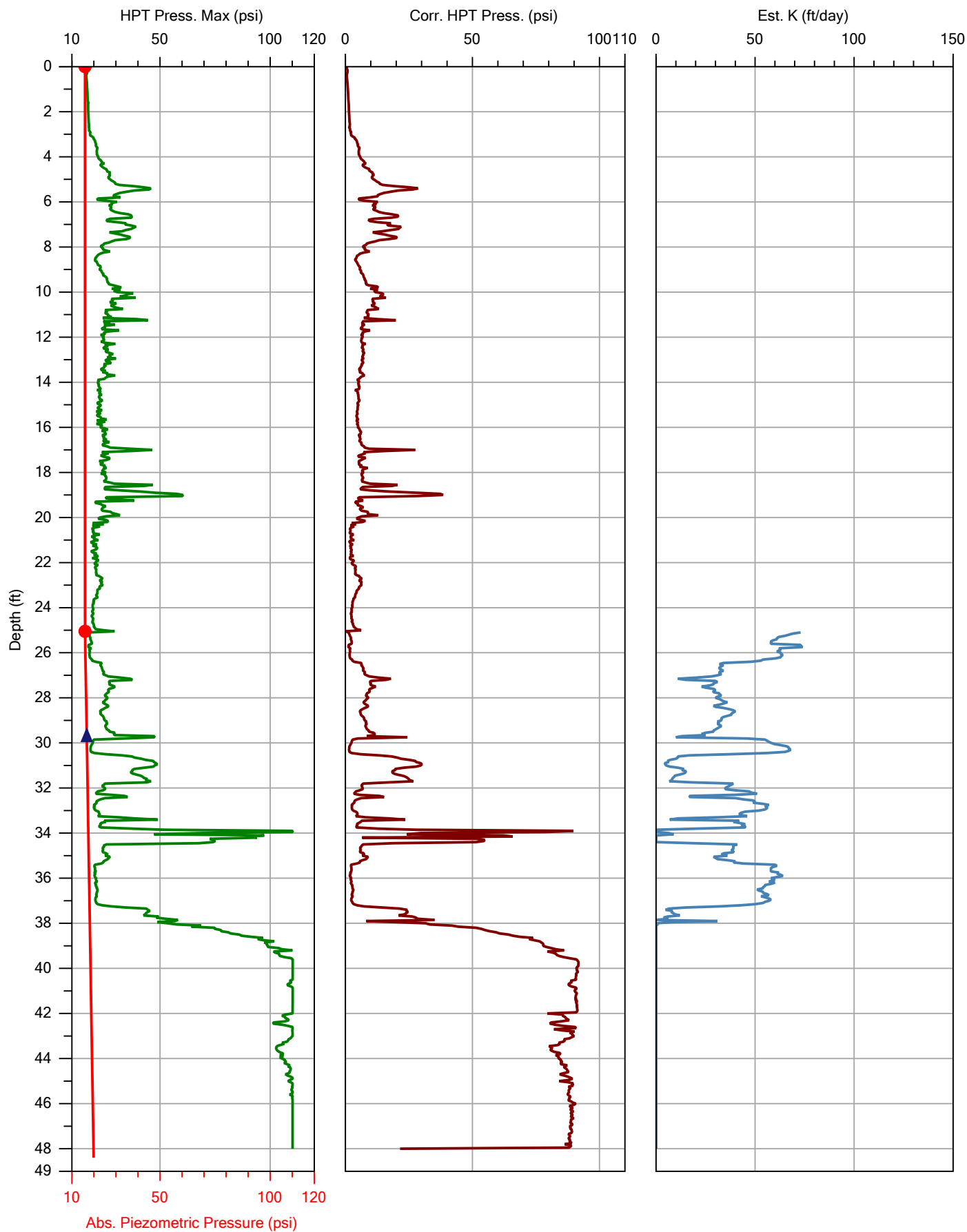


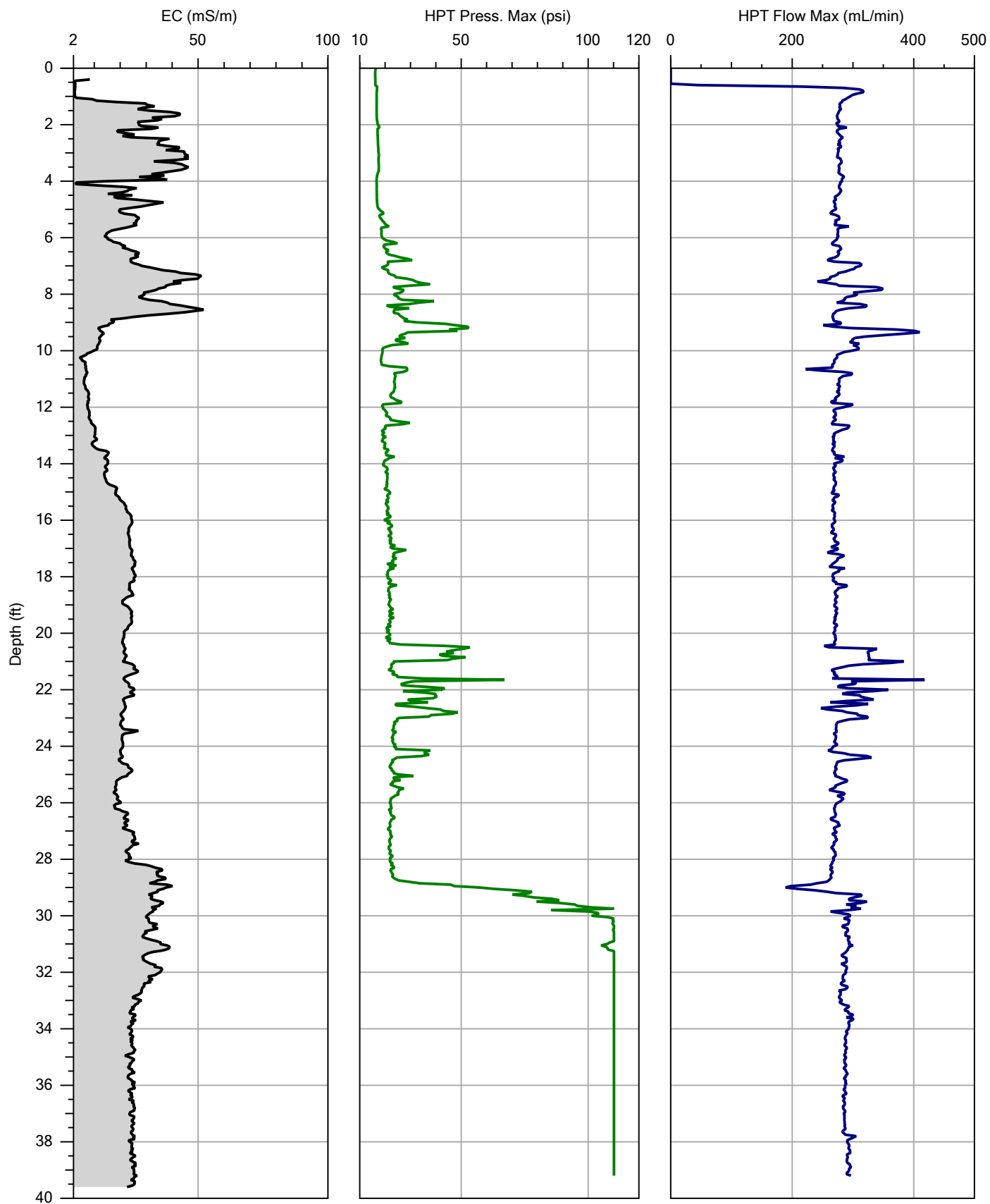


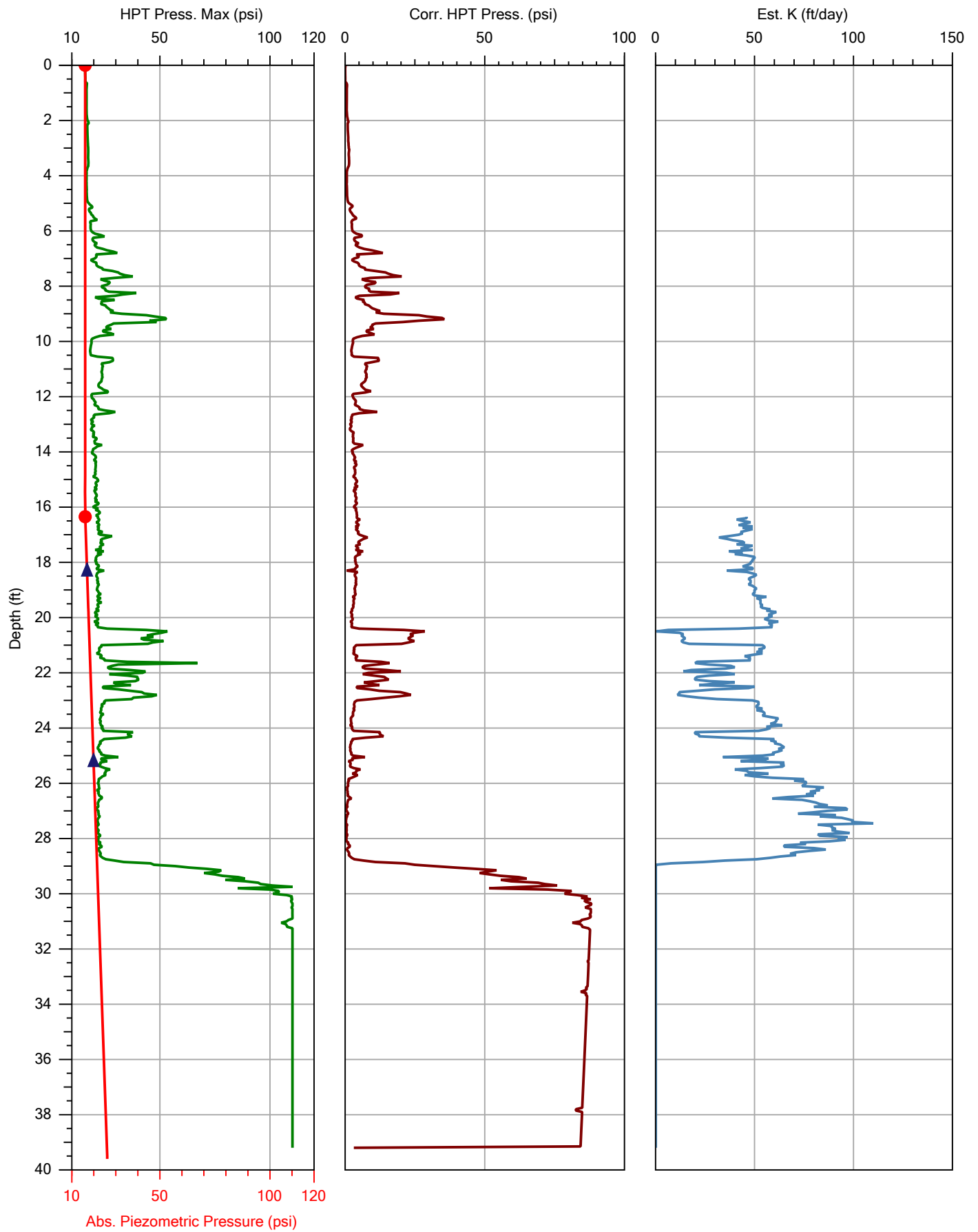


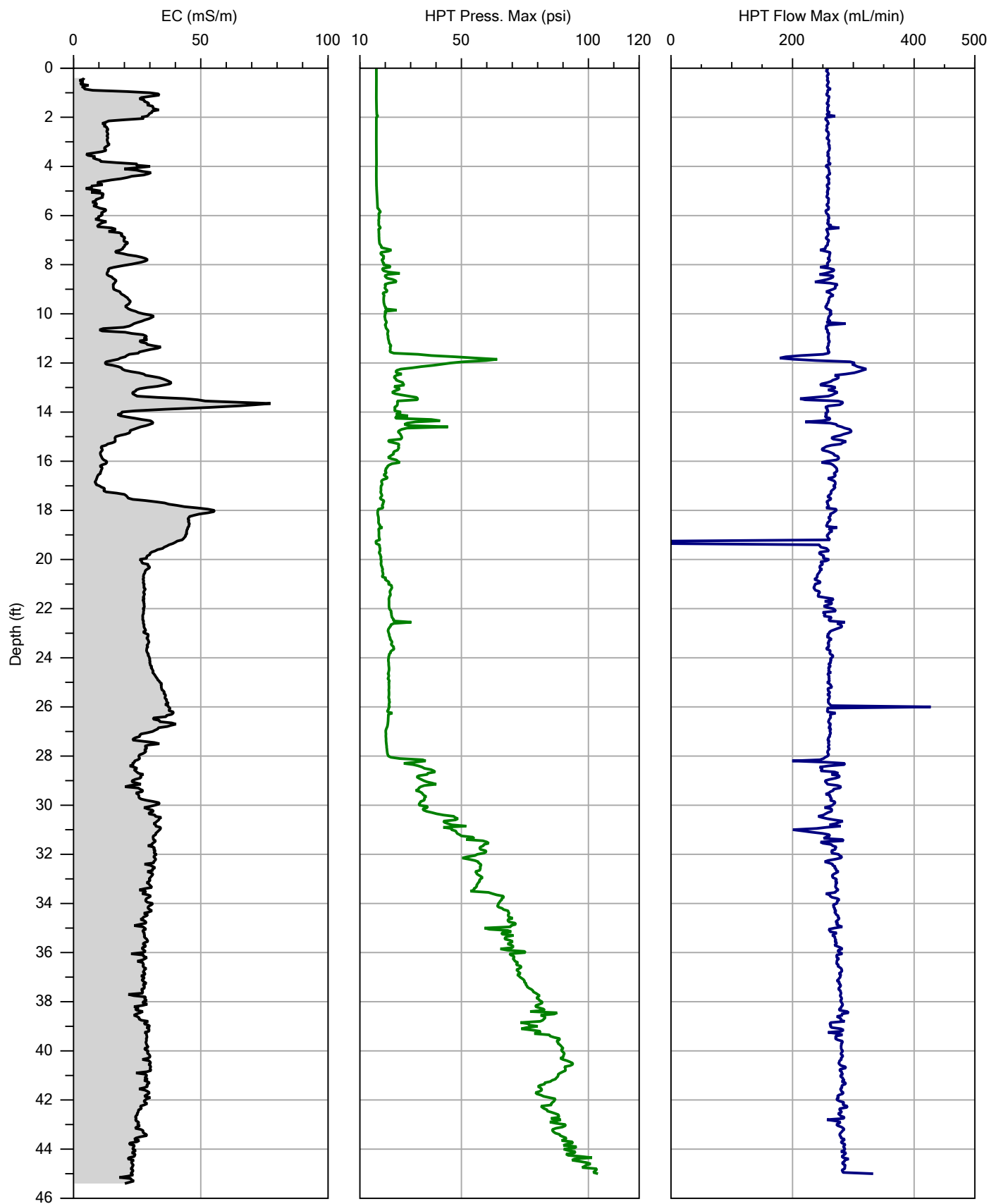


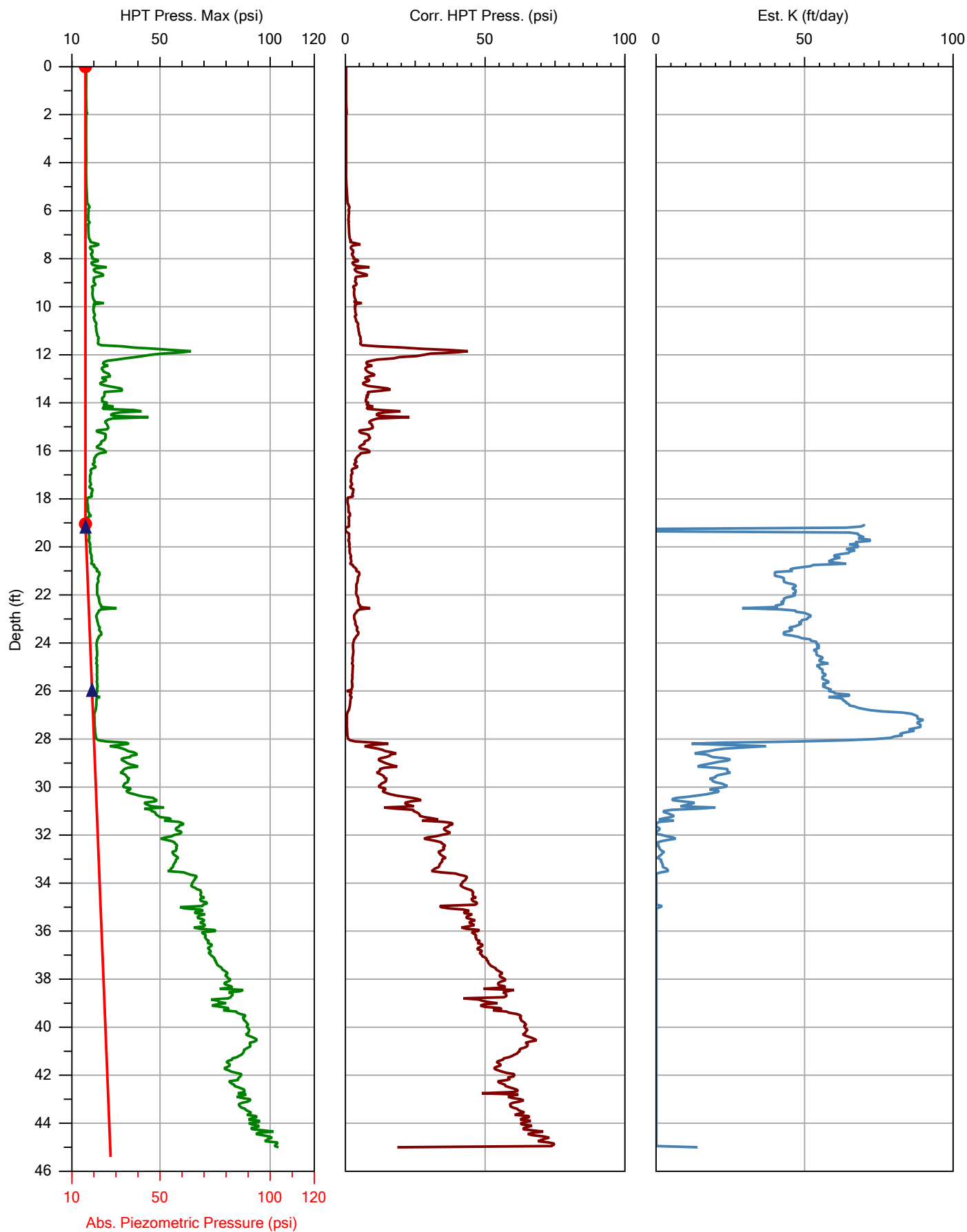


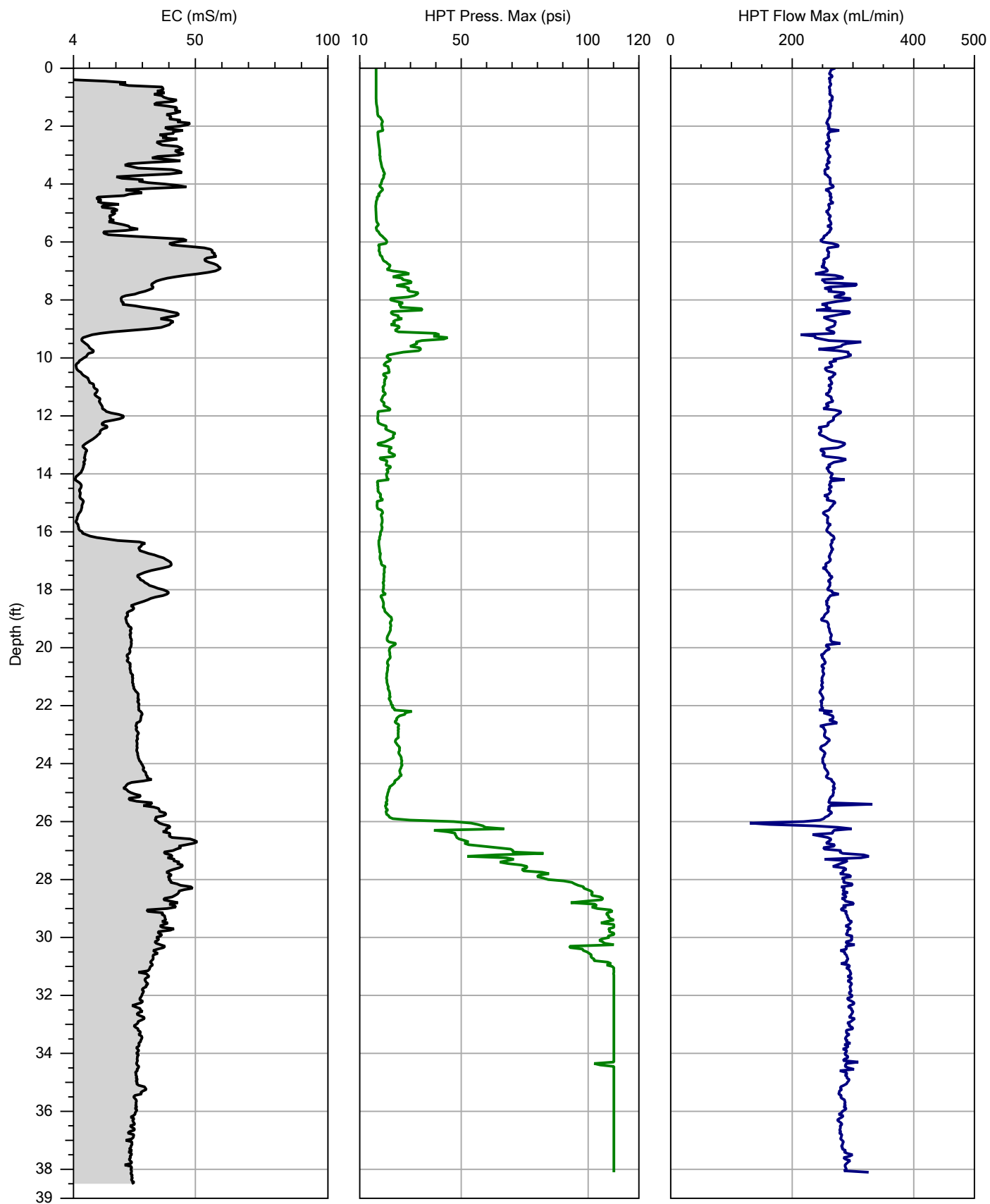


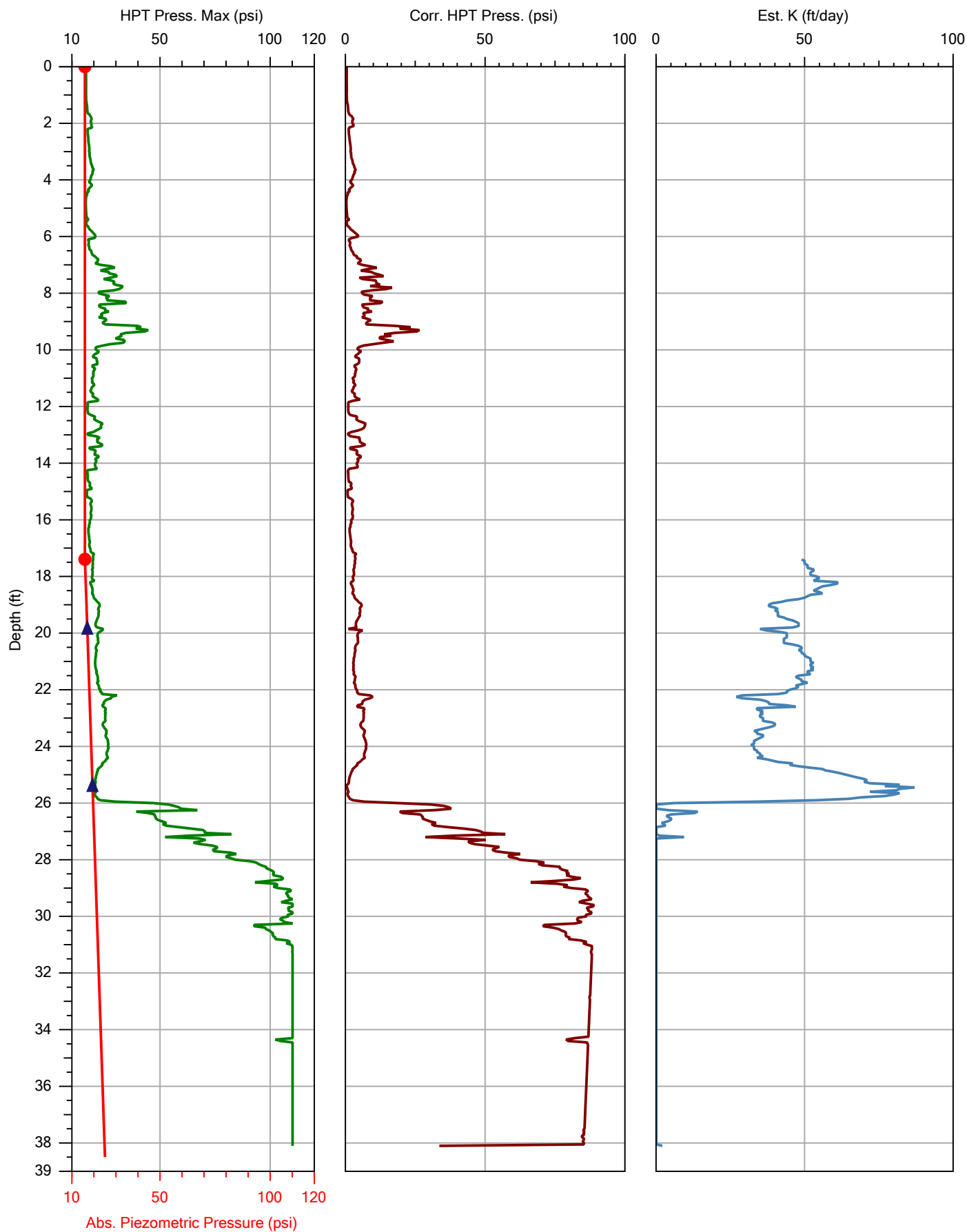


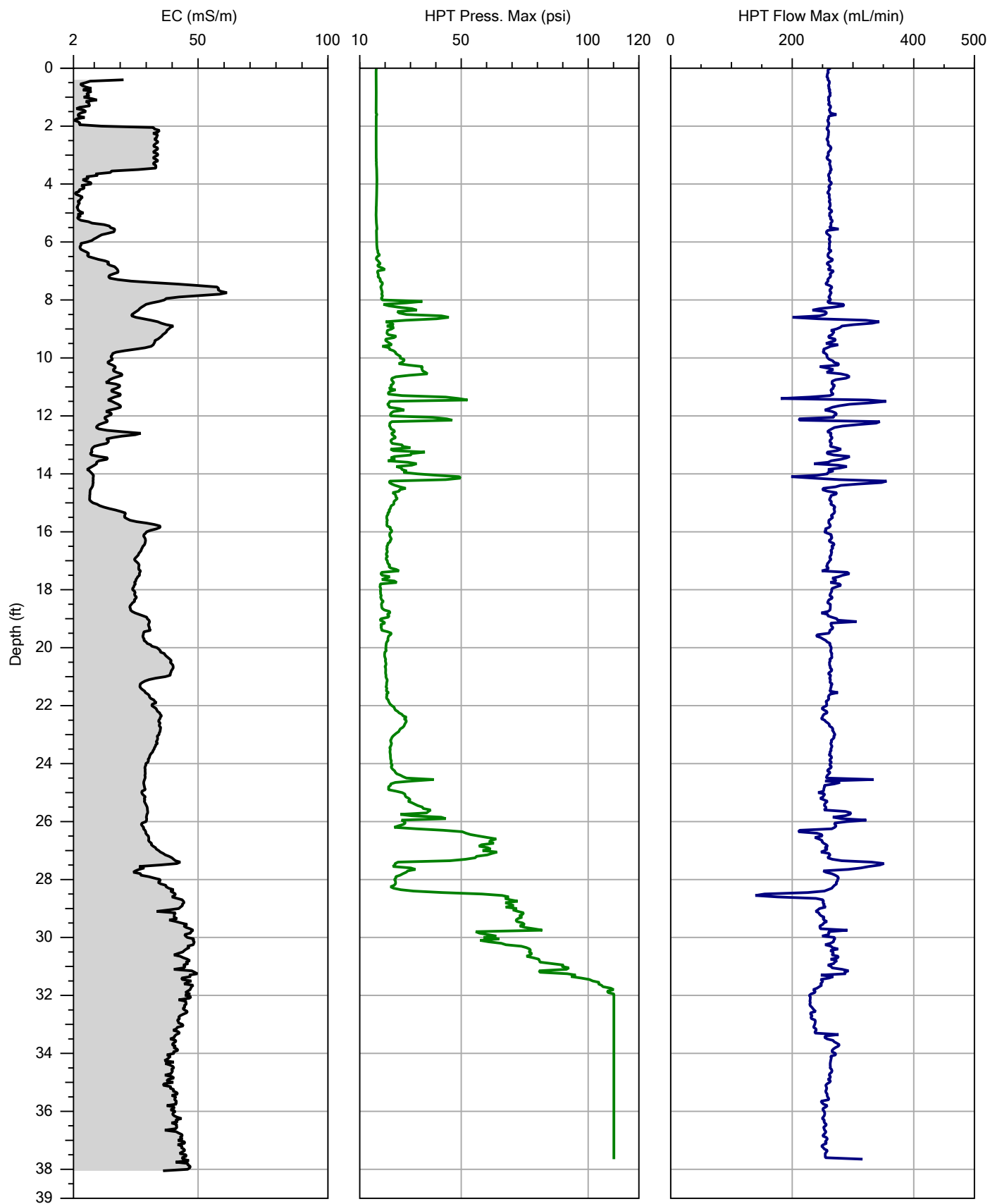


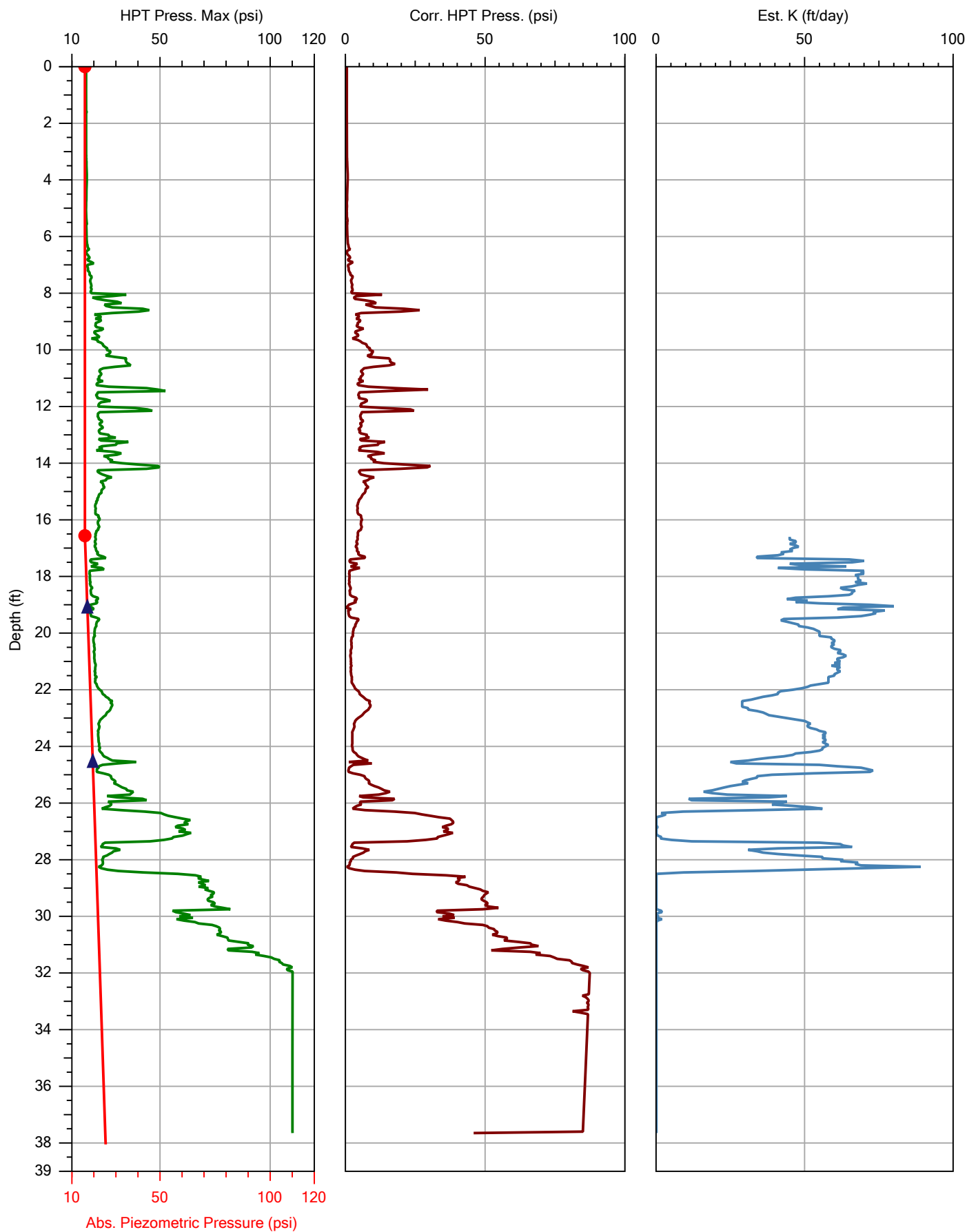


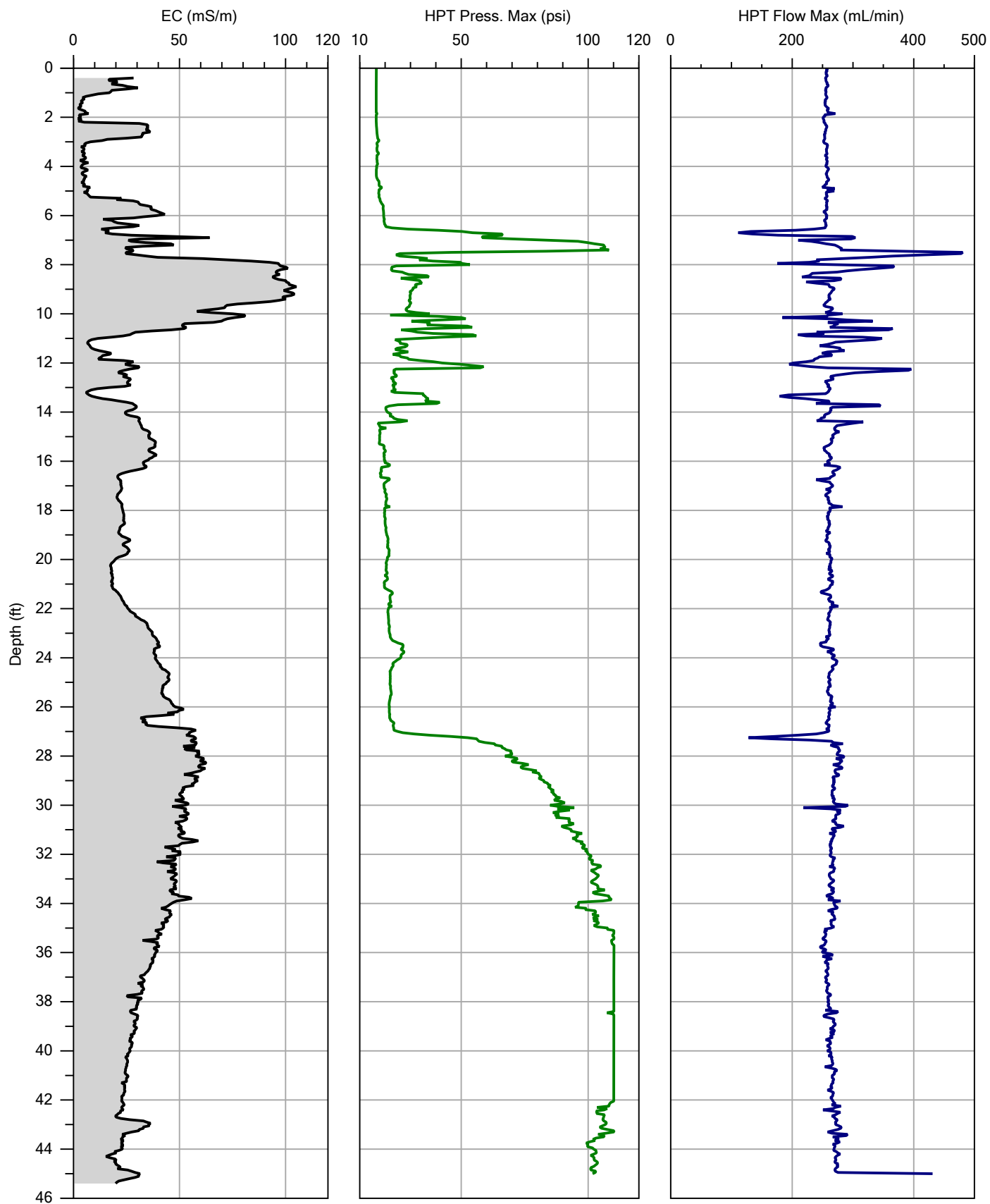


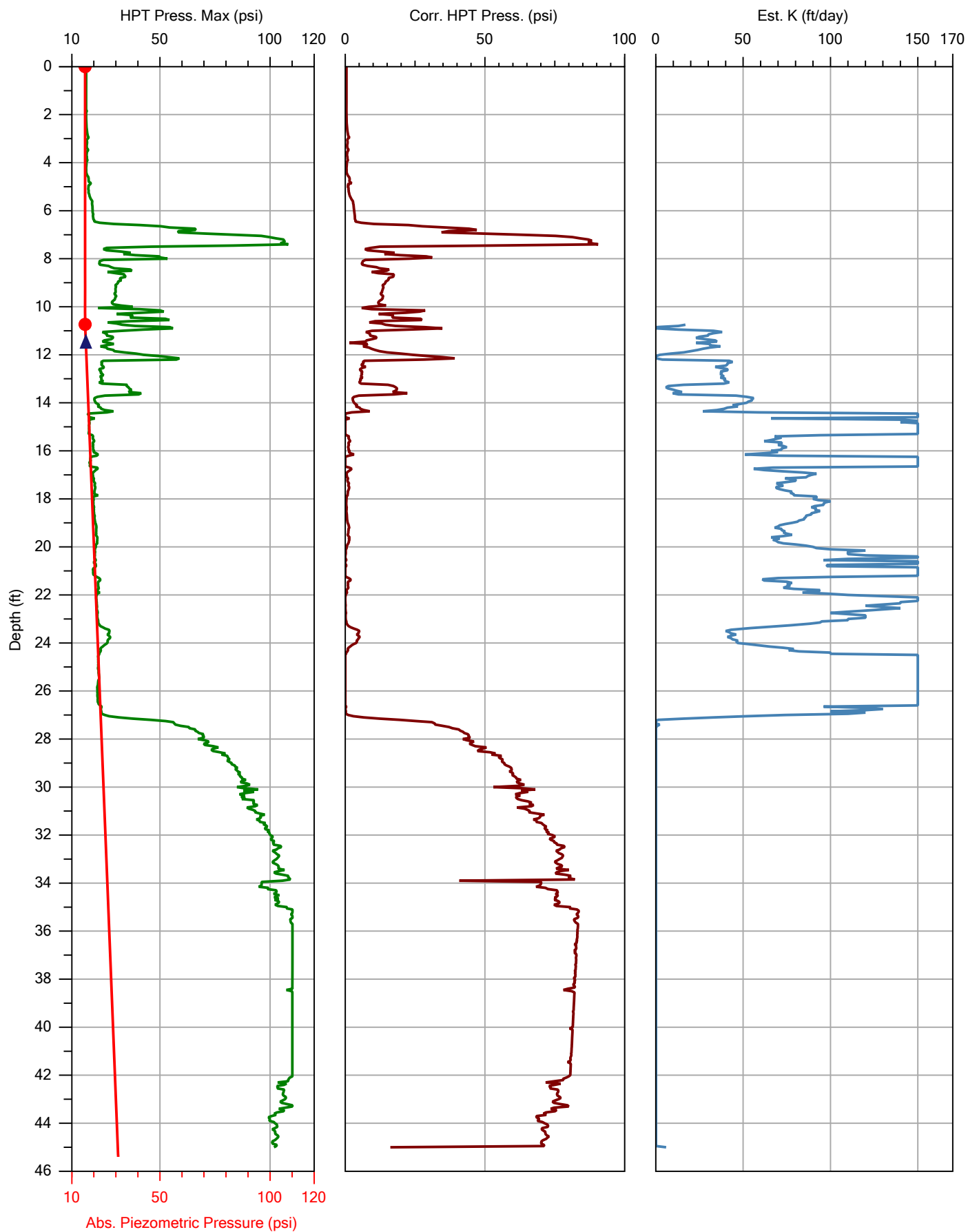












APPENDIX B

Boring and Well Construction Logs



Date Start: 4/17/17 Date Finish: 4/17/17 Drilling Company: Fibertec Driller's Name: Nick Wiseman, Justin McCrimmon Drilling Method: Hand Auger, Direct Push Sampling Method: 5.0' MacroCore, Continuous Rig Type: Geoprobe Water Level Start (ft. bgs.): 4.0 Water Level Finish (ft. btoc.): 6.85	Northing: Easting: Casing Elevation: Borehole Depth (ft. bgs.): 25.0 Surface Elevation: Descriptions By: Kaitlyn Voet	Well/Boring ID: MW-01-17 Client: RACER Location: RACER PNC Weather Conditions: Sunny, 59 F
--	--	---

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
0	0									Stick up Well Cover (38" above gs) 2" sch 40 pvc (3.2'-3.0' bgs) Backfill sand (0.0-0.5' bgs) Bentonite chips (0.5-2.0' bgs) #5 Filter Pack sand (2.0-9.0' bgs) 2" PVC 10 slot screen (3.0-8.0' bgs)
		1	0.0-6.5	6.5	0.3	⊗	⊗	(0.0 - 0.4') TOPSOIL.		
					0.0	⊗	⊗	(0.4 - 10.0') SAND, very fine to medium, subrounded; trace granule to medium pebble, subrounded; well sorted; moist; dark yellowish brown (10YR 3/6).		
					0.1	⊗	⊗			
					0.0	⊗	⊗	Note: Trace coarse sand, subrounded from 3.0'-4.0' bgs.		
					0.1	⊗	⊗	Note: Wet at 4.0' bgs.		
5	-5				0.0	⊗	⊗	Note: From 4.0'-5.0' bgs, color change to black (10YR 2/1) staining; no odor. From 5.0'-15.0' bgs, color changes to black (10YR 2/1).		
					0.0	⊗	⊗			
		2	6.5-10.0	2.2	0.0	⊗	⊗	Note: Some very fine sand, subrounded; from 5.0'-15.0' bgs.		
					0.0	⊗	⊗			
					0.1	⊗	⊗			
					0.0	⊗	⊗			
10	-10				NA			(10.0 - 15.0') NO RECOVERY.		
		3	10.0-15.0	0.2	NA					
					NA					
					NA					
15	-15				0.0	⊗	⊗	(15.0 - 20.0') CLAY, high plasticity, slow dilatancy; little silt; moist; very soft; light gray (10YR 7/1).		

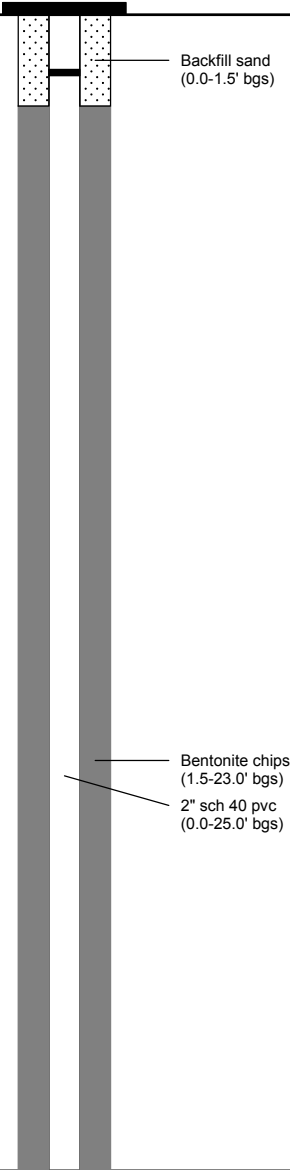
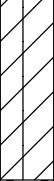
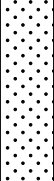
	Remarks: bgs = below ground surface NA = not applicable btoc = below top of casing Hand auger to 6.5' bgs. Groundwater encountered at 4.0' bgs.
--	--

Date Start: 4/17/17 Date Finish: 4/17/17 Drilling Company: Fibertec Driller's Name: Nick Wiseman, Justin McCrimmon Drilling Method: Hand Auger, Direct Push Sampling Method: 5.0' MacroCore, Continuous Rig Type: Geoprobe Water Level Start (ft. bgs.): 4.0 Water Level Finish (ft. btoc.): 6.85	Northing: Easting: Casing Elevation: Borehole Depth (ft. bgs.): 25.0 Surface Elevation: Descriptions By: Kaitlyn Voet	Well/Boring ID: MW-01-17 Client: RACER Location: RACER PNC Weather Conditions: Sunny, 59 F
--	--	---

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
20	-20	4	15.0-20.0	3.0	0.0					Bentonite chips (9.0-25.0' bgs)
					0.0					
					0.0					
					0.0					
25	-25	5	20.0-25.0	2.0	0.0			(20.0 - 24.0') CLAY, high plasticity, slow dilatancy; trace very fine sand, subrounded; moist; soft; dark gray (10YR 4/1).		
					0.0					
					0.0					
					0.0					
25	-25				0.0			(24.0 - 25.0') CLAY, medium plasticity, slow to no dilatancy; moist to dry; stiff; dark gray (10YR 4/1).		
30	-30							End of boring at 25.0' bgs.		
35	-35									

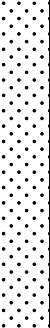
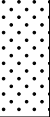
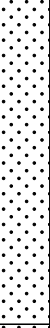
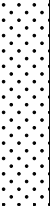
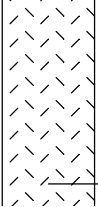
	Remarks: bgs = below ground surface NA = not applicable btoc = below top of casing Hand auger to 6.5' bgs. Groundwater encountered at 4.0' bgs.
--	--

Date Start: 4/17/17 Date Finish: 4/17/17 Drilling Company: Fibertec Driller's Name: Nick Wiseman, Justin McCrimmon Drilling Method: Hand Auger, Direct Push Sampling Method: 5.0' MacroCore, Continuous Rig Type: Geoprobe Water Level Start (ft. bgs.): 27.5 Water Level Finish (ft. btoc.): 26.58	Northing: Easting: Casing Elevation: Borehole Depth (ft. bgs.): 30.0 Surface Elevation: Descriptions By: Kaitlyn Voet	Well/Boring ID: MW-02-17 Client: RACER Location: RACER PNC Weather Conditions: Sunny, 68 F
--	--	---

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
0	0									
		1	0.0-6.5	6.5	0.3			(0.0 - 0.3') ASPHALT.		
					0.3			(0.3 - 3.0') CLAY, high plasticity, no dilatancy; trace silt; trace very coarse sand to granules, subround; dry to moist; medium stiff; dark yellowish brown (10YR 4/4).		
					0.2			(3.0 - 6.0') SILT and CLAY, medium to low plasticity, no to slow dilatancy; moist; soft; dark yellowish brown (10YR 3/4).		
5	-5				0.2			(6.0 - 7.5') CLAY, high to medium plasticity, slow dilatancy; trace silt; moist to wet; soft; dark yellowish brown (10YR 4/6).		
		2	6.5-10.0	2.5	0.0			(7.5 - 12.0') SAND, very fine, subrounded; well sorted; moist; yellowish brown (10YR 5/4).		
					0.0			(12.0 - 25.0') SAND, very fine to fine, subrounded; well sorted; moist; light brownish gray (10YR 6/2).		
10	-10				0.0					
		3	10.0-15.0	4.0	0.0					
					0.0					
15	-15				0.0					
		4	15.0-20.0	2.9	0.0					
					0.0					
					0.0					
					0.0					
					0.0					
					0.0					

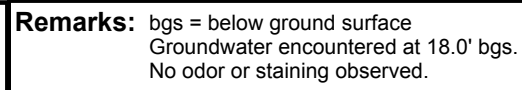
	Remarks: bgs = below ground surface NA = not applicable btoc = below top of casing Hand auger to 6.5' bgs. Groundwater encountered at 27.5' bgs.
--	---

Date Start: 12/5/16 Date Finish: 12/5/16 Drilling Company: Cascade Drilling Driller's Name: Lance Rogers and Lance Truax Drilling Method: Direct Push Sampling Method: 5.0' Macrocore Rig Type: Geoprobe Water Level Start (ft. bgl.): 18.0' Water Level Finish (ft. btoc.): NA	Northing: 424210.123 Easting: 13410713.832 Casing Elevation: 973.32 Borehole Depth (ft. bgl.): 45.0' bgs. Surface Elevation: 973.32 Descriptions By: K. Voet	Well/Boring ID: SB-01-16 Client: RACER Location: RACER PNC Weather Conditions: 40F, Sunny
--	---	--

DEPTH (feet bgl.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgl.)	Well/Boring Construction
0										
5	970	1		0				(0.0 - 7.0') No Recovery. Hand augered.		 Topsoil (0.0'-1.5' bgs)
10	965	2		3.0	0.2			(7.0 - 12.5') SAND, very fine to fine, subrounded to rounded; little silt; trace granules, subrounded; well sorted; moist; dark yellowish brown (10YR 4/4). NOTE: Color change to yellowish red (5YR 4/6) at 12.0'-12.5' bgs. Very large pebbles at 12.2' bgs.		
15	960	3		4.0	0.2			(12.5 - 14.5') SAND, fine, rounded to subrounded; trace medium sand, rounded to subrounded; well sorted; moist; dark yellowish brown (10YR 4/4).		
20	955	4		3.25	0.2			(14.5 - 20.0') SAND, medium, rounded; well sorted; moist; dark yellowish brown (10YR 4/4). NOTE: Wet at 18.0' bgs.		
	950	5		3.67	0.2			(20.0 - 27.0') SAND, very fine to fine, rounded; well sorted; wet; dark yellowish brown (10YR 4/4).		 Bentonite chins/Grout

							(1.5'-45.0' bgs)
				0.2			
25				0.3			
				0.3			
				0.3			
	6		5.0	0.3	(27.0 - 28.0') SAND, very coarse, subrounded to subangular; and GRANULES, small to large; poorly sorted; wet; dark yellowish brown (10YR 4/4).		
945				0.3	(28.0 - 45.0') CLAY, high plasticity, slow dilatancy; trace very fine sand, trace medium pebbles, subrounded to subangular; moist; soft; dark gray (10YR 4/1).		
				0.3			
30				0.3			
				0.3			
				0.3			
	7		5.0	0.3			
940				0.3			
				0.3			
35				0.4			
				0.4			
				0.4			
	8		5.0	0.4			
935				0.4			
				0.4			
40				0.3			
				0.3			
				0.3			
	9		5.0	0.3			
930				0.3			
				0.3			
				0.3	NOTE: CLAY and SAND, very fine to fine; subrounded; well sorted; moist (not saturated) at 44.2-44.5'. End of boring at 45.0' bgs.		
45							
925							
50							
920							
55							

- 60



APPENDIX C

Analytical Data



Groundwater Sampling Results





Analytical Laboratory Report

Report ID: S78392.01(01)
Generated on 01/04/2017

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Additional Contacts: Colleen Barton

Report produced by

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

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S78392.01-S78392.11
Project: B0064607.2016.00005
Collected Date: 12/20/2016 - 12/22/2016
Submitted Date/Time: 12/22/2016 14:40
Sampled by: Kaitlyn Voet
P.O. #: B0064607.2016.00005

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S78392.01	TWMD-07-GW-122016	Groundwater	12/20/16 12:20
S78392.02	TWMD-05-GW-122016	Groundwater	12/20/16 13:55
S78392.03	TWMD-03-GW-122016	Groundwater	12/20/16 15:20
S78392.04	TWMD-01-GW-122116	Groundwater	12/21/16 11:15
S78392.05	MW-40-99-GW-122116	Groundwater	12/21/16 12:40
S78392.06	MWW1-04-GW-122116	Groundwater	12/21/16 16:05
S78392.07	DUP-01-122116	Groundwater	12/21/16 00:01
S78392.08	MWF8-01-GW-122116	Groundwater	12/22/16 11:25
S78392.09	MWF8-01-GW-122116 MS	Groundwater	12/22/16 11:25
S78392.10	MWF8-01-GW-122116 MSD	Groundwater	12/22/16 11:25
S78392.11	Trip Blank	Groundwater	12/22/16 00:01



Analytical Laboratory Report

Lab Sample ID: S78392.01
Sample Tag: TWMD-07-GW-122016
Collected Date/Time: 12/20/2016 12:20
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	01/03/17 17:38	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 17:22	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 17:22	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 17:22	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 17:22	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:22	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78392.01 (continued)

Sample Tag: TWMD-07-GW-122016

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 17:22	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 17:22	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:22	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.02
Sample Tag: TWMD-05-GW-122016
Collected Date/Time: 12/20/2016 13:55
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/29/16 18:33	JGH	123-91-1	I
1,4-Dioxane* (Replicate 01)	4	ug/L	3	SW8260B - SIM	01/03/17 17:58	JGH	123-91-1	B

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 17:43	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 17:43	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 17:43	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 17:43	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 17:43	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	79-01-6	

I-Matrix interference with internal standard

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S78392.02 (continued)

Sample Tag: TWMD-05-GW-122016

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 17:43	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 17:43	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 17:43	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.03
Sample Tag: TWMD-03-GW-122016
Collected Date/Time: 12/20/2016 15:20
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/29/16 18:53	JGH	123-91-1	I
1,4-Dioxane* (Replicate 01)	5	ug/L	3	SW8260B - SIM	01/03/17 18:19	JGH	123-91-1	B

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:05	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 18:05	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:05	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:05	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:05	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	79-01-6	

I-Matrix interference with internal standard

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S78392.03 (continued)

Sample Tag: TWMD-03-GW-122016

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 18:05	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 18:05	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:05	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.04
Sample Tag: TWMD-01-GW-122116
Collected Date/Time: 12/21/2016 11:15
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/29/16 19:13	JGH	123-91-1	I
1,4-Dioxane* (Replicate 01)	5	ug/L	3	SW8260B - SIM	01/03/17 18:39	JGH	123-91-1	B

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:27	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 18:27	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:27	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:27	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:27	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	79-01-6	

I-Matrix interference with internal standard

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S78392.04 (continued)

Sample Tag: TWMD-01-GW-122116

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 18:27	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 18:27	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:27	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.05
Sample Tag: MW-40-99-GW-122116
Collected Date/Time: 12/21/2016 12:40
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	01/03/17 18:59	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:50	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 18:50	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:50	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 18:50	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 18:50	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78392.05 (continued)

Sample Tag: MW-40-99-GW-122116

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 18:50	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 18:50	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 18:50	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.06
Sample Tag: MWW1-04-GW-122116
Collected Date/Time: 12/21/2016 16:05
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	01/03/17 19:19	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:11	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 19:11	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:11	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:11	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:11	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78392.06 (continued)

Sample Tag: MWW1-04-GW-122116

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 19:11	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 19:11	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:11	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.07
Sample Tag: DUP-01-122116
Collected Date/Time: 12/21/2016 00:01
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	01/03/17 19:39	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:33	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 19:33	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:33	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:33	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:33	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78392.07 (continued)

Sample Tag: DUP-01-122116

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 19:33	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 19:33	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:33	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.08
Sample Tag: MWF8-01-GW-122116
Collected Date/Time: 12/22/2016 11:25
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/30/16 12:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	01/03/17 19:59	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 14:34	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 14:34	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 14:34	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 14:34	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 14:34	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78392.08 (continued)

Sample Tag: MWF8-01-GW-122116

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 14:34	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 14:34	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 14:34	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78392.09
Sample Tag: MWF8-01-GW-122116 MS
Collected Date/Time: 12/22/2016 11:25
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/30/16 12:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	45	ug/L	3	SW8260B - SIM	12/29/16 15:13	WAT	123-91-1	1
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 12:23	JGH	67-64-1	1
2-Butanone (MEK)	36	ug/L	25	SW5030C/8260C	12/29/16 12:23	JGH	78-93-3	1
Benzene	54	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	71-43-2	1
Bromodichloromethane	59	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	75-27-4	1
Bromoform	52	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	75-25-2	1
Bromomethane	55	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	74-83-9	1
Carbon disulfide	51	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	75-15-0	1
Carbon tetrachloride	59	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	56-23-5	1
Chlorobenzene	53	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	108-90-7	1
Chloroethane	55	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	75-00-3	1
Chloroform	55	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	67-66-3	1
Chloromethane*	48	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	74-87-3	1
1,2-Dibromo-3-chloropropane	53	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	96-12-8	1
1,2-Dichlorobenzene	51	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	95-50-1	1
1,2-Dichloroethane	57	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	107-06-2	1
1,2-Dichloropropane	53	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	78-87-5	1
1,3-Dichlorobenzene	53	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	541-73-1	1
1,4-Dichlorobenzene	52	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	106-46-7	1
cis-1,2-Dichloroethene	52	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	156-59-2	1
Dibromochloromethane	51	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	124-48-1	1
Dichlorodifluoromethane	42	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	75-71-8	1
trans-1,2-Dichloroethene	53	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	156-60-5	1
Ethylbenzene	55	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 12:23	JGH	591-78-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 12:23	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	56	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	1634-04-4	1
Methylene chloride	53	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	75-09-2	1
Styrene	56	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	100-42-5	1
1,1,1-Trichloroethane	57	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	71-55-6	1
1,1,2-Trichloroethane	55	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	79-00-5	1
1,2,4-Trichlorobenzene	53	ug/L	5	SW5030C/8260C	12/29/16 12:23	JGH	120-82-1	1
Tetrachloroethene	55	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	127-18-4	1
Toluene	55	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	108-88-3	1
Trichloroethene	54	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	79-01-6	1
Trichlorofluoromethane	56	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	75-69-4	1
Vinyl chloride	50	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	75-01-4	1

1-Spiked at 50ug/l



Analytical Laboratory Report

Lab Sample ID: S78392.09 (continued)

Sample Tag: MWF8-01-GW-122116 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	56	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	95-47-6	1
p,m-Xylene*	109	ug/L	2	SW5030C/8260C	12/29/16 12:23	JGH		1
Isopropylbenzene	56	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	98-82-8	1
Cyclohexane	61	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	110-82-7	1
1,1-Dichloroethane	53	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	75-34-3	1
1,1-Dichloroethene	54	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	75-35-4	1
Methyl Acetate*	56	ug/L	10	SW5030C/8260C	12/29/16 12:23	JGH	79-20-9	1
Methyl cyclohexane	54	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane*	54	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	76-13-1	1
1,2-Dibromoethane	56	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	106-93-4	1
1,1,2,2-Tetrachloroethane	56	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	79-34-5	1
cis-1,3-Dichloropropene	55	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	10061-01-5	1
trans-1,3-Dichloropropene	54	ug/L	1	SW5030C/8260C	12/29/16 12:23	JGH	10061-02-6	1

1-Spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S78392.10
Sample Tag: MWF8-01-GW-122116 MSD
Collected Date/Time: 12/22/2016 11:25
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/30/16 12:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	42	ug/L	3	SW8260B - SIM	12/29/16 15:33	WAT	123-91-1	1
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 12:45	JGH	67-64-1	1
2-Butanone (MEK)	35	ug/L	25	SW5030C/8260C	12/29/16 12:45	JGH	78-93-3	1
Benzene	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	71-43-2	1
Bromodichloromethane	59	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	75-27-4	1
Bromoform	50	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	75-25-2	1
Bromomethane	54	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	74-83-9	1
Carbon disulfide	51	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	75-15-0	1
Carbon tetrachloride	60	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	56-23-5	1
Chlorobenzene	53	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	108-90-7	1
Chloroethane	55	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	75-00-3	1
Chloroform	56	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	67-66-3	1
Chloromethane*	47	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	74-87-3	1
1,2-Dibromo-3-chloropropane	52	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	96-12-8	1
1,2-Dichlorobenzene	52	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	95-50-1	1
1,2-Dichloroethane	57	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	107-06-2	1
1,2-Dichloropropane	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	78-87-5	1
1,3-Dichlorobenzene	53	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	541-73-1	1
1,4-Dichlorobenzene	52	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	106-46-7	1
cis-1,2-Dichloroethene	53	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	156-59-2	1
Dibromochloromethane	51	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	124-48-1	1
Dichlorodifluoromethane	42	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	75-71-8	1
trans-1,2-Dichloroethene	53	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	156-60-5	1
Ethylbenzene	55	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 12:45	JGH	591-78-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 12:45	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	55	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	1634-04-4	1
Methylene chloride	53	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	75-09-2	1
Styrene	55	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	100-42-5	1
1,1,1-Trichloroethane	57	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	71-55-6	1
1,1,2-Trichloroethane	56	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	79-00-5	1
1,2,4-Trichlorobenzene	53	ug/L	5	SW5030C/8260C	12/29/16 12:45	JGH	120-82-1	1
Tetrachloroethene	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	127-18-4	1
Toluene	56	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	108-88-3	1
Trichloroethene	55	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	79-01-6	1
Trichlorofluoromethane	55	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	75-69-4	1
Vinyl chloride	49	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	75-01-4	1

1-Spiked at 50ug/l



Analytical Laboratory Report

Lab Sample ID: S78392.10 (continued)
Sample Tag: MWF8-01-GW-122116 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	95-47-6	1
p,m-Xylene*	106	ug/L	2	SW5030C/8260C	12/29/16 12:45	JGH		1
Isopropylbenzene	55	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	98-82-8	1
Cyclohexane	49	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	110-82-7	1
1,1-Dichloroethane	53	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	75-34-3	1
1,1-Dichloroethene	53	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	75-35-4	1
Methyl Acetate*	54	ug/L	10	SW5030C/8260C	12/29/16 12:45	JGH	79-20-9	1
Methyl cyclohexane	55	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane*	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	76-13-1	1
1,2-Dibromoethane	55	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	106-93-4	1
1,1,2,2-Tetrachloroethane	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	79-34-5	1
cis-1,3-Dichloropropene	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	10061-01-5	1
trans-1,3-Dichloropropene	54	ug/L	1	SW5030C/8260C	12/29/16 12:45	JGH	10061-02-6	1

1-Spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S78392.11
Sample Tag: Trip Blank
Collected Date/Time: 12/22/2016 00:01
Matrix: Groundwater
COC Reference: 095118

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
----------	---------	-------	----	--------	---------------	------	-------	-------

Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:55	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/29/16 19:55	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:55	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/29/16 19:55	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/29/16 19:55	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/29/16 19:55	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	98-82-8	



Analytical Laboratory Report

Lab Sample ID: S78392.11 (continued)

Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/29/16 19:55	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/29/16 19:55	JGH	10061-02-6	

REPORT TO

CONTACT NAME Theresa Olechiw			
COMPANY Arcadis			
ADDRESS 28550 Cabot Drive Ste 500			
CITY Novi		STATE MI	ZIP CODE
PHONE NO. 248 994 2240		FAX NO. -	P.O. NO. B0064679.2016.00005
E-MAIL ADDRESS theresa.olechiw@arcadis.com / colleen.barton@arcadis.com		QUOTE NO.	

CHAIN OF CUSTODY RECORD

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

INVOICE TO

PROJECT NO./NAME RACER PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Kaitlyn Voet Kaitlyn Voet
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

Containers & Preservatives

[illegible]

RELINQUISHED BY:	Kaitlyn Vaet High Arcadia	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION			12/22/16	11:50
RECEIVED BY:	J. A. Pelt		DATE	TIME
SIGNATURE/ORGANIZATION			12/22/16	11:50
RELINQUISHED BY:	J. H. Mull		DATE	TIME
SIGNATURE/ORGANIZATION			12/22/16	14:40
RECEIVED BY:	M. Dilco		DATE	TIME
SIGNATURE/ORGANIZATION			12/22/16	1440

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>5.0</u>	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

Table 4
Summary of Groundwater Analytical Results
RACER Trust Pontiac North Campus
Pontiac, Michigan

PNC VOC Analyte List - 8260C

Location ID:
Date Collected:
Sample Name:

Volatile Organic Compounds

Plus 1, 4 Dioxane 8260C SIMS

VOC	Acetone
VOC	Benzene
VOC	Bromodichloromethane
VOC	Bromoform
VOC	Bromomethane
VOC	2-Butanone
VOC	Carbon Disulfide
VOC	Carbon Tetrachloride
VOC	Chlorobenzene
VOC	Chloroethane
VOC	Chloroform
VOC	Chloromethane
VOC	Cumene
VOC	Cyclohexane
VOC	1,2-Dibromo-3-chloropropane
VOC	Dibromochloromethane
VOC	1,2-Dibromoethane
VOC	1,2-Dichlorobenzene
VOC	1,3-Dichlorobenzene
VOC	1,4-Dichlorobenzene
VOC	Dichlorodifluoromethane
VOC	1,1-Dichloroethane
VOC	1,2-Dichloroethane
VOC	1,1-Dichloroethene
VOC	cis-1,2-Dichloroethene
VOC	trans-1,2-Dichloroethene
VOC	1,2-Dichloropropane
VOC	1,3-Dichloropropene (summed)
VOC	Ethyl Benzene
VOC	2-Hexanone
VOC	Methyl Acetate
VOC	Methyl tert-butyl ether
VOC	4-Methyl-2-pentanone
VOC	Methylcyclohexane
VOC	Methylene Chloride
VOC	Styrene
VOC	1,1,2,2-Tetrachloroethane
VOC	Tetrachloroethene
VOC	Toluene
VOC	1,2,4-Trichlorobenzene
VOC	1,1,1-Trichloroethane
VOC	1,1,2-Trichloroethane
VOC	Trichloroethene
VOC	Trichlorofluoromethane
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane
VOC	Vinyl Chloride
VOC	Xylenes (total)



Analytical Laboratory Report

Report ID: S80755.01(01)

Generated on 05/03/2017

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Report produced by

Merit Laboratories, Inc.
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Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S80755.01-S80755.05
Project: RACER PNC
Collected Date: 04/19/2017 - 04/21/2017
Submitted Date/Time: 04/21/2017 15:30
Sampled by: Kaitlyn Voet
P.O. #: B0064607.2017

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

A handwritten signature in black ink, reading "Maya Murshak".

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80755.01	MWW1-04_GW-041917	Groundwater	04/19/17 17:20
S80755.02	MWF1R_GW-042117	Groundwater	04/21/17 10:30
S80755.03	MW-02-17_GW-042117	Groundwater	04/21/17 11:35
S80755.04	Dup-01	Groundwater	04/21/17 00:01
S80755.05	TB	Water	04/21/17 00:01



Analytical Laboratory Report

Lab Sample ID: S80755.01
Sample Tag: MWW1-04_GW-041917
Collected Date/Time: 04/19/2017 17:20
Matrix: Groundwater
COC Reference: 102717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 13:42	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 02:35	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 02:35	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 02:35	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 02:35	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:35	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80755.01 (continued)

Sample Tag: MWW1-04_GW-041917

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 02:35	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 02:35	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:35	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80755.02
Sample Tag: MWF1R_GW-042117
Collected Date/Time: 04/21/2017 10:30
Matrix: Groundwater
COC Reference: 102717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	18	ug/L	3	SW8260B - SIM	05/01/17 14:00	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 02:55	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 02:55	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 02:55	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 02:55	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 02:55	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80755.02 (continued)

Sample Tag: MWF1R_GW-042117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 02:55	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 02:55	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 02:55	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80755.03
Sample Tag: MW-02-17_GW-042117
Collected Date/Time: 04/21/2017 11:35
Matrix: Groundwater
COC Reference: 102717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 14:18	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 03:17	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 03:17	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 03:17	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 03:17	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:17	JML	120-82-1	
Tetrachloroethene	12	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	108-88-3	
Trichloroethene	1	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80755.03 (continued)

Sample Tag: MW-02-17_GW-042117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 03:17	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	110-82-7	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 03:17	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:17	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80755.04
Sample Tag: Dup-01
Collected Date/Time: 04/21/2017 00:01
Matrix: Groundwater
COC Reference: 102717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 14:36	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 03:37	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 03:37	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 03:37	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 03:37	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 03:37	JML	120-82-1	
Tetrachloroethene	11	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	108-88-3	
Trichloroethene	1	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80755.04 (continued)

Sample Tag: Dup-01

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 03:37	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	110-82-7	
1,1-Dichloroethane	1	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 03:37	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 03:37	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80755.05
Sample Tag: TB
Collected Date/Time: 04/21/2017 00:01
Matrix: Water
COC Reference: 102717

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 13:06	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 00:33	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 00:33	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 00:33	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 00:33	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 00:33	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80755.05 (continued)

Sample Tag: TB

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 00:33	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 00:33	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 00:33	JML	10061-02-6	

REPORT TO

CONTACT NAME Theresa Okchiw	
COMPANY Arcadis	
ADDRESS 28550 Cabot Drive #500	
CITY Nori	STATE MI
ZIP CODE 48377	
PHONE NO. 810.225.1909	FAX NO.
E-MAIL ADDRESS Theresa.Okchiw@arcadis.com	P.O. NO. B0064607.2017
	QUOTE NO.

CHAIN OF CUSTODY RECORD

CONTACT NAME		Accounts Payable		☐ SAME	
COMPANY		Arcadis			
ADDRESS		630 Plaza Drive Suite 600			
CITY		Highlands Ranch		STATE	CO
PHONE NO.				ZIP CODE	80129
E-MAIL ADDRESS		accounts.payable.administration@arcadis-us.com			

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

[illegible]

RELINQUISHED BY:	<i>Radiant</i>	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION	<i>Arcadis</i>		4/2/17	12:20
RECEIVED BY:	<i>J.A. Melt</i>		DATE	TIME
SIGNATURE/ORGANIZATION	<i>J.A. Melt</i>		4/2/17	12:20
RELINQUISHED BY:	<i>J.A. Melt</i>		DATE	TIME
SIGNATURE/ORGANIZATION	<i>J.A. Melt</i>		4/2/17	15:30
RECEIVED BY:	<i>Sam Smith</i>		DATE	TIME
SIGNATURE/ORGANIZATION	<i>Sam Smith</i>		4/2/17	15:30

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL _____ 5.5	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

Volatile Organic Compounds
Acetone
Benzene
Bromodichloromethane
Bromoform
Bromomethane
2-Butanone
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Cumene
Cyclohexane
1,2-Dibromo-3-chloropropane
Dibromochloromethane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropene (summed)
Ethyl Benzene
2-Hexanone
Methyl Acetate
Methyl tert-butyl ether
4-Methyl-2-pentanone
Methylcyclohexane
Methylene Chloride
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene

Plus 1, 4
Dioxane

8260C
SIMS



Analytical Laboratory Report

Report ID: S80768.01(01)

Generated on 05/02/2017

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Report produced by

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Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S80768.01-S80768.04
Project: RACER PNC
Collected Date: 04/21/2017 - 04/24/2017
Submitted Date/Time: 04/24/2017 15:15
Sampled by: Kaitlyn Voet
P.O. #: B0064607.2017

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

A handwritten signature in black ink, reading "Maya Murshak".

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
E608	EPA Method 608
N/A	Not Applicable
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW6020A	SW 846 Method 6020A Revision 1 February 2007
SW7471B	SW 846 Method 7471B Revision 2 February 2007
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80768.01	MWF7-01_GW-042117	Groundwater	04/21/17 14:35
S80768.02	MWF7-02_GW-042117	Groundwater	04/21/17 15:40
S80768.03	Trip Blank	Water	04/21/17 00:01
S80768.04	TW-MD-04_GW-042417	Groundwater	04/24/17 10:45



Analytical Laboratory Report

Lab Sample ID: S80768.01
Sample Tag: MWF7-01_GW-042117
Collected Date/Time: 04/21/2017 14:35
Matrix: Groundwater
COC Reference: 75625

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	14	ug/L	3	SW8260B - SIM	04/27/17 18:35	WAT	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 07:53	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/27/17 07:53	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 07:53	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/27/17 07:53	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	100-42-5	
1,1,1-Trichloroethane	8	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/27/17 07:53	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80768.01 (continued)

Sample Tag: MWF7-01_GW-042117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 07:53	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	110-82-7	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 07:53	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 07:53	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80768.02
Sample Tag: MWF7-02_GW-042117
Collected Date/Time: 04/21/2017 15:40
Matrix: Groundwater
COC Reference: 75625

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	188	ug/L	3	SW8260B - SIM	04/27/17 18:53	WAT	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 08:14	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/27/17 08:14	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	106-46-7	
cis-1,2-Dichloroethene	2	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 08:14	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/27/17 08:14	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	100-42-5	
1,1,1-Trichloroethane	52	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/27/17 08:14	JML	120-82-1	
Tetrachloroethene	27	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	108-88-3	
Trichloroethene	3	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80768.02 (continued)

Sample Tag: MWF7-02_GW-042117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 08:14	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	110-82-7	
1,1-Dichloroethane	34	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	75-34-3	
1,1-Dichloroethene	9	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 08:14	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 08:14	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80768.03
Sample Tag: Trip Blank
Collected Date/Time: 04/21/2017 00:01
Matrix: Water
COC Reference: 75625

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/27/17 13:30	JGH		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	04/27/17 13:45	WAT	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 01:35	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/27/17 01:35	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 01:35	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/27/17 01:35	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/27/17 01:35	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80768.03 (continued)

Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 01:35	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 01:35	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 01:35	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80768.04
Sample Tag: TW-MD-04_GW-042417
Collected Date/Time: 04/24/2017 10:45
Matrix: Groundwater
COC Reference: 75625

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.7	IR
2	125ml Plastic	HNO3	Yes	5.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB	Completed			SW3510C	04/25/17 13:37	PLB		
Extraction, PCB	Completed			SW3510C	04/25/17 13:36	PLB		
Mercury Digestion*	Completed			SW7471B	05/02/17 08:00	JRH		
Mercury Digestion*	Completed			SW7471B	05/02/17 08:00	JRH		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		

Metals

Beryllium, Dissolved	Not detected	mg/L	0.001	SW6020A	04/26/17 14:27	CCM	7440-41-7	
Beryllium	Not detected	mg/L	0.001	SW6020A	04/26/17 14:25	CCM	7440-41-7	
Cadmium, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:27	CCM	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:25	CCM	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7440-47-3	
Chromium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7440-47-3	
Cobalt, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7440-48-4	
Cobalt	Not detected	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7440-48-4	
Copper, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7440-50-8	
Copper	Not detected	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7440-50-8	
Iron, Dissolved	10.2	mg/L	0.02	SW6020A	04/26/17 14:27	CCM	7439-89-6	
Iron	10.7	mg/L	0.02	SW6020A	04/26/17 14:25	CCM	7439-89-6	
Lead, Dissolved	Not detected	mg/L	0.003	SW6020A	04/26/17 14:27	CCM	7439-92-1	
Lead	Not detected	mg/L	0.003	SW6020A	04/26/17 14:25	CCM	7439-92-1	
Manganese, Dissolved	0.369	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7439-96-5	
Manganese	0.353	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7439-96-5	
Mercury, Dissolved*	Not detected	mg/L	0.0002	SW7471B	05/02/17 13:44	JRH	7439-97-6	
Mercury*	Not detected	mg/L	0.0002	SW7471B	05/02/17 13:42	JRH	7439-97-6	
Nickel, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7440-02-0	
Nickel	Not detected	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7440-02-0	
Selenium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7782-49-2	
Selenium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:27	CCM	7440-22-4	
Silver	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:25	CCM	7440-22-4	
Thallium, Dissolved	Not detected	mg/L	0.002	SW6020A	04/26/17 14:27	CCM	7440-28-0	
Thallium	Not detected	mg/L	0.002	SW6020A	04/26/17 14:25	CCM	7440-28-0	
Vanadium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7440-62-2	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7440-62-2	
Zinc, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:27	CCM	7440-66-6	
Zinc	Not detected	mg/L	0.005	SW6020A	04/26/17 14:25	CCM	7440-66-6	

Organics - PCBs/Pesticides

PCB, Dissolved

PCB-1016	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	12674-11-2	
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Analytical Laboratory Report

Lab Sample ID: S80768.04 (continued)

Sample Tag: TW-MD-04_GW-042417

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
PCB, Dissolved (continued)								
PCB-1221	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/25/17 15:44	JAN	1336-36-3	
PCB								
PCB-1016	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	12674-11-2	
PCB-1221	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/25/17 15:22	JAN	1336-36-3	

REPORT TO

CONTACT NAME		Theresa Olechiw	
COMPANY		Arcadis of Michigan LLC	
ADDRESS		28550 Cabot Dr Suite 500	
CITY		STATE	ZIP CODE
Novi		MI	48377
PHONE NO.	FAX NO.		P.O. NO.
810.225.1909			B0064607.2017
E-MAIL ADDRESS		QUOTE NO.	
Theresa.Olechiw@arcadis.com			

CHAIN OF CUSTODY RECORD

CONTACT NAME		Accounts Payable		☐ SAME	
COMPANY		Arcadis of MI LLC			
ADDRESS		630 Plaza Dr Suite 600			
CITY		Highlands Ranch		STATE	ZIP CODE
				CO	80129
PHONE NO.		E-MAIL ADDRESS			
		accounts payable.administration@arcadis.com			

INVOICE TO

PROJECT NO./NAME	RACER PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME	Kaitlyn Voet <i>Kaitlyn Voet</i>
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER			
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER			

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

Certifications

☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations

☐ Detroit ☐ New York

☒ Other Pontiac, MI
Special Instructions

[illegible]

RELINQUISHED BY:	<i>Karen Van Arcadis</i>	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION			4/24/17	12:00
RECEIVED BY:	<i>JNA Miller</i>		DATE	TIME
SIGNATURE/ORGANIZATION			4/24/17	12:00
RELINQUISHED BY:	<i>JNA Miller</i>		DATE	TIME
SIGNATURE/ORGANIZATION			4/24/17	1:15
RECEIVED BY:	<i>Sam Smith</i>		DATE	TIME
SIGNATURE/ORGANIZATION			4/24/17	15:15

RELINQUISHED BY:		DATE		TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:		DATE		TIME
SIGNATURE/ORGANIZATION				
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL _____ B.7	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

Volatile Organic Compounds
Acetone
Benzene
Bromodichloromethane
Bromoform
Bromomethane
2-Butanone
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Cumene
Cyclohexane
1,2-Dibromo-3-chloropropane
Dibromochloromethane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropene (summed)
Ethyl Benzene
2-Hexanone
Methyl Acetate
Methyl tert-butyl ether
4-Methyl-2-pentanone
Methylcyclohexane
Methylene Chloride
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,1,2-Trichloro-1,2,2-trifluoroethane
Vinyl Chloride
Xylenes (total)

Plus 1, 4
Dioxane

8260C
SIMS



Analytical Laboratory Report

Report ID: S80804.01(02)
Generated on 05/04/2017

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Report produced by

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

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

Contacts for report questions:

John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S80804.01-S80804.08
Project: RACER PNC
Collected Date: 04/24/2017 - 04/25/2017
Submitted Date/Time: 04/25/2017 16:00
Sampled by: SP / KV
P.O. #: B0064607.2017

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

A handwritten signature in black ink, reading "Maya Murshak".

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
E608	EPA Method 608
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW3550C	SW 846 Method 3550C Revision 3 February 2007
SW6020A	SW 846 Method 6020A Revision 1 February 2007
SW7471B	SW 846 Method 7471B Revision 2 February 2007
SW8082A	SW 846 Method 8082A Revision 1 February 2007



Analytical Laboratory Report

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80804.01	TW-MD-07_GW-042417	Groundwater	04/24/17 13:45
S80804.02	TW-MD-07_GW-042417 MS	Groundwater	04/24/17 13:45
S80804.03	TW-MD-07_GW-042417 MSD	Groundwater	04/24/17 13:45
S80804.04	TW-MD-05_GW-042417	Groundwater	04/24/17 15:45
S80804.05	TW-MD-06_GW-042417	Groundwater	04/24/17 16:55
S80804.06	Dup-02	Groundwater	04/24/17 00:01
S80804.07	Trip Blank	Water	04/24/17 00:01
S80804.08	TW-M2-O5_LNAPL-042517	Oil	04/25/17 10:45



Analytical Laboratory Report

Lab Sample ID: S80804.01
Sample Tag: TW-MD-07_GW-042417
Collected Date/Time: 04/24/2017 13:45
Matrix: Groundwater
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
2	125ml Plastic	HNO3	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB	Completed			SW3510C	04/27/17 14:21	PLB		
Extraction, PCB	Completed			SW3510C	04/27/17 14:20	PLB		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		

Metals

Beryllium, Dissolved	Not detected	mg/L	0.001	SW6020A	04/26/17 15:06	CCM	7440-41-7	
Beryllium	Not detected	mg/L	0.001	SW6020A	04/26/17 14:47	CCM	7440-41-7	
Cadmium, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 15:06	CCM	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:47	CCM	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7440-47-3	
Chromium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7440-47-3	
Cobalt, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7440-48-4	
Cobalt	Not detected	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7440-48-4	
Copper, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7440-50-8	
Copper	Not detected	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7440-50-8	
Iron, Dissolved	12.8	mg/L	0.02	SW6020A	04/26/17 15:06	CCM	7439-89-6	
Iron	13.3	mg/L	0.2	SW6020A	04/26/17 14:55	CCM	7439-89-6	
Lead, Dissolved	Not detected	mg/L	0.003	SW6020A	04/26/17 15:06	CCM	7439-92-1	
Lead	Not detected	mg/L	0.003	SW6020A	04/26/17 14:47	CCM	7439-92-1	
Manganese, Dissolved	0.278	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7439-96-5	
Manganese	0.257	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7439-96-5	
Mercury, Dissolved*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:46	JRH	7439-97-6	
Mercury*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:40	JRH	7439-97-6	
Nickel, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7440-02-0	
Nickel	Not detected	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7440-02-0	
Selenium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7782-49-2	
Selenium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 15:06	CCM	7440-22-4	
Silver	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:47	CCM	7440-22-4	
Thallium, Dissolved	Not detected	mg/L	0.002	SW6020A	04/26/17 15:06	CCM	7440-28-0	
Thallium	Not detected	mg/L	0.002	SW6020A	04/26/17 14:47	CCM	7440-28-0	
Vanadium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7440-62-2	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7440-62-2	
Zinc, Dissolved	0.013	mg/L	0.005	SW6020A	04/26/17 15:06	CCM	7440-66-6	
Zinc	Not detected	mg/L	0.005	SW6020A	04/26/17 14:47	CCM	7440-66-6	

Organics - PCBs/Pesticides

PCB, Dissolved

PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	12674-11-2	
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Analytical Laboratory Report

Lab Sample ID: S80804.01 (continued)

Sample Tag: TW-MD-07_GW-042417

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
PCB, Dissolved (continued)								
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/27/17 14:31	JAN	1336-36-3	
PCB								
PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	12674-11-2	
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/27/17 13:57	JAN	1336-36-3	



Analytical Laboratory Report

Lab Sample ID: S80804.02
Sample Tag: TW-MD-07_GW-042417 MS
Collected Date/Time: 04/24/2017 13:45
Matrix: Groundwater
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
2	125ml Plastic	HNO3	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB	Completed			SW3510C	04/27/17 14:21	PLB		
Extraction, PCB	Completed			SW3510C	04/27/17 14:20	PLB		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		

Metals

Beryllium, Dissolved	0.239	mg/L	0.001	SW6020A	04/26/17 15:09	CCM	7440-41-7	
Beryllium	0.255	mg/L	0.001	SW6020A	04/26/17 14:48	CCM	7440-41-7	
Cadmium, Dissolved	0.235	mg/L	0.0005	SW6020A	04/26/17 15:09	CCM	7440-43-9	
Cadmium	0.243	mg/L	0.0005	SW6020A	04/26/17 14:48	CCM	7440-43-9	
Chromium, Dissolved	0.256	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7440-47-3	
Chromium	0.256	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7440-47-3	
Cobalt, Dissolved	0.246	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7440-48-4	
Cobalt	0.256	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7440-48-4	
Copper, Dissolved	0.228	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7440-50-8	
Copper	0.237	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7440-50-8	
Iron, Dissolved	13.0	mg/L	0.02	SW6020A	04/26/17 15:09	CCM	7439-89-6	
Iron	15.6	mg/L	0.2	SW6020A	04/26/17 14:57	CCM	7439-89-6	
Lead, Dissolved	0.246	mg/L	0.003	SW6020A	04/26/17 15:09	CCM	7439-92-1	
Lead	0.241	mg/L	0.003	SW6020A	04/26/17 14:48	CCM	7439-92-1	
Manganese, Dissolved	0.517	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7439-96-5	
Manganese	0.503	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7439-96-5	
Mercury, Dissolved*	0.0019	mg/L	0.0001	SW7471B	05/04/17 13:48	JRH	7439-97-6	
Mercury*	0.0018	mg/L	0.0001	SW7471B	05/04/17 13:42	JRH	7439-97-6	
Nickel, Dissolved	0.250	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7440-02-0	
Nickel	0.257	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7440-02-0	
Selenium, Dissolved	0.265	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7782-49-2	
Selenium	0.246	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7782-49-2	
Silver, Dissolved	0.222	mg/L	0.0005	SW6020A	04/26/17 15:09	CCM	7440-22-4	
Silver	0.209	mg/L	0.0005	SW6020A	04/26/17 14:48	CCM	7440-22-4	
Thallium, Dissolved	0.247	mg/L	0.002	SW6020A	04/26/17 15:09	CCM	7440-28-0	
Thallium	0.243	mg/L	0.002	SW6020A	04/26/17 14:48	CCM	7440-28-0	
Vanadium, Dissolved	0.259	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7440-62-2	
Vanadium	0.266	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7440-62-2	
Zinc, Dissolved	0.241	mg/L	0.005	SW6020A	04/26/17 15:09	CCM	7440-66-6	
Zinc	0.242	mg/L	0.005	SW6020A	04/26/17 14:48	CCM	7440-66-6	

Organics - PCBs/Pesticides

PCB, Dissolved

PCB-1016	0.5	ug/L	0.1	E608	04/27/17 14:42	JAN	12674-11-2	
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Analytical Laboratory Report

Lab Sample ID: S80804.02 (continued)
Sample Tag: TW-MD-07_GW-042417 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
PCB, Dissolved (continued)								
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 14:42	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 14:42	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 14:42	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 14:42	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 14:42	JAN	11097-69-1	
PCB-1260	0.5	ug/L	0.1	E608	04/27/17 14:42	JAN	11096-82-5	
PCB, Total*	1	ug/L	0.1	E608	04/27/17 14:42	JAN	1336-36-3	
PCB								
PCB-1016	0.5	ug/L	0.1	E608	04/27/17 14:08	JAN	12674-11-2	
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 14:08	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 14:08	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 14:08	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 14:08	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 14:08	JAN	11097-69-1	
PCB-1260	0.4	ug/L	0.1	E608	04/27/17 14:08	JAN	11096-82-5	
PCB, Total*	0.9	ug/L	0.1	E608	04/27/17 14:08	JAN	1336-36-3	



Analytical Laboratory Report

Lab Sample ID: S80804.03
Sample Tag: TW-MD-07_GW-042417 MSD
Collected Date/Time: 04/24/2017 13:45
Matrix: Groundwater
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
2	125ml Plastic	HNO3	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB	Completed			SW3510C	04/27/17 14:21	PLB		
Extraction, PCB	Completed			SW3510C	04/27/17 14:20	PLB		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		

Metals

Beryllium, Dissolved	0.251	mg/L	0.001	SW6020A	04/26/17 15:10	CCM	7440-41-7	
Beryllium	0.253	mg/L	0.001	SW6020A	04/26/17 14:50	CCM	7440-41-7	
Cadmium, Dissolved	0.236	mg/L	0.0005	SW6020A	04/26/17 15:10	CCM	7440-43-9	
Cadmium	0.237	mg/L	0.0005	SW6020A	04/26/17 14:50	CCM	7440-43-9	
Chromium, Dissolved	0.259	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7440-47-3	
Chromium	0.263	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7440-47-3	
Cobalt, Dissolved	0.250	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7440-48-4	
Cobalt	0.256	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7440-48-4	
Copper, Dissolved	0.229	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7440-50-8	
Copper	0.234	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7440-50-8	
Iron, Dissolved	13.0	mg/L	0.02	SW6020A	04/26/17 15:10	CCM	7439-89-6	
Iron	15.5	mg/L	0.2	SW6020A	04/26/17 14:59	CCM	7439-89-6	
Lead, Dissolved	0.239	mg/L	0.003	SW6020A	04/26/17 15:10	CCM	7439-92-1	
Lead	0.234	mg/L	0.003	SW6020A	04/26/17 14:50	CCM	7439-92-1	
Manganese, Dissolved	0.541	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7439-96-5	
Manganese	0.498	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7439-96-5	
Mercury, Dissolved*	0.0019	mg/L	0.0001	SW7471B	05/04/17 13:51	JRH	7439-97-6	
Mercury*	0.0019	mg/L	0.0001	SW7471B	05/04/17 13:44	JRH	7439-97-6	
Nickel, Dissolved	0.255	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7440-02-0	
Nickel	0.255	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7440-02-0	
Selenium, Dissolved	0.255	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7782-49-2	
Selenium	0.268	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7782-49-2	
Silver, Dissolved	0.225	mg/L	0.0005	SW6020A	04/26/17 15:10	CCM	7440-22-4	
Silver	0.222	mg/L	0.0005	SW6020A	04/26/17 14:50	CCM	7440-22-4	
Thallium, Dissolved	0.242	mg/L	0.002	SW6020A	04/26/17 15:10	CCM	7440-28-0	
Thallium	0.240	mg/L	0.002	SW6020A	04/26/17 14:50	CCM	7440-28-0	
Vanadium, Dissolved	0.264	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7440-62-2	
Vanadium	0.267	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7440-62-2	
Zinc, Dissolved	0.242	mg/L	0.005	SW6020A	04/26/17 15:10	CCM	7440-66-6	
Zinc	0.242	mg/L	0.005	SW6020A	04/26/17 14:50	CCM	7440-66-6	

Organics - PCBs/Pesticides

PCB, Dissolved

PCB-1016	0.5	ug/L	0.1	E608	04/27/17 14:53	JAN	12674-11-2	
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Analytical Laboratory Report

Lab Sample ID: S80804.03 (continued)

Sample Tag: TW-MD-07_GW-042417 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
PCB, Dissolved (continued)								
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 14:53	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 14:53	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 14:53	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 14:53	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 14:53	JAN	11097-69-1	
PCB-1260	0.4	ug/L	0.1	E608	04/27/17 14:53	JAN	11096-82-5	
PCB, Total*	0.9	ug/L	0.1	E608	04/27/17 14:53	JAN	1336-36-3	
PCB								
PCB-1016	0.5	ug/L	0.1	E608	04/27/17 14:20	JAN	12674-11-2	
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 14:20	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 14:20	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 14:20	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 14:20	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 14:20	JAN	11097-69-1	
PCB-1260	0.4	ug/L	0.1	E608	04/27/17 14:20	JAN	11096-82-5	
PCB, Total*	0.9	ug/L	0.1	E608	04/27/17 14:20	JAN	1336-36-3	



Analytical Laboratory Report

Lab Sample ID: S80804.04
Sample Tag: TW-MD-05_GW-042417
Collected Date/Time: 04/24/2017 15:45
Matrix: Groundwater
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
2	125ml Plastic	HNO3	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB	Completed			SW3510C	04/27/17 14:21	PLB		
Extraction, PCB	Completed			SW3510C	04/27/17 14:20	PLB		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		

Metals

Beryllium, Dissolved	Not detected	mg/L	0.001	SW6020A	04/26/17 14:30	CCM	7440-41-7	
Beryllium	Not detected	mg/L	0.001	SW6020A	04/26/17 14:29	CCM	7440-41-7	
Cadmium, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:30	CCM	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:29	CCM	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7440-47-3	
Chromium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7440-47-3	
Cobalt, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7440-48-4	
Cobalt	Not detected	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7440-48-4	
Copper, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7440-50-8	
Copper	Not detected	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7440-50-8	
Iron, Dissolved	13.2	mg/L	0.02	SW6020A	04/26/17 14:30	CCM	7439-89-6	
Iron	13.9	mg/L	0.02	SW6020A	04/26/17 14:29	CCM	7439-89-6	
Lead, Dissolved	Not detected	mg/L	0.003	SW6020A	04/26/17 14:30	CCM	7439-92-1	
Lead	Not detected	mg/L	0.003	SW6020A	04/26/17 14:29	CCM	7439-92-1	
Manganese, Dissolved	0.419	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7439-96-5	
Manganese	0.414	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7439-96-5	
Mercury, Dissolved*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:28	JRH	7439-97-6	
Mercury*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:26	JRH	7439-97-6	
Nickel, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7440-02-0	
Nickel	Not detected	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7440-02-0	
Selenium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7782-49-2	
Selenium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:30	CCM	7440-22-4	
Silver	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:29	CCM	7440-22-4	
Thallium, Dissolved	Not detected	mg/L	0.002	SW6020A	04/26/17 14:30	CCM	7440-28-0	
Thallium	Not detected	mg/L	0.002	SW6020A	04/26/17 14:29	CCM	7440-28-0	
Vanadium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7440-62-2	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7440-62-2	
Zinc, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:30	CCM	7440-66-6	
Zinc	Not detected	mg/L	0.005	SW6020A	04/26/17 14:29	CCM	7440-66-6	

Organics - PCBs/Pesticides

PCB, Dissolved

PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	12674-11-2	
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Analytical Laboratory Report

Lab Sample ID: S80804.04 (continued)

Sample Tag: TW-MD-05_GW-042417

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
PCB, Dissolved (continued)								
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/27/17 15:55	JAN	1336-36-3	
PCB								
PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	12674-11-2	
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/27/17 15:22	JAN	1336-36-3	



Analytical Laboratory Report

Lab Sample ID: S80804.05
Sample Tag: TW-MD-06_GW-042417
Collected Date/Time: 04/24/2017 16:55
Matrix: Groundwater
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
2	125ml Plastic	HNO3	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB	Completed			SW3510C	04/27/17 14:21	PLB		
Extraction, PCB	Completed			SW3510C	04/27/17 14:20	PLB		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		

Metals

Beryllium, Dissolved	Not detected	mg/L	0.001	SW6020A	04/26/17 14:38	CCM	7440-41-7	
Beryllium	Not detected	mg/L	0.001	SW6020A	04/26/17 14:32	CCM	7440-41-7	
Cadmium, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:38	CCM	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:32	CCM	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7440-47-3	
Chromium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7440-47-3	
Cobalt, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7440-48-4	
Cobalt	Not detected	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7440-48-4	
Copper, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7440-50-8	
Copper	Not detected	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7440-50-8	
Iron, Dissolved	21.6	mg/L	0.02	SW6020A	04/26/17 14:38	CCM	7439-89-6	
Iron	21.2	mg/L	0.02	SW6020A	04/26/17 14:32	CCM	7439-89-6	
Lead, Dissolved	Not detected	mg/L	0.003	SW6020A	04/26/17 14:38	CCM	7439-92-1	
Lead	Not detected	mg/L	0.003	SW6020A	04/26/17 14:32	CCM	7439-92-1	
Manganese, Dissolved	0.736	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7439-96-5	
Manganese	0.738	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7439-96-5	
Mercury, Dissolved*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:31	JRH	7439-97-6	
Mercury*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:30	JRH	7439-97-6	
Nickel, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7440-02-0	
Nickel	Not detected	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7440-02-0	
Selenium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7782-49-2	
Selenium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:38	CCM	7440-22-4	
Silver	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:32	CCM	7440-22-4	
Thallium, Dissolved	Not detected	mg/L	0.002	SW6020A	04/26/17 14:38	CCM	7440-28-0	
Thallium	Not detected	mg/L	0.002	SW6020A	04/26/17 14:32	CCM	7440-28-0	
Vanadium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7440-62-2	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7440-62-2	
Zinc, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:38	CCM	7440-66-6	
Zinc	Not detected	mg/L	0.005	SW6020A	04/26/17 14:32	CCM	7440-66-6	

Organics - PCBs/Pesticides

PCB, Dissolved

PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	12674-11-2	
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Analytical Laboratory Report

Lab Sample ID: S80804.05 (continued)

Sample Tag: TW-MD-06_GW-042417

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
PCB, Dissolved (continued)								
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/27/17 16:06	JAN	1336-36-3	
PCB								
PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 15:33	JAN	12674-11-2	
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 15:33	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 15:33	JAN	11141-16-5	
PCB-1242	0.1	ug/L	0.1	E608	04/27/17 15:33	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 15:33	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 15:33	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 15:33	JAN	11096-82-5	
PCB, Total*	0.1	ug/L	0.1	E608	04/27/17 15:33	JAN	1336-36-3	



Analytical Laboratory Report

Lab Sample ID: S80804.06
Sample Tag: Dup-02
Collected Date/Time: 04/24/2017 00:01
Matrix: Groundwater
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
2	125ml Plastic	HNO3	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB	Completed			SW3510C	04/27/17 14:21	PLB		
Extraction, PCB	Completed			SW3510C	04/27/17 14:20	PLB		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Mercury Digestion*	Completed			SW7471B	05/04/17 09:10	JRH		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		
Metal Digestion	Completed			SW3015A	04/26/17 13:00	CCM		

Metals

Beryllium, Dissolved	Not detected	mg/L	0.001	SW6020A	04/26/17 14:43	CCM	7440-41-7	
Beryllium	Not detected	mg/L	0.001	SW6020A	04/26/17 14:40	CCM	7440-41-7	
Cadmium, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:43	CCM	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:40	CCM	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7440-47-3	
Chromium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7440-47-3	
Cobalt, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7440-48-4	
Cobalt	Not detected	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7440-48-4	
Copper, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7440-50-8	
Copper	Not detected	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7440-50-8	
Iron, Dissolved	21.8	mg/L	0.02	SW6020A	04/26/17 14:43	CCM	7439-89-6	
Iron	22.2	mg/L	0.02	SW6020A	04/26/17 14:40	CCM	7439-89-6	
Lead, Dissolved	Not detected	mg/L	0.003	SW6020A	04/26/17 14:43	CCM	7439-92-1	
Lead	Not detected	mg/L	0.003	SW6020A	04/26/17 14:40	CCM	7439-92-1	
Manganese, Dissolved	0.718	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7439-96-5	
Manganese	0.807	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7439-96-5	
Mercury, Dissolved*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:35	JRH	7439-97-6	
Mercury*	Not detected	mg/L	0.0001	SW7471B	05/04/17 13:33	JRH	7439-97-6	
Nickel, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7440-02-0	
Nickel	Not detected	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7440-02-0	
Selenium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7782-49-2	
Selenium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:43	CCM	7440-22-4	
Silver	Not detected	mg/L	0.0005	SW6020A	04/26/17 14:40	CCM	7440-22-4	
Thallium, Dissolved	Not detected	mg/L	0.002	SW6020A	04/26/17 14:43	CCM	7440-28-0	
Thallium	Not detected	mg/L	0.002	SW6020A	04/26/17 14:40	CCM	7440-28-0	
Vanadium, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7440-62-2	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7440-62-2	
Zinc, Dissolved	Not detected	mg/L	0.005	SW6020A	04/26/17 14:43	CCM	7440-66-6	
Zinc	Not detected	mg/L	0.005	SW6020A	04/26/17 14:40	CCM	7440-66-6	

Organics - PCBs/Pesticides

PCB, Dissolved

PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	12674-11-2	
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Analytical Laboratory Report

Lab Sample ID: S80804.06 (continued)

Sample Tag: Dup-02

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
PCB, Dissolved (continued)								
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	11141-16-5	
PCB-1242	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	11096-82-5	
PCB, Total*	Not detected	ug/L	0.1	E608	04/27/17 16:17	JAN	1336-36-3	
PCB								
PCB-1016	Not detected	ug/L	0.1	E608	04/27/17 15:44	JAN	12674-11-2	
PCB-1221	Not detected	ug/L	0.1	E608	04/27/17 15:44	JAN	11104-28-2	
PCB-1232	Not detected	ug/L	0.1	E608	04/27/17 15:44	JAN	11141-16-5	
PCB-1242	0.1	ug/L	0.1	E608	04/27/17 15:44	JAN	53469-21-9	
PCB-1248	Not detected	ug/L	0.1	E608	04/27/17 15:44	JAN	12672-29-6	
PCB-1254	Not detected	ug/L	0.1	E608	04/27/17 15:44	JAN	11097-69-1	
PCB-1260	Not detected	ug/L	0.1	E608	04/27/17 15:44	JAN	11096-82-5	
PCB, Total*	0.1	ug/L	0.1	E608	04/27/17 15:44	JAN	1336-36-3	



Analytical Laboratory Report

Lab Sample ID: S80804.07
Sample Tag: Trip Blank
Collected Date/Time: 04/24/2017 00:01
Matrix: Water
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Other / Misc.								
Hold until notified*	Completed				04/26/17 13:21	SRS		



Analytical Laboratory Report

Lab Sample ID: S80804.08
Sample Tag: TW-M2-O5_LNAPL-042517
Collected Date/Time: 04/25/2017 10:45
Matrix: Oil
COC Reference: 75624

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB*	Completed			SW3550C	04/27/17 18:00	PLB		
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Organics - PCBs/Pesticides

PCB List

PCB-1016*	Not detected	ug/kg	8,000	SW8082A	05/01/17 14:35	JAN	12674-11-2	Y
PCB-1242*	Not detected	ug/kg	8,000	SW8082A	05/01/17 14:35	JAN	53469-21-9	Y
PCB-1221*	Not detected	ug/kg	8,000	SW8082A	05/01/17 14:35	JAN	11104-28-2	Y
PCB-1232*	Not detected	ug/kg	8,000	SW8082A	05/01/17 14:35	JAN	11141-16-5	Y
PCB-1248*	42,000	ug/kg	8,000	SW8082A	05/01/17 14:35	JAN	12672-29-6	Y
PCB-1254*	Not detected	ug/kg	8,000	SW8082A	05/01/17 14:35	JAN	11097-69-1	Y
PCB-1260*	Not detected	ug/kg	8,000	SW8082A	05/01/17 14:35	JAN	11096-82-5	Y

Y-Elevated reporting limit due to high target concentration

Merit

Laboratories, Inc.

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

C.O.C. PAGE # 1 OF 1

75624

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Theresa Olechiw

COMPANY Arcadis of Michigan LLC

ADDRESS 28550 Cabot Dr Suite 500

CITY Novi STATE MI ZIP CODE 48377

PHONE NO. 810.225.1909 FAX NO. P.O. NO. 80064607.2017

E-MAIL ADDRESS Theresa.Olechiw@arcadis.com QUOTE NO.

CONTACT NAME Accounts Payable ☐ SAME

COMPANY Arcadis of MI LLC

ADDRESS 630 Plaza Dr Suite 600

CITY Highlands Ranch STATE CO ZIP CODE 80129

PHONE NO. E-MAIL ADDRESS accounts.payable.administration@arcadis.com

PROJECT NO./NAME RACER PNC SAMPLER(S) - PLEASE PRINT/SIGN NAME Severin Presswood + Karlygn Voot

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

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

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

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	Preservatives								PCB	PCB-d	Metals-d	Metals-d																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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RELINQUISHED BY: Karlyn Voot / Arcadis ☒ Sampler DATE 4/25/17 TIME 11:34

RECEIVED BY: John R. B... DATE 4/25/17 TIME 11:35

RELINQUISHED BY: John R. B... DATE 4/25/17 TIME 11:00

RECEIVED BY: John R. B... DATE 4/25/17 TIME 16:00

RELINQUISHED BY: DATE TIME

RECEIVED BY: DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS NOTES: TEMP. ON ARRIVAL 5.1

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

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



Analytical Laboratory Report

Report ID: S80840.01(01)
Generated on 05/03/2017

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
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Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S80840.01-S80840.05
Project: RACER PNC
Collected Date: 04/25/2017 - 04/26/2017
Submitted Date/Time: 04/26/2017 15:35
Sampled by: Kaitlyn Voet
P.O. #: B0064607.2017

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

A handwritten signature in black ink, reading "Maya Murshak".

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW3550C	SW 846 Method 3550C Revision 3 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8082A	SW 846 Method 8082A Revision 1 February 2007
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80840.01	TW-M2-03_LNAPL-042517	Oil	04/25/17 13:45
S80840.02	MWM16-37_GW-042517	Groundwater	04/25/17 16:30
S80840.03	MWW10-SEN02_GW-042617	Groundwater	04/26/17 09:40
S80840.04	MW-01-17_GW-042617	Groundwater	04/26/17 11:50
S80840.05	TB	Liquid	04/26/17 00:01



Analytical Laboratory Report

Lab Sample ID: S80840.01
Sample Tag: TW-M2-03_LNAPL-042517
Collected Date/Time: 04/25/2017 13:45
Matrix: Oil
COC Reference: 75623

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

Extraction, PCB*	Completed			SW3550C	04/27/17 18:00	PLB		
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Organics - PCBs/Pesticides

PCB List

PCB-1016*	Not detected	ug/kg	300,000	SW8082A	05/01/17 13:59	JAN	12674-11-2	Y
PCB-1242*	1,523,000	ug/kg	300,000	SW8082A	05/01/17 13:59	JAN	53469-21-9	Y
PCB-1221*	Not detected	ug/kg	300,000	SW8082A	05/01/17 13:59	JAN	11104-28-2	Y
PCB-1232*	Not detected	ug/kg	300,000	SW8082A	05/01/17 13:59	JAN	11141-16-5	Y
PCB-1248*	Not detected	ug/kg	300,000	SW8082A	05/01/17 13:59	JAN	12672-29-6	Y
PCB-1254*	Not detected	ug/kg	300,000	SW8082A	05/01/17 13:59	JAN	11097-69-1	Y
PCB-1260*	Not detected	ug/kg	300,000	SW8082A	05/01/17 13:59	JAN	11096-82-5	Y

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S80840.02
Sample Tag: MWM16-37_GW-042517
Collected Date/Time: 04/25/2017 16:30
Matrix: Groundwater
COC Reference: 75623

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 16:25	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 16:17	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/27/17 16:17	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 16:17	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/27/17 16:17	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:17	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	75-69-4	
Vinyl chloride	3	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80840.02 (continued)

Sample Tag: MWM16-37_GW-042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 16:17	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 16:17	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:17	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80840.03
Sample Tag: MWW10-SEN02_GW-042617
Collected Date/Time: 04/26/2017 09:40
Matrix: Groundwater
COC Reference: 75623

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	16	ug/L	3	SW8260B - SIM	05/01/17 16:43	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 16:48	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/27/17 16:48	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 16:48	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/27/17 16:48	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/27/17 16:48	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80840.03 (continued)

Sample Tag: MWW10-SEN02_GW-042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 16:48	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 16:48	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 16:48	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80840.04
Sample Tag: MW-01-17_GW-042617
Collected Date/Time: 04/26/2017 11:50
Matrix: Groundwater
COC Reference: 75623

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 17:01	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 17:09	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/27/17 17:09	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 17:09	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/27/17 17:09	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/27/17 17:09	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80840.04 (continued)

Sample Tag: MW-01-17_GW-042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 17:09	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 17:09	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 17:09	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80840.05
Sample Tag: TB
Collected Date/Time: 04/26/2017 00:01
Matrix: Liquid
COC Reference: 75623

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 13:24	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 13:09	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/27/17 13:09	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/27/17 13:09	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/27/17 13:09	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/27/17 13:09	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80840.05 (continued)

Sample Tag: TB

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 13:09	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 13:09	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:09	JML	10061-02-6	

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Theresa Olechiw			
COMPANY Arcadis of Michigan			
ADDRESS 28550 Cabot Dr Suite 500			
CITY Novi		STATE MI	ZIP CODE 48377
PHONE NO. 810.225.1909		FAX NO.	P.O. NO. B0004607.2017
E-MAIL ADDRESS Theresa.Olechiw@arcadis.com		QUOTE NO.	

CONTACT NAME Accounts Payable		☐ SAME	
COMPANY Arcadis			
ADDRESS 630 Plaza Drive Suite 600			
CITY Highlands Ranch		STATE CO	ZIP CODE 80129
PHONE NO.		E-MAIL ADDRESS accounts.payable.administration@arcadis-us.com	
ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)			

PROJECT NO./NAME RACER PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Kaitlyn Voet / Kaitlyn Kot
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____	
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____	

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

<i>Ryan Kot</i>							
# Containers & Preservatives							
NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	
PCB (8082)							
VOC's (8260)							
1,4 Dioxane (8260)							
Certifications							
☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES							
Project Locations							
☐ Detroit ☐ New York ☒ Other <u>Pontiac</u>							
Special Instructions							

[illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>Kathryn Vot</i>	☒ Sampler	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>John Miller</i>		4/26/17	1200
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>John Miller</i>		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>John Miller</i>		4/26/17	12:00
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>John Miller</i>		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>John Miller</i>		4/26/17	15:35
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>John Miller</i>		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>John Miller</i>		4/26/17	16:55

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL _____ 4.7	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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



Analytical Laboratory Report

Report ID: S80863.01(01)

Generated on 05/01/2017

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Report produced by

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

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Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S80863.01-S80863.10
Project: RACER PNC
Collected Date: 04/26/2017 - 04/27/2017
Submitted Date/Time: 04/27/2017 14:45
Sampled by: Kaitlyn Voet
P.O. #: B0064607.2017

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80863.01	TW-MD-01_GW-042617	Groundwater	04/26/17 14:00
S80863.02	TW-MD-01_GW-042617 MS	Groundwater	04/26/17 14:00
S80863.03	TW-MD-01_GW-042617 MSD	Groundwater	04/26/17 14:00
S80863.04	MWF12-01_GW-042617	Groundwater	04/26/17 15:40
S80863.05	MWF12-02_GW-042617	Groundwater	04/26/17 17:00
S80863.06	MWW10-SEN03_GW-042717	Groundwater	04/27/17 09:25
S80863.07	MWF16-15_GW-042717	Groundwater	04/27/17 10:30
S80863.08	MWF7-03_GW-042717	Groundwater	04/27/17 11:30
S80863.09	DUP-03	Groundwater	04/27/17 00:01
S80863.10	TB	Water	04/27/17 00:01



Analytical Laboratory Report

Lab Sample ID: S80863.01
Sample Tag: TW-MD-01_GW-042617
Collected Date/Time: 04/26/2017 14:00
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	04/30/17 22:06	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/29/17 02:11	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/29/17 02:11	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/29/17 02:11	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/29/17 02:11	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/29/17 02:11	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80863.01 (continued)

Sample Tag: TW-MD-01_GW-042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 02:11	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:11	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:11	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80863.02
Sample Tag: TW-MD-01_GW-042617 MS
Collected Date/Time: 04/26/2017 14:00
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	55	ug/L	3	SW8260B - SIM	04/30/17 20:01	JML	123-91-1	1
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 22:18	JML	67-64-1	1
2-Butanone (MEK)	43	ug/L	25	SW5030C/8260C	04/28/17 22:18	JML	78-93-3	1
Benzene	52	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	71-43-2	1
Bromodichloromethane	55	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	75-27-4	1
Bromoform	50	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	75-25-2	1
Bromomethane	52	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	74-83-9	1
Carbon disulfide	51	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	75-15-0	1
Carbon tetrachloride	55	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	56-23-5	1
Chlorobenzene	51	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	108-90-7	1
Chloroethane	50	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	75-00-3	1
Chloroform	53	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	67-66-3	1
Chloromethane	51	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	74-87-3	1
1,2-Dibromo-3-chloropropane	46	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	96-12-8	1
1,2-Dichlorobenzene	47	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	95-50-1	1
1,2-Dichloroethane	53	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	107-06-2	1
1,2-Dichloropropane	54	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	78-87-5	1
1,3-Dichlorobenzene	47	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	541-73-1	1
1,4-Dichlorobenzene	47	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	106-46-7	1
cis-1,2-Dichloroethene	53	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	156-59-2	1
Dibromochloromethane	51	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	124-48-1	1
Dichlorodifluoromethane	49	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	75-71-8	1
trans-1,2-Dichloroethene	51	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	156-60-5	1
Ethylbenzene	51	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 22:18	JML	591-78-6	1
4-Methyl-2-pentanone (MIBK)	51	ug/L	50	SW5030C/8260C	04/28/17 22:18	JML	108-10-1	1
tert-Methyl butyl ether (MTBE)	50	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	1634-04-4	1
Methylene chloride	51	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	75-09-2	1
Styrene	50	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	100-42-5	1
1,1,1-Trichloroethane	55	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	71-55-6	1
1,1,2-Trichloroethane	53	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	79-00-5	1
1,2,4-Trichlorobenzene	47	ug/L	5	SW5030C/8260C	04/28/17 22:18	JML	120-82-1	1
Tetrachloroethene	51	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	127-18-4	1
Toluene	53	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	108-88-3	1
Trichloroethene	52	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	79-01-6	1
Trichlorofluoromethane	31	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	75-69-4	1
Vinyl chloride	53	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	75-01-4	1

1-spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S80863.02 (continued)

Sample Tag: TW-MD-01_GW-042617 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	50	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	95-47-6	1
p,m-Xylene*	100	ug/L	2	SW5030C/8260C	04/28/17 22:18	JML		1
Isopropylbenzene	51	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	98-82-8	1
Cyclohexane	48	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	110-82-7	1
1,1-Dichloroethane	52	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	75-34-3	1
1,1-Dichloroethene	52	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	75-35-4	1
Methyl Acetate	46	ug/L	10	SW5030C/8260C	04/28/17 22:18	JML	79-20-9	1
Methyl cyclohexane	50	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane	51	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	76-13-1	1
1,2-Dibromoethane	49	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	106-93-4	1
1,1,2,2-Tetrachloroethane	50	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	79-34-5	1
cis-1,3-Dichloropropene	53	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	10061-01-5	1
trans-1,3-Dichloropropene	54	ug/L	1	SW5030C/8260C	04/28/17 22:18	JML	10061-02-6	1

1-Spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S80863.03
Sample Tag: TW-MD-01_GW-042617 MSD
Collected Date/Time: 04/26/2017 14:00
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	52	ug/L	3	SW8260B - SIM	04/30/17 20:19	JML	123-91-1	1
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 22:39	JML	67-64-1	1
2-Butanone (MEK)	44	ug/L	25	SW5030C/8260C	04/28/17 22:39	JML	78-93-3	1
Benzene	51	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	71-43-2	1
Bromodichloromethane	53	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	75-27-4	1
Bromoform	48	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	75-25-2	1
Bromomethane	54	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	74-83-9	1
Carbon disulfide	53	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	75-15-0	1
Carbon tetrachloride	54	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	56-23-5	1
Chlorobenzene	50	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	108-90-7	1
Chloroethane	53	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	75-00-3	1
Chloroform	56	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	67-66-3	1
Chloromethane	53	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	74-87-3	1
1,2-Dibromo-3-chloropropane	50	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	96-12-8	1
1,2-Dichlorobenzene	53	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	95-50-1	1
1,2-Dichloroethane	51	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	107-06-2	1
1,2-Dichloropropane	51	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	78-87-5	1
1,3-Dichlorobenzene	52	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	541-73-1	1
1,4-Dichlorobenzene	52	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	106-46-7	1
cis-1,2-Dichloroethene	55	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	156-59-2	1
Dibromochloromethane	50	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	124-48-1	1
Dichlorodifluoromethane	51	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	75-71-8	1
trans-1,2-Dichloroethene	53	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	156-60-5	1
Ethylbenzene	50	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 22:39	JML	591-78-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 22:39	JML	108-10-1	1
tert-Methyl butyl ether (MTBE)	53	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	1634-04-4	1
Methylene chloride	54	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	75-09-2	1
Styrene	50	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	100-42-5	1
1,1,1-Trichloroethane	57	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	71-55-6	1
1,1,2-Trichloroethane	53	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	79-00-5	1
1,2,4-Trichlorobenzene	51	ug/L	5	SW5030C/8260C	04/28/17 22:39	JML	120-82-1	1
Tetrachloroethene	49	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	127-18-4	1
Toluene	52	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	108-88-3	1
Trichloroethene	51	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	79-01-6	1
Trichlorofluoromethane	32	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	75-69-4	1
Vinyl chloride	55	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	75-01-4	1

1-spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S80863.03 (continued)

Sample Tag: TW-MD-01_GW-042617 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	50	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	95-47-6	1
p,m-Xylene*	99	ug/L	2	SW5030C/8260C	04/28/17 22:39	JML		1
Isopropylbenzene	50	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	98-82-8	1
Cyclohexane	50	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	110-82-7	1
1,1-Dichloroethane	54	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	75-34-3	1
1,1-Dichloroethene	54	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	75-35-4	1
Methyl Acetate	48	ug/L	10	SW5030C/8260C	04/28/17 22:39	JML	79-20-9	1
Methyl cyclohexane	49	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane	54	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	76-13-1	1
1,2-Dibromoethane	49	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	106-93-4	1
1,1,2,2-Tetrachloroethane	48	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	79-34-5	1
cis-1,3-Dichloropropene	51	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	10061-01-5	1
trans-1,3-Dichloropropene	52	ug/L	1	SW5030C/8260C	04/28/17 22:39	JML	10061-02-6	1

1-spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S80863.04
Sample Tag: MWF12-01_GW-042617
Collected Date/Time: 04/26/2017 15:40
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	6	ug/L	3	SW8260B - SIM	04/30/17 22:41	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:00	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 13:00	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:00	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:00	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:00	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80863.04 (continued)

Sample Tag: MWF12-01_GW-042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 13:00	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	110-82-7	
1,1-Dichloroethane	4	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:00	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:00	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80863.05
Sample Tag: MWF12-02_GW-042617
Collected Date/Time: 04/26/2017 17:00
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	04/30/17 22:59	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:21	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 13:21	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:21	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:21	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	100-42-5	
1,1,1-Trichloroethane	2	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:21	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80863.05 (continued)

Sample Tag: MWF12-02_GW-042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 13:21	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	110-82-7	
1,1-Dichloroethane	1	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:21	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:21	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80863.06
Sample Tag: MWW10-SEN03_GW-042717
Collected Date/Time: 04/27/2017 09:25
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	19	ug/L	3	SW8260B - SIM	04/30/17 23:17	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:42	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 13:42	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:42	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 13:42	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 13:42	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80863.06 (continued)

Sample Tag: MWW10-SEN03_GW-042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 13:42	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:42	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:42	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80863.07
Sample Tag: MWF16-15_GW-042717
Collected Date/Time: 04/27/2017 10:30
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	17	ug/L	3	SW8260B - SIM	04/30/17 23:35	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:02	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 14:02	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	106-46-7	
cis-1,2-Dichloroethene	14	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:02	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:02	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:02	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	108-88-3	
Trichloroethene	2	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80863.07 (continued)

Sample Tag: MWF16-15_GW-042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 14:02	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	110-82-7	
1,1-Dichloroethane	4	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:02	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:02	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80863.08
Sample Tag: MWF7-03_GW-042717
Collected Date/Time: 04/27/2017 11:30
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	05/01/17 13:30	KCV		1
pH check for VOCs* (Replicate 01)	<2	STD Units		N/A	05/01/17 13:30	KCV		2

Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	04/30/17 23:53	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:22	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 14:22	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:22	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:22	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:22	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	79-01-6	

1-14 dioxane

2-full list



Analytical Laboratory Report

Lab Sample ID: S80863.08 (continued)

Sample Tag: MWF7-03_GW-042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 14:22	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:22	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:22	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80863.09
Sample Tag: DUP-03
Collected Date/Time: 04/27/2017 00:01
Matrix: Groundwater
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	18	ug/L	3	SW8260B - SIM	05/01/17 00:10	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:47	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 14:47	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	106-46-7	
cis-1,2-Dichloroethene	14	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:47	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 14:47	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 14:47	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	108-88-3	
Trichloroethene	2	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80863.09 (continued)

Sample Tag: DUP-03

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 14:47	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	110-82-7	
1,1-Dichloroethane	5	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:47	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:47	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80863.10
Sample Tag: TB
Collected Date/Time: 04/27/2017 00:01
Matrix: Water
COC Reference: 75626

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	04/30/17 21:49	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 11:36	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/28/17 11:36	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/28/17 11:36	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/28/17 11:36	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/28/17 11:36	JML	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80863.10 (continued)

Sample Tag: TB

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 11:36	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 11:36	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 11:36	JML	10061-02-6	



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C.O.C. PAGE # 1 OF 1

75626

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME				Theresa Olechiw			
COMPANY				Arcadis of Michigan LLC			
ADDRESS				28550 Cabot Dr Suite 500			
CITY				STATE		ZIP CODE	
Novi				MI		48377	
PHONE NO.		FAX NO.		P.O. NO.			
810.225.1909				B0064607.2017			
E-MAIL ADDRESS				QUOTE NO.			
theresa.olechiw@arcadis.com							

CONTACT NAME		Accounts Payable		☐ SAME	
COMPANY		Arcadis			
ADDRESS 630 Plaza Drive Suite 600					
CITY		Highlands Ranch		STATE	ZIP CODE
PHONE NO.		CO 80129			
E-MAIL ADDRESS					

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME RACER PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Kathryn Voet Kathryn Voet
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____	
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____	

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

MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES
	DATE	TIME			
80803-01	4/26/17	1400	TW-MD-01-GW-042617	GW	9
02	4/26/17	1540	MWF12-01-GW-042617	GW	3
03	4/26/17	1700	MWF12-02-GW-042617	GW	3
04	4/27/17	0925	MWW10-SEN03-GW-042717	GW	3
07	4/27/17	1030	MWF16-15-GW-042717	GW	3
08	4/27/17	1130	MWF7-03-GW-042717	GW	3
09	4/27/17	-	DUP-03	GW	3
10	-	-	TB	GW	1

# Containers & Preservatives								Project Locations	
NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER		☐ Detroit	☐ New York
9							VOCs (83)	☐ Other _____	Special Instructions
3							1,4 Dioxane		
3									
3									
3									
3									
3									
3									
1									

* See attached VOC list
 RL for 1,4D must be < 7.2 ppb
 MS/MSD

RELINQUISHED BY:	<i>[Signature]</i>	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION	Arcadis		4/27/17	12:30
RECEIVED BY:	<i>[Signature]</i>		DATE	TIME
SIGNATURE/ORGANIZATION			4/27/17	12:30
RELINQUISHED BY:	<i>[Signature]</i>		DATE	TIME
SIGNATURE/ORGANIZATION			4/27/17	14:40
RECEIVED BY:	<i>[Signature]</i>		DATE	TIME
SIGNATURE/ORGANIZATION			4/27/17	14:40

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>5.1</u>	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

Volatile Organic Compounds
Acetone
Benzene
Bromodichloromethane
Bromoform
Bromomethane
2-Butanone
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Cumene
Cyclohexane
1,2-Dibromo-3-chloropropane
Dibromochloromethane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropene (summed)
Ethyl Benzene
2-Hexanone
Methyl Acetate
Methyl tert-butyl ether
4-Methyl-2-pentanone
Methylcyclohexane
Methylene Chloride
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,1,2-Trichloro-1,2,2-trifluoroethane
Vinyl Chloride
Xylenes (total)

Plus 1, 4
Dioxane

8260C
SIMS



Analytical Laboratory Report

Report ID: S80889.01(01)

Generated on 05/03/2017

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Report produced by

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

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S80889.01-S80889.03
Project: Monitoring
Collected Date: 04/28/2017
Submitted Date/Time: 04/28/2017 14:05
Sampled by: Kaitlyn Voet
P.O. #: B0064607.2017

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

A handwritten signature in black ink, reading "Maya Murshak".

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80889.01	Unknown-1_GW-042817	Groundwater	04/28/17 09:20
S80889.02	MWF16-19_GW-042817	Groundwater	04/28/17 10:25
S80889.03	MWF16-06_GW-042817	Groundwater	04/28/17 11:35



Analytical Laboratory Report

Lab Sample ID: S80889.01
Sample Tag: Unknown-1_GW-042817
Collected Date/Time: 04/28/2017 09:20
Matrix: Groundwater
COC Reference: 75628

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 18:13	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/29/17 03:13	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/29/17 03:13	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/29/17 03:13	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/29/17 03:13	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	100-42-5	
1,1,1-Trichloroethane	56	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:13	JML	120-82-1	
Tetrachloroethene	43	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	108-88-3	
Trichloroethene	3	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80889.01 (continued)

Sample Tag: Unknown-1_GW-042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 03:13	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	110-82-7	
1,1-Dichloroethane	6	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	75-34-3	
1,1-Dichloroethene	1	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 03:13	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:13	JML	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S80889.02
Sample Tag: MWF16-19_GW-042817
Collected Date/Time: 04/28/2017 10:25
Matrix: Groundwater
COC Reference: 75628

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	200	ug/L	20	SW8260B - SIM	05/01/17 19:07	JML	123-91-1	Y
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	250	SW5030C/8260C	05/01/17 01:29	JML	67-64-1	Y
2-Butanone (MEK)	Not detected	ug/L	130	SW5030C/8260C	05/01/17 01:29	JML	78-93-3	Y
Benzene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	71-43-2	Y
Bromodichloromethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	75-27-4	Y
Bromoform	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	75-25-2	Y
Bromomethane	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	74-83-9	Y
Carbon disulfide	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	75-15-0	Y
Carbon tetrachloride	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	56-23-5	Y
Chlorobenzene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	108-90-7	Y
Chloroethane	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	75-00-3	Y
Chloroform	37	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	67-66-3	Y
Chloromethane	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	74-87-3	Y
1,2-Dibromo-3-chloropropane	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	96-12-8	Y
1,2-Dichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	95-50-1	Y
1,2-Dichloroethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	107-06-2	Y
1,2-Dichloropropane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	78-87-5	Y
1,3-Dichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	541-73-1	Y
1,4-Dichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	106-46-7	Y
cis-1,2-Dichloroethene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	156-59-2	Y
Dibromochloromethane	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	124-48-1	Y
Dichlorodifluoromethane	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	75-71-8	Y
trans-1,2-Dichloroethene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	156-60-5	Y
Ethylbenzene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	100-41-4	Y
2-Hexanone	Not detected	ug/L	250	SW5030C/8260C	05/01/17 01:29	JML	591-78-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	250	SW5030C/8260C	05/01/17 01:29	JML	108-10-1	Y
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	1634-04-4	Y
Methylene chloride	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	75-09-2	Y
Styrene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	100-42-5	Y
1,1,1-Trichloroethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	71-55-6	Y
1,1,2-Trichloroethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	79-00-5	Y
1,2,4-Trichlorobenzene	Not detected	ug/L	30	SW5030C/8260C	05/01/17 01:29	JML	120-82-1	Y
Tetrachloroethene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	127-18-4	Y
Toluene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	108-88-3	Y
Trichloroethene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	79-01-6	Y
Trichlorofluoromethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	75-69-4	Y
Vinyl chloride	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	75-01-4	Y

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S80889.02 (continued)

Sample Tag: MWF16-19_GW-042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	95-47-6	Y
p,m-Xylene*	Not detected	ug/L	10	SW5030C/8260C	05/01/17 01:29	JML		Y
Isopropylbenzene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	98-82-8	Y
Cyclohexane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	110-82-7	Y
1,1-Dichloroethane	227	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	75-34-3	Y
1,1-Dichloroethene	27	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	75-35-4	Y
Methyl Acetate	Not detected	ug/L	50	SW5030C/8260C	05/01/17 01:29	JML	79-20-9	Y
Methyl cyclohexane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	108-87-2	Y
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	76-13-1	Y
1,2-Dibromoethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	106-93-4	Y
1,1,2,2-Tetrachloroethane	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	79-34-5	Y
cis-1,3-Dichloropropene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	10061-01-5	Y
trans-1,3-Dichloropropene	Not detected	ug/L	5	SW5030C/8260C	05/01/17 01:29	JML	10061-02-6	Y

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S80889.03
Sample Tag: MWF16-06_GW-042817
Collected Date/Time: 04/28/2017 11:35
Matrix: Groundwater
COC Reference: 75628

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
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Organics - Volatiles

1,4-Dioxane*	106	ug/L	3	SW8260B - SIM	05/01/17 02:49	JML	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	04/29/17 03:55	JML	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	04/29/17 03:55	JML	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	75-15-0	
Carbon tetrachloride	19	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	75-00-3	
Chloroform	160	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	67-66-3	
Chloromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	95-50-1	
1,2-Dichloroethane	2	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	106-46-7	
cis-1,2-Dichloroethene	28	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	04/29/17 03:55	JML	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	04/29/17 03:55	JML	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	04/29/17 03:55	JML	120-82-1	
Tetrachloroethene	43	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	108-88-3	
Trichloroethene	11	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S80889.03 (continued)

Sample Tag: MWF16-06_GW-042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 03:55	JML		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	110-82-7	
1,1-Dichloroethane	167	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	75-34-3	
1,1-Dichloroethene	24	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	75-35-4	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 03:55	JML	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 03:55	JML	10061-02-6	



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C.O.C. PAGE # 1 OF 1

75628

INVOICE TO

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE

YES ☐ NO ☐

10

Rev. 5.18.12

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

Volatile Organic Compounds
Acetone
Benzene
Bromodichloromethane
Bromoform
Bromomethane
2-Butanone
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Cumene
Cyclohexane
1,2-Dibromo-3-chloropropane
Dibromochloromethane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropene (summed)
Ethyl Benzene
2-Hexanone
Methyl Acetate
Methyl tert-butyl ether
4-Methyl-2-pentanone
Methylcyclohexane
Methylene Chloride
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,1,2-Trichloro-1,2,2-trifluoroethane
Vinyl Chloride
Xylenes (total)

Plus 1, 4
Dioxane

8260C
SIMS

VAP Results





Analytical Laboratory Report

Report ID: S78144.01(01)
Generated on 12/16/2016

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Additional Contacts: Colleen Barton

Report produced by

Merit Laboratories, Inc.
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Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S78144.01-S78144.03
Project: B0064607.2016.00005 / Racer PNC
Collected Date: 12/09/2016
Submitted Date/Time: 12/12/2016 16:30
Sampled by: Kaitlyn Voet
P.O. #: B0064607.2016.00005

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S78144.01	VAP-09-16_17-20	Groundwater	12/09/16 10:30
S78144.02	VAP-09-16_21-24	Groundwater	12/09/16 11:45
S78144.03	VAP-09-16_24-27	Groundwater	12/09/16 13:00



Analytical Laboratory Report

Lab Sample ID: S78144.01
Sample Tag: VAP-09-16_17-20
Collected Date/Time: 12/09/2016 10:30
Matrix: Groundwater
COC Reference: 094941

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 12:53	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 15:33	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 15:33	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 15:33	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 15:33	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:33	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78144.01 (continued)

Sample Tag: VAP-09-16_17-20

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 15:33	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 15:33	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:33	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78144.02
Sample Tag: VAP-09-16_21-24
Collected Date/Time: 12/09/2016 11:45
Matrix: Groundwater
COC Reference: 094941

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 13:13	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 15:54	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 15:54	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 15:54	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 15:54	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 15:54	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78144.02 (continued)

Sample Tag: VAP-09-16_21-24

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 15:54	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 15:54	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 15:54	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78144.03
Sample Tag: VAP-09-16_24-27
Collected Date/Time: 12/09/2016 13:00
Matrix: Groundwater
COC Reference: 094941

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 13:32	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:15	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 16:15	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:15	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:15	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:15	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78144.03 (continued)

Sample Tag: VAP-09-16_24-27

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 16:15	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 16:15	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:15	JGH	10061-02-6	

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Theresa Olechiw / Colleen Barton			
COMPANY Arcadis			
ADDRESS 28550 Cabot Drive Ste 500			
CITY Novi		STATE MI	ZIP CODE 48377
PHONE NO. 248 994 2240		FAX NO. 248 994 2241	P.O. NO.
E-MAIL ADDRESS colleen.barton@arcadis.com / theresa.olechiw@arcadis.com		QUOTE NO.	

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

PROJECT NO./NAME B0064607.2016.00005 / RACER PMC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Karilyn Vaet / Karilyn Vaet
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☒ OTHER	

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

[illegible][illegible]

RELINQUISHED BY:	<i>Katelyn A. Arcadis</i>	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION			12/9/16	1645
RECEIVED BY:	<i>Ben Reed Arcadis</i>		DATE	TIME
SIGNATURE/ORGANIZATION			12/11/16	1700
RELINQUISHED BY:	<i>Ben Reed</i>		DATE	TIME
SIGNATURE/ORGANIZATION			12-12-16	1230
RECEIVED BY:	<i>Ben Reed</i>		DATE	TIME
SIGNATURE/ORGANIZATION			12/12/16	1230

RELINQUISHED BY:		DATE		TIME	
SIGNATURE/ORGANIZATION		12/2/16		16:30	
RECEIVED BY:		DATE		TIME	
SIGNATURE/ORGANIZATION		12/12/16		1630	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL		
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS			

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

Table 4
Summary of Groundwater Analytical Results
RACER Trust Pontiac North Campus
Pontiac, Michigan

PNC VOC Analyte List - 8260C

Location ID:

Date Collected:

Sample Name:

Volatile Organic Compounds

Plus 1, 4 Dioxane 8260C SIMS

VOC	Acetone
VOC	Benzene
VOC	Bromodichloromethane
VOC	Bromoform
VOC	Bromomethane
VOC	2-Butanone
VOC	Carbon Disulfide
VOC	Carbon Tetrachloride
VOC	Chlorobenzene
VOC	Chloroethane
VOC	Chloroform
VOC	Chloromethane
VOC	Cumene
VOC	Cyclohexane
VOC	1,2-Dibromo-3-chloropropane
VOC	Dibromochloromethane
VOC	1,2-Dibromoethane
VOC	1,2-Dichlorobenzene
VOC	1,3-Dichlorobenzene
VOC	1,4-Dichlorobenzene
VOC	Dichlorodifluoromethane
VOC	1,1-Dichloroethane
VOC	1,2-Dichloroethane
VOC	1,1-Dichloroethene
VOC	cis-1,2-Dichloroethene
VOC	trans-1,2-Dichloroethene
VOC	1,2-Dichloropropane
VOC	1,3-Dichloropropene (summed)
VOC	Ethyl Benzene
VOC	2-Hexanone
VOC	Methyl Acetate
VOC	Methyl tert-butyl ether
VOC	4-Methyl-2-pentanone
VOC	Methylcyclohexane
VOC	Methylene Chloride
VOC	Styrene
VOC	1,1,2,2-Tetrachloroethane
VOC	Tetrachloroethene
VOC	Toluene
VOC	1,2,4-Trichlorobenzene
VOC	1,1,1-Trichloroethane
VOC	1,1,2-Trichloroethane
VOC	Trichloroethene
VOC	Trichlorofluoromethane
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane
VOC	Vinyl Chloride
VOC	Xylenes (total)



Analytical Laboratory Report

Report ID: S78166.01(01)
Generated on 12/16/2016

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Additional Contacts: Colleen Barton

Report produced by

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Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S78166.01-S78166.06
Project: B0064607.2016.00005 / Racer PNC
Collected Date: 12/12/2016 - 12/13/2016
Submitted Date/Time: 12/13/2016 16:10
Sampled by: Severin Presswood
P.O. #: B0064607.2016.00005

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S78166.01	VAP-08-16_20-23	Groundwater	12/12/16 14:00
S78166.02	VAP-08-16_23-26	Groundwater	12/12/16 15:15
S78166.03	VAP-08-16_27-30	Groundwater	12/12/16 16:20
S78166.04	VAP-07-16_18-21	Groundwater	12/13/16 10:20
S78166.05	VAP-07-16_22-25	Groundwater	12/13/16 11:25
S78166.06	VAP-07-16_26-29	Groundwater	12/13/16 12:25



Analytical Laboratory Report

Lab Sample ID: S78166.01
Sample Tag: VAP-08-16_20-23
Collected Date/Time: 12/12/2016 14:00
Matrix: Groundwater
COC Reference: 094933

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 13:53	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:36	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 16:36	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:36	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:36	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	100-42-5	
1,1,1-Trichloroethane	2	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:36	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78166.01 (continued)

Sample Tag: VAP-08-16_20-23

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 16:36	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 16:36	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:36	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78166.02
Sample Tag: VAP-08-16_23-26
Collected Date/Time: 12/12/2016 15:15
Matrix: Groundwater
COC Reference: 094933

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
----------	---------	-------	----	--------	---------------	------	-------	-------

Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 14:13	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:57	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 16:57	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:57	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 16:57	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 16:57	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78166.02 (continued)

Sample Tag: VAP-08-16_23-26

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 16:57	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	110-82-7	
1,1-Dichloroethane	4	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 16:57	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 16:57	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78166.03
Sample Tag: VAP-08-16_27-30
Collected Date/Time: 12/12/2016 16:20
Matrix: Groundwater
COC Reference: 094933

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 14:33	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:18	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 17:18	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:18	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:18	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:18	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78166.03 (continued)

Sample Tag: VAP-08-16_27-30

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 17:18	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 17:18	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:18	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78166.04
Sample Tag: VAP-07-16_18-21
Collected Date/Time: 12/13/2016 10:20
Matrix: Groundwater
COC Reference: 094933

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 14:53	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:38	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 17:38	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:38	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:38	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:38	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78166.04 (continued)

Sample Tag: VAP-07-16_18-21

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 17:38	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	110-82-7	
1,1-Dichloroethane	10	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 17:38	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:38	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78166.05
Sample Tag: VAP-07-16_22-25
Collected Date/Time: 12/13/2016 11:25
Matrix: Groundwater
COC Reference: 094933

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 15:13	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:59	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 17:59	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:59	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 17:59	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 17:59	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78166.05 (continued)

Sample Tag: VAP-07-16_22-25

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 17:59	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	110-82-7	
1,1-Dichloroethane	4	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 17:59	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 17:59	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78166.06
Sample Tag: VAP-07-16_26-29
Collected Date/Time: 12/13/2016 12:25
Matrix: Groundwater
COC Reference: 094933

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:40	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 15:33	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 18:20	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/14/16 18:20	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/14/16 18:20	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/14/16 18:20	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/14/16 18:20	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78166.06 (continued)

Sample Tag: VAP-07-16_26-29

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/14/16 18:20	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	110-82-7	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/14/16 18:20	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/14/16 18:20	JGH	10061-02-6	



Analytical Laboratory Report

Report ID: S78189.01(01)

Generated on 12/16/2016

Report to

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Report Summary

Lab Sample ID(s): S78189.01-S78189.03
Project: B0064607.2016.00005
Collected Date: 12/13/2016
Submitted Date/Time: 12/14/2016 16:07
Sampled by: Severin Presswood
P.O. #: B0064607.2016.00005

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S78189.01	VAP-06-16_19-22	Groundwater	12/13/16 14:10
S78189.02	VAP-06-16_24-27	Groundwater	12/13/16 15:10
S78189.03	VAP-06-16_29-32	Groundwater	12/13/16 16:20



Analytical Laboratory Report

Lab Sample ID: S78189.01
Sample Tag: VAP-06-16_19-22
Collected Date/Time: 12/13/2016 14:10
Matrix: Groundwater
COC Reference: 094936

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 16:45	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:13	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/15/16 18:13	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:13	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:13	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	100-42-5	
1,1,1-Trichloroethane	11	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:13	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78189.01 (continued)

Sample Tag: VAP-06-16_19-22

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/15/16 18:13	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	110-82-7	
1,1-Dichloroethane	4	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/15/16 18:13	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:13	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78189.02
Sample Tag: VAP-06-16_24-27
Collected Date/Time: 12/13/2016 15:10
Matrix: Groundwater
COC Reference: 094936

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
----------	---------	-------	----	--------	---------------	------	-------	-------

Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 17:04	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:34	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/15/16 18:34	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:34	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:34	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:34	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78189.02 (continued)

Sample Tag: VAP-06-16_24-27

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/15/16 18:34	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	110-82-7	
1,1-Dichloroethane	3	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/15/16 18:34	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:34	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78189.03
Sample Tag: VAP-06-16_29-32
Collected Date/Time: 12/13/2016 16:20
Matrix: Groundwater
COC Reference: 094936

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/14/16 17:24	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:55	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/15/16 18:55	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:55	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/15/16 18:55	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/15/16 18:55	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78189.03 (continued)

Sample Tag: VAP-06-16_29-32

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/15/16 18:55	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/15/16 18:55	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/15/16 18:55	JGH	10061-02-6	

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME			
Theresa Olechiw / Colleen Barton			
COMPANY			
Arcadis US			
ADDRESS			
28550 Cabot Dr Suite 500			
CITY		STATE	ZIP CODE
Novi		Mi	48377
PHONE NO.		FAX NO.	P.O. NO.
248-994-2240		248-994-2241	
E-MAIL ADDRESS		QUOTE NO.	
colleen.barton@arcadis.com / Theresa.Olechiw@arcadis.com			

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

PROJECT NO./NAME	B0064607.2016.00005	SAMPLER(S) - PLEASE PRINT/SIGN NAME	Severin Presswood / Demi Paul
TURNAROUND TIME REQUIRED		☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED		☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

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

RELINQUISHED BY:	<i>Levin Pressand / Arcadis</i>	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION			12/14/16	2:11
RECEIVED BY:	<i>RJA-Miller</i>		DATE	TIME
SIGNATURE/ORGANIZATION			12/14/16	2:11
RELINQUISHED BY:	<i>MJ Miller</i>		DATE	TIME
SIGNATURE/ORGANIZATION			12/14/16	10:07
RECEIVED BY:	<i>Mr. Chilton</i>		DATE	TIME
SIGNATURE/ORGANIZATION			12/14/16	16:07

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>3.9</u>	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

Table 4
Summary of Groundwater Analytical Results
RACER Trust Pontiac North Campus
Pontiac, Michigan

PNC VOC Analyte List - 8260C

Location ID:

Date Collected:

Sample Name:

Volatile Organic Compounds

VOC	Acetone
VOC	Benzene
VOC	Bromodichloromethane
VOC	Bromoform
VOC	Bromomethane
VOC	2-Butanone
VOC	Carbon Disulfide
VOC	Carbon Tetrachloride
VOC	Chlorobenzene
VOC	Chloroethane
VOC	Chloroform
VOC	Chloromethane
VOC	Cumene
VOC	Cyclohexane
VOC	1,2-Dibromo-3-chloropropane
VOC	Dibromochloromethane
VOC	1,2-Dibromoethane
VOC	1,2-Dichlorobenzene
VOC	1,3-Dichlorobenzene
VOC	1,4-Dichlorobenzene
VOC	Dichlorodifluoromethane
VOC	1,1-Dichloroethane
VOC	1,2-Dichloroethane
VOC	1,1-Dichloroethene
VOC	cis-1,2-Dichloroethene
VOC	trans-1,2-Dichloroethene
VOC	1,2-Dichloropropane
VOC	1,3-Dichloropropene (summed)
VOC	Ethyl Benzene
VOC	2-Hexanone
VOC	Methyl Acetate
VOC	Methyl tert-butyl ether
VOC	4-Methyl-2-pentanone
VOC	Methylcyclohexane
VOC	Methylene Chloride
VOC	Styrene
VOC	1,1,2,2-Tetrachloroethane
VOC	Tetrachloroethene
VOC	Toluene
VOC	1,2,4-Trichlorobenzene
VOC	1,1,1-Trichloroethane
VOC	1,1,2-Trichloroethane
VOC	Trichloroethene
VOC	Trichlorofluoromethane
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane
VOC	Vinyl Chloride
VOC	Xylenes (total)

Plus 1, 4 Dioxane 8260C SIMS



Analytical Laboratory Report

Report ID: S78215.01(01)
Generated on 12/16/2016

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
Email: theresa.olechiw@arcadis-us.com

Additional Contacts: Colleen Barton

Report produced by

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

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S78215.01-S78215.03
Project: B0064607.2016.00005
Collected Date: 12/14/2016
Submitted Date/Time: 12/15/2016 13:20
Sampled by: Severin Presswood
P.O. #: B0064607.2016.00005

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

A handwritten signature in black ink, reading "Maya Murshak".

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S78215.01	VAP-04-16_30-33	Groundwater	12/14/16 15:45
S78215.02	VAP-04-16_35-38	Groundwater	12/14/16 16:45
S78215.03	Trip Blank	Water	12/14/16 00:01



Analytical Laboratory Report

Lab Sample ID: S78215.01
Sample Tag: VAP-04-16_30-33
Collected Date/Time: 12/14/2016 15:45
Matrix: Groundwater
COC Reference: 094934

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/16/16 05:31	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/16/16 05:03	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/16/16 05:03	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/16/16 05:03	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/16/16 05:03	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	100-42-5	
1,1,1-Trichloroethane	2	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:03	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78215.01 (continued)

Sample Tag: VAP-04-16_30-33

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/16/16 05:03	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	110-82-7	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/16/16 05:03	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:03	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78215.02
Sample Tag: VAP-04-16_35-38
Collected Date/Time: 12/14/2016 16:45
Matrix: Groundwater
COC Reference: 094934

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/16/16 05:51	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/16/16 05:24	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/16/16 05:24	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/16/16 05:24	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/16/16 05:24	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/16/16 05:24	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78215.02 (continued)

Sample Tag: VAP-04-16_35-38

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/16/16 05:24	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	110-82-7	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/16/16 05:24	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 05:24	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78215.03
Sample Tag: Trip Blank
Collected Date/Time: 12/14/2016 00:01
Matrix: Water
COC Reference: 094934

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/15/16 11:00	JML		
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Organics - Volatiles

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/16/16 02:15	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/16/16 02:15	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/16/16 02:15	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/16/16 02:15	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/16/16 02:15	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/16/16 02:15	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	98-82-8	



Analytical Laboratory Report

Lab Sample ID: S78215.03 (continued)

Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/16/16 02:15	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/16/16 02:15	JGH	10061-02-6	

Table 4
Summary of Groundwater Analytical Results
RACER Trust Pontiac North Campus
Pontiac, Michigan

PNC VOC Analyte List - 8260C

Location ID:

Date Collected:

Sample Name:

Volatile Organic Compounds

Plus 1, 4 Dioxane 8260C SIMS

VOC	Acetone
VOC	Benzene
VOC	Bromodichloromethane
VOC	Bromoform
VOC	Bromomethane
VOC	2-Butanone
VOC	Carbon Disulfide
VOC	Carbon Tetrachloride
VOC	Chlorobenzene
VOC	Chloroethane
VOC	Chloroform
VOC	Chloromethane
VOC	Cumene
VOC	Cyclohexane
VOC	1,2-Dibromo-3-chloropropane
VOC	Dibromochloromethane
VOC	1,2-Dibromoethane
VOC	1,2-Dichlorobenzene
VOC	1,3-Dichlorobenzene
VOC	1,4-Dichlorobenzene
VOC	Dichlorodifluoromethane
VOC	1,1-Dichloroethane
VOC	1,2-Dichloroethane
VOC	1,1-Dichloroethene
VOC	cis-1,2-Dichloroethene
VOC	trans-1,2-Dichloroethene
VOC	1,2-Dichloropropane
VOC	1,3-Dichloropropene (summed)
VOC	Ethyl Benzene
VOC	2-Hexanone
VOC	Methyl Acetate
VOC	Methyl tert-butyl ether
VOC	4-Methyl-2-pentanone
VOC	Methylcyclohexane
VOC	Methylene Chloride
VOC	Styrene
VOC	1,1,2,2-Tetrachloroethane
VOC	Tetrachloroethene
VOC	Toluene
VOC	1,2,4-Trichlorobenzene
VOC	1,1,1-Trichloroethane
VOC	1,1,2-Trichloroethane
VOC	Trichloroethene
VOC	Trichlorofluoromethane
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane
VOC	Vinyl Chloride
VOC	Xylenes (total)



Analytical Laboratory Report

Report ID: S78296.01(01)
Generated on 12/29/2016

Report to

Attention: Theresa Olechiw
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: NA FAX: 248-994-2241
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Report Summary

Lab Sample ID(s): S78296.01-S78296.05
Project: B0064607.2016.00005
Collected Date: 12/19/2016
Submitted Date/Time: 12/19/2016 16:40
Sampled by: Severin Presswood
P.O. #: B0064607.2016.00005

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S78296.01	VAP-03-16_31-34	Groundwater	12/19/16 10:35
S78296.02	VAP-03-16_35-38	Groundwater	12/19/16 11:25
S78296.03	VAP-03-16_44-47	Groundwater	12/19/16 12:05
S78296.04	Trip Blank	Water	12/19/16 00:01
S78296.05	DUP-01-12-19-16	Groundwater	12/19/16 00:01



Analytical Laboratory Report

Lab Sample ID: S78296.01
Sample Tag: VAP-03-16_31-34
Collected Date/Time: 12/19/2016 10:35
Matrix: Groundwater
COC Reference: 094940

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/21/16 09:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/20/16 12:41	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 17:43	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 17:43	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 17:43	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 17:43	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	100-42-5	
1,1,1-Trichloroethane	12	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 17:43	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78296.01 (continued)

Sample Tag: VAP-03-16_31-34

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 17:43	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	110-82-7	
1,1-Dichloroethane	5	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 17:43	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 17:43	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78296.02
Sample Tag: VAP-03-16_35-38
Collected Date/Time: 12/19/2016 11:25
Matrix: Groundwater
COC Reference: 094940

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/21/16 09:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/20/16 13:01	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:05	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 18:05	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:05	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:05	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	100-42-5	
1,1,1-Trichloroethane	13	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:05	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	127-18-4	
Toluene	2	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78296.02 (continued)

Sample Tag: VAP-03-16_35-38

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 18:05	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	110-82-7	
1,1-Dichloroethane	11	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	75-34-3	
1,1-Dichloroethene	2	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 18:05	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:05	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78296.03
Sample Tag: VAP-03-16_44-47
Collected Date/Time: 12/19/2016 12:05
Matrix: Groundwater
COC Reference: 094940

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/21/16 09:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/20/16 13:21	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:27	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 18:27	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:27	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:27	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:27	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78296.03 (continued)

Sample Tag: VAP-03-16_44-47

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 18:27	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 18:27	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:27	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78296.04
Sample Tag: Trip Blank
Collected Date/Time: 12/19/2016 00:01
Matrix: Water
COC Reference: 094940

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/22/16 10:20	JML		
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Organics - Volatiles

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/21/16 15:19	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/21/16 15:19	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/21/16 15:19	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/21/16 15:19	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/21/16 15:19	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/21/16 15:19	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	98-82-8	



Analytical Laboratory Report

Lab Sample ID: S78296.04 (continued)

Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/21/16 15:19	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/21/16 15:19	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78296.05
Sample Tag: DUP-01-12-19-16
Collected Date/Time: 12/19/2016 00:01
Matrix: Groundwater
COC Reference: 094940

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/21/16 09:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/20/16 13:41	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 15:30	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/23/16 15:30	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 15:30	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 15:30	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	100-42-5	
1,1,1-Trichloroethane	9	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:30	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78296.05 (continued)

Sample Tag: DUP-01-12-19-16

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/23/16 15:30	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	110-82-7	
1,1-Dichloroethane	4	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/23/16 15:30	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:30	JGH	10061-02-6	

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME			
Theresa Olechiw / Colleen Barten			
COMPANY			
Arcadis US			
ADDRESS			
28550 Cabot Dr Suite 500			
CITY			STATE
Novi			MI
PHONE NO.			ZIP CODE
248-994-2240			48377
FAX NO.		P.O. NO.	
248-994-2241			
E-MAIL ADDRESS		QUOTE NO.	
Theresa.Olechiw@arcadis.com / Colleen.Barten@arcadis.com			

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

PROJECT NO./NAME B0664607.2016.00005	SAMPLER(S) - PLEASE PRINT/SIGN NAME Severin Presswood / Dami Paul
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

MATRIX CODE:	GW=GROUNDWATER SL=SLUDGE	WW=WASTEWATER DW=DRINKING WATER	S=SOIL O=OIL	L=LIQUID WP=WPIE	SD=SOLID W=WASTE
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Containers & Preservatives

Certifications

☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations

☐ Detroit ☐ New York☐ OtherSpecial Instructions[illegible]

RELINQUISHED BY:		☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION	<i>Erwin Pressman / Arcadis</i>		12-19-16	12:15
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION	<i>J.H. Miller</i>		12/19/16	12:15
RELINQUISHED BY:			DATE	TIME
SIGNATURE/ORGANIZATION	<i>J.H. Miller</i>		12/19/16	10:40
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION	<i>M. Chilcote</i>		12/19/16	16:40

RELINQUISHED BY:			DATE		TIME	
SIGNATURE/ORGANIZATION						
RECEIVED BY:			DATE		TIME	
SIGNATURE/ORGANIZATION						
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL	4.8	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS				

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

Table 4
Summary of Groundwater Analytical Results
RACER Trust Pontiac North Campus
Pontiac, Michigan

PNC VOC Analyte List - 8260C

Location ID:

Date Collected:

Sample Name:

Volatile Organic Compounds

Plus 1, 4 Dioxane 8260C SIMS

VOC	Acetone
VOC	Benzene
VOC	Bromodichloromethane
VOC	Bromoform
VOC	Bromomethane
VOC	2-Butanone
VOC	Carbon Disulfide
VOC	Carbon Tetrachloride
VOC	Chlorobenzene
VOC	Chloroethane
VOC	Chloroform
VOC	Chloromethane
VOC	Cumene
VOC	Cyclohexane
VOC	1,2-Dibromo-3-chloropropane
VOC	Dibromochloromethane
VOC	1,2-Dibromoethane
VOC	1,2-Dichlorobenzene
VOC	1,3-Dichlorobenzene
VOC	1,4-Dichlorobenzene
VOC	Dichlorodifluoromethane
VOC	1,1-Dichloroethane
VOC	1,2-Dichloroethane
VOC	1,1-Dichloroethene
VOC	cis-1,2-Dichloroethene
VOC	trans-1,2-Dichloroethene
VOC	1,2-Dichloropropane
VOC	1,3-Dichloropropene (summed)
VOC	Ethyl Benzene
VOC	2-Hexanone
VOC	Methyl Acetate
VOC	Methyl tert-butyl ether
VOC	4-Methyl-2-pentanone
VOC	Methylcyclohexane
VOC	Methylene Chloride
VOC	Styrene
VOC	1,1,2,2-Tetrachloroethane
VOC	Tetrachloroethene
VOC	Toluene
VOC	1,2,4-Trichlorobenzene
VOC	1,1,1-Trichloroethane
VOC	1,1,2-Trichloroethane
VOC	Trichloroethene
VOC	Trichlorofluoromethane
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane
VOC	Vinyl Chloride
VOC	Xylenes (total)



Analytical Laboratory Report

Report ID: S78372.01(01)
Generated on 01/04/2017

Report to

Attention: Theresa Olechiw
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Novi, MI 48377

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Additional Contacts: Colleen Barton

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Report Summary

Lab Sample ID(s): S78372.01-S78372.17
Project: B0064607.2016.00005
Collected Date: 12/19/2016 - 12/20/2016
Submitted Date/Time: 12/22/2016 08:00
Sampled by: Severin Presswood
P.O. #: B0064607.2016.00005

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (17 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S78372.01	VAP-02-16_26-29	Groundwater	12/19/16 14:35
S78372.02	VAP-02-16_31-34	Groundwater	12/19/16 15:15
S78372.03	VAP-02-16_35-38	Groundwater	12/19/16 16:20
S78372.04	VAP-02-16_35-38 MS	Groundwater	12/19/16 16:20
S78372.05	VAP-02-16_35-38 MSD	Groundwater	12/19/16 16:20
S78372.06	VAP-02-16_39-42	Groundwater	12/19/16 17:00
S78372.07	VAP-01-16_26-29	Groundwater	12/20/16 09:25
S78372.08	VAP-01-16_32-35	Groundwater	12/20/16 10:45
S78372.09	VAP-01-16_32-35 MS	Groundwater	12/20/16 10:45
S78372.10	VAP-01-16_32-35 MSD	Groundwater	12/20/16 10:45
S78372.11	VAP-01-16_37-40	Groundwater	12/20/16 11:55
S78372.12	VAP-05-16_17-20	Groundwater	12/20/16 15:30
S78372.13	VAP-05-16_22-25	Groundwater	12/20/16 16:10
S78372.14	VAP-05-16_27-30	Groundwater	12/20/16 16:50
S78372.15	DUP-03-12-20-16	Groundwater	12/20/16 00:01
S78372.16	DUP-02-12-19-16	Groundwater	12/20/16 00:01
S78372.17	Trip Blank	Liquid	12/20/16 00:01



Analytical Laboratory Report

Lab Sample ID: S78372.01
Sample Tag: VAP-02-16_26-29
Collected Date/Time: 12/19/2016 14:35
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	4	ug/L	3	SW8260B - SIM	12/22/16 20:34	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:49	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 18:49	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:49	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 18:49	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	100-42-5	
1,1,1-Trichloroethane	6	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 18:49	JGH	120-82-1	
Tetrachloroethene	5	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	127-18-4	
Toluene	1	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.01 (continued)

Sample Tag: VAP-02-16_26-29

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 18:49	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	110-82-7	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 18:49	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 18:49	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.02
Sample Tag: VAP-02-16_31-34
Collected Date/Time: 12/19/2016 15:15
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/22/16 20:54	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:10	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 19:10	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:10	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:10	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	100-42-5	
1,1,1-Trichloroethane	30	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:10	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.02 (continued)

Sample Tag: VAP-02-16_31-34

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 19:10	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	110-82-7	
1,1-Dichloroethane	7	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	75-34-3	
1,1-Dichloroethene	2	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 19:10	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:10	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.03
Sample Tag: VAP-02-16_35-38
Collected Date/Time: 12/19/2016 16:20
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
4	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/29/16 16:34	WAT	123-91-1	v
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 14:42	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/23/16 14:42	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 14:42	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 14:42	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:42	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	75-01-4	

v-VOCs analyzed outside of holding time based on the measurement of pH value above 2 at the time of analysis



Analytical Laboratory Report

Lab Sample ID: S78372.03 (continued)

Sample Tag: VAP-02-16_35-38

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/23/16 14:42	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/23/16 14:42	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:42	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.04
Sample Tag: VAP-02-16_35-38 MS
Collected Date/Time: 12/19/2016 16:20
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
4	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	46	ug/L	3	SW8260B - SIM	12/29/16 13:52	WAT	123-91-1	1
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 11:46	JGH	67-64-1	1
2-Butanone (MEK)	38	ug/L	25	SW5030C/8260C	12/23/16 11:46	JGH	78-93-3	1
Benzene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	71-43-2	1
Bromodichloromethane	49	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	75-27-4	1
Bromoform	43	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	75-25-2	1
Bromomethane	49	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	74-83-9	1
Carbon disulfide	45	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	75-15-0	1
Carbon tetrachloride	50	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	56-23-5	1
Chlorobenzene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	108-90-7	1
Chloroethane	48	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	75-00-3	1
Chloroform	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	67-66-3	1
Chloromethane*	44	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	74-87-3	1
1,2-Dibromo-3-chloropropane	45	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	96-12-8	1
1,2-Dichlorobenzene	44	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	95-50-1	1
1,2-Dichloroethane	48	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	107-06-2	1
1,2-Dichloropropane	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	78-87-5	1
1,3-Dichlorobenzene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	541-73-1	1
1,4-Dichlorobenzene	45	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	106-46-7	1
cis-1,2-Dichloroethene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	156-59-2	1
Dibromochloromethane	43	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	124-48-1	1
Dichlorodifluoromethane	42	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	75-71-8	1
trans-1,2-Dichloroethene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	156-60-5	1
Ethylbenzene	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 11:46	JGH	591-78-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 11:46	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	46	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	1634-04-4	1
Methylene chloride	46	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	75-09-2	1
Styrene	49	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	100-42-5	1
1,1,1-Trichloroethane	50	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	71-55-6	1
1,1,2-Trichloroethane	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	79-00-5	1
1,2,4-Trichlorobenzene	45	ug/L	5	SW5030C/8260C	12/23/16 11:46	JGH	120-82-1	1
Tetrachloroethene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	127-18-4	1
Toluene	48	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	108-88-3	1
Trichloroethene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	79-01-6	1
Trichlorofluoromethane	48	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	75-69-4	1
Vinyl chloride	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	75-01-4	1

1-Spiked at 50ug/l



Analytical Laboratory Report

Lab Sample ID: S78372.04 (continued)

Sample Tag: VAP-02-16_35-38 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	48	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	95-47-6	1
p,m-Xylene*	93	ug/L	2	SW5030C/8260C	12/23/16 11:46	JGH		1
Isopropylbenzene	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	98-82-8	1
Cyclohexane	43	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	110-82-7	1
1,1-Dichloroethane	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	75-34-3	1
1,1-Dichloroethene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	75-35-4	1
Methyl Acetate*	49	ug/L	10	SW5030C/8260C	12/23/16 11:46	JGH	79-20-9	1
Methyl cyclohexane	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane*	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	76-13-1	1
1,2-Dibromoethane	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	106-93-4	1
1,1,2,2-Tetrachloroethane	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	79-34-5	1
cis-1,3-Dichloropropene	47	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	10061-01-5	1
trans-1,3-Dichloropropene	46	ug/L	1	SW5030C/8260C	12/23/16 11:46	JGH	10061-02-6	1

1-Spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S78372.05
Sample Tag: VAP-02-16_35-38 MSD
Collected Date/Time: 12/19/2016 16:20
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
4	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	46	ug/L	3	SW8260B - SIM	12/29/16 14:13	WAT	123-91-1	1v
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:08	JGH	67-64-1	1
2-Butanone (MEK)	33	ug/L	25	SW5030C/8260C	12/23/16 12:08	JGH	78-93-3	1
Benzene	49	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	71-43-2	1
Bromodichloromethane	53	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	75-27-4	1
Bromoform	44	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	75-25-2	1
Bromomethane	50	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	74-83-9	1
Carbon disulfide	43	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	75-15-0	1
Carbon tetrachloride	52	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	56-23-5	1
Chlorobenzene	43	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	108-90-7	1
Chloroethane	49	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	75-00-3	1
Chloroform	48	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	67-66-3	1
Chloromethane*	46	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	74-87-3	1
1,2-Dibromo-3-chloropropane	49	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	96-12-8	1
1,2-Dichlorobenzene	41	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	95-50-1	1
1,2-Dichloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	107-06-2	1
1,2-Dichloropropane	50	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	78-87-5	1
1,3-Dichlorobenzene	39	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	541-73-1	1
1,4-Dichlorobenzene	39	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	106-46-7	1
cis-1,2-Dichloroethene	45	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	156-59-2	1
Dibromochloromethane	44	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	124-48-1	1
Dichlorodifluoromethane	43	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	75-71-8	1
trans-1,2-Dichloroethene	45	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	156-60-5	1
Ethylbenzene	45	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:08	JGH	591-78-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:08	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	50	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	1634-04-4	1
Methylene chloride	48	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	75-09-2	1
Styrene	46	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	100-42-5	1
1,1,1-Trichloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	71-55-6	1
1,1,2-Trichloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	79-00-5	1
1,2,4-Trichlorobenzene	31	ug/L	5	SW5030C/8260C	12/23/16 12:08	JGH	120-82-1	1
Tetrachloroethene	44	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	127-18-4	1
Toluene	50	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	108-88-3	1
Trichloroethene	46	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	79-01-6	1
Trichlorofluoromethane	48	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	75-69-4	1
Vinyl chloride	47	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	75-01-4	1

1-Spiked at 50ug/l v-VOCs analyzed outside of holding time based on the measurement of pH value above 2 at the time of analysis



Analytical Laboratory Report

Lab Sample ID: S78372.05 (continued)

Sample Tag: VAP-02-16_35-38 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	47	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	95-47-6	1
p,m-Xylene*	90	ug/L	2	SW5030C/8260C	12/23/16 12:08	JGH		1
Isopropylbenzene	44	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	98-82-8	1
Cyclohexane	50	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	110-82-7	1
1,1-Dichloroethane	48	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	75-34-3	1
1,1-Dichloroethene	46	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	75-35-4	1
Methyl Acetate*	53	ug/L	10	SW5030C/8260C	12/23/16 12:08	JGH	79-20-9	1
Methyl cyclohexane	40	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane*	48	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	76-13-1	1
1,2-Dibromoethane	47	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	106-93-4	1
1,1,2,2-Tetrachloroethane	49	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	79-34-5	1
cis-1,3-Dichloropropene	48	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	10061-01-5	1
trans-1,3-Dichloropropene	48	ug/L	1	SW5030C/8260C	12/23/16 12:08	JGH	10061-02-6	1

1-Spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S78372.06
Sample Tag: VAP-02-16_39-42
Collected Date/Time: 12/19/2016 17:00
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/22/16 21:13	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:33	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 19:33	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:33	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:33	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:33	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.06 (continued)

Sample Tag: VAP-02-16_39-42

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 19:33	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 19:33	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:33	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.07
Sample Tag: VAP-01-16_26-29
Collected Date/Time: 12/20/2016 09:25
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	28	ug/L	3	SW8260B - SIM	12/22/16 21:33	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:54	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 19:54	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:54	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 19:54	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	100-42-5	
1,1,1-Trichloroethane	14	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 19:54	JGH	120-82-1	
Tetrachloroethene	4	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.07 (continued)

Sample Tag: VAP-01-16_26-29

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 19:54	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	110-82-7	
1,1-Dichloroethane	3	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	75-34-3	
1,1-Dichloroethene	2	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 19:54	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 19:54	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.08
Sample Tag: VAP-01-16_32-35
Collected Date/Time: 12/20/2016 10:45
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
4	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	12	ug/L	3	SW8260B - SIM	12/29/16 16:54	JGH	123-91-1	I
1,4-Dioxane* (Replicate 01)	11	ug/L	3	SW8260B - SIM	01/03/17 16:39	JGH	123-91-1	B

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 15:08	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/23/16 15:08	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 15:08	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 15:08	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/23/16 15:08	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	79-01-6	

I-Matrix interference with internal standard

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S78372.08 (continued)

Sample Tag: VAP-01-16_32-35

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/23/16 15:08	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/23/16 15:08	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 15:08	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.09
Sample Tag: VAP-01-16_32-35 MS
Collected Date/Time: 12/20/2016 10:45
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
4	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/29/16 14:00	JGH		
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Organics - Volatiles

1,4-Dioxane*	60	ug/L	3	SW8260B - SIM	12/29/16 14:33	WAT	123-91-1	1
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:30	JGH	67-64-1	1
2-Butanone (MEK)	33	ug/L	25	SW5030C/8260C	12/23/16 12:30	JGH	78-93-3	1
Benzene	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	71-43-2	1
Bromodichloromethane	54	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	75-27-4	1
Bromoform	46	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	75-25-2	1
Bromomethane	51	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	74-83-9	1
Carbon disulfide	48	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	75-15-0	1
Carbon tetrachloride	54	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	56-23-5	1
Chlorobenzene	48	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	108-90-7	1
Chloroethane	51	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	75-00-3	1
Chloroform	51	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	67-66-3	1
Chloromethane*	47	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	74-87-3	1
1,2-Dibromo-3-chloropropane	49	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	96-12-8	1
1,2-Dichlorobenzene	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	95-50-1	1
1,2-Dichloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	107-06-2	1
1,2-Dichloropropane	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	78-87-5	1
1,3-Dichlorobenzene	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	541-73-1	1
1,4-Dichlorobenzene	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	106-46-7	1
cis-1,2-Dichloroethene	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	156-59-2	1
Dibromochloromethane	47	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	124-48-1	1
Dichlorodifluoromethane	45	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	75-71-8	1
trans-1,2-Dichloroethene	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	156-60-5	1
Ethylbenzene	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:30	JGH	591-78-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:30	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	51	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	1634-04-4	1
Methylene chloride	49	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	75-09-2	1
Styrene	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	100-42-5	1
1,1,1-Trichloroethane	52	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	71-55-6	1
1,1,2-Trichloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	79-00-5	1
1,2,4-Trichlorobenzene	49	ug/L	5	SW5030C/8260C	12/23/16 12:30	JGH	120-82-1	1
Tetrachloroethene	48	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	127-18-4	1
Toluene	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	108-88-3	1
Trichloroethene	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	79-01-6	1
Trichlorofluoromethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	75-69-4	1
Vinyl chloride	48	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	75-01-4	1

1-Spiked at 50ug/l



Analytical Laboratory Report

Lab Sample ID: S78372.09 (continued)

Sample Tag: VAP-01-16_32-35 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	49	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	95-47-6	1
p,m-Xylene*	97	ug/L	2	SW5030C/8260C	12/23/16 12:30	JGH		1
Isopropylbenzene	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	98-82-8	1
Cyclohexane	48	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	110-82-7	1
1,1-Dichloroethane	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	75-34-3	1
1,1-Dichloroethene	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	75-35-4	1
Methyl Acetate*	53	ug/L	10	SW5030C/8260C	12/23/16 12:30	JGH	79-20-9	1
Methyl cyclohexane	51	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane*	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	76-13-1	1
1,2-Dibromoethane	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	106-93-4	1
1,1,2,2-Tetrachloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	79-34-5	1
cis-1,3-Dichloropropene	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	10061-01-5	1
trans-1,3-Dichloropropene	50	ug/L	1	SW5030C/8260C	12/23/16 12:30	JGH	10061-02-6	1

1-Spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S78372.10
Sample Tag: VAP-01-16_32-35 MSD
Collected Date/Time: 12/20/2016 10:45
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
4	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs* <2 STD Units N/A 12/29/16 14:00 JGH

Organics - Volatiles

1,4-Dioxane* 61 ug/L 3 SW8260B - SIM 12/29/16 14:53 WAT 123-91-1 1

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:52	JGH	67-64-1	1
2-Butanone (MEK)	33	ug/L	25	SW5030C/8260C	12/23/16 12:52	JGH	78-93-3	1
Benzene	45	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	71-43-2	1
Bromodichloromethane	52	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	75-27-4	1
Bromoform	46	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	75-25-2	1
Bromomethane	46	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	74-83-9	1
Carbon disulfide	39	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	75-15-0	1
Carbon tetrachloride	44	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	56-23-5	1
Chlorobenzene	46	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	108-90-7	1
Chloroethane	43	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	75-00-3	1
Chloroform	46	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	67-66-3	1
Chloromethane*	40	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	74-87-3	1
1,2-Dibromo-3-chloropropane	51	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	96-12-8	1
1,2-Dichlorobenzene	48	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	95-50-1	1
1,2-Dichloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	107-06-2	1
1,2-Dichloropropane	48	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	78-87-5	1
1,3-Dichlorobenzene	47	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	541-73-1	1
1,4-Dichlorobenzene	47	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	106-46-7	1
cis-1,2-Dichloroethene	45	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	156-59-2	1
Dibromochloromethane	47	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	124-48-1	1
Dichlorodifluoromethane	37	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	75-71-8	1
trans-1,2-Dichloroethene	42	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	156-60-5	1
Ethylbenzene	46	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	100-41-4	1
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:52	JGH	591-78-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 12:52	JGH	108-10-1	1
tert-Methyl butyl ether (MTBE)	52	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	1634-04-4	1
Methylene chloride	46	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	75-09-2	1
Styrene	48	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	100-42-5	1
1,1,1-Trichloroethane	43	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	71-55-6	1
1,1,2-Trichloroethane	51	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	79-00-5	1
1,2,4-Trichlorobenzene	49	ug/L	5	SW5030C/8260C	12/23/16 12:52	JGH	120-82-1	1
Tetrachloroethene	42	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	127-18-4	1
Toluene	45	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	108-88-3	1
Trichloroethene	44	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	79-01-6	1
Trichlorofluoromethane	41	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	75-69-4	1
Vinyl chloride	40	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	75-01-4	1

1-Spiked at 50ug/l



Analytical Laboratory Report

Lab Sample ID: S78372.10 (continued)

Sample Tag: VAP-01-16_32-35 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	47	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	95-47-6	1
p,m-Xylene*	91	ug/L	2	SW5030C/8260C	12/23/16 12:52	JGH		1
Isopropylbenzene	45	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	98-82-8	1
Cyclohexane	37	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	110-82-7	1
1,1-Dichloroethane	44	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	75-34-3	1
1,1-Dichloroethene	41	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	75-35-4	1
Methyl Acetate*	52	ug/L	10	SW5030C/8260C	12/23/16 12:52	JGH	79-20-9	1
Methyl cyclohexane	44	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	108-87-2	1
1,1,2-Trichloro-1,2,2-trifluoroethane*	41	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	76-13-1	1
1,2-Dibromoethane	52	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	106-93-4	1
1,1,2,2-Tetrachloroethane	53	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	79-34-5	1
cis-1,3-Dichloropropene	48	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	10061-01-5	1
trans-1,3-Dichloropropene	49	ug/L	1	SW5030C/8260C	12/23/16 12:52	JGH	10061-02-6	1

1-Spiked at 50ug/L



Analytical Laboratory Report

Lab Sample ID: S78372.11
Sample Tag: VAP-01-16_37-40
Collected Date/Time: 12/20/2016 11:55
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/22/16 21:53	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 20:16	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 20:16	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 20:16	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 20:16	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:16	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.11 (continued)

Sample Tag: VAP-01-16_37-40

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 20:16	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 20:16	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:16	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.12
Sample Tag: VAP-05-16_17-20
Collected Date/Time: 12/20/2016 15:30
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	11	ug/L	3	SW8260B - SIM	12/22/16 22:13	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 20:38	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 20:38	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 20:38	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 20:38	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	100-42-5	
1,1,1-Trichloroethane	62	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 20:38	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	127-18-4	
Toluene	1	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.12 (continued)

Sample Tag: VAP-05-16_17-20

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 20:38	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	110-82-7	
1,1-Dichloroethane	8	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	75-34-3	
1,1-Dichloroethene	2	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 20:38	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 20:38	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.13
Sample Tag: VAP-05-16_22-25
Collected Date/Time: 12/20/2016 16:10
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	5	ug/L	3	SW8260B - SIM	12/22/16 22:33	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 21:00	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/22/16 21:00	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/22/16 21:00	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/22/16 21:00	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	100-42-5	
1,1,1-Trichloroethane	89	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/22/16 21:00	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	127-18-4	
Toluene	1	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	108-88-3	
Trichloroethene	2	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.13 (continued)

Sample Tag: VAP-05-16_22-25

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/22/16 21:00	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	110-82-7	
1,1-Dichloroethane	13	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	75-34-3	
1,1-Dichloroethene	3	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/22/16 21:00	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/22/16 21:00	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.14
Sample Tag: VAP-05-16_27-30
Collected Date/Time: 12/20/2016 16:50
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	7	ug/L	3	SW8260B - SIM	12/22/16 22:53	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 17:19	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/23/16 17:19	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 17:19	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 17:19	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	100-42-5	
1,1,1-Trichloroethane	10	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:19	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.14 (continued)

Sample Tag: VAP-05-16_27-30

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/23/16 17:19	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	110-82-7	
1,1-Dichloroethane	3	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/23/16 17:19	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:19	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.15
Sample Tag: DUP-03-12-20-16
Collected Date/Time: 12/20/2016 00:01
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	01/03/17 16:58	JGH	123-91-1	
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 17:41	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/23/16 17:41	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 17:41	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 17:41	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/23/16 17:41	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	95-47-6	



Analytical Laboratory Report

Lab Sample ID: S78372.15 (continued)

Sample Tag: DUP-03-12-20-16

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/23/16 17:41	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/23/16 17:41	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 17:41	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.16
Sample Tag: DUP-02-12-19-16
Collected Date/Time: 12/20/2016 00:01
Matrix: Groundwater
COC Reference: 094939

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	>2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	01/03/17 17:18	JGH	123-91-1	v
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Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 18:03	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/23/16 18:03	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 18:03	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 18:03	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	100-42-5	
1,1,1-Trichloroethane	1	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/23/16 18:03	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	75-01-4	

v-VOCs analyzed outside of holding time based on the measurement of pH value above 2 at the time of analysis



Analytical Laboratory Report

Lab Sample ID: S78372.16 (continued)

Sample Tag: DUP-02-12-19-16

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/23/16 18:03	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	98-82-8	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/23/16 18:03	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 18:03	JGH	10061-02-6	



Analytical Laboratory Report

Lab Sample ID: S78372.17
Sample Tag: Trip Blank
Collected Date/Time: 12/20/2016 00:01
Matrix: Liquid
COC Reference: 094938

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	16.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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Extraction / Prep.

pH check for VOCs*	<2	STD Units		N/A	12/23/16 10:00	JML		
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Organics - Volatiles

Volatile Organics - Arcadis

Acetone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 14:19	JGH	67-64-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW5030C/8260C	12/23/16 14:19	JGH	78-93-3	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	71-43-2	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	75-27-4	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	75-25-2	
Bromomethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	74-83-9	
Carbon disulfide	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	75-15-0	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	56-23-5	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	108-90-7	
Chloroethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	75-00-3	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	67-66-3	
Chloromethane*	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	74-87-3	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	96-12-8	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	95-50-1	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	107-06-2	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	78-87-5	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	106-46-7	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	156-59-2	
Dibromochloromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	124-48-1	
Dichlorodifluoromethane	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	75-71-8	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	156-60-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	100-41-4	
2-Hexanone	Not detected	ug/L	50	SW5030C/8260C	12/23/16 14:19	JGH	591-78-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW5030C/8260C	12/23/16 14:19	JGH	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	1634-04-4	
Methylene chloride	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	75-09-2	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	100-42-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	79-00-5	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW5030C/8260C	12/23/16 14:19	JGH	120-82-1	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	127-18-4	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	108-88-3	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	79-01-6	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	75-69-4	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	75-01-4	
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	95-47-6	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/23/16 14:19	JGH		
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	98-82-8	



Analytical Laboratory Report

Lab Sample ID: S78372.17 (continued)

Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - Arcadis (continued)								
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	110-82-7	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	75-34-3	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	75-35-4	
Methyl Acetate*	Not detected	ug/L	10	SW5030C/8260C	12/23/16 14:19	JGH	79-20-9	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	108-87-2	
1,1,2-Trichloro-1,2,2-trifluoroethane*	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	76-13-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	106-93-4	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	79-34-5	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	10061-01-5	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/23/16 14:19	JGH	10061-02-6	



C.O.C. PAGE # 1 OF 2

094939

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

[illegible]

RELINQUISHED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>16.2</u>	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Theresa Olechiv / Colleen Barton			
COMPANY Arcatis US			
ADDRESS 28550 Cabot Dr Suite 500			
CITY Novi		STATE MI	ZIP CODE 48377
PHONE NO. 248-994-2240		FAX NO. 248-994-2241	P.O. NO.
E-MAIL ADDRESS Theresa.olechiv@arcatis.com / Colleen.Barton@arcatis.com		QUOTE NO.	

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

PROJECT NO./NAME	B0064607.2016, 00005	SAMPLER(S) - PLEASE PRINT/SIGN NAME	Severin Presswood / Renee Pund
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER			
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER			

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

Containers & Preservatives

[illegible][illegible]

RELINQUISHED BY:	<i>Frank Pessend / Arcadis</i>	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION			12-21-16	1701
RECEIVED BY:	<i>Merit Drop Box</i>		DATE	TIME
SIGNATURE/ORGANIZATION				
RELINQUISHED BY:	<i>Merit Drop Box</i>		DATE	TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:	<i>M Chilcote</i>		DATE	TIME
SIGNATURE/ORGANIZATION			12/22/16	0800

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>16.2</u>
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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

Table 4
Summary of Groundwater Analytical Results
RACER Trust Pontiac North Campus
Pontiac, Michigan

PNC VOC Analyte List - 8260C

Location ID:

Date Collected:

Sample Name:

Volatile Organic Compounds

Plus 1, 4 Dioxane 8260C SIMS

VOC	Acetone
VOC	Benzene
VOC	Bromodichloromethane
VOC	Bromoform
VOC	Bromomethane
VOC	2-Butanone
VOC	Carbon Disulfide
VOC	Carbon Tetrachloride
VOC	Chlorobenzene
VOC	Chloroethane
VOC	Chloroform
VOC	Chloromethane
VOC	Cumene
VOC	Cyclohexane
VOC	1,2-Dibromo-3-chloropropane
VOC	Dibromochloromethane
VOC	1,2-Dibromoethane
VOC	1,2-Dichlorobenzene
VOC	1,3-Dichlorobenzene
VOC	1,4-Dichlorobenzene
VOC	Dichlorodifluoromethane
VOC	1,1-Dichloroethane
VOC	1,2-Dichloroethane
VOC	1,1-Dichloroethene
VOC	cis-1,2-Dichloroethene
VOC	trans-1,2-Dichloroethene
VOC	1,2-Dichloropropane
VOC	1,3-Dichloropropene (summed)
VOC	Ethyl Benzene
VOC	2-Hexanone
VOC	Methyl Acetate
VOC	Methyl tert-butyl ether
VOC	4-Methyl-2-pentanone
VOC	Methylcyclohexane
VOC	Methylene Chloride
VOC	Styrene
VOC	1,1,2,2-Tetrachloroethane
VOC	Tetrachloroethene
VOC	Toluene
VOC	1,2,4-Trichlorobenzene
VOC	1,1,1-Trichloroethane
VOC	1,1,2-Trichloroethane
VOC	Trichloroethene
VOC	Trichlorofluoromethane
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane
VOC	Vinyl Chloride
VOC	Xylenes (total)