ARCADIS Design & Consultancy for natural and built assets

Revitalizing Auto Communities Environmental Response (RACER) Trust

2017 ANNUAL GROUNDWATER MONITORING REPORT

RACER Trust Plants 2, 3, and 6
Lansing, Michigan

May 7, 2018

2017 ANNUAL GROUNDWATER MONITORING REPORT

RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Alex Villhauer
Staff Geologist

Patrick J. Curry, PG (IN), CPG
Principal Geologist

Randy S. Christensen
Certified Project Manager

Prepared for:

Revitalizing Auto Communities
Environmental Response Trust

Prepared by:

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Our Ref.:

B0064479.2018

Date:

May 7, 2018

CONTENTS

Acronyms and Abbreviations v

Executive Summary ES-1

1 Introduction 1

2 Sampling Methods 1

2.1 Groundwater Monitoring Methods 1

2.2 Municipal Well Sampling 2

2.3 Bedrock Low-Level 1,4-Dioxane Sampling 2

2.4 Grand River Sampling 3

2.5 Light Nonaqueous Phase Liquid Monitoring 3

2.6 Groundwater Elevation Monitoring 3

3 Results 3

3.1 Groundwater Monitoring Results 4

3.1.1 Former Adam's Plating Company Site 5

3.1.2 Bedrock Low-Level 1,4-Dioxane Sampling 6

3.1.3 Grand River Sampling 6

3.1.4 Municipal Well Sampling Results 6

3.2 Light Nonaqueous Phase Liquid Monitoring 6

3.2.1 Light Nonaqueous Phase Liquid Recovery 7

3.3 Groundwater Elevation Monitoring 7

3.3.1 Perched Zone 8

3.3.2 Deep Overburden 8

3.3.3 Weathered Bedrock and Bedrock 9

4 Groundwater Plume Stability 10

4.1 Perched Zone 11

4.1.1 1,4-Dioxane 11

4.1.2 Volatile Organic Compounds 11

4.1.3 Metals 11

4.2 Deep Overburden and Weathered Bedrock 12

4.2.1 1,4-Dioxane 12

4.2.2 Metals 13
4.3 Bedrock 13
4.4 Plume Stability Assessment Summary 14
5 Conclusions 14
6 References 17

TABLES

Table 1 Revised Interim Groundwater Monitoring Summary
Table 2 Groundwater Analytical Results January to December 2017
Table 3 LNAPL Thickness, January to December 2017
Table 4 LNAPL Recovery, January to December 2017
Table 5 Groundwater Elevations, January to December 2017
Table 6 Bedrock Vertical Gradients
Table 7 Mann-Kendall Trend Test Results

FIGURES

Figure 1 Site Location
Figure 2 Summary of Plants 2 and 6 Monitoring Wells and Plumes
Figure 3 Summary of Plant 3 Monitoring Wells and Plumes
Figure 4 Low-Level 1,4-Dioxane Sampling Locations
Figure 5 Groundwater Elevation Perched Water – 0 to 25 ft bgs Plants 2 & 6
Figure 6 Groundwater Elevation Perched Water – 0 to 25 ft bgs Central Plant 3
Figure 7 Groundwater Elevation Deep Overburden Plant 3
Figure 8 Bedrock Groundwater Elevation Summary April 2017
Figure 9 VOC and Metals Trends in Perched Groundwater
Figure 10 1,4-Dioxane Trends in Deep Overburden and Weathered Bedrock
Figure 11 Metals Trends in Deep Overburden and Weathered Bedrock

APPENDICES

A Lansing Township Municipal Well Sampling Data

B Quarterly Figures

C Laboratory Analytical Reports

D Low-Flow Logs

E APC Sampling Results

F River Sampling

G LNAPL Trend Graphs

H Groundwater Elevation Trend Graphs

I Concentration vs. Time Plots

Acronyms and Abbreviations

Annual Report	2017 Annual Groundwater Monitoring Report
APC Site	former Adam's Plating Company Site
Arcadis	Arcadis of Michigan, LLC
bgs	below ground surface
COC	constituent of concern
DW criteria	Part 201 residential drinking water criteria
FSP	Field Sampling Plan
ft/ft	foot per foot
IGMP	Revised Interim Groundwater Monitoring Work Plan
LNAPL	light nonaqueous phase liquid
MDEQ	Michigan Department of Environmental Quality
mg/L	milligrams per liter
NTU	nephelometric turbidity unit
PCB	polychlorinated biphenyl
PFAS	per- and poly fluoroalkyl substances
QAPP	Quality Assurance Project Plan
QC	quality control
RACER	Revitalizing Auto Communities Environmental Response
RCRA	Resource Conservation and Recovery Act
RL	reporting limit
RRD	Remediation and Redevelopment Act
SIM	selected ion monitoring
site	RACER Trust Plants 2, 3, and 6 located in Lansing, Michigan
SOP	Standard Operating Procedure
TestAmerica	TestAmerica Laboratories, Inc. in Burlington, Vermont
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
µg/L	micrograms per liter

EXECUTIVE SUMMARY

This 2017 Annual Groundwater Monitoring Report (Annual Report) was prepared on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust in support of the Resource Conservation and Recovery Act facility investigation and corrective measures study prepared for RACER Trust Plants 2, 3, and 6, located in Lansing, Michigan (site).

This Annual Report summarizes groundwater monitoring completed between January and December 2017. Based on the results of sampling and review of the updated plume stability evaluation, Arcadis of Michigan, LLC (Arcadis) offers the following conclusions:

- *Groundwater potentiometric surface maps*. Contour maps for the three saturated zones at the site show a complex hydrogeologic system. The potentiometric surface in the perched zone has been stable to increasing since monitoring began at the site. Potentiometric trends within the lower zones (deep overburden, weathered bedrock, and bedrock) are variable, likely related to changes in municipal pumping.
- *Light nonaqueous phase liquid (LNAPL).* Trend plots indicate that, when present, LNAPL gradually increases in thickness until reaching equilibrium within the well and stabilizing; there is no indication of LNAPL migration. LNAPL is monitored monthly in subset of monitoring wells screened across the deeper LNAPL zone on Plant 2 and removed when significant volume collects.
- *Analytical results*. Groundwater sample results indicate that concentrations of several volatile organic compounds (VOCs) and metals exceed residential drinking water criteria during at least one sampling event at the site. Elevated concentrations of metals are, in most cases, a result of natural geochemical conditions and/or slight shifts in site geochemistry associated with the presence of VOCs. The exception is nickel on the eastern boundary of Plant 3, which is attributed to off-site conditions. 1,4-Dioxane concentrations along the western Plant 2 property boundary exceed Part 201 criteria at several locations but are likely comingled with impacts associated with the former Adams Plating Company Site (APC Site).
- *APC Site*. The APC site is located along the west boundary of Plant 2 along Rosemary Street. The proximity of the APC Site and lack of delineation for 1,4-dioxane in both the perched and weathered bedrock zones indicates that some comingling occurs along the western RACER property boundary. Comingling of impacts from the site and the APC Site confounds delineation and stability analysis for 1,4-dioxane along the western Plant 2 property.
- *Bedrock low-level 1,4-dioxane sampling*. To better understand the potential contribution of 1,4-dioxane from the site to the bedrock aquifer, the majority of bedrock wells on site were sampled for low-level 1,4-dioxane in March and April 2017. Samples were sent to TestAmerica Laboratories, Inc. for 1,4-dioxane analysis using Method 522, which yields a reporting limit of 0.2 microgram per liter (µg/L) rather than the 3 µg/L reporting limit provided by Method 8260 selected ion monitoring (SIM). The low-level sampling demonstrates consistently low concentrations of 1,4-dioxane in bedrock relative to the lower 1,4-dioxane plume located in weathered bedrock. The results show a two to three order of magnitude reduction in concentration between the more permeable weathered bedrock zone (typically ranging from 5 to 10 feet thick) and the shallow competent bedrock.

- *Grand River sampling*. In some areas of Lansing (e.g., northwest of the site) the bedrock aquifer receives recharge from the Grand River. To better understand regional sources of 1,4-dioxane that may impact the bedrock aquifer, RACER collected surface water samples from the Grand River both to the south and north of the site. The sample results indicate detection of 1,4-dioxane in the northern sample (GR-North) at an estimated concentration of 0.081 µg/L. The sample from the southern location (GR-South) was non-detect for 1,4-dioxane (less than 0.2 µg/L). The low-level detections of 1,4-dioxane in the region may result from several regional and/or numerous nonpoint sources.
- *Municipal well sampling*. Lansing Township wells TWP-90-03, TWP-90-04, and TWP-90-05 were sampled in December 2017 for low-level 1,4-dioxane using Method 522. Estimated concentrations of 1,4-dioxane (0.13 to 0.15 µg/L) were less than the laboratory reporting limit (RL) in Lansing Township wells TWP-90-03 and TWP-90-04, and a detection of 0.28 µg/L was reported at Lansing Township well TWP-90-05. The low-level detections of 1,4-dioxane in the region may result from several regional and/or numerous nonpoint sources. RACER will continue annual sampling of Lansing Township wells to monitor the stability of low-level 1,4-dioxane in the municipal wells.
- *Plume stability*. Results of the updated statistical analysis are consistent with the findings of the 2016 plume stability assessment (Arcadis 2017b), as summarized below:
    - Concentrations of 1,4-dioxane in the perched zone are considered stable based on analysis of the existing dataset. 1,4-Dioxane has not been detected in monitoring wells installed around the perimeter of the perched plume, with the exception of MW-14-58, which is located near, or within, the perched 1,4-dioxane plume at the APC Site.
    - Concentrations of 1,4-dioxane along the core of the deep overburden and weathered bedrock generally are stable or are stabilizing. Several monitoring wells that historically exhibited increasing trends (e.g., MW-13-22, PW-14-03, MW-13-43, MW-13-48) are now stable to decreasing.

  Based on these conclusions, no immediate action is recommended at this time.

1 INTRODUCTION

On behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, Arcadis of Michigan, LLC (Arcadis) prepared this 2017 Annual Groundwater Monitoring Report (Annual Report) to support the Resource Conservation and Recovery Act (RCRA) corrective action process for RACER Trust Plants 2, 3, and 6, located in Lansing, Michigan (site; Figure 1). This Annual Report summarizes groundwater monitoring completed between January and December 2017, consistent with the requirements of the Revised Interim Groundwater Monitoring Work Plan (IGMP; Arcadis 2017a), which was approved by the Michigan Department of Environmental Quality (MDEQ) on February 8, 2017.

The following sampling events were completed in accordance with the IGMP (Arcadis 2017a) and are summarized below:

- *First quarter 2017*. A quarterly event completed in March 2017.
- *Second quarter 2017*. An annual event completed in April and May 2017.
- *Third quarter 2017*. A quarterly event completed in September 2017.
- *Fourth quarter 2017*. A semiannual event completed in December 2017. Additional work in the fourth quarter included annual municipal well sampling.

As outlined in the IGMP (Arcadis 2017a), this Annual Report includes quarterly data (e.g., tabulated data, figures, analytical narrative) and provides the following:

- Objective and scope of the sampling events.
- Summary of groundwater elevations and light nonaqueous phase liquid (LNAPL) gauging data, including contour maps and trend plots.
- Summary of LNAPL recovery completed in accordance with the 2015 LNAPL Removal Work Plan (Arcadis 2015b).
- Updated plume stability discussion.
- Summary of Lansing Township water supply well sampling.
- Conclusions and recommendations for revisions to the IGMP (Arcadis 2017a), as appropriate.

2 SAMPLING METHODS

This section discusses the sampling methodology used at the site. The Field Sampling Plan (FSP; Arcadis 2011a) for the site provides detailed methodology regarding the collection of groundwater samples and includes appropriate Arcadis standard operating procedures (SOPs).

2.1 Groundwater Monitoring Methods

During the second quarter 2017 annual sampling event, and prior to sample collection, site-wide gauging was completed using an electronic water level meter. LNAPL wells were gauged using an oil/water

interface probe. During the first, third, and fourth quarter 2017 sampling events, gauging was limited to those wells selected for sampling and LNAPL monitoring. All gauging was completed within 24 hours, with few exceptions due to access or other issues. Groundwater samples were collected in a manner consistent with the low-flow sampling techniques outlined in the FSP and the SOP for low-flow sample collection (Arcadis 2011a), and generally consistent with the MDEQ's Remediation and Redevelopment Division (RRD) Op Memo 2, Attachment 5 (MDEQ 2004). An emphasis was placed on collecting low-turbidity samples (less than 10 nephelometric turbidity units [NTUs]) for metals analysis.

Groundwater samples were analyzed following MDEQ's RRD Op Memo 2, Attachment 5 guidelines (MDEQ 2004), as established in the RCRA Facility Investigation Work Plan (Phase 1 [Arcadis 2011b]). The IGMP (Arcadis 2017a) provides the rationale for selecting the monitoring constituents of concern (COCs). The most current sampling matrix provided as part of the IGMP (Arcadis 2017a) is included as Table 1. In general, groundwater samples were submitted for analysis for one or more of the following:

- 1,4-Dioxane by United States Environmental Protection Agency (USEPA) Method 8260B SIM.
- 1,4-Dioxane by USEPA Method 522
- Target Compound List volatile organic compounds (VOCs), as defined in Table 3 of the Quality Assurance Project Plan (QAPP; Arcadis 2011c), by USEPA Method 8260B.
- Selected metals (arsenic, total chromium, copper, lead, nickel, and vanadium) by USEPA Method 6020, and, at discrete locations, metals associated with known impacts (e.g., hexavalent chromium in Area 14 at Plant 3). Filtered metals were submitted for specific wells when turbidity less than 10 NTU could not be achieved during purging (USEPA Method 6020).

Field quality control (QC) samples were collected and analyzed in accordance with the QAPP (Arcadis 2011c). One sample delivery group per plant underwent complete validation/verification as described in the FSP and QAPP (Arcadis 2011a, 2011c, respectively). This varies from the approved QAPP (Arcadis 2011c), which requires all datasets to be fully validated. This quality assurance/QC approach is sufficient for quarterly validation, which does not require the same rigor as the RCRA Facility Investigation data.

2.2 Municipal Well Sampling

Sampling of the Lansing Township wells (TWP-90-03, TWP-90-04, and TWP-90-05) was completed in December 2017. The locations and analytical reports for the municipal wells are provided in Appendix A. Samples were collected from the sampling port during normal well operations and submitted to TestAmerica Laboratories, Inc. in Burlington, Vermont (TestAmerica), for analysis for 1,4-dioxane using USEPA Method 522, which provides a reporting limit (RL) of 0.20 microgram per liter (µg/L).

2.3 Bedrock Low-Level 1,4-Dioxane Sampling

Bedrock wells at the site have historically been non-detect for 1,4-dioxane using Method 8260 SIM using a reporting limit of 3 µg/L. To better understand the potential contribution of 1,4-dioxane from the site to the bedrock aquifer, the majority of bedrock wells on site were sampled for low-level 1,4-dioxane in March and April 2017. Samples were sent to TestAmerica for 1,4-dioxane analysis using Method 522, which yields an RL of 0.2 µg/L rather than the 3 µg/L RL provided by Method 8260 SIM. Analytical results for the low-level 1,4-dioxane sampling are provided in Table 2. Low-level 1,4-dioxane sampling took the place of

standard 1,4-dioxane sampling (via Method 8260 SIM) listed in the IGMP (Arcadis 2017a) for the selected wells during the second quarter 2017 event. New bedrock wells MW-12-05R and MW-17-87 were resampled on May 30, 2017 to verify the low-level results.

2.4 Grand River Sampling

In some areas of Lansing (e.g., northwest of the site) the bedrock aquifer receives recharge from the Grand River. To better understand potential sources of 1,4-dioxane that may impact the bedrock aquifer, RACER collected surface water samples from the Grand River to the south and north of the site. Grab samples were collected from shore using a Kemmerer discrete sampling device, as close to the midpoint of the river as practicable. Samples were shipped to TestAmerica for analysis by Method 522 for 1,4-dioxane.

2.5 Light Nonaqueous Phase Liquid Monitoring

LNAPL thicknesses in monitoring wells are monitored to verify that LNAPL is stable and not migrating. LNAPL monitoring wells were gauged quarterly with an oil/water interface probe. Gauging methods were consistent with the 2014 Revised Interim Groundwater Monitoring Work Plan (Arcadis 2014a), which builds on procedures outlined in the FSP (Arcadis 2011a).

As outlined in the Summary of LNAPL Transmissivity Results (Arcadis 2015a) provided to the MDEQ on March 30, 2015, LNAPL transmissivity estimates for the LNAPL wells installed in the deeper, confined LNAPL zone at Plant 2 are two to three orders of magnitude less than the criterion established by the MDEQ to define LNAPL that can be recovered in a cost-effective and efficient manner. However, given that polychlorinated biphenyls (PCBs) are present in the deeper LNAPL zone at elevated concentrations, and LNAPL accumulates at significant thickness at several wells due to the presence of confined LNAPL conditions, LNAPL was manually recovered from these wells on a quarterly basis through April 2017. Since April 2017, LNAPL has been recovered monthly.

2.6 Groundwater Elevation Monitoring

Monitoring wells were gauged during sampling events using an electronic water level meter generally within a 24-hour period. Site-wide gauging was completed during the second quarter 2017 annual sampling event. During the first, third, and fourth quarter sampling events, gauging was limited to those wells selected for sampling. Gauging methods were consistent with the FSP and IGMP (Arcadis 2011a, 2017a).

3 RESULTS

This section summarizes the sampling activities completed between January and December 2017. Table 2 presents groundwater analytical data collected during the reporting period. As a frame of reference, figures showing exceedances of the Part 201 residential drinking water criteria (DW criteria) for each quarterly event are provided as Appendix B. Appendices C and D provide the validated laboratory analytical reports and low-flow groundwater sampling field logs, respectively.

3.1 Groundwater Monitoring Results

Figures 2 and 3 show monitoring well locations and the extent of groundwater impacts. The groundwater analytical results and trends throughout the year are discussed below:

- VOCs detected in groundwater were consistent with previous monitoring results. VOCs exceeding DW criteria during at least one event include 1,4-dioxane, 1,1-dichloroethene, vinyl chloride, benzene, ethylbenzene, and total xylenes.
- Metals exceeding DW criteria during at least one event include arsenic, lead, nickel, and vanadium, consistent with previous monitoring results.
- Hexavalent chromium concentrations exceeded the DW criterion in monitoring well CH-14-RO in the north-central portion of Plant 3 near the former plating operation. This is consistent with previous groundwater investigations and monitoring results.

During the monitoring period, COCs were detected in the perched zone and weathered bedrock at or near the site boundary. These detections and one or more explanations for the occurrence are summarized below:

- *MW-14-58*. The concentration of 1,4-dioxane in MW-14-58, located in the perched zone, ranged from 30 to 71 µg/L during the monitoring period, exceeding the DW criteria of 7.2 µg/L. As previously reported, the detections of 1,4-dioxane at this location could be associated in part with the perched plume at Plant 2, but are likely commingled with the perched groundwater plume at the former Adams Plating Company Site (APC Site). Possible commingling of impacts from the site and the APC Site complicates further delineation to the west. Based on the October 2014 sampling event completed by the MDEQ at the APC Site, 1,4-dioxane within the perched zone is delineated to the west by monitoring wells at the APC Site. Appendix E includes the October 2014 sampling results for the APC Site.
- *MW-14-56*. 1,4-Dioxane was detected in this weathered bedrock well, located near the western Plant 2 property boundary, at concentrations ranging from 9 to 10 µg/L during the reporting period, exceeding the DW criteria of 7.2 µg/L. As discussed with the MDEQ on January 2016, results along W. Genesee Street suggest that this detection could be related to a deeper 1,4-dioxane impact associated with the APC Site.
- *MW-15-73*. 1,4-Dioxane was detected in this weathered bedrock well, installed in December 2015 along the western property boundary of Plant 2, at concentrations ranging from 6 to 7 µg/L during the reporting period. Well MW-15-73 was installed as a replacement well for MW-13-42 and is near the APC Site. Borings further west along W. Genesee Street suggest greater concentrations likely associated with the APC Site. This well will continue to be monitored semiannually.
- *MW-16-80*. 1,4-Dioxane was detected in this weathered bedrock well, located at the western Plant 2 property boundary, at concentrations ranging from 27 to 30 µg/L during the reporting period, exceeding the DW criteria of 7.2 µg/L. Monitoring well MW-16-80 is located across the street from the APC Site, and the detected 1,4-dioxane is potentially related to former operations at the APC Site. This well will continue to be monitored semiannually.

- *MW-13-32*. Total nickel was detected in this shallow monitoring well, located in the southeastern corner of Plant 3 within Area 16, at concentrations of 0.542 and 0.791 milligram per liter (mg/L; DW criterion: 0.10 mg/L) during the second and fourth quarters 2017, respectively. In addition, well MW-13-31, located west of MW-13-32 has occasionally indicated elevated concentrations of nickel. Nickel detected in MW-13-31 was less than DW criteria during the second quarter, with a concentration of 0.013 mg/L, and greater than DW criteria with a concentration of 0.155 mg/L in fourth quarter 2017. Groundwater elevation in this area has indicated that perched groundwater flow is westerly, onto the site. A summary of the nickel occurrence at Plant 3 was provided to the MDEQ for both soil and groundwater (Arcadis 2014b, 2015b, 2015c).
- *MW-12-16*. Arsenic was detected in this interbedded zone well, located in the southern right-of-way of Michigan Avenue and to the south of Plant 6, Area 7, at a concentration of 0.017 mg/L in second quarter 2017 and 0.051 mg/L in fourth quarter 2017 (DW criteria of 0.01 mg/L). The plume stability analysis outlined in Section 4 confirms an increasing trend at this location. MW-12-16 is screened in a confined sand unit at approximately 30 feet below ground surface (bgs), which is also screened by three other monitoring wells nearby. Groundwater elevations for these wells have consistently shown a northerly flow, onto the site since 2014. Based on the hydraulic isolation of this well and the apparent northerly groundwater flow direction, the MDEQ has agreed that arsenic at this location is related to regional background conditions and not associated with site impacts.
- Various metals (primarily arsenic, lead, nickel, and vanadium) were detected at concentrations greater than DW criteria near the property boundaries at several other monitoring well locations similar to previous sampling events. As outlined in Section 4, an evaluation of the plume stability indicates that metals at the site are stable and are spatially limited.

In addition to the specific concerns outlined above, an updated plume stability analysis is included in Section 4. No immediate action is recommended based on the 2017 groundwater monitoring data.

3.1.1 Former Adam's Plating Company Site

The APC Site is located along Rosemary Street along the west side of Plant 2, and is currently managed and regulated under the USEPA Region 5 Superfund Program. Plating operations were performed at the APC Site from 1964 until it was destroyed by fire in 2010. Remedial action at the APC Site included excavation of former tanks and shallow soil impacted by VOCs and metals. Subsequent investigations have shown impacts to shallow groundwater, including metals, VOCs, 1,4-dioxane, and per- and polyfluoroalkyl substances (PFAS.) The lateral extent of the perched 1,4-dioxane and PFAS plumes at the APC Site have not been delineated to MDEQ Part 201 criteria, and both plumes appear to extend east onto RACER property. Further, work completed by RACER to evaluate 1,4-dioxane impacts in weathered bedrock along the Plant 2 property boundary have shown 1,4-dioxane in weathered bedrock south of the Adams Plating Company facility on Genesee Street (Arcadis 2016b). These detections are consistent with a weathered bedrock plume at the APC Site, with a southerly flow component. In addition, 1,4-dioxane impacts to the weathered bedrock monitoring well MW-16-80, located across the street from the APC Site, are inconsistent with the lower 1,4-dioxane plume morphology at the RACER property. To date, the extent of the deeper weathered bedrock or bedrock impacts associated with APC have not been investigated. The comingling of impacts from the site and the APC Site, both in the perched and weathered bedrock zones, confounds delineation and stability analysis for 1,4-dioxane along the western

Plant 2 property boundary. The 1,4-dioxane data for the APC Site and a map showing the potential extent of impacts is provided on a figure included in Appendix E.

3.1.2 Bedrock Low-Level 1,4-Dioxane Sampling

The greatest 1,4-dioxane concentrations in bedrock appear to be located in the Grand River Formation and decrease as the plume moves into the Saginaw Formation to the southeast. This trend is consistent with the higher observed vertical anisotropy within the Saginaw Formation that limits vertical migration of 1,4-dioxane. The low-level bedrock 1,4-dioxane results are shown on Figure 4. Analytical results for the low-level 1,4-dioxane sampling are provided in Table 2. The low-level bedrock 1,4-dioxane sampling demonstrates consistently low concentrations of 1,4-dioxane in bedrock related to the lower 1,4-dioxane plume with a two to three order of magnitude reduction in concentration between the more permeable weathered bedrock zone (typically ranging from 5 to 10 feet thick) and the shallow competent bedrock. Overall, the results of the low-level sampling suggest a regional background 1,4-dioxane concentration evident from both the observed consistent low-level detections of 1,4-dioxane within the Lansing Township municipal wells, as well as on-site bedrock wells located upgradient of the lower 1,4-dioxane plume.

3.1.3 Grand River Sampling

The Grand River sample results indicate that 1,4-dioxane was detected in the northern sample (GR-North) at an estimated concentration of 0.081 µg/L. The sample from the southern location (GR-South) was non-detect for 1,4-dioxane (less than 0.2 µg/L). A figure showing the sample locations and analytical results is included in Appendix F.

These results support the hypothesis that low-level 1,4-dioxane is widespread in the Lansing area groundwater, and potentially pervasive within the bedrock aquifer. The low-level detections of 1,4-dioxane in the region may result from several regional and/or numerous nonpoint sources.

3.1.4 Municipal Well Sampling Results

The results of the Lansing Township well sampling indicate estimated (less than the laboratory RL) 1,4-dioxane concentrations of 0.13 to 0.15 µg/L in Lansing Township wells TWP-90-03 and TWP-90-04, respectively, and a detection of 0.28 µg/L in Lansing Township well TWP-90-05. Widespread 1,4-dioxane detections are potentially related to a 1,4-dioxane “background condition” in and around Lansing, as demonstrated by the low-level 1,4-dioxane sampling completed at the site, as well as the Grand River results outlined above. RACER will continue annual sampling of Lansing Township wells to monitor the stability of low-level 1,4-dioxane in the wells. The locations of the municipal wells are included in Appendix A.

3.2 Light Nonaqueous Phase Liquid Monitoring

LNAPL is present in the central portion of Plant 2 (Area 5-2) and in the north-central portion of Plant 3 (Area 17). LNAPL monitoring well locations and approximate extent of LNAPL are presented on figures in Appendix G. Trend plots indicate that in general, LNAPL (when present) gradually increases in thickness until reaching equilibrium within the well and then stabilizes. For the deeper LNAPL, the wells take longer

to equilibrate with the confined LNAPL conditions relative to the static water level within the formation. Based on the monitoring, there is no indication of LNAPL migration. Table 3 summarizes measured LNAPL thickness and Appendix G includes LNAPL trend plots.

3.2.1 Light Nonaqueous Phase Liquid Recovery

As outlined in the Summary of LNAPL Transmissivity Results and the 2015 LNAPL Removal Work Plan (Arcadis 2015a, 2015b), the low LNAPL transmissivity suggests that recoverability of the Plant 2 LNAPL is low. However, given that PCBs are present in the deeper LNAPL zone at elevated concentrations and the LNAPL accumulates at significant thickness in several wells due to the presence of confined LNAPL conditions, LNAPL had been manually recovered from several wells on a quarterly basis; as of April 2017, LNAPL is recovered monthly. LNAPL recovery from January through December 2017 is summarized in Table 4. In 2017, an estimated 113 gallons of LNAPL were recovered from the five wells meeting the criteria outlined as part of the 2015 LNAPL Removal Work Plan (Arcadis 2015b).

With monthly LNAPL recovery there has been a decrease in the thickness of accumulated LNAPL between recovery events at four of the five LNAPL recovery wells. With the exception of monitoring well LMW-14-12D, less than 0.5 gallon of LNAPL was removed from each of the remaining four recovery wells during the December 2017 event. Only two of the deep LNAPL wells, LMW-14-12D and LMW-14-15D, show consistent NAPL recovery when bailed monthly. Given the decrease in accumulated LNAPL thickness between monthly recovery events in the remaining wells, monthly recovery of deep LNAPL provides minimal benefit compared to quarterly recovery. RACER therefore proposes to reduce the frequency of LNAPL recovery to quarterly for LMW-12-03D and LMW-15-16D. LNAPL recovery will continue monthly for LMW-14-12D and LMW-14-15D. Recovery will be re-evaluated in the 2018 Semiannual Groundwater Monitoring Report.

In addition, LNAPL removal from monitoring well LMW-12-10, located at Plant 3, began during first quarter 2017. LNAPL had slowly accumulated in this well over a 6-year period since it was installed. LNAPL removal was completed from LMW-12-10 during the first and second quarter 2017 events. Following the initial two removal events, well LMW-12-10 has not accumulated significant LNAPL due to the slow recovery rates. RACER therefore proposes to discontinue planned LNAPL recovery from LMW-12-10 pending significant accumulation in the future.

3.3 Groundwater Elevation Monitoring

In general, three to four water-bearing zones are present at the site:

- *Perched zone*. Occurring within the fill, interbedded zone, and occasionally within the glacial till, between 5 and 30 feet bgs; can occur as shallow unconfined water within the fill material or under confined conditions within the interbedded zone or till.
- *Deep overburden (Plant 3 only)*. Unconfined saturated zone occurring at 65 to 70 feet bgs within deep unconsolidated sediment. This zone is hydraulically connected to the bedrock aquifer.
- *Weathered bedrock*. Although part of the bedrock, this zone is hydraulically distinct. The weathered zone varies in thickness between approximately 5 and 15 feet, based on degree of weathering, and consists of fully weathered to partially consolidated sandstone and shale. It is encountered at depths

ranging from 55 feet bgs at Plant 6 to 110 feet bgs in areas of Plant 3. This zone is more permeable than consolidated bedrock and provides a preferential pathway for migration of the lower 1,4-dioxane plume.

- *Bedrock*. The weathered bedrock transitions to consolidated bedrock at the site and is encountered at depths ranging from 55 feet bgs at Plant 6 to 110 feet bgs in areas of Plant 3. Depending on where it is encountered, the bedrock aquifer can be unconfined to confined, and has a potentiometric surface at approximately 65 to 70 feet bgs.

Table 5 summarizes groundwater elevation measurements collected at the site. Groundwater elevation trend graphs for key wells at each plant are provided in Appendix H. Trends within each water-bearing zone are discussed below.

3.3.1 Perched Zone

Due to the predominance of clay-rich sediment, the interbedded zone has an overall low permeability and is characterized by isolated sand zones within layers of silt and clay. The potentiometric surface measured within the perched zones is presented on Figure 5 (Plants 2 and 6) and Figure 6 (Plant 3). Both figures include groundwater contours for all wells less than 25 feet deep. The lower conductivity clay and silt that dominate this zone result in high horizontal and vertical gradients. Sand zones are discontinuous and often do not correlate from well to well, and minor variations in well screen elevation have a significant impact on the potentiometric surface. Therefore, although the contour maps represent the overall shallow potentiometric surface, they are of limited use to determine groundwater flow direction.

The trend graphs included in Appendix H indicate that groundwater elevations in the perched zone have been relatively stable at Plants 2 and 3. Groundwater elevations in perched wells on Plant 6 are more variable, with some wells showing a long-term increase in water levels potentially associated with the surface and subsurface modifications during demolition.

3.3.2 Deep Overburden

Saturated deep overburden is present only at Plant 3. Groundwater present within the deep overburden is hydraulically connected to the weathered bedrock and bedrock zones. Figure 7 presents groundwater elevation contours for deep overburden wells located on Plant 3. In the northern portion of Plant 3, the apparent groundwater gradient is northwesterly. Groundwater mounding is apparent beneath the coliseum with a component of groundwater flow to the southeast, consistent with the lower 1,4-dioxane distribution.

The trend graphs included in Appendix H indicate that groundwater elevations in certain deep overburden and weathered bedrock wells vary up to approximately 2 feet in recent years. Large steady increases in water levels were observed in deep overburden and weathered bedrock water levels between 2005 and 2013 and could be related to increased recharge through the site (post-demolition), as well as long-term trends in municipal pumping. Water level variations in deep overburden and weathered bedrock have been relatively stable since 2013.

3.3.3 Weathered Bedrock and Bedrock

Similar to the perched zone, the depth of a monitoring well within the weathered bedrock or bedrock zones plays a large role in the potentiometric head observed at a location. Large vertical gradients occur in formations with vertical anisotropy and indicate a lack of vertical groundwater communication. Traditional groundwater elevation contour maps were not prepared for the weathered bedrock wells or bedrock wells, because they would be of limited use for interpreting groundwater flow direction and transport.

For the bedrock (and by extension, the weathered bedrock), the effective head or "corrected" groundwater elevation can be calculated based on the observed vertical gradients. As indicated in Table 6, the vertical gradient tends to be limited near the coliseum and increases to the south to a maximum of 0.44 foot per foot (ft/ft) downward at wells MW-15-72/MW-12-05R (located in central Plant 2) before stabilizing to 0.54 ft/ft downward at wells MW-13-52/MW-13-50 (located on western Plant 6). This variation in vertical gradient appears to coincide with the transition between bedrock formations. Near the coliseum, where the bedrock encountered consists of the more uniform and permeable Grand River Formation, the vertical gradient is negligible. To the south, within the interbedded sandstone and shale of the Saginaw Formation, there is a significant vertical gradient due to the vertical anisotropy created by the interbedded shale and sandstone of the Saginaw Formation. Review of the bedrock wells and other deep boring logs suggests an approximate geologic contact between the Grand River and Saginaw Formations oriented roughly southwest-northeast. Figure 8 includes the interpreted location of the geologic contact.

To calculate the effective head for the bedrock (Figure 8), an average downward gradient 0.33 ft/ft was applied to bedrock monitoring wells installed within the Saginaw Formation, as follows:

$$GW_{eff} = GW - (dh/dl * \Delta Elev)$$

Where:

GW_{eff} = effective groundwater elevation

GW = measured groundwater elevation

dh/dl = vertical gradient

ΔElev = change in elevation between deepest well and measured well

As shown on Figure 8, the corrected bedrock groundwater contours are a good match for the distribution of the lower 1,4-dioxane plume located within the weathered bedrock zone. Additional bedrock wells MW-12-05R and MW-17-87, constructed in 2017, show a potentiometric high in central Plant 2, which has not been observed prior to inclusion of the new wells. The potentiometric high in central Plant 2 correlates to the area where the lower 1,4-dioxane plume begins to stagnate and widen as it moves to the south. An effective head map specifically for the weathered bedrock zone is difficult to calculate because the relative heterogeneity of the zone limits the use of a specific weathered bedrock correction factor. However, the distribution of 1,4-dioxane within the weathered bedrock is consistent with a groundwater flow from north to south as shown by the bedrock contour map (Figure 8).

Groundwater elevation trend graphs for select bedrock wells are included in Appendix H. Similar to the weathered bedrock wells, long-term trends suggest variable potentiometric head changes in bedrock, likely due to changes in municipal pumping.

4 GROUNDWATER PLUME STABILITY

RACER completed a preliminary geochemical and plume stability assessment for groundwater at the site in April 2014 (Arcadis 2014b). The primary objective of this assessment was to provide an initial evaluation of plume stability and determine the suitability of monitored plume stability as a remedial alternative. The preliminary plume stability assessment used data collected between October 2011 and first quarter 2014, as well as geochemical data collected during the August and September 2013 event.

Updated plume stability assessments were completed using the most recent analytical results:

- 2014-2015 Annual Groundwater Monitoring Report (Arcadis 2015d), incorporating additional data collected during 2014 and first quarter 2015.
- 2015-2016 Annual Groundwater Monitoring Report (Arcadis 2016a), incorporating additional data collected during 2015 and first quarter 2016.
- 2016 Annual Groundwater Monitoring Report (Arcadis 2017b), incorporating additional data collected during second quarter through fourth quarter 2016.

Results of the previous four site-wide plume stability assessments were consistent and demonstrate that the increasing trends are generally limited to 1,4-dioxane in select weathered bedrock wells and non-site-related metals mobilized by natural fluctuations in groundwater chemistry. The plume stability assessment presented in this section represents an updated analysis of time-series concentration trends using data collected through fourth quarter 2017.

The updated statistical analysis of dissolved-phase COC concentrations with time was completed using the Mann-Kendall slope trend test, consistent with the methodology used in previous evaluations. Per the IGMP (Arcadis 2017a), the updated analysis was limited to monitoring wells with COCs that have shown increasing trends during the previous analysis, boundary wells, and new wells that did not have enough samples at the time of the previous analysis. In addition to the new limitations mentioned above, wells and COCs met the following criteria for evaluation:

- At least four sampling events have been completed.
- At least 65 percent of the sampling results were greater than detection limits (minimum of three sampling results greater than detection limits).
- At least one detection in the dataset exceeded the lowest criteria.

The plume stability assessment was completed in accordance with USEPA guidance (USEPA 2009). Correlations were accepted as significant for p-values less than or equal to 0.10 (90 percent confidence level). If no trend was identified, concentrations were reviewed visually and, if appropriate, noted as likely stable. Additional information regarding the Mann-Kendall analysis and methods is provided in the 2014 Preliminary Groundwater Geochemical and Plume Stability Assessment (Arcadis 2014b).

The following updated plume stability evaluation includes the following information:

- Table 7 presents comprehensive Mann-Kendall analysis results.
- DW criteria exceedances during the 2017 sampling events are shown on the figures provided in Appendix B.
- The overall trend results are shown on Figures 9, 10, and 11.
- Appendix H presents plots of concentrations through time for all well/COC pairs meeting criteria for trend analysis.

4.1 Perched Zone

4.1.1 1,4-Dioxane

The 1,4-dioxane plume appears to be stable to decreasing within the perched zone as demonstrated by the 2014 preliminary plume stability evaluation, 2014-2015 plume stability evaluation, 2015-2016 plume stability evaluation, and 2016 plume stability evaluation (Arcadis 2014b, 2015d, 2016a, 2017b, respectively). Additional statistical analysis of perched 1,4-dioxane concentrations is not warranted at this time.

4.1.2 Volatile Organic Compounds

Concentrations of VOCs in the perched zone are sporadic and a large plume footprint was not observed; rather, VOC concentrations in groundwater greater than DW criteria are limited to discrete source areas (e.g., Area 2, Area 9) and areas immediately surrounding observed LNAPL. Review of VOC data found that the criteria for statistical assessment were met for only one location in Area 9. An increasing benzene trend was identified in MWBP-12-UST1-4. This well is near the southern property boundary of Plant 6. Nearby well MWBP-12A-UST1-4, between MWBP-12-UST1-4 and the property boundary, has not yielded detectable benzene concentrations during recent sampling events. RACER will continue monitoring MWBP-12-UST1-4 and MWBP-12A-UST1-4 to ensure that benzene is not migrating toward the site boundary.

4.1.3 Metals

During the previous four plume stability assessments, the majority of statistical analyses run on concentrations of metals in perched zone monitoring wells were determined to be decreasing or exhibit no trend, suggesting overall stability in metals impacts greater than criteria. Most of the exceedances are within or near areas with VOC or LNAPL impacts, and increasing trends generally occur where VOC impacts are sufficient to cause a shift to more reducing geochemical conditions. Because VOC impacts and LNAPL are spatially limited, metals impacts are as well. Additionally, the low concentrations observed in VOC-impacted areas (e.g., failure to meet the criteria listed at the beginning of this section for inclusion in this analysis) indicated that VOCs are unlikely to be a long-term driver of reducing conditions, and a geochemical shift toward slightly more oxidizing conditions is anticipated where many of the observed metal species are less mobile. The trend evaluation for metals focused on monitoring wells near the site boundary to evaluate the potential for off-site metal impacts. The following increasing trends were

observed, with remaining monitoring wells at the site boundary exhibiting stable to decreasing concentrations of metals:

- Arsenic in MW-12-16, located in the southern right-of-way of Michigan Avenue across the street from the Plant 6 boundary, was detected at concentrations of 0.017 and 0.051 mg/L in April and December 2017, respectively. Arsenic at this location is within the range of state-wide background concentrations (Cummings 1989), and water levels measured at wells within the same sand unit at Area 9 show a consistent gradient to the north (flow onto the site), suggesting that the arsenic detected in MW-12-16 is not site-related. As agreed upon with the MDEQ (pers. com., February 24, 2017), additional evaluation beyond continued monitoring is not required for the area. RACER recommends reducing the monitoring frequency for MW-12-16 to biennial events.
- Arsenic in MWBP-10-UST5-6, located northwest of MW-12-16 along the southern Plant 6 boundary, was detected at concentrations of 0.038 and 0.051 mg/L in April and December 2017, respectively. Arsenic at this location is within the range of state-wide background concentrations (Cummings 1989), and water levels measured at wells within the same sand unit at Area 9 show a consistent gradient to the north (flow onto the site), suggesting that the arsenic detected in MW-12-16 is not site-related. As agreed upon with the MDEQ (pers. com., February 24, 2017), additional evaluation beyond continued monitoring is not required for the area, and RACER recommends reducing the monitoring frequency for MWBP-10-UST5-6 to biennial events.

4.2 Deep Overburden and Weathered Bedrock

4.2.1 1,4-Dioxane

Eight weathered bedrock and deep overburden wells exhibited increasing trends for 1,4-dioxane (MW-13-25, MW-13-34, MW-13-45, MW-13-48, MW-14-56, MW-16-81, PW-14-01, and TW-16-01). Since the initial plume stability assessment in 2014, concentrations within the lower 1,4-dioxane plume are generally shifting toward decreasing or stable trends. Monitoring wells near the edge of the plume with increasing trends, such as MW-13-25, show decreased concentrations during recent sampling events and are stabilizing.

Deep overburden monitoring well MW-13-25 is located on Plant 3 near the southwest edge of the plume, south of the source area. Low concentrations during 2013 and 2014, combined with increases during 2015 and 2016, result in an increasing trend at MW-13-25; however, 1,4-dioxane concentrations have been decreasing since fourth quarter 2016.

MW-13-34 and MW-13-48 are nested at the Plant 3 property boundary and installed within the weathered bedrock and deep overburden, respectively. Both wells exhibit increasing 1,4-dioxane trends. Concentrations in MW-13-34 have been slowly increasing since initial sampling in 2013. After steadily increasing from initial sampling (2013) through March 2015, concentrations in MW-13-48 have been gradually decreasing. 1,4-dioxane concentrations at this location are expected to continue to stabilize in the same manner as the rest of the plume core.

Monitoring wells MW-15-73 and MW-13-45 are located within the weathered bedrock toward the west and east extents of the lower 1,4-dioxane plume. Together with monitoring well MW-13-43, which is located along the plume axis, they comprise a transect across the plume. MW-15-73 was installed as a

replacement for MW-13-42, and sampling of MW-13-42 has been discontinued per the IGMP (Arcadis 2017a) for this reason. MW-15-73 has shown consistent detections of 1,4-dioxane, less than the DW criterion of 7.2 µg/L, since installation in 2015. Concentrations in MW-13-45 have been stabilizing since late 2015.

MW-14-56, a weathered bedrock well located along the western property boundary of Plant 2, shows an increasing trend of low (6 to 10 µg/L) 1,4-dioxane concentrations.

Monitoring well MW-15-72 is screened in the weathered bedrock to the west of the Plant 2 LNAPL, where the lower 1,4-dioxane plume diverges into three separate lobes as detailed in the Lower 1,4-Dioxane Toe Investigation and the Supplemental Lower 1,4-Dioxane Toe Investigation Reports (Arcadis 2016b, 2016c). Initial evaluation of MW-15-72 shows no trend. As part of the 2016 supplemental toe investigation, two weathered bedrock monitoring wells (MW-16-81 and MW-16-84) were installed to monitor other sub-lobes of the lower 1,4-dioxane plume. 1,4-Dioxane has remained stable since the initial sampling at MW-16-84. 1,4-Dioxane concentrations in MW-16-81 have been steadily increasing since initial sampling in 2016. An additional weathered bedrock monitoring well (MW-16-80), installed along the western Plant 2 property boundary, has remained stable since installation in 2016. 1,4-Dioxane has not been detected in the remaining weathered bedrock sentinel wells installed as part of the 2016 supplemental toe investigation including MW-16-74, MW-16-75, MW-16-76, MW-16-77, MW-16-78, MW-16-79, and MW-16-83.

Biosparge remediation pilot tests completed in 2016 and late-2017 (ongoing) targeted 1,4 dioxane in select areas of the weathered bedrock plume. Wells that may have been influenced by the pilot tests are excluded from the plume stability evaluation. Wells excluded from trend analysis due to the biosparge pilots include PW-14-01, TW-14-02, and TW-16-01.

4.2.2 Metals

In general, concentrations of metals appear to be stable or decreasing. No metals plume could be identified in the deep overburden and weathered bedrock, and concentrations of metals greater than criteria were present at discrete locations only. Spatially limited increasing trends in arsenic concentrations remain near Areas 14 and 17, but can be attributed to minor shifts in geochemistry, are generally within the range of state-wide levels (Cummings 1989), and are not site-related (i.e., not related to the presence of any VOCs or any known metal source). The majority of identified exceedances are close to the DW criteria.

4.3 Bedrock

Previous plume stability assessments demonstrated that metals exceedances in bedrock wells are sporadic and intermittent with few discernible trends, and concentrations are generally considered stable, with detected exceedances near DW criteria. Exceedances and the increasing arsenic trend are not collocated with any known metals sources or impacts of VOCs and do not appear to be site-related; rather, they are likely due to natural fluctuations in geochemistry of the bedrock zone.

4.4 Plume Stability Assessment Summary

The results of the updated statistical analysis are consistent with the findings of the 2016 plume stability assessment completed as part of the 2016 Annual Groundwater Monitoring Report (Arcadis 2017b) as well as prior plume stability analyses (Arcadis 2014b, 2015d, and 2016a). Results of the updated evaluation are summarized as follows:

- There is no discernable metals plume in the perched zone, deep overburden, weathered bedrock, or bedrock zones; and trends in metals concentrations are not apparent. Where increasing trends in metals concentrations are present, they are not an indication of an expanding plume.
- Elevated concentrations of metals in the perched zone appear to be a result of minor shifts in site geochemistry and have largely been noted as a regional issue, particularly in the case of arsenic.
- Concentrations of VOCs in the perched zone are spatially limited or associated with identified LNAPL. Concentration trends suggest that VOC concentrations in the perched zone are stable.
- Concentrations of 1,4-dioxane in the perched zone are considered stable based prior plume stability evaluations (Arcadis 2014b, 2015d, 2016a, 2017b). With the exception of MW-14-58 at Plant 2, 1,4-dioxane has not been detected in monitoring wells installed around the perimeter of the perched plume. Due to the proximity of MW-14-56 to perched 1,4-dioxane impacts associated with the APC Site, the concentrations observed likely represent a comingled plume.
- Concentrations of 1,4-dioxane along the core of the deep overburden and weathered bedrock are generally stable or are stabilizing.
- Rates of biodegradation of 1,4-dioxane are typically slower than for other VOCs, and longer time-series datasets are required to appropriately identify decreasing trends over inherent variability and thus determine rates of degradation. Overall, the plume appears to be stabilizing and several monitoring wells that historically exhibited increasing trends (e.g., MW-13-22, PW-14-03, MW-13-43) are now stable. This trend is expected to continue as more data become available.
- Potential comingling of site impacts and impacts associated with the APC Site confounds delineation to the west of Plant 2, and 1,4-dioxane trends observed along the western property do not provide an accurate indication of lower 1,4-dioxane and perched plume stability.

5 CONCLUSIONS

This Annual Report summarizes the groundwater monitoring activities completed between January and December 2017, consistent with the IGMP (Arcadis 2017a). Based on the results of the sampling and review of the plume stability evaluation, RACER offers the following conclusions:

- *Groundwater potentiometric surface maps*. Contour maps for the three saturated zones at the site show a complex hydrogeologic system. The potentiometric surface in the perched zone has been relatively stable to increasing since monitoring began at the site. Potentiometric trends within the lower zones (deep overburden, weathered bedrock, and bedrock) are variable, likely related to changes in municipal pumping.

- *LNAPL*. Trend plots indicate that, when present, LNAPL gradually increases in thickness until reaching equilibrium within the well and stabilizing; there is no indication of LNAPL migration.
- *Analytical results*. Groundwater sample results indicate that concentrations of several VOCs and metals exceed residential DW criteria during at least one monitoring event at the site. Other than nickel, arsenic, lead, vanadium, and 1,4-dioxane, impacts noted at the property boundary do not exceed current DW criteria. Elevated concentrations of metals are in most cases a result of natural geochemical conditions and/or slight shifts in site geochemistry associated with the presence of VOCs. The exception is nickel on the eastern boundary of Plant 3, which is attributed to off-site activities. 1,4-Dioxane concentrations at the western Plant 2 property boundary are located near the APC Site and may be attributed to off-site conditions as well.
- *Bedrock low-level and Grand River 1,4-dioxane sampling*. The low-level bedrock 1,4-dioxane sampling demonstrates consistently low concentrations of 1,4-dioxane in bedrock related to the lower 1,4-dioxane plume, with a two to three order of magnitude reduction in concentration between the more permeable weathered bedrock zone (typically ranging from 5 to 10 feet thick) and the shallow competent bedrock. The results confirm that 1,4-dioxane is not migrating off site at concentrations greater than the DW criteria of 7.2 µg/L. These results also support the hypothesis that low-level 1,4-dioxane is widespread in Lansing area groundwater, and likely pervasive within the bedrock aquifer. The low-level detections of 1,4-dioxane in the region may result from several regional and/or numerous nonpoint sources.
- *Municipal well sampling*. Lansing Township wells TWP-90-03, TWP-90-04, and TWP-90-05 were sampled in December 2017 for low-level 1,4-dioxane using USEPA Method 522 (laboratory RL of 0.2 µg/L). Estimated concentrations of 1,4-dioxane (0.13 µg/L to 0.15 µg/L) were less than the laboratory RL in Lansing Township wells TWP-90-03 and TWP-90-04 and a detection of 0.28 µg/L was reported at Lansing Township well TWP-90-05. Widespread 1,4-dioxane detections are likely related to a 1,4-dioxane “background condition” in and around Lansing. RACER will continue annual sampling of Lansing Township wells to monitor the stability of low-level 1,4-dioxane in the wells.
- *Plume stability*. Results of the updated statistical analysis are consistent with the findings of the 2016 plume stability assessment (Arcadis 2017b).
    - Concentrations of 1,4-dioxane in the perched zone are considered stable based on analysis of the existing dataset. With the exception of MW-14-58, which is located near the perched 1,4-dioxane plume at the APC Site, 1,4-dioxane has not been detected in monitoring wells installed around the perimeter of the perched plume. Concentrations of 1,4-dioxane along the core of lower 1,4-dioxane plume are stable or are stabilizing. Several monitoring wells that historically exhibited increasing trends (e.g., MW-13-22, PW-14-03, MW-13-43) are now stable to decreasing. This trend is expected to continue for other wells such as MW-13-48, which shows an overall increasing 1,4-dioxane trend, but has seen consistent concentration decreases since 2015.
    - The proximity and lack of delineation for the perched and weathered bedrock 1,4-dioxane plumes associated with the APC Site results in uncertainty regarding the degree of comingling with the site plumes along western Plant 2. Comingling of site impacts and impacts associated with the

APC Site confounds delineation west of Plant 2, and 1,4-dioxane trends observed along the western property boundary do not provide an accurate indication of plume stability.

Based on the conclusions presented above, no immediate action is recommended other than the following revisions to the 2017 Revised IGMP Work Plan and 2015 LNAPL Removal Work Plan (Arcadis 2017a, Arcadis 2015b):

- *Southern Plant 6 boundary*. Reduction of sampling frequency for MW-12-16 and MWBP-10-UST5-6 from semiannual to biennial. Wells MW-12-16 and MWBP-10-UST5-6 are screened in a confined sand unit at approximately 30 feet bgs, which intersects two other monitoring wells nearby. Groundwater elevations for these wells have consistently shown a northerly flow onto the site since 2014. Based on the hydraulic isolation of this well and the apparent northerly groundwater flow direction, the MDEQ agrees that arsenic at this location is related to regional background conditions and is not associated with site impacts.
- *LNAPL recovery*. Reduction in LNAPL recovery frequency from monthly to quarterly for wells LMW-12-03D and LMW-15-16D on Plant 2. With the addition of monthly LNAPL recovery in 2017, there has been a significant decrease in the thickness of accumulated LNAPL between recovery events at LMW-12-03D and LMW-15-16D. Given the decrease in accumulated LNAPL between events, monthly recovery of deep LNAPL provides minimal benefit over the alternative of quarterly recovery for these wells.
- *LNAPL recovery*. Well LMW-12-10 located at Plant 3 has not accumulated significant LNAPL since initial removal completed in first quarter 2017. RACER therefore proposes to discontinue planned LNAPL recovery from LMW-12-10 pending significant accumulation in the future.
- *Plant 3 PFAS*. RACER is currently investigating PFAS impacts identified in the perched zone at Plant 3. Additional monitoring wells will be installed in 2018 following delineation of the groundwater plume. In the meantime, perched well CH-14-RO and deep overburden wells MW-02-04(3) and MW-91-2 will be added to the sampling plan and sampled semiannually for PFAS.

6 REFERENCES

Arcadis. 2011a. Field Sampling Plan. RACER Trust, Lansing, Michigan Plants 2, 3, and 6 Industrial Land. August 26.

Arcadis. 2011b. Resource Conservation and Recovery Act Facility Investigation (RFI) Work Plan (Phase 1). RACER Trust, Lansing, Michigan Plants 2, 3, and 6 Industrial Land. August 26.

Arcadis. 2011c. Quality Assurance Project Plan. RACER Trust, Lansing, Michigan Plants 2, 3, and 6 Industrial Land. August 26.

Arcadis. 2014a. Revised Interim Groundwater Monitoring Work Plan. RACER Trust, Plants 2, 3, and 6, Lansing, Michigan. November 11.

Arcadis. 2014b. Preliminary Groundwater Geochemical and Plume Stability Assessment. Plants 2, 3, and 6, Industrial Land, Lansing, Michigan. April 24 (as amended).

Arcadis. 2015a. Memorandum, Re: Summary of LNAPL Transmissivity Results. RACER Trust Plant 2, Lansing, Michigan. March 30.

Arcadis. 2015b. LNAPL Removal Work Plan. RACER Trust Plant 2, Lansing, Michigan. March 4.

Arcadis. 2015c. Memorandum, Re: Area 16 Evaluation of Nickel in Groundwater. RACER Trust Plant 3, Lansing, Michigan. May 1.

Arcadis. 2015d. 2014-2015 Annual Groundwater Monitoring Report. RACER Trust Plants 2, 3, and 6, Lansing, Michigan. June 26.

Arcadis. 2016a. 2015-2016 Annual Groundwater Monitoring Report. RACER Trust Plants 2, 3, and 6, Lansing, Michigan. June 27.

Arcadis. 2016b. Lower 1,4-Dioxane Plume Toe Investigation Report. RACER Trust Plant 2, Lansing, Michigan. March 11.

Arcadis. 2016c. Supplemental Lower 1,4-Dioxane Plume Toe Investigation Report. RACER Trust Plant 2, Lansing, Michigan. September 21.

Arcadis. 2017a. Revised Interim Groundwater Monitoring Workplan. RACER Trust Plants 2, 3, and 6, Lansing, Michigan. January 30.

Arcadis. 2017b. 2016 Annual Groundwater Monitoring Report. RACER Trust Plants 2, 3, and 6, Lansing, Michigan. May 5.

Cummings, T.R. 1989. Natural Groundwater Quality in Michigan, 1974-1987. USGS Open File Report 89-259.

MDEQ. 2004. RRD Op Memo 2, Attachment 5 - Michigan Department of Environmental Quality. Remediation and Redevelopment Division. Operational Memorandum No.2. Sampling and Analysis – Attachment 5. October 22, 2004.

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. EPA 530/R-09-007. March.

TABLES

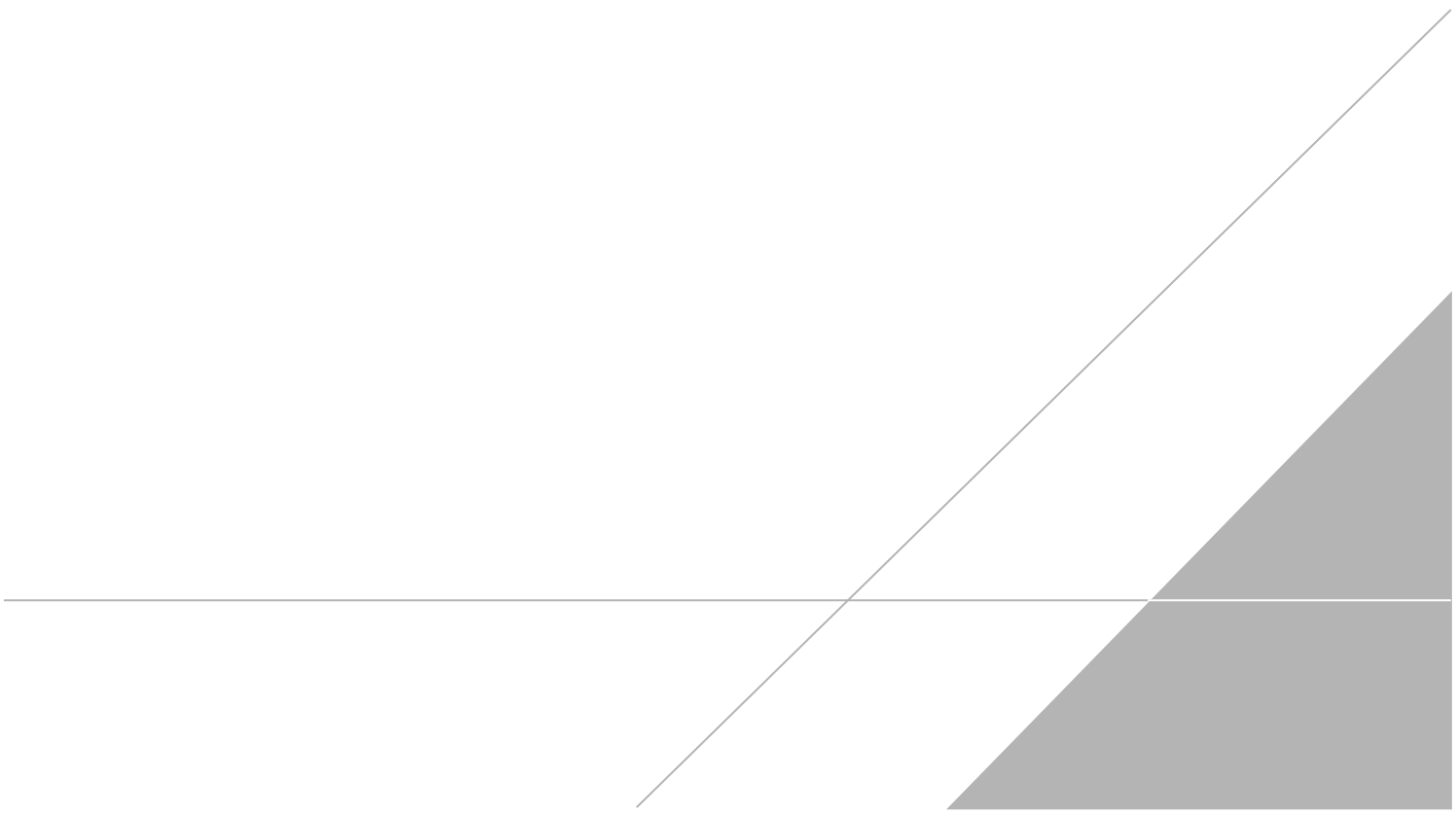


Table 1
Revised Interim Groundwater Monitoring Summary
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well	Gauging*	Analyte				Primary Function
		VOCs	1,4-Dioxane	Select Metals**	SVOCs†	
Plant 2						
Perched						
MW-01(2)	A	A				VOC sentinel
MW-03(2)	A	B		B		groundwater elevation monitoring
MW-12-09	A	B	A			perched 1,4-dioxane sentinel
MW-12-18	SA	SA		B		VOC sentinel
P2-MW-04	A		A		B†	perched 1,4-dioxane monitoring, SVOC evaluation
P2-SB-20	A	B	A			perched 1,4-dioxane sentinel
LMW-12-01	Q					LNAPL Monitoring
LMW-12-02	Q					LNAPL Monitoring
LMW-12-03D	Q					LNAPL Monitoring
LMW-12-03S	Q					LNAPL Monitoring
LMW-12-04	Q					LNAPL Monitoring
LMW-12-05	Q					LNAPL Monitoring
LMW-12-06	Q					LNAPL Monitoring
LMW-12-07	Q					LNAPL Monitoring
LMW-12-08	Q					LNAPL Monitoring
LMW-14-12D	Q					LNAPL Monitoring
LMW-14-13D	Q					LNAPL Monitoring
LMW-14-14D	Q					LNAPL Monitoring
LMW-14-15D	Q					LNAPL Monitoring
LMW-15-16D	Q					LNAPL Monitoring
LMW-15-17D	Q					LNAPL Monitoring
PMW-01	Q					LNAPL Monitoring
PMW-02	Q					LNAPL Monitoring
PMW-03	Q					LNAPL Monitoring
P2-SB-37	Q					LNAPL Monitoring
MW-02(2)	A	B			B†	SVOC evaluation
MW-12-07	A	B				groundwater elevation monitoring
MW-12-08	A					groundwater elevation monitoring
MW-12-17	A	B				groundwater elevation monitoring
P2-MW-01	A					groundwater elevation monitoring
P2-MW-02	A	B				groundwater elevation monitoring
P2-MW-03	A					groundwater elevation monitoring
P2-SB-03	A	B	B			groundwater elevation monitoring
P2-SB-06	A		B		B†	SVOC evaluation
MW-14-54	A	A			B†	VOC monitoring, SVOC evaluation
MW-14-55	A	A				VOC monitoring
MW-14-57	A	A	A			perched 1,4-dioxane monitoring
MW-14-58	SA	A	SA			perched 1,4-dioxane monitoring
MW-14-59	A	A	A		B†	perched 1,4-dioxane monitoring, SVOC evaluation
MW-14-60	A	A	A		B†	perched 1,4-dioxane monitoring, SVOC evaluation
MW-14-62	A	A	A		B†	perched 1,4-dioxane monitoring, SVOC evaluation
Deep Overburden and Weathered Bedrock						
MW-13-42	A					groundwater elevation monitoring
MW-13-43	SA		SA			lower 1,4-dioxane monitoring
MW-13-45	SA	B	SA			lower 1,4-dioxane monitoring
MW-13-51	A		B			groundwater elevation monitoring
MW-14-56	SA	B	SA	B		lower 1,4-dioxane sentinel
MW-14-61	A	B	A			lower 1,4-dioxane sentinel
MW-14-63	SA	B	SA			lower 1,4-dioxane sentinel
MW-15-72	SA	A	SA			lower 1,4-dioxane monitoring, <4 samples‡
MW-15-73	SA	A	SA	B		lower 1,4-dioxane sentinel, <4 samples‡
MW-16-74	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-75	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-76	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-77	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-78	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-79	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-80	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-81	Q	SA	Q			lower 1,4-dioxane monitoring, <4 samples‡
MW-16-82	Q	SA	Q			lower 1,4-dioxane monitoring, <4 samples‡
MW-16-83	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
MW-16-84	Q	SA	Q			lower 1,4-dioxane monitoring, <4 samples‡
MW-16-85	SA	A	SA			lower 1,4-dioxane sentinel, <4 samples‡
PW-14-01	SA		SA			lower 1,4-dioxane monitoring
PW-14-02	SA	A	SA			lower 1,4-dioxane monitoring
TW-14-02						
Bedrock						
MW-12-01	SA	B	SA			bedrock sentinel
MW-12-02	SA	B	SA			bedrock sentinel
MW-12-05	SA	B	SA			bedrock sentinel
MW-13-44	SA	B	SA			bedrock sentinel
MW-12-06	SA	B	SA			bedrock sentinel
Lansing Township Wells						
TWP-03	-		A[(a)]			Municipal Well
TWP-04	-		A[(a)]			Municipal Well
TWP-05	-		A[(a)]			Municipal Well

Notes:

[a] Analyzed for 1,4-dioxane via low-level United States Environmental Protection Agency Method 522.

1. New wells will be added to the figures and incorporated into the annual monitoring once four samples are collected and a constituent of concern list is determined.

A = annual

B = biennial (starting second quarter 2018)

LNAPL = light nonaqueous phase liquid

Q = quarterly

RACER = Revitalizing Auto Communities Environmental Response

SA = semiannual

SVOC = semivolatile organic compound

VOC = volatile organic compound

* Site-wide gauging to alternate between semiannual events to account for seasonal variability. Semiannual gauging includes all wells sampled semiannually.

** Select metals include arsenic, nickel, lead, vanadium, chromium, and copper.

[†] SVOCs will be sampled every other biennial event, or once every 4 years (first event: 2020)

[‡] New wells will be sampled semiannually until sampling frequency is reevaluated after collection of four data points.

< = less than

- = Not Guaged

Table 1
Revised Interim Groundwater Monitoring Summary
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		VOCs	1,4-Dioxane	Select Metals**	Hexavalent Chromium	SVOCs†	
Plant 3							
Perched							
CH-14-RO	A	B		A	A		metals monitoring
MW-05(3)	A	A					VOC sentinel
MW-06(3)	A	A				B†	VOC sentinel, SVOC evaluation
MW-13-31	SA			SA		B†	boundary monitoring, SVOC evaluation
MW-13-32	SA			SA			boundary monitoring
MW-13-33	A			B			boundary monitoring
UNK-09	A						groundwater elevation monitoring
UNK-10	A	A				B†	VOC sentinel, SVOC evaluation
UNK-11	A	A		B			VOC sentinel
LMW-12-09	Q						LNAPL Monitoring
LMW-12-10	Q						LNAPL Monitoring
LMW-12-11	Q						LNAPL Monitoring
UNK-13	Q						LNAPL Monitoring
UNK-14	Q						LNAPL Monitoring
MW-04(3)	A						groundwater elevation monitoring
MW-12-19	A						groundwater elevation monitoring
P3-SB-07	A						groundwater elevation monitoring
P3-SB-28	A	B				B†	SVOC evaluation
UNK-15	A						groundwater elevation monitoring
MW-14-65	A	A				B†	VOC sentinel, SVOC evaluation
Deep Overburden and Weathered Bedrock							
MW-12-20	A	B	B				lower 1,4-dioxane sentinel
MW-12-21	SA	A	SA	B			lower 1,4-dioxane monitoring
MW-13-22	A	A	A				lower 1,4-dioxane monitoring
MW-13-23	A		A				lower 1,4-dioxane sentinel
MW-13-24	A		A				lower 1,4-dioxane sentinel
MW-13-25	SA	B	SA				lower 1,4-dioxane monitoring
MW-13-26	A		B				lower 1,4-dioxane sentinel
MW-13-29	A		A				lower 1,4-dioxane monitoring
MW-13-30	A	B	B				lower 1,4-dioxane sentinel
MW-13-34	SA	A	SA				lower 1,4-dioxane monitoring
MW-13-40	A		A				lower 1,4-dioxane/metals sentinel
MW-13-41	A		A	B			lower 1,4-dioxane/metals sentinel
MW-13-46	SA	B	SA				lower 1,4-dioxane monitoring
MW-13-48	SA	A	SA				lower 1,4-dioxane monitoring
MW-13-49	A	B	A				lower 1,4-dioxane
MW-19	A	B	A				lower 1,4-dioxane sentinel
MW-22	A	B	B	A			metals sentinel
MW-23	A	B	B	A			metals sentinel
MW-91-2	A	B	A	A	A		lower 1,4-dioxane/metals sentinel
MW-02-02(3)	A	B	A	B			lower 1,4-dioxane sentinel
MW-02-04(3)	A		A	B			lower 1,4-dioxane sentinel
MW-02-01(3)	A						groundwater elevation monitoring
MW-02-03(3)	A						groundwater elevation monitoring
MW-04-03(3)	A	B					VOC Sentinel
MW-04-04(3)	A	B					VOC Sentinel
MW-13-27	A						groundwater elevation monitoring
MW-14-64	A	B	A				lower 1,4-dioxane sentinel
MW-15-71	A		A				lower 1,4-dioxane sentinel
PW-14-03	SA	A	SA				lower 1,4-dioxane monitoring
Bedrock							
MW-91-5	SA	B	SA				bedrock sentinel
MW-91-6	SA	B	SA				bedrock sentinel
MW-13-28	SA	B	SA				bedrock sentinel
MW-13-38	SA	B	SA				bedrock sentinel
MW-13-39B	A						groundwater elevation monitoring
MW-13-47	SA	B	SA				bedrock sentinel
MW-04-01(3)	A	B	B				bedrock sentinel
MW-04-02(3)	A	B					bedrock sentinel
MW-12-04	A						groundwater elevation monitoring
MW-13-37	A						groundwater elevation monitoring
MW-88-1	A						groundwater elevation monitoring
MW-91-3	A	B	B				bedrock sentinel
MW-91-4	A	B					bedrock sentinel

Notes:

1. New wells will be added to the figures and incorporated into the annual monitoring once four samples are collected and a constituent of concern list is determined.

A = annual

B = biennial (starting second quarter 2018)

Q = quarterly

RACER = Revitalizing Auto Communities Environmental Response

SA = semiannual

SVOC = semivolatile organic compound

VOC = volatile organic compound

* Site-wide gauging to alternate between semiannual events to account for seasonal variability. Semiannual gauging includes all wells sampled semi-annually.

** Select metals include arsenic, nickel, lead, vanadium, chromium, and copper.

† SVOCs will be sampled every other biennial event, or once every 4 years (first event: 2020)

Table 1
Revised Interim Groundwater Monitoring Summary
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		VOCs	1,4-Dioxane	Select Metals**	TAL Metals***	SVOCs†	
Plant 6							
Perched							
MW-02-03(6)	A	A	A			B†	perched 1,4-dioxane monitoring, SVOC evaluation
MW-03-04	A	B	A				perched 1,4-dioxane monitoring
MW-03-06	A	A	A	B		B†	perched 1,4-dioxane sentinel, SVOC evaluation
MW-03-08	A	A	A				perched 1,4-dioxane/ VOC monitoring
MW-04-05(6)	A	A	A	B			perched 1,4-dioxane/ VOC sentinel
MW-12-11	SA			SA			boundary monitoring
MW-12-12	SA			SA			boundary monitoring
MW-12-13	SA			SA			boundary monitoring
MW-12-16	SA	B		SA			boundary monitoring
MW-13-35	SA	B		SA			boundary monitoring
MW-13-36R	SA			SA			boundary monitoring
MWBP-10-UST5-6	SA	A		SA			boundary monitoring
MWBP-11-UST1-4	A	A		B			VOCs/metal monitoring
MWBP-12A-UST1-4	A	A		B			VOCs/metal monitoring
MWBP-12-UST1-4	A	A		B		B†	VOCs/metal monitoring, SVOC evaluation
P6-SB-18	A						groundwater elevation monitoring
P6-SB-35	A						groundwater elevation monitoring
P6-SB-37	A						groundwater elevation monitoring
MW-02-01(6)	A						groundwater elevation monitoring
MW-02-02(6)	A					B†	SVOC evaluation
MW-03-02	A			B			groundwater elevation monitoring
MW-03-05	A	A	A				perched 1,4-dioxane sentinel
MW-03-07	A						groundwater elevation monitoring
MW-12-09	A						groundwater elevation monitoring
MW-12-10	A						groundwater elevation monitoring
MW-12-14	A						groundwater elevation monitoring
MW-12-15	A	B					groundwater elevation monitoring
MWBP-12-UST5-6	A						groundwater elevation monitoring
MWBP-13A-UST1-4	A	B		B			groundwater elevation monitoring
P6-MW-01	A						groundwater elevation monitoring
P6-SB-07	A					B†	SVOC evaluation
P6-SB-21	A						groundwater elevation monitoring
SME-MW-02	A						groundwater elevation monitoring
MW-14-66	A	B		B			perched 1,4-dioxane/metals sentinel
MW-14-67	A	B		B			perched 1,4-dioxane/metals sentinel
MW-14-68	A						sentinel (DRY)
MW-14-69	A						sentinel (DRY)
MW-14-70	A						groundwater elevation monitoring
Deep Overburden and Weathered Bedrock							
MW-13-52	A	B	B				groundwater elevation monitoring
MW-13-53	A	B	B				groundwater elevation monitoring
Bedrock							
MW-04-01(6)	A	B	B				bedrock sentinel
MW-04-04R	A	B	B				bedrock sentinel
MW-04-06R	A	B	B				bedrock sentinel
MW-12-03	A						groundwater elevation monitoring
MW-13-50	A	B	B				bedrock sentinel
Storm Sewer							
P6-MH2-SW	A	A	A		A		Storm sewer GSI monitoring

Notes:

1. New wells will be added to the figures and incorporated into the annual monitoring once four samples are collected and a constituent of concern list is determined.

A = annual
B = biennial (starting second quarter 2018)
GSI = Groundwater/Surface Water Interface
Q = quarterly
RACER = Revitalizing Auto Communities Environmental Response
SA = semiannual
SVOC = semivolatile organic compound
VOC = volatile organic compound
* Site-wide gauging to alternate between semiannual events to account for seasonal variability. Semiannual gauging includes all wells sampled semiannually.
** Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.
***TAL metals defined in Table 3 of the Quality Assurance Project Plan (Arcadis 2011).
† SVOCs will be sampled every other biennial event, or once every 4 years (first event: 2020)

Reference:

Arcadis. 2011. Quality Assurance Project Plan. RACER Trust, Lansing, Michigan Plants 2, 3, and 6 Industrial Land. August 26.

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	AS-16-01 04/27/17 AS-16-01_042717	AS-16-01 08/31/17 AS-16-01_083117	AS-16-01 12/06/17 AS-16-01_120617	AS-16-02 04/27/17 AS-16-02_042717	AS-16-02 08/31/17 AS-16-02_083117	AS-16-02 12/06/17 AS-16-02_120617	CH-14-RO 05/01/17 CH-14-RO_050117	MW-01(2) 05/01/17 MW-01(2)_050117	MW-02-02(3) 05/02/17 MW-02-02(3)_050217
Field												
Conductance, specific	- -	- -	µmhos/cm	1,600	1,700	2,770	2,130	1,740	1,120	1,020	5,560	7,580
Dissolved oxygen (DO)	- -	- -	mg/L	0.26	7.22	4.1	0.32	1.06	5.85	0.21	0.38	1.1
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-46.3	-181.4	-108.4	-52.7	-66.9	-112.7	327.1	-39.4	-3.3
pH	- -	- -	s.u.	6.8	6.87	6.7	6.94	6.94	5.93	7.18	6.79	6.48
Temperature, field	- -	- -	°C	15.9	15.1	12	14.3	15.9	9.6	12.6	15.7	11.9
Turbidity (field)	- -	- -	NTU	21.3	38.3	33.6	7.31	460	68.4	0.26	9.89	64.7
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,4-Dioxane	7.2	2,800	µg/L	**158** [a]	**280 Y** [a]	**1,020 Y** [a]	**200 Y** [a]	**59** [a]	**6**	NA	NA	<3
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Benzene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	**22**	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
o-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	<2	NA
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	<3	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	AS-16-01 04/27/17 AS-16-01_042717	AS-16-01 08/31/17 AS-16-01_083117	AS-16-01 12/06/17 AS-16-01_120617	AS-16-02 04/27/17 AS-16-02_042717	AS-16-02 08/31/17 AS-16-02_083117	AS-16-02 12/06/17 AS-16-02_120617	CH-14-RO 05/01/17 CH-14-RO_050117	MW-01(2) 05/01/17 MW-01(2)_050117	MW-02-02(3) 05/02/17 MW-02-02(3)_050217
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	<0.002	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	**12.6**	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	**12.6** [a,b]	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	<0.003	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	**0.020**	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	10.5	34.1	NA	7.7	330	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-02-03(6) 05/01/17 MW-02-03(6)_050117	MW-02-04(3) 05/03/17 MW-02-04(3)_050317	MW-03-04 04/26/17 MW-03-04_042617	MW-03-06 04/27/17 MW-03-06_042717	MW-03-08 04/27/17 MW-03-08_042717	MW-04-05(6) 04/26/17 MW-04-05(6)_042617	MW-05(3) 05/02/17 MW-05(3)_050217	MW-06(3) 05/03/17 MW-06(3)_050317	MW-12-01 03/31/17 MW-12-01_033117
Field												
Conductance, specific	- -	- -	µmhos/cm	8,872	2,190	1,880	11,574	2,152	7,720	1,580	4,670	NA
Dissolved oxygen (DO)	- -	- -	mg/L	NA	1.15	0.23	0.17	0.13	0.51	2.42	0.41	NA
Oxidation reduction potential (ORP), field	- -	- -	millivolts	NA	-35.8	-66.8	-39.0	-78.1	-43.3	14.3	-36.6	NA
pH	- -	- -	s.u.	6.66	6.93	7.13	6.77	7.21	7.02	7.24	7.39	NA
Temperature, field	- -	- -	°C	19.1	13.1	13.6	14.3	13	12.3	11	11.2	NA
Turbidity (field)	- -	- -	NTU	NA	118	8.46	10	9.7	14.9	51	8.1	NA
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,2-Dichlorobenzene	600	13	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,4-Dichlorobenzene	75	17	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,4-Dioxane	7.2	2,800	µg/L	**21** [a]	<3	**36** [a]	**9** [a]	**<3 [8]**	<3	NA	NA	<0.20
1,1,1-Trichloroethane	200	89	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	**20**	NA
2-Hexanone	1,000	- -	µg/L	<10	NA	NA	<10	<10 [<10]	<10	<10	<10	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Acetone	730	1,700	µg/L	<10	NA	NA	<10	<10 [<10]	<10	<10	<10	NA
1,1,2-Trichloroethane	5	330	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Bromodichloromethane	80	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,1-Dichloroethane	880	740	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	**2**	NA
Bromoform	80	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1 J	<1	<1	NA
1,1-Dichloroethene	7	130	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Bromomethane (Methyl bromide)	10	35	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,2-Dichloroethane	5	360	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Carbon disulfide	800	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Carbon tetrachloride	5	45	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
cis-1,2-Dichloroethene	70	620	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Chlorobenzene	100	25	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Chloroform (Trichloromethane)	80	350	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Trichloroethene	5	200	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Tetrachloroethene	5	60	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Vinyl chloride	2	13	µg/L	<1	NA	NA	**11** [a]	<1 [11]	<1	<1	<1	NA
Chloroethane	430	1,100	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Benzene	5	200	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Methyl acetate	- -	- -	µg/L	<10	NA	NA	<10	<10 [<10]	<10	<10	<10	NA
Ethylbenzene	74	18	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Methylene chloride	5	1,500	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Styrene	100	80	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Toluene	790	270	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	<10	NA	NA	<10	<10 [<10]	<10	<10	<10	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	<10	NA	NA	<10	<10 [<10]	<10 J	<10	<10	NA
1,2,4-Trichlorobenzene	70	99	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,2-Dichloropropane	5	230	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
1,3-Dichlorobenzene	6.6	28	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Cyclohexane	- -	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Methyl cyclohexane	- -	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Dibromochloromethane	80	- -	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
Isopropyl benzene	800	28	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
o-Xylene	280	41	µg/L	<1	NA	NA	<1	<1 [<1]	<1	<1	<1	NA
m&p-Xylene	280	41	µg/L	<2	NA	NA	<2	<2 [<2]	<2	<2	<2	NA
Total Xylenes	280	41	µg/L	<3	NA	NA	<3	<3 [<3]	<3	<3	<3	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-02-03(6) 05/01/17 MW-02-03(6)_050117	MW-02-04(3) 05/03/17 MW-02-04(3)_050317	MW-03-04 04/26/17 MW-03-04_042617	MW-03-06 04/27/17 MW-03-06_042717	MW-03-08 04/27/17 MW-03-08_042717	MW-04-05(6) 04/26/17 MW-04-05(6)_042617	MW-05(3) 05/02/17 MW-05(3)_050217	MW-06(3) 05/03/17 MW-06(3)_050317	MW-12-01 03/31/17 MW-12-01_033117
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-12-01 12/06/17 MW-12-01_120617	MW-12-02 03/30/17 MW-12-02_033017	MW-12-02 12/05/17 MW-12-02_120517	MW-12-04 04/26/17 MW-12-04_042617	MW-12-05R 04/26/17 MW-12-05R_042617	MW-12-05R 12/06/17 MW-12-05R_120617	MW-12-06 03/31/17 MW-12-06_033117	MW-12-06 12/07/17 MW-12-06_120717	MW-12-09 05/01/17 MW-12-09_050117
Field												
Conductance, specific	- -	- -	µmhos/cm	1,621	NA	622	1,630	1,460	1,540	NA	900	3,020
Dissolved oxygen (DO)	- -	- -	mg/L	0.99	NA	0.03	0.81	0.35	1.9	NA	0.36	0.46
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-30.0	NA	-295.4	-48.6	-524.2	133.5	NA	-111.3	-29.3
pH	- -	- -	s.u.	7.3	NA	8.53	6.9	8.08	11.81	NA	6.81	6.78
Temperature, field	- -	- -	°C	2.96	NA	9.7	13.3	16.2	5.6	NA	9.17	13.6
Turbidity (field)	- -	- -	NTU	8.5	NA	13.1	8.97	7.79	6.31	NA	7.95	19.3
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	<3	**0.42**	<3	**0.86**	**0.63**	**3**	<0.20	<3	<3
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	<10	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	**10**	NA	NA	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Benzene	5	200	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	<10	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	<10	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	<10	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
o-Xylene	280	41	µg/L	NA	NA	NA	NA	<1	NA	NA	NA	NA
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	<2	NA	NA	NA	NA
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	<3	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-12-01 12/06/17 MW-12-01_120617	MW-12-02 03/30/17 MW-12-02_033017	MW-12-02 12/05/17 MW-12-02_120517	MW-12-04 04/26/17 MW-12-04_042617	MW-12-05R 04/26/17 MW-12-05R_042617	MW-12-05R 12/06/17 MW-12-05R_120617	MW-12-06 03/31/17 MW-12-06_033117	MW-12-06 12/07/17 MW-12-06_120717	MW-12-09 05/01/17 MW-12-09_050117
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-12-11 04/25/17 MW-12-11_042517	MW-12-11 12/05/17 MW-12-11_120517	MW-12-12 04/25/17 MW-12-12_042517	MW-12-12 12/06/17 MW-12-12_120617	MW-12-13 04/25/17 MW-12-13_042517	MW-12-13 12/05/17 MW-12-13_120517	MW-12-13 12/20/17 MW-12-13_122016	MW-12-16 04/28/17 MW-12-16_042817	MW-12-16 12/05/17 MW-12-16_120517
Field												
Conductance, specific	- -	- -	µmhos/cm	790	5,880	920	3,380	1,240	1,110	1.264	1,951	1,920
Dissolved oxygen (DO)	- -	- -	mg/L	0.28	0.82	0.26	0.82	0.26	0.98	0.83	0.36	0.24
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-94.1	-104.3	85.0	-83.7	-31.0	-73.4	56.3	-19.9	-126.1
pH	- -	- -	s.u.	7.13	6.54	7.4	6.69	7.34	7.11	7.37	6.86	6.67
Temperature, field	- -	- -	°C	11.3	11.7	11.4	14.2	11.1	10.6	4.5	13.2	12.1
Turbidity (field)	- -	- -	NTU	1.8	3.43	8.41	682	7.2	3.79	4.9	4.57	2.31
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-12-11 04/25/17 MW-12-11_042517	MW-12-11 12/05/17 MW-12-11_120517	MW-12-12 04/25/17 MW-12-12_042517	MW-12-12 12/06/17 MW-12-12_120617	MW-12-13 04/25/17 MW-12-13_042517	MW-12-13 12/05/17 MW-12-13_120517	MW-12-13 12/20/17 MW-12-13_122016	MW-12-16 04/28/17 MW-12-16_042817	MW-12-16 12/05/17 MW-12-16_120517
Inorganics												
Arsenic	0.01	0.01	mg/L	**0.007**	**0.062** [a,b]	<0.002	**0.008**	<0.002	**0.004 [0.004]**	<0.002	**0.017** [a,b]	**0.051** [a,b]
Chromium	0.1	0.16	mg/L	**0.011**	**0.006**	<0.005	**0.097**	**0.010**	<0.005 [<0.005]	<0.005	<0.005	<0.005
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	<0.005	<0.005	<0.005	**0.009**	<0.005	<0.005 [<0.005]	<0.005	<0.005	<0.005
Lead	0.004	0.044	mg/L	<0.003	<0.003	**0.004** [a]	<0.003	<0.003	<0.003 [<0.003]	<0.003	<0.003	<0.003
Nickel	0.1	0.12	mg/L	**0.011**	**0.044** [a]	**0.010**	**0.664** [a]	**0.071** [a]	**0.026 [0.027]**	**0.007**	<0.005	**0.010**
Vanadium	0.0045	0.027	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005 [<0.005]	<0.005	<0.005	<0.005
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	**0.007**	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	**0.005**	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	**0.005**	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	<0.003	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	**1.69** [a]	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	<0.005	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-12-18 05/01/17 MW-12-18_050117	MW-12-18 12/05/17 MW-12-18_120517	MW-12-21 04/28/17 MW-12-21_042817	MW-12-21 12/05/17 MW-12-21_120517	MW-13-22 04/28/17 MW-13-22_042817	MW-13-23 05/03/17 MW-13-23_050317	MW-13-24 05/02/17 MW-13-24_050217	MW-13-25 05/03/17 MW-13-25_050317	MW-13-25 12/05/17 MW-13-25_120517
Field												
Conductance, specific	- -	- -	µmhos/cm	2,580	2,346	1,720	1,390	1,930	1,610	1,530	2,560	1,930
Dissolved oxygen (DO)	- -	- -	mg/L	0.37	1.47	0.7	0.41	0.35	1.21	0.98	1.04	1.08
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-10.9	-11.0	-39.4	61.4	-84.6	50.5	-42.0	-47.8	57.7
pH	- -	- -	s.u.	6.9	6.96	6.84	6.93	6.87	6.77	6.84	6.7	6.82
Temperature, field	- -	- -	°C	13.1	7.02	10.9	12.6	14.6	9.9	10.1	12.4	12
Turbidity (field)	- -	- -	NTU	9.81	8.17	80.1	2.16	4.11	307	0.59	97.9	1.5
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	NA	NA	**360 Y** [a]	**200 Y** [a]	**154** [a]	<3	<3	**17** [a]	**12** [a]
1,1,1-Trichloroethane	200	89	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	<10	<10	<10	NA	<10	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Acetone	730	1,700	µg/L	<10	<10	<10	NA	<10	NA	NA	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,1-Dichloroethane	880	740	µg/L	**2**	**1**	<1	NA	<1	NA	NA	NA	NA
Bromoform	80	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,1-Dichloroethene	7	130	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,2-Dichloroethane	5	360	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Carbon tetrachloride	5	45	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Trichloroethene	5	200	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Tetrachloroethene	5	60	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Vinyl chloride	2	13	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Benzene	5	200	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Methyl acetate	- -	- -	µg/L	<10	<10	<10	NA	<10	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Methylene chloride	5	1,500	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Styrene	100	80	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Toluene	790	270	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	<10	<10	<10	NA	<10	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	<10	<10	<10	NA	<10	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,2-Dichloropropane	5	230	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Cyclohexane	- -	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
o-Xylene	280	41	µg/L	<1	<1	<1	NA	<1	NA	NA	NA	NA
m&p-Xylene	280	41	µg/L	<2	<2	<2	NA	<2	NA	NA	NA	NA
Total Xylenes	280	41	µg/L	<3	<3	<3	NA	<3	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-12-18 05/01/17 MW-12-18_050117	MW-12-18 12/05/17 MW-12-18_120517	MW-12-21 04/28/17 MW-12-21_042817	MW-12-21 12/05/17 MW-12-21_120517	MW-13-22 04/28/17 MW-13-22_042817	MW-13-23 05/03/17 MW-13-23_050317	MW-13-24 05/02/17 MW-13-24_050217	MW-13-25 05/03/17 MW-13-25_050317	MW-13-25 12/05/17 MW-13-25_120517
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-28 03/29/17 MW-13-28_032917	MW-13-28 12/07/17 MW-13-28_120717	MW-13-29 05/02/17 MW-13-29_050217	MW-13-31 05/03/17 MW-13-31_050317	MW-13-31 12/06/17 MW-13-31_120617	MW-13-32 05/03/17 MW-13-32_050317	MW-13-32 12/06/17 MW-13-32_120617	MW-13-34 05/02/17 MW-13-34_050217	MW-13-34 12/06/17 MW-13-34_120617
Field												
Conductance, specific	- -	- -	µmhos/cm	NA	356	2,670	3,720	950	3,340	1,450	1,720	1,690
Dissolved oxygen (DO)	- -	- -	mg/L	NA	0.29	0.17	0.94	0.27	0.27	0.61	1.01	0.22
Oxidation reduction potential (ORP), field	- -	- -	millivolts	NA	-77.1	-38.5	196.5	-13.1	161.0	1.1	-31.0	-5.7
pH	- -	- -	s.u.	NA	10.11	6.51	7.02	6.87	6.95	6.99	7.19	7.29
Temperature, field	- -	- -	°C	NA	9.84	13.4	12.6	9.5	9.8	9.9	10.9	10.1
Turbidity (field)	- -	- -	NTU	NA	6.09	9.24	0.42	6.82	4.61	1.42	9.81	4
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,4-Dioxane	7.2	2,800	µg/L	**1.9**	<3	**23 [26]** [a]	NA	NA	NA	NA	**82** [a]	**93** [a]
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Benzene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<10	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
o-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	<1	NA
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	<2	NA
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	<3	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-28 03/29/17 MW-13-28_032917	MW-13-28 12/07/17 MW-13-28_120717	MW-13-29 05/02/17 MW-13-29_050217	MW-13-31 05/03/17 MW-13-31_050317	MW-13-31 12/06/17 MW-13-31_120617	MW-13-32 05/03/17 MW-13-32_050317	MW-13-32 12/06/17 MW-13-32_120617	MW-13-34 05/02/17 MW-13-34_050217	MW-13-34 12/06/17 MW-13-34_120617
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	<0.002	**0.004**	<0.002 [<0.002]	**0.006**	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	<0.005	**0.076**	<0.005 [<0.005]	<0.005	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	<0.005	**0.011**	<0.005 [<0.005]	**0.013**	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	<0.003	**0.003** [a]	<0.003 [<0.003]	<0.003	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	0.013	**0.155** [a]	**0.542 [0.551]** [a]	**0.791** [a]	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	<0.005	<0.005	<0.005 [<0.005]	<0.005	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-35 04/28/17 MW-13-35_042817	MW-13-35 12/05/17 MW-13-35_120517	MW-13-36R 04/25/17 MW-13-36R_042517	MW-13-36R 12/05/17 MW-13-36R_120517	MW-13-38 05/01/17 MW-13-38_050117	MW-13-38 12/05/17 MW-13-38_120517	MW-13-39B 03/28/17 MW-13-39B_032817	MW-13-40 05/01/17 MW-13-40_050117	MW-13-41 05/01/17 MW-13-41_050117
Field												
Conductance, specific	- -	- -	µmhos/cm	1,792	1,580	1,650	1,570	1,910	2,360	NA	7,487	5,690
Dissolved oxygen (DO)	- -	- -	mg/L	0.12	0.33	1.22	0.13	0.11	4.49	NA	0.24	0.22
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-28.9	-124.2	81.2	-25.1	-232.0	-76.6	NA	-108.5	-105.7
pH	- -	- -	s.u.	6.88	6.64	12.11	11.73	8.39	7.28	NA	6.86	7.19
Temperature, field	- -	- -	°C	13.1	12.7	9.9	9.5	13.3	7.1	NA	13.6	13.6
Turbidity (field)	- -	- -	NTU	8.82	5	0.5	1.2	126	9.13	NA	185	98.6
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	NA	NA	NA	NA	<3	<3 [<3]	**0.33**	**4**	**18**[a]
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-35 04/28/17 MW-13-35_042817	MW-13-35 12/05/17 MW-13-35_120517	MW-13-36R 04/25/17 MW-13-36R_042517	MW-13-36R 12/05/17 MW-13-36R_120517	MW-13-38 05/01/17 MW-13-38_050117	MW-13-38 12/05/17 MW-13-38_120517	MW-13-39B 03/28/17 MW-13-39B_032817	MW-13-40 05/01/17 MW-13-40_050117	MW-13-41 05/01/17 MW-13-41_050117
Inorganics												
Arsenic	0.01	0.01	mg/L	<0.002	<0.002	<0.002	**0.003**	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	<0.005	<0.005	**0.005**	<0.005	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	<0.005	<0.005	**0.014**	**0.014**	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	<0.003	<0.003	<0.003	**0.006** [a]	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	<0.005	<0.005	<0.005	**0.014**	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	<0.005	<0.005	**0.008** [a]	**0.027** [a]	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-43 05/02/17 MW-13-43_050217	MW-13-43 12/06/17 MW-13-43_120617	MW-13-44 03/30/17 MW-13-44_033017	MW-13-44 12/06/17 MW-13-44_120617	MW-13-45 04/26/17 MW-13-45_042617	MW-13-45 12/06/17 MW-13-45_120617	MW-13-46 05/02/17 MW-13-46_050217	MW-13-46 12/07/17 MW-13-46_120717	MW-13-47 03/30/17 MW-13-47_033017
Field												
Conductance, specific	- -	- -	µmhos/cm	2,980	2,270	NA	1,210	1,130	1,070	3,440	2,240	NA
Dissolved oxygen (DO)	- -	- -	mg/L	1.91	0.69	NA	0.94	4.17	0.35	1.5	0.37	NA
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-17.1	123.9	NA	135.0	-70.1	-42.9	-47.6	47.1	NA
pH	- -	- -	s.u.	7.04	6.98	NA	9.65	7.3	7.33	6.71	6.79	NA
Temperature, field	- -	- -	°C	8.7	8.2	NA	7.3	15.1	9.4	11.7	9.4	NA
Turbidity (field)	- -	- -	NTU	130	0.85	NA	18.6	10.1	6.69	59.9	52.1	NA
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	**240 Y [a]**	**260 Y [a]**	**0.46 [0.47]**	**4 [4]**	**56 [a]**	**54 [a]**	<3	<3	**1.3**
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-43 05/02/17 MW-13-43_050217	MW-13-43 12/06/17 MW-13-43_120617	MW-13-44 03/30/17 MW-13-44_033017	MW-13-44 12/06/17 MW-13-44_120617	MW-13-45 04/26/17 MW-13-45_042617	MW-13-45 12/06/17 MW-13-45_120617	MW-13-46 05/02/17 MW-13-46_050217	MW-13-46 12/07/17 MW-13-46_120717	MW-13-47 03/30/17 MW-13-47_033017
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-47 12/06/17 MW-13-47_120617	MW-13-48 05/02/17 MW-13-48_050217	MW-13-48 12/06/17 MW-13-48_120617	MW-13-49 05/02/17 MW-13-49_050217	MW-13-50 03/30/17 MW-13-50_033017	MW-14-54 05/01/17 MW-14-54_050117	MW-14-55 04/28/17 MW-14-55_042817	MW-14-56 04/26/17 MW-14-56_042617	MW-14-56 12/06/17 MW-14-56_120617
Field												
Conductance, specific	- -	- -	µmhos/cm	1,940	2,370	2,440	1,690	NA	1,620	675	5,860	5,877
Dissolved oxygen (DO)	- -	- -	mg/L	4	0.25	0.32	4.6	NA	0.19	7.91	0.68	1.53
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-110.8	-65.1	-70.4	-70.1	NA	-279.1	58.3	-22.4	-24.1
pH	- -	- -	s.u.	7.2	6.76	6.87	7.19	NA	8.27	7.25	6.71	6.71
Temperature, field	- -	- -	°C	10.1	11.5	12.4	10.6	NA	12.7	10.6	18.2	5.58
Turbidity (field)	- -	- -	NTU	3.13	11.1	3.02	6.06	NA	2.26	40.1	43.8	21
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	<3	**250 Y [200 Y]** [a]	**154** [a]	<3	<0.20	NA	NA	**10** [a]	**9** [a]
1,1,1-Trichloroethane	200	89	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	<10 [<10]	NA	NA	NA	<100 Y	<10	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Acetone	730	1,700	µg/L	NA	<10 [<10]	NA	NA	NA	<100 Y	<10	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,1-Dichloroethane	880	740	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Bromoform	80	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,1-Dichloroethene	7	130	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,2-Dichloroethane	5	360	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Carbon disulfide	800	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Carbon tetrachloride	5	45	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Chlorobenzene	100	25	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Trichloroethene	5	200	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Tetrachloroethene	5	60	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	**1**	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Vinyl chloride	2	13	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Chloroethane	430	1,100	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Benzene	5	200	µg/L	NA	<1 [<1]	NA	NA	NA	**770 Y** [a,b]	<1	NA	NA
Methyl acetate	- -	- -	µg/L	NA	<10 [<10]	NA	NA	NA	<100 Y	<10	NA	NA
Ethylbenzene	74	18	µg/L	NA	<1 [<1]	NA	NA	NA	**1,380 Y** [a,b]	<1	NA	NA
Methylene chloride	5	1,500	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Styrene	100	80	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Toluene	790	270	µg/L	NA	<1 [<1]	NA	NA	NA	120 Y	<1	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	<10 [<10]	NA	NA	NA	<100 Y	<10	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	<10 [<10]	NA	NA	NA	<100 Y	<10	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,2-Dichloropropane	5	230	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Cyclohexane	- -	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Methyl cyclohexane	- -	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	<1 [<1]	NA	NA	NA	<10 Y	<1	NA	NA
Isopropyl benzene	800	28	µg/L	NA	<1 [<1]	NA	NA	NA	**50 Y** [b]	<1	NA	NA
o-Xylene	280	41	µg/L	NA	<1 [<1]	NA	NA	NA	**60 Y**	<1	NA	NA
m&p-Xylene	280	41	µg/L	NA	<2 [<2]	NA	NA	NA	**860 Y**	<2	NA	NA
Total Xylenes	280	41	µg/L	NA	<3 [<3]	NA	NA	NA	**920 Y**	<3	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-13-47 12/06/17 MW-13-47_120617	MW-13-48 05/02/17 MW-13-48_050217	MW-13-48 12/06/17 MW-13-48_120617	MW-13-49 05/02/17 MW-13-49_050217	MW-13-50 03/30/17 MW-13-50_033017	MW-14-54 05/01/17 MW-14-54_050117	MW-14-55 04/28/17 MW-14-55_042817	MW-14-56 04/26/17 MW-14-56_042617	MW-14-56 12/06/17 MW-14-56_120617
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-14-57 04/28/17 MW-14-57_042817	MW-14-58 04/27/17 MW-14-58_042717	MW-14-58 12/06/17 MW-14-58_120617	MW-14-59 04/25/17 MW-14-59_042517	MW-14-60 04/25/17 MW-14-60_042517	MW-14-61 04/27/17 MW-14-61_042717	MW-14-62 04/28/17 MW-14-62_042817	MW-14-63 05/02/17 MW-14-63_050217	MW-14-63 12/05/17 MW-14-63_120517
Field												
Conductance, specific	- -	- -	µmhos/cm	830	4,950	4,327	820	1,240	950	710	1,180	1,160
Dissolved oxygen (DO)	- -	- -	mg/L	3.28	0.16	0.56	0.08	0.15	3.15	0.1	0.34	3.27
Oxidation reduction potential (ORP), field	- -	- -	millivolts	45.9	-75.1	-41.5	-60.3	-99.9	-75.0	-244	-52.7	-47.4
pH	- -	- -	s.u.	7.38	6.74	6.79	7.2	7.27	7.17	11.89	6.89	7.13
Temperature, field	- -	- -	°C	12.7	13.7	9.94	13.7	13.4	15	10.8	8.7	8.8
Turbidity (field)	- -	- -	NTU	13.9	20.1	7.13	57.3	10.9	19.6	2.1	500	46.5
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	<3	**71** [a]	**30 [29]** [a]	**103** [a]	**133** [a]	**28** [a]	**47 [46]** [a]	<3	<3
1,1,1-Trichloroethane	200	89	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
2-Hexanone	1,000	- -	µg/L	<10	<10	NA	<10	<10	NA	<10 [<10]	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Acetone	730	1,700	µg/L	<10	<10	NA	<10	<10	NA	<10 [<10]	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Bromodichloromethane	80	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,1-Dichloroethane	880	740	µg/L	**1**	<1	NA	**6**	<1	NA	52 [47]	NA	NA
Bromoform	80	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,1-Dichloroethene	7	130	µg/L	<1	<1	NA	**28** [a]	<1	NA	<1 [<1]	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,2-Dichloroethane	5	360	µg/L	<1	<1	NA	<1	**1**	NA	<1 [<1]	NA	NA
Carbon disulfide	800	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Carbon tetrachloride	5	45	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Chlorobenzene	100	25	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Trichloroethene	5	200	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Tetrachloroethene	5	60	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Vinyl chloride	2	13	µg/L	<1	<1	NA	<1	**7** [a]	NA	<1 [1]	NA	NA
Chloroethane	430	1,100	µg/L	<1	<1	NA	**2**	**33**	NA	5 [<1]	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Benzene	5	200	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Methyl acetate	- -	- -	µg/L	<10	<10	NA	<10	<10	NA	<10 [<10]	NA	NA
Ethylbenzene	74	18	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Methylene chloride	5	1,500	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Styrene	100	80	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Toluene	790	270	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	<10	<10	NA	<10	<10	NA	<10 [<10]	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	<10	<10	NA	<10	<10	NA	<10 [<10]	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,2-Dichloropropane	5	230	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Cyclohexane	- -	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Methyl cyclohexane	- -	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Dibromochloromethane	80	- -	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
Isopropyl benzene	800	28	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
o-Xylene	280	41	µg/L	<1	<1	NA	<1	<1	NA	<1 [<1]	NA	NA
m&p-Xylene	280	41	µg/L	<2	<2	NA	<2	<2	NA	<2 [<2]	NA	NA
Total Xylenes	280	41	µg/L	<3	<3	NA	<3	<3	NA	<3 [<3]	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-14-57 04/28/17 MW-14-57_042817	MW-14-58 04/27/17 MW-14-58_042717	MW-14-58 12/06/17 MW-14-58_120617	MW-14-59 04/25/17 MW-14-59_042517	MW-14-60 04/25/17 MW-14-60_042517	MW-14-61 04/27/17 MW-14-61_042717	MW-14-62 04/28/17 MW-14-62_042817	MW-14-63 05/02/17 MW-14-63_050217	MW-14-63 12/05/17 MW-14-63_120517
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-14-64 03/29/17 MW-14-64_032917	MW-14-65 05/02/17 MW-14-65_050217	MW-15-71 05/02/17 MW-15-71_050217	MW-15-72 04/26/17 MW-15-72_042617	MW-15-72 12/07/17 MW-15-72_120717	MW-15-73 05/01/17 MW-15-73_050117	MW-15-73 12/05/17 MW-15-73_120517	MW-16-74 04/25/17 MW-16-74_042517	MW-16-74 12/07/17 MW-16-74_120717
Field												
Conductance, specific	- -	- -	µmhos/cm	NA	950	1,560	1,800	1,720	2,850	2,520	2,270	2,210
Dissolved oxygen (DO)	- -	- -	mg/L	NA	2.9	0.45	0.23	1.67	0.47	0.34	0.24	0.64
Oxidation reduction potential (ORP), field	- -	- -	millivolts	NA	167.8	-79.2	-98.5	-54.8	-75.4	-43.3	-44.5	57.9
pH	- -	- -	s.u.	NA	7.25	7.1	6.95	6.95	6.82	6.88	6.89	7.06
Temperature, field	- -	- -	°C	NA	7.8	10.2	18	12.3	13.6	7	15.1	9.6
Turbidity (field)	- -	- -	NTU	NA	6.39	9.55	21.1	16.9	35.7	5.79	39.6	7.6
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,4-Dioxane	7.2	2,800	µg/L	**0.39**	NA	<3	**240 Y [320 Y]** [a]	**290 Y** [a]	**6**	**7**	<3	<3
1,1,1-Trichloroethane	200	89	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
2-Hexanone	1,000	- -	µg/L	NA	<10	NA	<10 [<10]	NA	<10	NA	<10	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Acetone	730	1,700	µg/L	NA	<10	NA	<10 [<10]	NA	<10	NA	<10	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Bromodichloromethane	80	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,1-Dichloroethane	880	740	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Bromoform	80	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,1-Dichloroethene	7	130	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,2-Dichloroethane	5	360	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Carbon disulfide	800	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Carbon tetrachloride	5	45	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Chlorobenzene	100	25	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Trichloroethene	5	200	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Tetrachloroethene	5	60	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Vinyl chloride	2	13	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Chloroethane	430	1,100	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Benzene	5	200	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Methyl acetate	- -	- -	µg/L	NA	<10	NA	<10 [<10]	NA	<10	NA	<10	NA
Ethylbenzene	74	18	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Methylene chloride	5	1,500	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Styrene	100	80	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Toluene	790	270	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	<10	NA	<10 [<10]	NA	<10	NA	<10	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	<10	NA	<10 [<10]	NA	<10	NA	<10	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,2-Dichloropropane	5	230	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Cyclohexane	- -	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Methyl cyclohexane	- -	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Dibromochloromethane	80	- -	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
Isopropyl benzene	800	28	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
o-Xylene	280	41	µg/L	NA	<1	NA	<1 [<1]	NA	<1	NA	<1	NA
m&p-Xylene	280	41	µg/L	NA	<2	NA	<2 [<2]	NA	<2	NA	<2	NA
Total Xylenes	280	41	µg/L	NA	<3	NA	<3 [<3]	NA	<3	NA	<3	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-14-64 03/29/17 MW-14-64_032917	MW-14-65 05/02/17 MW-14-65_050217	MW-15-71 05/02/17 MW-15-71_050217	MW-15-72 04/26/17 MW-15-72_042617	MW-15-72 12/07/17 MW-15-72_120717	MW-15-73 05/01/17 MW-15-73_050117	MW-15-73 12/05/17 MW-15-73_120517	MW-16-74 04/25/17 MW-16-74_042517	MW-16-74 12/07/17 MW-16-74_120717
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-75 04/26/17 MW-16-75_042617	MW-16-75 12/07/17 MW-16-75_120717	MW-16-76 04/26/17 MW-16-76_042617	MW-16-76 12/05/17 MW-16-76_120517	MW-16-77 04/25/17 MW-16-77_042517	MW-16-77 12/07/17 MW-16-77_120717	MW-16-78 04/25/17 MW-16-78_042517	MW-16-78 12/05/17 MW-16-78_120517	MW-16-79 04/26/17 MW-16-79_042617
Field												
Conductance, specific	- -	- -	µmhos/cm	1,860	1,870	2,140	2,062	1,730	1,680	1,730	1,845	890
Dissolved oxygen (DO)	- -	- -	mg/L	0.88	0.22	1.27	1.8	1.2	3.31	1.41	0.89	0.94
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-95.7	122.6	-76.8	-16.1	-62.4	418.1	-55.6	-12.6	-99.0
pH	- -	- -	s.u.	7.01	7.16	7.15	6.07	7.11	7.34	6.89	6.73	7.26
Temperature, field	- -	- -	°C	15	10.5	13.8	7.6	17.4	6.6	15.8	8.38	19.4
Turbidity (field)	- -	- -	NTU	9.1	9.41	15.4	9.5	23	2.7	49.3	9.97	546
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,2-Dichlorobenzene	600	13	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,4-Dichlorobenzene	75	17	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,4-Dioxane	7.2	2,800	µg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,1,1-Trichloroethane	200	89	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
2-Hexanone	1,000	- -	µg/L	<10	NA	<10	NA	<10	NA	<10	NA	<10
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Acetone	730	1,700	µg/L	<10	NA	<10	NA	**10**	NA	<10	NA	<10
1,1,2-Trichloroethane	5	330	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Bromodichloromethane	80	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,1-Dichloroethane	880	740	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Bromoform	80	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,1-Dichloroethene	7	130	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Bromomethane (Methyl bromide)	10	35	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,2-Dichloroethane	5	360	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Carbon disulfide	800	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Carbon tetrachloride	5	45	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
cis-1,2-Dichloroethene	70	620	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Chlorobenzene	100	25	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
trans-1,2-Dichloroethene	100	1,500	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Chloroform (Trichloromethane)	80	350	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Trichloroethene	5	200	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Chloromethane (Methyl chloride)	260	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Tetrachloroethene	5	60	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
cis-1,3-Dichloropropene	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Vinyl chloride	2	13	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Chloroethane	430	1,100	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Benzene	5	200	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Methyl acetate	- -	- -	µg/L	<10	NA	<10	NA	<10	NA	<10	NA	<10
Ethylbenzene	74	18	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Methylene chloride	5	1,500	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Styrene	100	80	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Toluene	790	270	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
trans-1,3-Dichloropropene	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	<10	NA	<10	NA	<10	NA	<10	NA	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	<10	NA	<10	NA	<10	NA	<10	NA	<10
1,2,4-Trichlorobenzene	70	99	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,2-Dichloropropane	5	230	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
1,3-Dichlorobenzene	6.6	28	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Cyclohexane	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Methyl cyclohexane	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Dibromochloromethane	80	- -	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
Isopropyl benzene	800	28	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
o-Xylene	280	41	µg/L	<1	NA	<1	NA	<1	NA	<1	NA	<1
m&p-Xylene	280	41	µg/L	<2	NA	<2	NA	<2	NA	<2	NA	<2
Total Xylenes	280	41	µg/L	<3	NA	<3	NA	<3	NA	<3	NA	<3

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-75 04/26/17 MW-16-75_042617	MW-16-75 12/07/17 MW-16-75_120717	MW-16-76 04/26/17 MW-16-76_042617	MW-16-76 12/05/17 MW-16-76_120517	MW-16-77 04/25/17 MW-16-77_042517	MW-16-77 12/07/17 MW-16-77_120717	MW-16-78 04/25/17 MW-16-78_042517	MW-16-78 12/05/17 MW-16-78_120517	MW-16-79 04/26/17 MW-16-79_042617
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-79 12/05/17 MW-16-79_120517	MW-16-80 05/01/17 MW-16-80_050117	MW-16-80 12/05/17 MW-16-80_120517	MW-16-81 03/06/17 MW-16-81_030617	MW-16-81 04/28/17 MW-16-81_042817	MW-16-81 09/07/17 MW-16-81_090717	MW-16-81 12/07/17 MW-16-81_120717	MW-16-82 03/06/17 MW-16-82_030617	MW-16-82 05/01/17 MW-16-82_050117
Field												
Conductance, specific	- -	- -	µmhos/cm	1,011	2,310	2,370	NA	3,240	3,020	3,150	NA	1,120
Dissolved oxygen (DO)	- -	- -	mg/L	2.54	0.34	0.82	NA	0.26	9.32	0.74	NA	3.03
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-8.8	-89.4	-54.2	NA	-83.4	-122.3	-50.5	NA	-95.7
pH	- -	- -	s.u.	7.08	6.97	7.11	NA	6.92	7.54	6.13	NA	7.29
Temperature, field	- -	- -	°C	9.16	12.1	6.2	NA	15.9	15.1	8.39	NA	15.8
Turbidity (field)	- -	- -	NTU	106	61.2	9.12	NA	60.3	174	7.93	NA	5.05
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,2-Dichlorobenzene	600	13	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,4-Dichlorobenzene	75	17	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,4-Dioxane	7.2	2,800	µg/L	<3	**30** [a]	**27** [a]	**550 Y [540 Y]** [a]	**630 Y [540 Y]** [a]	**520 Y [530 Y]** [a]	**840 Y [910 Y]** [a]	<3	<3
1,1,1-Trichloroethane	200	89	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
2-Hexanone	1,000	- -	µg/L	NA	<10	NA	NA	<10 [<10]	NA	<10 [<10]	NA	<10
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Acetone	730	1,700	µg/L	NA	<10	NA	NA	<10 [<10]	NA	<10 [<10]	NA	<10
1,1,2-Trichloroethane	5	330	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Bromodichloromethane	80	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,1-Dichloroethane	880	740	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Bromoform	80	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,1-Dichloroethene	7	130	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Bromomethane (Methyl bromide)	10	35	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,2-Dichloroethane	5	360	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Carbon disulfide	800	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Carbon tetrachloride	5	45	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
cis-1,2-Dichloroethene	70	620	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Chlorobenzene	100	25	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Chloroform (Trichloromethane)	80	350	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Trichloroethene	5	200	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Tetrachloroethene	5	60	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Vinyl chloride	2	13	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Chloroethane	430	1,100	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Benzene	5	200	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Methyl acetate	- -	- -	µg/L	NA	<10	NA	NA	<10 [<10]	NA	<10 [<10]	NA	<10
Ethylbenzene	74	18	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Methylene chloride	5	1,500	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Styrene	100	80	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Toluene	790	270	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	<10	NA	NA	<10 [<10]	NA	<10 [<10]	NA	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	<10	NA	NA	<10 [<10]	NA	<10 [<10]	NA	<10
1,2,4-Trichlorobenzene	70	99	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,2-Dichloropropane	5	230	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
1,3-Dichlorobenzene	6.6	28	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Cyclohexane	- -	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Methyl cyclohexane	- -	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Dibromochloromethane	80	- -	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
Isopropyl benzene	800	28	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
o-Xylene	280	41	µg/L	NA	<1	NA	NA	<1 [<1]	NA	<1 [<1]	NA	<1
m&p-Xylene	280	41	µg/L	NA	<2	NA	NA	<2 [<2]	NA	<2 [<2]	NA	<2
Total Xylenes	280	41	µg/L	NA	<3	NA	NA	<3 [<3]	NA	<3 [<3]	NA	<3

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-79 12/05/17 MW-16-79_120517	MW-16-80 05/01/17 MW-16-80_050117	MW-16-80 12/05/17 MW-16-80_120517	MW-16-81 03/06/17 MW-16-81_030617	MW-16-81 04/28/17 MW-16-81_042817	MW-16-81 09/07/17 MW-16-81_090717	MW-16-81 12/07/17 MW-16-81_120717	MW-16-82 03/06/17 MW-16-82_030617	MW-16-82 05/01/17 MW-16-82_050117
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-82 09/07/17 MW-16-82_090717	MW-16-82 12/07/17 MW-16-82_120717	MW-16-83 05/02/17 MW-16-83_050217	MW-16-83 12/06/17 MW-16-83_120617	MW-16-84 03/06/17 MW-16-84_030617	MW-16-84 04/26/17 MW-16-84_042617	MW-16-84 09/07/17 MW-16-84_090717	MW-16-84 12/07/17 MW-16-84_120717	MW-16-85 04/25/17 MW-16-85_042517
Field												
Conductance, specific	- -	- -	µmhos/cm	1,050	1,119	2,540	3,593	NA	1,240	1,290	1,262	950
Dissolved oxygen (DO)	- -	- -	mg/L	9.71	0.85	1.23	2.84	NA	1.04	9.88	1.45	0.47
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-117.7	-61.0	-66.7	-67.6	NA	-89.9	-66.5	-51.4	-98.1
pH	- -	- -	s.u.	7.45	6.7	6.96	7.15	NA	7.09	7.28	6.19	7.27
Temperature, field	- -	- -	°C	15.2	4.7	10.6	2.54	NA	26.3	15.2	5.05	16
Turbidity (field)	- -	- -	NTU	39.7	9.03	150	6.96	NA	114	114	7.35	284
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,2-Dichlorobenzene	600	13	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,4-Dichlorobenzene	75	17	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,4-Dioxane	7.2	2,800	µg/L	**6**	<3	<3	<3	**47** [a]	**46** [a]	**52** [a]	**35** [a]	**7**
1,1,1-Trichloroethane	200	89	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
2-Hexanone	1,000	- -	µg/L	NA	<10	<10	NA	NA	<10	NA	<10	<10
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Acetone	730	1,700	µg/L	NA	<10	<10	NA	NA	<10	NA	<10	<10
1,1,2-Trichloroethane	5	330	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Bromodichloromethane	80	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,1-Dichloroethane	880	740	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Bromoform	80	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,1-Dichloroethene	7	130	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Bromomethane (Methyl bromide)	10	35	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,2-Dichloroethane	5	360	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Carbon disulfide	800	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Carbon tetrachloride	5	45	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
cis-1,2-Dichloroethene	70	620	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Chlorobenzene	100	25	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Chloroform (Trichloromethane)	80	350	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Trichloroethene	5	200	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Tetrachloroethene	5	60	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Vinyl chloride	2	13	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Chloroethane	430	1,100	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Benzene	5	200	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Methyl acetate	- -	- -	µg/L	NA	<10	<10	NA	NA	<10	NA	<10	<10
Ethylbenzene	74	18	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Methylene chloride	5	1,500	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Styrene	100	80	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Toluene	790	270	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	<10	**14**	NA	NA	<10	NA	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	<10	<10	NA	NA	<10	NA	<10	<10
1,2,4-Trichlorobenzene	70	99	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,2-Dichloropropane	5	230	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
1,3-Dichlorobenzene	6.6	28	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Cyclohexane	- -	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Methyl cyclohexane	- -	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Dibromochloromethane	80	- -	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
Isopropyl benzene	800	28	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
o-Xylene	280	41	µg/L	NA	<1	<1	NA	NA	<1	NA	<1	<1
m&p-Xylene	280	41	µg/L	NA	<2	<2	NA	NA	<2	NA	<2	<2
Total Xylenes	280	41	µg/L	NA	<3	<3	NA	NA	<3	NA	<3	<3

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-82 09/07/17 MW-16-82_090717	MW-16-82 12/07/17 MW-16-82_120717	MW-16-83 05/02/17 MW-16-83_050217	MW-16-83 12/06/17 MW-16-83_120617	MW-16-84 03/06/17 MW-16-84_030617	MW-16-84 04/26/17 MW-16-84_042617	MW-16-84 09/07/17 MW-16-84_090717	MW-16-84 12/07/17 MW-16-84_120717	MW-16-85 04/25/17 MW-16-85_042517
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-85 12/06/17 MW-16-85_120617	MW-17-86 04/25/17 MW-17-86_042517	MW-17-86 12/06/17 MW-17-86_120617	MW-17-87 04/26/17 MW-17-87_042617	MW-17-87 12/06/17 MW-17-87_120617	MW-19 05/03/17 MW-19_050317	MW-22 05/03/17 MW-22_050317	MW-23 05/03/17 MW-23_050317	MW-91-2 05/01/17 MW-91-2_050117
Field												
Conductance, specific	- -	- -	µmhos/cm	803	1,020	1,050	3,500	2,936	235	2,770	1,480	55
Dissolved oxygen (DO)	- -	- -	mg/L	1.52	5.67	0.23	0.71	2.89	5.68	0.69	0.24	1.23
Oxidation reduction potential (ORP), field	- -	- -	millivolts	6.5	-86.4	-48.6	-256.8	-56.5	34.7	-29.9	-95.6	287.7
pH	- -	- -	s.u.	7.49	7.26	7.2	7.08	7.22	2.69	6.91	7.07	5.93
Temperature, field	- -	- -	°C	4.8	15.2	7.5	19	6.51	14.1	15.2	13.1	16.2
Turbidity (field)	- -	- -	NTU	13.1	7.75	0.02	6.58	7.99	423	8.31	8.96	2.51
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	**4**	**11** [a]	**29** [a]	**2.3**	<3	<3	NA	NA	<3
1,1,1-Trichloroethane	200	89	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	<10	NA	<10	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	<10	NA	<10	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,1-Dichloroethane	880	740	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,1-Dichloroethene	7	130	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,2-Dichloroethane	5	360	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Carbon tetrachloride	5	45	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Trichloroethene	5	200	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Tetrachloroethene	5	60	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Vinyl chloride	2	13	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Benzene	5	200	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Methyl acetate	- -	- -	µg/L	NA	<10	NA	<10	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Methylene chloride	5	1,500	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	<10	NA	<10	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	<10	NA	<10	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,2-Dichloropropane	5	230	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Cyclohexane	- -	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
o-Xylene	280	41	µg/L	NA	<1	NA	<1	NA	NA	NA	NA	NA
m&p-Xylene	280	41	µg/L	NA	<2	NA	<2	NA	NA	NA	NA	NA
Total Xylenes	280	41	µg/L	NA	<3	NA	<3	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-16-85 12/06/17 MW-16-85_120617	MW-17-86 04/25/17 MW-17-86_042517	MW-17-86 12/06/17 MW-17-86_120617	MW-17-87 04/26/17 MW-17-87_042617	MW-17-87 12/06/17 MW-17-87_120617	MW-19 05/03/17 MW-19_050317	MW-22 05/03/17 MW-22_050317	MW-23 05/03/17 MW-23_050317	MW-91-2 05/01/17 MW-91-2_050117
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	<0.002	**0.009**	<0.002
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	<0.005	<0.005	**0.009**
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.01
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	<0.005	<0.005	**0.013**
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	<0.003	<0.003	**0.003** [a]
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	**0.008**	<0.005	<0.005
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-91-4 03/28/17 MW-91-4_032817	MW-91-5 03/28/17 MW-91-5_032817	MW-91-5 12/05/17 MW-91-5_120517	MW-91-6 03/30/17 MW-91-6_033017	MW-91-6 12/07/17 MW-91-6_120717	MWBP-10-UST5-6 04/27/17 MWBP-10-UST5-6_042717	MWBP-10-UST5-6 04/28/17 MWBP-10-UST5-6_042817	MWBP-10-UST5-6 12/06/17 MWBP-10-UST5-6_120617
Field											
Conductance, specific	- -	- -	µmhos/cm	NA	NA	1,110	NA	1,400	4,800	NA	4,030
Dissolved oxygen (DO)	- -	- -	mg/L	NA	NA	1.69	NA	9.81	0.81	NA	0.28
Oxidation reduction potential (ORP), field	- -	- -	millivolts	NA	NA	-41.1	NA	-66.1	-18.6	NA	-157.0
pH	- -	- -	s.u.	NA	NA	7.38	NA	8.19	6.91	NA	6.79
Temperature, field	- -	- -	°C	NA	NA	10.1	NA	9	7.2	NA	13.1
Turbidity (field)	- -	- -	NTU	NA	NA	4.29	NA	9.78	5.01	NA	8.96
Volatile Organics											
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	**1.3**	**0.37 [0.28]**	<3	**0.61**	<3	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	<10 [<10]	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	<10 [<10]	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Benzene	5	200	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	NA	<10 [<10]	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	<10 [<10]	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	<10 [<10]	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
o-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	<1 [<1]	NA	NA
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	NA	<2 [<2]	NA	NA
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	NA	<3 [<3]	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MW-91-4 03/28/17 MW-91-4_032817	MW-91-5 03/28/17 MW-91-5_032817	MW-91-5 12/05/17 MW-91-5_120517	MW-91-6 03/30/17 MW-91-6_033017	MW-91-6 12/07/17 MW-91-6_120717	MWBP-10-UST5-6 04/27/17 MWBP-10-UST5-6_042717	MWBP-10-UST5-6 04/28/17 MWBP-10-UST5-6_042817	MWBP-10-UST5-6 12/06/17 MWBP-10-UST5-6_120617
Inorganics											
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	**0.038** [a,b]	**0.051** [a,b]
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	<0.005	<0.005
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	<0.005	<0.005
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	<0.003	<0.003
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	<0.005	**0.021**
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	<0.005	<0.005
Inorganics - Filtered											
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	**0.014** [a,b]	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	<0.005	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	<0.005	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	<0.003	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	<0.005	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	<0.005	NA
General Chemistry											
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MWBP-11-UST1-4 04/27/17 MWBP-11-UST1-4_042717	MWBP-12A-UST1-4 04/27/17 MWBP-12A-UST1-4_042717	MWBP-12-UST1-4 04/27/17 MWBP-12-UST1-4_042717	P2-MW-04 04/27/17 P2-MW-04_042717	P2-SB-20 04/27/17 P2-SB-20_042717	PW-14-01 04/27/17 PW-14-01_042717	PW-14-01 08/30/17 PW-14-01_083017	PW-14-01 12/07/17 PW-14-01_120717
Field											
Conductance, specific	- -	- -	µmhos/cm	1,030	3,200	1,970	1,440	310	1,870	1,880	1,920
Dissolved oxygen (DO)	- -	- -	mg/L	1.68	0.3	0.36	5.98	0.21	0.36	0.18	5.89
Oxidation reduction potential (ORP), field	- -	- -	millivolts	28.5	-44.5	-50.2	-69.5	0.8	-63.0	-133.9	-107.7
pH	- -	- -	s.u.	9.86	6.81	7.28	7.22	9.87	6.87	6.8	6.89
Temperature, field	- -	- -	°C	11.9	13.6	10.8	14.6	14.8	18.7	22.6	11.9
Turbidity (field)	- -	- -	NTU	1.99	1.13	1.01	30.8	12.2	3.4	1.28	3.04
Volatile Organics											
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	2,800	µg/L	NA	NA	NA	**31** [a]	<3	**530 Y** [a]	**490 Y** [a]	**530 Y** [a]
1,1,1-Trichloroethane	200	89	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	<10	<10	<10	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	<10	<10	<25 X	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5	330	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,1-Dichloroethane	880	740	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,1-Dichloroethene	7	130	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	35	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,2-Dichloroethane	5	360	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Carbon tetrachloride	5	45	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Trichloroethene	5	200	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Tetrachloroethene	5	60	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Vinyl chloride	2	13	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Benzene	5	200	µg/L	<1	<1	**117** [a]	NA	NA	NA	NA	NA
Methyl acetate	- -	- -	µg/L	<10	<10	<10	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Methylene chloride	5	1,500	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	<10	<10	<10	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	<10	<10	<10	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,2-Dichloropropane	5	230	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Cyclohexane	- -	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
o-Xylene	280	41	µg/L	<1	<1	<1	NA	NA	NA	NA	NA
m&p-Xylene	280	41	µg/L	<2	<2	<2	NA	NA	NA	NA	NA
Total Xylenes	280	41	µg/L	<3	<3	<3	NA	NA	NA	NA	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	MWBP-11-UST1-4 04/27/17 MWBP-11-UST1-4_042717	MWBP-12A-UST1-4 04/27/17 MWBP-12A-UST1-4_042717	MWBP-12-UST1-4 04/27/17 MWBP-12-UST1-4_042717	P2-MW-04 04/27/17 P2-MW-04_042717	P2-SB-20 04/27/17 P2-SB-20_042717	PW-14-01 04/27/17 PW-14-01_042717	PW-14-01 08/30/17 PW-14-01_083017	PW-14-01 12/07/17 PW-14-01_120717
Inorganics											
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered											
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry											
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	7.1	23.9

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	PW-14-02 05/02/17 PW-14-02_050217	PW-14-02 12/07/17 PW-14-02_120717	PW-14-03 05/03/17 PW-14-03_050317	PW-14-03 12/07/17 PW-14-03_120717	TW-14-01 04/26/17 TW-14-01_042617	TW-14-01 08/30/17 TW-14-01_083017	TW-14-01 12/07/17 TW-14-01_120717	TW-14-02 04/27/17 TW-14-02_042717	TW-14-02 08/30/17 TW-14-02_083017
Field												
Conductance, specific	- -	- -	µmhos/cm	3,210	2,680	3,700	2,740	3,110	3,100	1,700	3,740	4,090
Dissolved oxygen (DO)	- -	- -	mg/L	5.65	0.26	1.04	1.2	0.26	0.07	1.07	0.58	1.48
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-26.9	-82.7	-51.3	61.4	-53.8	-100.2	-70.0	-40.0	-65.6
pH	- -	- -	s.u.	7.54	7.15	6.49	6.9	6.78	6.69	5.9	6.7	6.67
Temperature, field	- -	- -	°C	10.1	6.6	14.3	5.9	19	15.4	9.5	16.1	15.3
Turbidity (field)	- -	- -	NTU	37.6	3.25	3.76	0.02	2.11	6.37	38.8	19.7	8.03
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,2-Dichlorobenzene	600	13	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,4-Dichlorobenzene	75	17	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,4-Dioxane	7.2	2,800	µg/L	**103** [a]	**230 Y [220 Y]** [a]	**140 Y** [a]	**530 Y [510 Y]** [a]	**80** [a]	**86** [a]	**16** [a]	**2,450 Y [2,270 Y]** [a]	**2,300 Y** [a]
1,1,1-Trichloroethane	200	89	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
2-Hexanone	1,000	- -	µg/L	<10	NA	<10	NA	<10	NA	NA	<10 [<10]	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Acetone	730	1,700	µg/L	<10	NA	<10	NA	<10	NA	NA	<10 [<10]	NA
1,1,2-Trichloroethane	5	330	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Bromodichloromethane	80	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,1-Dichloroethane	880	740	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Bromoform	80	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,1-Dichloroethene	7	130	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Bromomethane (Methyl bromide)	10	35	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,2-Dichloroethane	5	360	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Carbon disulfide	800	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Carbon tetrachloride	5	45	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
cis-1,2-Dichloroethene	70	620	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Chlorobenzene	100	25	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Chloroform (Trichloromethane)	80	350	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Trichloroethene	5	200	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Tetrachloroethene	5	60	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Vinyl chloride	2	13	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Chloroethane	430	1,100	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Benzene	5	200	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Methyl acetate	- -	- -	µg/L	<10	NA	<10	NA	<10	NA	NA	<10 [<10]	NA
Ethylbenzene	74	18	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Methylene chloride	5	1,500	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Styrene	100	80	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Toluene	790	270	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	<10	NA	<10	NA	<10	NA	NA	<10 [<10]	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	<10	NA	<10	NA	<10	NA	NA	<10 [<10]	NA
1,2,4-Trichlorobenzene	70	99	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,2-Dichloropropane	5	230	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
1,3-Dichlorobenzene	6.6	28	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Cyclohexane	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Methyl cyclohexane	- -	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Dibromochloromethane	80	- -	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
Isopropyl benzene	800	28	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
o-Xylene	280	41	µg/L	<1	NA	<1	NA	<1	NA	NA	<1 [<1]	NA
m&p-Xylene	280	41	µg/L	<2	NA	<2	NA	<2	NA	NA	<2 [<2]	NA
Total Xylenes	280	41	µg/L	<3	NA	<3	NA	<3	NA	NA	<3 [<3]	NA

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	PW-14-02 05/02/17 PW-14-02_050217	PW-14-02 12/07/17 PW-14-02_120717	PW-14-03 05/03/17 PW-14-03_050317	PW-14-03 12/07/17 PW-14-03_120717	TW-14-01 04/26/17 TW-14-01_042617	TW-14-01 08/30/17 TW-14-01_083017	TW-14-01 12/07/17 TW-14-01_120717	TW-14-02 04/27/17 TW-14-02_042717	TW-14-02 08/30/17 TW-14-02_083017
Inorganics												
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics - Filtered												
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Total organic carbon (TOC)	- -	- -	mg/L	NA	NA	NA	NA	NA	3.8	98.1	NA	5.2

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	TW-14-02 12/07/17 TW-14-02_120717	TW-16-01 04/27/17 TW-16-01_042717	TW-16-01 08/30/17 TW-16-01_083017	TW-16-01 12/06/17 TW-16-01_120617	UNK-10 05/02/17 UNK-10_050217	UNK-11 05/02/17 UNK-11_050217
Field									
Conductance, specific	- -	- -	µmhos/cm	3,790	2,490	2,590	2,740	4,480	750
Dissolved oxygen (DO)	- -	- -	mg/L	0.14	0.42	0.26	1.3	2.09	0.27
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-63.7	-37.9	-83.2	-114.4	-53.8	-101.1
pH	- -	- -	s.u.	6.63	6.93	6.89	6.41	7.25	7.2
Temperature, field	- -	- -	°C	11.9	14.4	15	12.1	10.9	10.6
Turbidity (field)	- -	- -	NTU	9.4	23.4	145	40.5	9.7	5.4
Volatile Organics									
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	<1	<1
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	<1	<1
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	<1	<1
1,4-Dioxane	7.2	2,800	µg/L	**2,100 Y [1,960 Y]** [a]	**220 Y** [a]	**260 Y** [a]	**910 Y** [a]	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	<1	<1
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	<10	<10
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	<1	<1
Acetone	730	1,700	µg/L	NA	NA	NA	NA	<10	<10
1,1,2-Trichloroethane	5	330	µg/L	NA	NA	NA	NA	<1	<1
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	<1	<1
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	<1	<1
Bromoform	80	- -	µg/L	NA	NA	NA	NA	<1	<1
1,1-Dichloroethene	7	130	µg/L	NA	NA	NA	NA	<1	<1
Bromomethane (Methyl bromide)	10	35	µg/L	NA	NA	NA	NA	<1	<1
1,2-Dichloroethane	5	360	µg/L	NA	NA	NA	NA	<1	<1
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	<1	<1
Carbon tetrachloride	5	45	µg/L	NA	NA	NA	NA	<1	<1
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	<1	<1
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	<1	<1
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	<1	<1
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	<1	<1
Trichloroethene	5	200	µg/L	NA	NA	NA	NA	<1	<1
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	<1	<1
Tetrachloroethene	5	60	µg/L	NA	NA	NA	NA	<1	<1
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	<1	<1
Vinyl chloride	2	13	µg/L	NA	NA	NA	NA	<1	<1
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	<1	<1
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	<1	<1
Benzene	5	200	µg/L	NA	NA	NA	NA	<1	<1
Methyl acetate	- -	- -	µg/L	NA	NA	NA	NA	<10	<10
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	<1	<1
Methylene chloride	5	1,500	µg/L	NA	NA	NA	NA	<1	<1
Styrene	100	80	µg/L	NA	NA	NA	NA	<1	<1
Toluene	790	270	µg/L	NA	NA	NA	NA	<1	<1
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	<1	<1
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	<1	<1
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	<1	<1
Trifluorotrichloroethane (Freon 113)	170,000	32	µg/L	NA	NA	NA	NA	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	<10	<10
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	<1	<1
1,2-Dichloropropane	5	230	µg/L	NA	NA	NA	NA	<1	<1
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	<1	<1
Cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	<1	<1
Methyl cyclohexane	- -	- -	µg/L	NA	NA	NA	NA	<1	<1
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	<1	<1
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	<1	**3**
o-Xylene	280	41	µg/L	NA	NA	NA	NA	<1	<1
m&p-Xylene	280	41	µg/L	NA	NA	NA	NA	<2	<2
Total Xylenes	280	41	µg/L	NA	NA	NA	NA	<3	<3

Table 2
Groundwater Analytical Results, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name:	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	Units	TW-14-02 12/07/17 TW-14-02_120717	TW-16-01 04/27/17 TW-16-01_042717	TW-16-01 08/30/17 TW-16-01_083017	TW-16-01 12/06/17 TW-16-01_120617	UNK-10 05/02/17 UNK-10_050217	UNK-11 05/02/17 UNK-11_050217
Inorganics									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA
Inorganics - Filtered									
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA
General Chemistry									
Total organic carbon (TOC)	- -	- -	mg/L	8.2	NA	6.2	148	NA	NA

Notes:

[a] Sample exceeds residential drinking water criteria.

[b] Sample exceeds groundwater surface water interface criteria.

Bold fonts represent data where detections were noted greater than the laboratory method detection limit.
Data shown in [ ] represent duplicate sample analytical results.
MDEQ = Michigan Department of Environmental Quality
mg/L = milligrams per liter
MI GW (DEQ2013) GSI = MDEQ 2013 Groundwater/Surface Water Interface Criteria
MI GW (DEQ2013) RES DW = MDEQ 2013 Residential Drinking Water Criteria
NA = not analyzed
NTU = nephelometric turbidity unit
RACER = Revitalizing Auto Communities Environmental Response
s.u. = standard unit
Shading indicates result exceeding one or more MDEQ Part 201 Generic Cleanup Criteria and Screening Levels, dated December 30, 2013 (1,4-dioxane criteria issued October 2016).
°C = degrees Celsius
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter
- - = not listed in the MDEQ criteria tables
< = less than

Laboratory and Validation Data Qualifiers:

X = Elevated reporting limit due to matrix interference.
Y = Elevated reporting limit due to high target concentration.

Table 3
LNAPL Thickness, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 2								
AS-16-01	4/24/2017	862.74	862.13	75.42	61.45	NP	NP	801.29
AS-16-01	8/30/2017	862.74	862.13	75.35	61.85	NP	NP	800.89
AS-16-01	12/4/2017	862.74	862.13	75.35	59.60	NP	NP	803.14
AS-16-02	4/24/2017	861.96	862.17	76.42	64.81	NP	NP	797.15
AS-16-02	8/30/2017	861.96	862.17	76.18	63.83	NP	NP	798.13
AS-16-02	12/4/2017	861.96	862.17	79.65	59.85	NP	NP	802.11
LMW-12-01	3/7/2017	864.91	862.14	NM	9.31	NP	NP	855.60
LMW-12-01	4/24/2017	864.91	862.14	14.76	8.36	NP	NP	856.55
LMW-12-01	8/29/2017	864.91	862.14	NM	11.91	NP	NP	853.00
LMW-12-01	12/4/2017	864.91	862.14	14.76	7.73	NP	NP	857.18
LMW-12-02	3/7/2017	865.25	862.17	NM	7.01	NP	NP	858.24
LMW-12-02	4/24/2017	865.25	862.17	12.90	6.54	NP	NP	858.71
LMW-12-02	8/29/2017	865.25	862.17	NM	9.11	NP	NP	856.14
LMW-12-02	12/4/2017	865.25	862.17	12.90	7.76	NP	NP	857.49
LMW-12-03D	3/7/2017	864.99	862.08	NM	13.90	10.11	3.79	854.50*
LMW-12-03D	4/24/2017	864.99	862.08	NM	12.45	9.75	2.70	854.97*
LMW-12-03D	5/26/2017	864.99	862.08	NM	12.35	10.40	1.95	854.39*
LMW-12-03D	6/28/2017	864.99	862.08	NM	13.51	11.10	2.41	853.65*
LMW-12-03D	7/27/2017	864.99	862.08	NM	14.12	11.86	2.26	852.90*
LMW-12-03D	8/29/2017	864.99	862.08	NM	14.35	11.95	2.40	852.80*
LMW-12-03D	9/29/2017	864.99	862.08	NM	16.35	12.72	3.63	851.91*
LMW-12-03D	11/7/2017	864.99	862.08	NM	13.70	11.28	2.42	853.47*
LMW-12-03D	11/22/2017	864.99	862.08	NM	11.90	10.23	1.67	854.59*
LMW-12-03D	12/4/2017	864.99	862.08	NM	11.05	10.88	0.17	854.09*
LMW-12-03S	3/7/2017	864.93	862.06	NM	7.79	NP	NP	857.14
LMW-12-03S	4/24/2017	864.93	862.06	11.75	7.25	NP	NP	857.68
LMW-12-03S	8/29/2017	864.93	862.06	NM	8.55	NP	NP	856.38
LMW-12-03S	12/4/2017	864.93	862.06	NM	8.31	8.30	0.01	856.63*
LMW-12-04	3/7/2017	864.94	862.12	NM	10.02	NP	NP	854.92
LMW-12-04	4/24/2017	864.94	862.12	23.66	9.53	NP	NP	855.41
LMW-12-04	8/29/2017	864.94	862.12	NM	11.87	NP	NP	853.07
LMW-12-04	12/4/2017	864.94	862.12	23.68	10.51	NP	NP	854.43
LMW-12-05	3/7/2017	865.03	862.17	NM	11.10	10.78	0.32	854.22*
LMW-12-05	4/24/2017	865.03	862.17	NM	9.75	9.60	0.15	855.41*
LMW-12-05	8/29/2017	865.03	862.17	NM	12.71	12.57	0.14	852.45*
LMW-12-05	12/4/2017	865.03	862.17	NM	11.05	10.94	0.11	854.08*
LMW-12-06	3/7/2017	865.02	862.15	NM	7.19	NP	NP	857.83
LMW-12-06	4/24/2017	865.02	862.15	12.04	7.05	NP	NP	857.97
LMW-12-06	8/29/2017	865.02	862.15	NM	7.48	NP	NP	857.54
LMW-12-06	12/4/2017	865.02	862.15	11.96	7.35	NP	NP	857.67
LMW-12-07	3/7/2017	864.13	861.50	NM	5.58	NP	NP	858.55
LMW-12-07	4/24/2017	864.13	861.50	11.95	5.65	NP	NP	858.48
LMW-12-07	8/29/2017	864.13	861.50	NM	7.20	NP	NP	856.93
LMW-12-07	12/4/2017	864.13	861.50	11.94	6.00	NP	NP	858.13
LMW-12-08	3/7/2017	864.40	861.56	NM	10.00	8.08	1.92	856.13*
LMW-12-08	4/24/2017	864.40	861.56	NM	9.65	8.03	1.62	856.21*
LMW-12-08	8/29/2017	864.40	861.56	NM	11.33	9.25	2.08	854.94*
LMW-12-08	12/4/2017	864.40	861.56	NM	10.80	8.52	2.28	855.65*
LMW-14-12D	3/7/2017	864.59	862.11	NM	24.80	8.35	16.45	854.59*
LMW-14-12D	4/24/2017	864.59	862.11	NM	24.79	7.85	16.94	855.04*
LMW-14-12D	5/26/2017	864.59	862.11	NM	24.80	8.41	16.39	854.53*
LMW-14-12D	6/28/2017	864.59	862.11	NM	24.82	9.26	15.56	853.77*
LMW-14-12D	7/27/2017	864.59	862.11	NM	24.82	10.11	14.71	853.00*
LMW-14-12D	8/29/2017	864.59	862.11	NM	24.84	10.62	14.22	852.54*
LMW-14-12D	9/29/2017	864.59	862.11	NM	24.82	11.02	13.80	852.18*
LMW-14-12D	11/7/2017	864.59	862.11	NM	24.82	9.52	15.30	853.53*
LMW-14-12D	11/22/2017	864.59	862.11	NM	24.80	8.24	16.56	854.69*

Table 3
LNAPL Thickness, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 2								
LMW-14-12D	12/4/2017	864.59	862.11	24.90	NM	8.94	NM	NM
LMW-14-13D	3/7/2017	865.03	862.06	NM	10.20	NP	NP	854.83
LMW-14-13D	4/24/2017	865.03	862.06	24.31	9.44	NP	NP	855.59
LMW-14-13D	5/26/2017	865.03	862.06	NM	9.98	NP	NP	855.05
LMW-14-13D	6/28/2017	865.03	862.06	NM	10.79	NP	NP	854.24
LMW-14-13D	7/27/2017	865.03	862.06	NM	11.54	NP	NP	853.49
LMW-14-13D	8/29/2017	865.03	862.06	NM	11.90	NP	NP	853.13
LMW-14-13D	9/29/2017	865.03	862.06	NM	12.83	NP	NP	852.20
LMW-14-13D	11/7/2017	865.03	862.06	NM	10.97	NP	NP	854.06
LMW-14-13D	11/22/2017	865.03	862.06	NM	9.78	NP	NP	855.25
LMW-14-13D	12/4/2017	865.03	862.06	24.34	10.43	NP	NP	854.60
LMW-14-14D	3/7/2017	864.89	861.90	NM	12.50	NP	NP	852.39
LMW-14-14D	4/24/2017	864.89	861.90	25.05	11.90	NP	NP	852.99
LMW-14-14D	5/26/2017	864.89	861.90	NM	12.11	NP	NP	852.78
LMW-14-14D	6/28/2017	864.89	861.90	NM	12.75	NP	NP	852.14
LMW-14-14D	7/27/2017	864.89	861.90	NM	13.54	NP	NP	851.35
LMW-14-14D	8/29/2017	864.89	861.90	NM	14.74	NP	NP	850.15
LMW-14-14D	9/29/2017	864.89	861.90	NM	14.71	NP	NP	850.18
LMW-14-14D	11/7/2017	864.89	861.90	NM	12.95	NP	NP	851.94
LMW-14-14D	11/22/2017	864.89	861.90	NM	11.89	NP	NP	853.00
LMW-14-14D	12/4/2017	864.89	861.90	25.03	12.66	NP	NP	852.23
LMW-14-15D	3/7/2017	865.11	861.66	22.60	NM	9.19	NM	NM
LMW-14-15D	4/24/2017	865.11	861.66	22.50	NM	9.60	NM	NM
LMW-14-15D	5/26/2017	865.11	861.66	NM	22.65	9.96	12.69	853.87*
LMW-14-15D	6/28/2017	865.11	861.66	NM	22.63	10.61	12.02	853.29*
LMW-14-15D	7/27/2017	865.11	861.66	NM	22.64	11.02	11.62	852.92*
LMW-14-15D	8/29/2017	865.11	861.66	NM	22.64	11.61	11.03	852.39*
LMW-14-15D	9/29/2017	865.11	861.66	NM	22.63	12.39	10.24	851.69*
LMW-14-15D	11/7/2017	865.11	861.66	NM	22.63	10.80	11.83	853.12*
LMW-14-15D	11/22/2017	865.11	861.66	NM	22.17	9.51	12.66	854.33*
LMW-14-15D	12/4/2017	865.11	861.66	NM	19.95	10.46	9.49	853.70*
LMW-15-16D	3/7/2017	865.20	862.24	NM	21.25	12.30	8.95	852.00*
LMW-15-16D	4/24/2017	865.20	862.24	NM	22.73	11.50	11.23	852.57*
LMW-15-16D	5/26/2017	865.20	862.24	NM	24.10	11.56	12.54	852.38*
LMW-15-16D	6/28/2017	865.20	862.24	NM	18.40	13.13	5.27	851.54*
LMW-15-16D	7/27/2017	865.20	862.24	NM	17.76	13.85	3.91	850.96*
LMW-15-16D	8/29/2017	865.20	862.24	NM	18.45	14.31	4.14	850.47*
LMW-15-16D	9/29/2017	865.20	862.24	NM	22.22	14.61	7.61	849.83*
LMW-15-16D	11/7/2017	865.20	862.24	NM	18.49	13.48	5.01	851.22*
LMW-15-16D	11/22/2017	865.20	862.24	NM	15.65	12.35	3.30	852.52*
LMW-15-16D	12/4/2017	865.20	862.24	NM	15.36	13.20	2.16	851.78*
LMW-15-17D	3/7/2017	865.21	862.24	NM	10.45	NP	NP	854.76
LMW-15-17D	4/24/2017	865.21	862.24	27.28	4.80	NP	NP	860.41
LMW-15-17D	5/26/2017	865.21	862.24	NM	11.46	NP	NP	853.75
LMW-15-17D	6/28/2017	865.21	862.24	27.31	11.16	NP	NP	854.05
LMW-15-17D	7/27/2017	865.21	862.24	NM	11.99	NP	NP	853.22
LMW-15-17D	8/29/2017	865.21	862.24	NM	12.14	NP	NP	853.07
LMW-15-17D	9/29/2017	865.21	862.24	NM	13.17	NP	NP	852.04
LMW-15-17D	11/7/2017	865.21	862.24	NM	11.38	NP	NP	853.83
LMW-15-17D	11/22/2017	865.21	862.24	NM	10.30	NP	NP	854.91
LMW-15-17D	12/4/2017	865.21	862.24	27.29	10.82	NP	NP	854.39
MW-01(2)	4/24/2017	875.79	876.10	15.95	6.49	NP	NP	869.30
MW-02(2)	4/24/2017	875.96	876.20	21.20	8.40	NP	NP	867.56
MW-03(2)	4/24/2017	876.70	876.79	19.15	6.80	NP	NP	869.90
MW-12-01	4/24/2017	867.94	865.46	111.10	78.60	NP	NP	789.34
MW-12-01	12/4/2017	867.94	865.46	93.70	75.64	NP	NP	792.30
MW-12-02	4/24/2017	853.91	851.88	97.10	68.75	NP	NP	785.16

Table 3
LNAPL Thickness, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 2								
MW-12-02	12/4/2017	853.91	851.88	101.22	66.80	NP	NP	787.11
MW-12-05R	4/24/2017	864.79	862.30	115.50	77.35	NP	NP	787.44
MW-12-05R	12/4/2017	864.79	862.30	112.00	75.00	NP	NP	789.79
MW-12-06	4/24/2017	864.64	861.69	89.00	76.15	NP	NP	788.49
MW-12-06	12/4/2017	864.64	861.69	103.60	73.68	NP	NP	790.96
MW-12-07	4/24/2017	872.11	869.21	17.75	5.99	NP	NP	866.12
MW-12-08	4/24/2017	864.53	861.55	27.43	5.74	NP	NP	858.79
MW-12-09	4/24/2017	863.54	860.63	21.65	13.21	NP	NP	850.33
MW-12-17	4/24/2017	875.47	875.83	14.00	5.72	NP	NP	869.75
MW-12-18	4/24/2017	866.43	864.19	34.85	22.74	NP	NP	843.69
MW-12-18	12/4/2017	866.43	864.19	34.64	24.50	NP	NP	841.93
MW-13-42	4/24/2017	861.61	860.03	78.00	74.91	NP	NP	786.70
MW-13-43	4/24/2017	863.82	860.97	80.60	70.36	NP	NP	793.46
MW-13-43	12/4/2017	863.82	860.97	79.73	69.11	NP	NP	794.71
MW-13-44	4/24/2017	864.24	861.03	122.50	78.64	NP	NP	785.60
MW-13-44	12/4/2017	864.24	861.03	119.16	76.51	NP	NP	787.73
MW-13-45	4/24/2017	863.80	861.54	79.60	69.31	NP	NP	794.49
MW-13-45	12/4/2017	863.80	861.54	78.23	68.12	NP	NP	795.68
MW-13-51	4/24/2017	875.34	872.51	89.79	73.99	NP	NP	801.35
MW-14-54	4/24/2017	865.21	862.21	19.07	12.71	NP	NP	852.50
MW-14-55	4/24/2017	864.17	861.73	20.05	15.73	NP	NP	848.44
MW-14-56	4/24/2017	863.27	860.56	79.02	73.20	NP	NP	790.07
MW-14-56	12/4/2017	863.27	860.56	79.25	56.84	NP	NP	806.43
MW-14-57	4/24/2017	863.97	861.10	21.40	12.57	NP	NP	851.40
MW-14-58	4/24/2017	863.12	860.12	29.92	13.65	NP	NP	849.47
MW-14-58	12/4/2017	863.12	860.12	29.90	14.30	NP	NP	848.82
MW-14-59	4/24/2017	864.61	861.80	18.85	7.16	NP	NP	857.45
MW-14-60	4/24/2017	864.65	861.80	23.55	12.36	NP	NP	852.29
MW-14-61	4/24/2017	865.51	862.30	78.30	72.06	NP	NP	793.45
MW-14-62	4/24/2017	865.17	862.25	19.63	5.80	NP	NP	859.37
MW-14-63	4/24/2017	854.64	851.68	77.60	68.82	NP	NP	785.82
MW-14-63	12/4/2017	854.64	851.68	76.71	66.66	NP	NP	787.98
MW-15-72	4/24/2017	865.09	862.35	71.30	59.67	NP	NP	805.42
MW-15-72	12/4/2017	865.09	862.35	70.54	59.09	NP	NP	806.00
MW-15-73	4/24/2017	861.56	859.12	82.20	74.69	NP	NP	786.87
MW-15-73	12/4/2017	861.56	859.12	80.90	72.03	NP	NP	789.53
MW-16-74	4/24/2017	864.81	862.10	73.70	68.32	NP	NP	796.49
MW-16-74	12/4/2017	864.81	862.10	73.70	67.71	NP	NP	797.10
MW-16-75	4/24/2017	864.87	862.13	74.10	65.41	NP	NP	799.46
MW-16-75	12/4/2017	864.87	862.13	74.85	62.62	NP	NP	802.25
MW-16-76	4/24/2017	867.76	865.12	82.15	67.61	NP	NP	800.15
MW-16-76	12/4/2017	867.76	865.12	82.50	66.46	NP	NP	801.30
MW-16-77	4/24/2017	866.17	863.42	74.12	64.85	NP	NP	801.32
MW-16-77	12/4/2017	866.17	863.42	74.50	63.71	NP	NP	802.46
MW-16-78	4/24/2017	864.98	862.09	76.20	68.51	NP	NP	796.47
MW-16-78	12/4/2017	864.98	862.09	76.75	68.74	NP	NP	796.24
MW-16-79	4/24/2017	864.80	862.07	76.20	70.50	NP	NP	794.30
MW-16-79	12/4/2017	864.80	862.07	76.77	68.55	NP	NP	796.25
MW-16-80	4/24/2017	853.03	853.41	74.20	66.83	NP	NP	786.20
MW-16-80	12/4/2017	853.03	853.41	73.43	64.53	NP	NP	788.50
MW-16-81	3/6/2017	864.68	862.04	77.35	69.78	NP	NP	794.90
MW-16-81	4/24/2017	864.68	862.04	78.30	69.24	NP	NP	795.44
MW-16-81	8/30/2017	864.68	862.04	77.33	68.84	NP	NP	795.84
MW-16-81	12/4/2017	864.68	862.04	77.30	68.25	NP	NP	796.43
MW-16-82	3/6/2017	864.79	862.10	77.20	70.41	NP	NP	794.38
MW-16-82	4/24/2017	864.79	862.10	78.30	69.75	NP	NP	795.04
MW-16-82	8/30/2017	864.79	862.10	77.16	69.17	NP	NP	795.62

Table 3
LNAPL Thickness, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 2								
MW-16-82	12/4/2017	864.79	862.10	77.10	68.59	NP	NP	796.20
MW-16-83	4/24/2017	862.97	860.17	79.50	75.00	NP	NP	787.97
MW-16-83	12/4/2017	862.97	860.17	80.00	72.30	NP	NP	790.67
MW-16-84	3/6/2017	864.09	861.81	81.15	74.49	NP	NP	789.60
MW-16-84	4/24/2017	864.09	861.81	82.00	73.74	NP	NP	790.35
MW-16-84	8/30/2017	864.09	861.81	81.15	72.45	NP	NP	791.64
MW-16-84	12/4/2017	864.09	861.81	81.10	71.85	NP	NP	792.24
MW-16-85	4/24/2017	864.77	861.87	83.30	74.83	NP	NP	789.94
MW-16-85	12/4/2017	864.77	861.87	81.80	72.85	NP	NP	791.92
MW-17-86	4/24/2017	864.55	861.92	82.20	71.24	NP	NP	793.31
MW-17-86	12/4/2017	864.55	861.92	81.40	69.33	NP	NP	795.22
MW-17-87	4/24/2017	862.82	860.44	106.00	75.34	NP	NP	787.48
MW-17-87	12/4/2017	862.82	860.44	115.40	72.68	NP	NP	790.14
P2-MW-01	4/24/2017	858.00	858.35	35.80	14.66	NP	NP	843.34
P2-MW-02	4/24/2017	872.24	872.70	40.22	37.01	NP	NP	835.23
P2-MW-03	4/24/2017	854.18	854.66	27.20	9.03	NP	NP	845.15
P2-MW-04	4/24/2017	862.28	862.59	35.70	10.02	NP	NP	852.26
P2-SB-03	4/24/2017	863.89	861.03	22.05	16.53	NP	NP	847.36
P2-SB-06	4/24/2017	866.06	862.09	33.62	18.48	NP	NP	847.58
P2-SB-20	4/24/2017	864.46	861.12	16.20	8.27	NP	NP	856.19
P2-SB-37	3/7/2017	865.90	861.90	NM	7.00	5.90	1.10	859.89*
P2-SB-37	4/24/2017	865.90	861.90	NM	6.78	5.75	1.03	860.05*
P2-SB-37	8/29/2017	865.90	861.90	NM	9.37	8.33	1.04	857.47*
P2-SB-37	12/4/2017	865.90	861.90	NM	9.11	8.52	0.59	857.32*
PMW-01	3/7/2017	860.85	861.33	NM	4.05	1.89	2.16	858.74*
PMW-01	4/24/2017	860.85	861.33	NM	4.85	1.70	3.15	858.83*
PMW-01	8/29/2017	860.85	861.33	NM	6.40	3.32	3.08	857.22*
PMW-01	12/4/2017	860.85	861.33	NM	5.20	3.07	2.13	857.56*
PMW-02	3/7/2017	860.94	861.33	NM	0.02	0.00	0.02	860.94*
PMW-02	4/24/2017	860.94	861.33	7.50	1.23	NP	NP	859.71
PMW-02	8/29/2017	860.94	861.33	NM	2.69	2.68	0.01	858.26*
PMW-02	12/4/2017	860.94	861.33	NM	1.77	1.76	0.01	859.18*
PMW-03	3/7/2017	861.59	862.12	NM	2.35	NP	NP	859.24
PMW-03	4/24/2017	861.59	862.12	6.01	2.01	NP	NP	859.58
PMW-03	8/29/2017	861.59	862.12	NM	3.59	NP	NP	858.00
PMW-03	12/4/2017	861.59	862.12	6.20	2.50	NP	NP	859.09
PW-14-01	4/24/2017	864.97	862.38	85.65	65.85	NP	NP	799.12
PW-14-01	8/30/2017	864.97	862.38	81.83	65.22	NP	NP	799.75
PW-14-01	12/4/2017	864.97	862.38	81.80	63.77	NP	NP	801.20
PW-14-02	4/24/2017	863.87	860.93	88.10	70.05	NP	NP	793.82
PW-14-02	12/4/2017	863.87	860.93	85.00	68.87	NP	NP	795.00
TW-14-01	4/24/2017	865.08	862.27	78.20	66.04	NP	NP	799.04
TW-14-01	8/30/2017	865.08	862.27	78.16	65.08	NP	NP	800.00
TW-14-01	12/4/2017	865.08	862.27	78.05	62.75	NP	NP	802.33
TW-14-02	4/24/2017	865.01	862.13	74.19	63.90	NP	NP	801.11
TW-14-02	8/30/2017	865.01	862.13	74.15	63.24	NP	NP	801.77
TW-14-02	12/4/2017	865.01	862.13	74.10	61.75	NP	NP	803.26
TW-16-01	4/24/2017	861.81	862.16	78.00	63.78	NP	NP	798.03
TW-16-01	8/30/2017	861.81	862.16	77.91	62.73	NP	NP	799.08
TW-16-01	12/4/2017	861.81	862.16	77.90	59.52	NP	NP	802.29
Plant 3								
CH-14-RO	4/24/2017	866.44	863.68	14.84	6.94	NP	NP	859.50
LMW-12-09	3/6/2017	863.22	860.40	10.75	4.25	NP	NP	858.97
LMW-12-09	4/24/2017	863.22	860.40	10.75	4.29	NP	NP	858.93
LMW-12-09	8/29/2017	863.22	860.40	NM	5.38	NP	NP	857.84
LMW-12-09	12/4/2017	863.22	860.40	10.81	4.56	NP	NP	858.66
LMW-12-10	3/6/2017	866.82	863.60	21.40	NM	9.70	NM	NM

Table 3
LNAPL Thickness, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 3								
LMW-12-10	4/24/2017	866.82	863.60	NM	15.82	8.38	7.44	857.69*
LMW-12-10	5/26/2017	866.82	863.60	NM	10.32	9.65	0.67	857.10*
LMW-12-10	6/28/2017	866.82	863.60	NM	11.15	10.04	1.11	856.67*
LMW-12-10	7/27/2017	866.82	863.60	NM	11.45	10.85	0.60	855.91*
LMW-12-10	8/29/2017	866.82	863.60	NM	11.91	10.99	0.92	855.74*
LMW-12-10	9/29/2017	866.82	863.60	NM	13.02	11.55	1.47	855.12*
LMW-12-10	11/7/2017	866.82	863.60	NM	11.31	10.16	1.15	856.54*
LMW-12-10	11/22/2017	866.82	863.60	NM	10.95	10.27	0.68	856.48*
LMW-12-10	12/4/2017	866.82	863.60	NM	11.70	11.17	0.53	855.60*
LMW-12-11	3/6/2017	866.53	863.53	22.85	11.91	NP	NP	854.62
LMW-12-11	4/24/2017	866.53	863.53	22.84	11.06	NP	NP	855.47
LMW-12-11	8/29/2017	866.53	863.53	NM	12.69	NP	NP	853.84
LMW-12-11	12/4/2017	866.53	863.53	22.90	12.06	NP	NP	854.47
MW-02-01(3)	4/24/2017	865.54	863.35	72.11	54.06	NP	NP	811.48
MW-02-02(3)	4/24/2017	862.70	863.11	84.11	66.83	NP	NP	795.87
MW-02-03(3)	4/24/2017	859.63	859.90	90.10	64.37	NP	NP	795.26
MW-02-04(3)	4/24/2017	862.61	862.93	84.19	64.31	NP	NP	798.30
MW-04(3)	4/24/2017	859.40	859.79	15.73	3.94	NP	NP	855.46
MW-04-01(3)	4/24/2017	862.61	862.93	106.20	53.39	NP	NP	809.22
MW-04-02(3)	4/24/2017	861.09	861.26	133.80	66.58	NP	NP	794.51
MW-04-03(3)	4/24/2017	860.72	861.00	88.19	65.25	NP	NP	795.47
MW-04-04(3)	4/24/2017	855.72	856.11	82.15	59.93	NP	NP	795.79
MW-05(3)	4/24/2017	859.02	859.79	15.21	3.83	NP	NP	855.19
MW-06(3)	4/24/2017	859.52	859.79	11.52	2.74	NP	NP	856.78
MW-12-04	4/25/2017	844.08	844.26	99.96	50.46	NP	NP	793.62
MW-12-19	4/24/2017	859.55	859.96	8.90	5.79	NP	NP	853.76
MW-12-20	4/24/2017	864.20	861.45	79.49	68.64	NP	NP	795.56
MW-12-21	4/24/2017	864.50	861.45	78.03	68.24	NP	NP	796.26
MW-12-21	12/4/2017	864.50	861.45	78.04	67.04	NP	NP	797.46
MW-13-22	4/24/2017	864.37	861.50	97.32	71.07	NP	NP	793.30
MW-13-23	4/24/2017	864.31	861.45	78.20	72.34	NP	NP	791.97
MW-13-24	4/27/2017	864.35	861.48	77.33	67.69	NP	NP	796.66
MW-13-25	4/24/2017	863.77	860.49	75.04	69.60	NP	NP	794.17
MW-13-25	12/4/2017	863.77	860.49	74.98	68.57	NP	NP	795.20
MW-13-26	4/24/2017	863.95	861.67	79.15	67.56	NP	NP	796.39
MW-13-27	4/24/2017	864.50	861.54	75.88	71.24	NP	NP	793.26
MW-13-28	4/24/2017	864.42	861.61	118.45	71.73	NP	NP	792.69
MW-13-28	12/4/2017	864.42	861.61	114.73	70.18	NP	NP	794.24
MW-13-29	4/24/2017	862.81	859.81	76.30	69.72	NP	NP	793.09
MW-13-30	4/24/2017	864.53	861.66	79.71	69.79	NP	NP	794.74
MW-13-31	4/24/2017	861.27	858.36	12.80	7.29	NP	NP	853.98
MW-13-31	12/4/2017	861.27	858.36	12.79	8.46	NP	NP	852.81
MW-13-32	4/24/2017	860.11	857.32	12.64	6.03	NP	NP	854.08
MW-13-32	12/4/2017	860.11	857.32	12.63	7.14	NP	NP	852.97
MW-13-33	4/24/2017	860.71	857.69	19.14	8.69	NP	NP	852.02
MW-13-34	4/25/2017	853.92	851.82	79.93	67.09	NP	NP	786.83
MW-13-34	12/4/2017	853.92	851.82	79.93	65.29	NP	NP	788.63
MW-13-37	4/24/2017	866.02	863.75	118.20	72.98	NP	NP	793.04
MW-13-38	4/24/2017	866.47	863.71	131.30	73.83	NP	NP	792.64
MW-13-38	12/4/2017	866.47	863.71	126.32	72.70	NP	NP	793.77
MW-13-39B	4/24/2017	860.20	857.33	109.71	67.42	NP	NP	792.78
MW-13-40	4/24/2017	862.67	859.69	79.25	64.71	NP	NP	797.96
MW-13-41	4/24/2017	866.38	863.68	81.83	65.11	NP	NP	801.27
MW-13-46	4/25/2017	854.54	852.12	74.63	65.89	NP	NP	788.65
MW-13-46	12/4/2017	854.54	852.12	74.60	64.17	NP	NP	790.37
MW-13-47	4/24/2017	853.74	851.89	114.18	66.84	NP	NP	786.90
MW-13-47	12/4/2017	853.74	851.89	114.18	65.02	NP	NP	788.72

Table 3
LNAPL Thickness, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 3								
MW-13-48	4/25/2017	854.83	852.17	73.06	61.43	NP	NP	793.40
MW-13-48	12/4/2017	854.83	852.17	73.04	60.35	NP	NP	794.48
MW-13-49	4/25/2017	853.01	850.55	81.65	67.25	NP	NP	785.76
MW-14-64	4/24/2017	864.56	861.77	107.94	71.23	NP	NP	793.33
MW-14-65	4/24/2017	866.34	863.71	13.20	6.25	NP	NP	860.09
MW-15-71	4/24/2017	864.56	861.58	119.45	69.16	NP	NP	795.40
MW-19	4/24/2017	859.74	859.92	64.95	53.90	NP	NP	805.84
MW-22	4/24/2017	859.69	860.08	63.95	52.97	NP	NP	806.72
MW-23	4/24/2017	859.45	859.76	61.35	52.14	NP	NP	807.31
MW-88-1	4/24/2017	858.75	859.06	139.65	70.59	NP	NP	788.16
MW-91-2	4/24/2017	863.62	863.88	81.40	61.49	NP	NP	802.13
MW-91-3	4/24/2017	860.81	859.35	120.59	71.09	NP	NP	789.72
MW-91-4	4/24/2017	855.59	855.93	132.89	61.63	NP	NP	793.96
MW-91-5	4/24/2017	860.61	861.20	126.33	65.19	NP	NP	795.42
MW-91-5	12/4/2017	860.61	861.20	126.43	63.90	NP	NP	796.71
MW-91-6	4/25/2017	851.84	852.22	95.78	63.11	NP	NP	788.73
MW-91-6	12/4/2017	851.84	852.22	95.42	61.44	NP	NP	790.40
P3-SB-07	4/24/2017	866.84	863.63	19.64	8.76	NP	NP	858.08
P3-SB-28	4/24/2017	866.43	863.63	10.36	5.20	NP	NP	861.23
PW-14-03	4/24/2017	864.31	861.55	102.00	73.56	NP	NP	790.75
PW-14-03	12/4/2017	864.31	861.55	94.27	71.99	NP	NP	792.32
UNK-09	4/24/2017	859.42	860.02	15.28	2.48	NP	NP	856.94
UNK-10	4/24/2017	859.34	860.05	15.33	2.83	NP	NP	856.51
UNK-11	4/24/2017	859.91	860.17	11.82	4.29	NP	NP	855.62
UNK-13	3/6/2017	859.11	859.91	14.95	3.98	NP	NP	855.13
UNK-13	4/24/2017	859.11	859.91	14.96	3.89	NP	NP	855.22
UNK-13	8/29/2017	859.11	859.91	NM	4.37	NP	NP	854.74
UNK-13	12/4/2017	859.11	859.91	15.05	3.83	NP	NP	855.28
UNK-14	3/6/2017	859.32	859.70	NM	4.78	3.02	1.76	856.12*
UNK-14	4/24/2017	859.32	859.70	NM	4.56	2.77	1.79	856.37*
UNK-14	8/29/2017	859.32	859.70	NM	4.59	4.00	0.59	855.26*
UNK-14	12/4/2017	859.32	859.70	NM	3.24	3.23	0.01	856.09*
UNK-15	4/24/2017	859.56	859.94	NM	2.50	NP	NP	857.06
Plant 6								
MW-02-01(6)	4/24/2017	865.54	863.35	40.08	27.55	NP	NP	837.99
MW-02-02(6)	4/24/2017	868.04	868.41	43.39	29.93	NP	NP	838.11
MW-02-03(6)	4/27/2017	869.54	869.97	44.62	30.72	NP	NP	838.82
MW-03-02	4/24/2017	864.52	864.76	39.35	21.98	NP	NP	842.54
MW-03-04	4/24/2017	865.28	865.53	42.69	22.12	NP	NP	843.16
MW-03-05	4/24/2017	868.90	869.14	NM	DRY	NP	NP	DRY
MW-03-06	4/24/2017	870.45	870.80	40.57	36.20	NP	NP	834.25
MW-03-07	4/24/2017	866.88	867.02	40.50	26.16	NP	NP	840.72
MW-03-08	4/24/2017	869.03	869.39	44.93	33.38	NP	NP	835.65
MW-04-01(6)	4/24/2017	866.85	867.15	87.97	75.65	NP	NP	791.20
MW-04-04R	4/24/2017	873.31	870.64	111.08	81.43	NP	NP	791.88
MW-04-05(6)	4/24/2017	858.33	858.87	29.63	9.52	NP	NP	848.81
MW-04-06R	4/24/2017	861.56	858.59	78.02	71.01	NP	NP	790.55
MW-12-03	4/24/2017	859.10	856.71	82.31	68.80	NP	NP	790.30
MW-12-10	4/24/2017	860.89	858.82	17.97	10.29	NP	NP	850.60
MW-12-11	4/24/2017	857.26	857.68	16.79	2.06	NP	NP	855.20
MW-12-11	12/4/2017	857.26	857.68	16.79	5.13	NP	NP	852.13
MW-12-12	4/24/2017	874.34	874.61	17.21	6.28	NP	NP	868.06
MW-12-12	12/4/2017	874.34	874.61	17.20	7.75	NP	NP	866.59
MW-12-13	4/24/2017	882.60	880.51	25.41	9.80	NP	NP	872.80
MW-12-13	12/4/2017	882.60	880.51	25.40	9.94	NP	NP	872.66
MW-12-14	4/24/2017	872.56	869.28	32.05	23.94	NP	NP	848.62
MW-12-15	4/24/2017	865.23	865.49	22.66	19.66	NP	NP	845.57

Table 3
LNAPL Thickness, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 6								
MW-12-16	4/24/2017	864.24	864.73	32.18	22.99	NP	NP	841.25
MW-12-16	12/4/2017	864.24	864.73	32.16	22.70	NP	NP	841.54
MW-13-35	4/24/2017	864.81	865.23	29.50	23.74	NP	NP	841.07
MW-13-35	12/4/2017	864.81	865.23	29.45	23.45	NP	NP	841.36
MW-13-36R	4/24/2017	878.04	875.28	12.78	4.89	NP	NP	873.15
MW-13-36R	12/4/2017	878.04	875.28	12.77	6.03	NP	NP	872.01
MW-13-50	4/24/2017	872.85	869.93	109.87	82.04	NP	NP	790.81
MW-13-52	4/24/2017	872.50	869.84	81.45	70.43	NP	NP	802.07
MW-13-53	4/24/2017	875.56	873.10	85.45	77.02	NP	NP	798.54
MW-14-66	4/24/2017	877.85	874.73	22.22	5.27	NP	NP	872.58
MW-14-67	4/24/2017	877.76	875.07	20.84	4.73	NP	NP	873.03
MW-14-68	4/24/2017	878.44	875.42	44.08	DRY	NP	NP	DRY
MW-14-69	4/24/2017	883.62	880.72	48.99	DRY	NP	NP	DRY
MW-14-70	4/24/2017	882.79	880.08	23.12	9.60	NP	NP	873.19
MWBP-10-UST5-6	4/24/2017	867.70	867.99	36.85	30.73	NP	NP	836.97
MWBP-10-UST5-6	12/4/2017	867.70	867.99	36.83	30.66	NP	NP	837.04
MWBP-11-UST1-4	4/24/2017	868.66	869.07	11.22	2.65	NP	NP	866.01
MWBP-12A-UST1-4	4/24/2017	869.74	869.96	36.72	29.29	NP	NP	840.45
MWBP-12-UST1-4	4/24/2017	870.02	870.58	11.24	7.90	NP	NP	862.12
MWBP-12-UST5-6	4/24/2017	NM	NM	38.50	32.28	NP	NP	NM
MWBP-13A-UST1-4	4/24/2017	869.99	870.10	37.99	32.41	NP	NP	837.58
P6-MW-01	4/24/2017	870.10	866.87	31.23	28.96	NP	NP	841.14
P6-SB-07	4/24/2017	877.36	874.36	23.62	5.45	NP	NP	871.91
P6-SB-18	4/24/2017	878.46	874.60	12.15	4.46	NP	NP	874.00
P6-SB-21	4/24/2017	874.20	870.92	11.12	2.64	NP	NP	871.56
P6-SB-35	4/24/2017	877.76	874.28	11.97	3.96	NP	NP	873.80
P6-SB-37	4/24/2017	878.12	874.32	13.93	4.43	NP	NP	873.69
SME-MW-02	4/24/2017	869.30	NM	37.28	33.26	NP	NP	836.04

Notes:
LNAPL = light nonaqueous phase liquid
msl = mean sea level
NAPL = nonaqueous phase liquid
NM = not measured
NP = no product
TOC = top of casing
RACER = Revitalizing Auto Communities Environmental Response
*Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 gram per milliliter.

Table 4
LNAPL Recovery, January through December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Recovery Date**	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Starting LNAPL Thickness (feet)	Groundwater Elevation (feet msl)	Estimated LNAPL Volume Recovered (gallons)	Cumulative LNAPL Volume Recovered (gallons)	Liquid Recovered (Gallons) ***	Cumulative Liquid Recovery (Gallons)
LMW-12-03D	3/13/2017	864.99	862.08	NM	13.90	10.11	3.79	854.50*	0.50	0.50	0.50	0.50
LMW-12-03D	4/25/2017	864.99	862.08	NM	12.45	9.75	2.70	854.97*	0.40	0.90	0.40	0.90
LMW-12-03D	5/26/2017	864.99	862.08	NM	12.35	10.40	1.95	854.39*	0.32	1.22	0.32	1.22
LMW-12-03D	6/28/2017	864.99	862.08	NM	13.51	11.10	2.41	853.65*	0.40	1.62	0.40	1.62
LMW-12-03D	7/27/2017	864.99	862.08	NM	14.12	11.86	2.26	852.90*	0.33	1.95	0.33	1.95
LMW-12-03D	8/29/2017	864.99	862.08	NM	14.35	11.95	2.40	852.80*	0.40	2.35	0.40	2.35
LMW-12-03D	9/29/2017	864.99	862.08	NM	16.35	12.72	3.63	851.91*	0.50	2.85	0.50	2.85
LMW-12-03D	11/7/2017	864.99	862.08	NM	13.70	11.28	2.42	853.47*	0.33	3.18	0.33	3.18
LMW-12-03D	11/22/2017	864.99	862.08	NM	11.90	10.23	1.67	854.59*	0.25	3.43	0.25	3.43
LMW-12-03D	12/7/2017	864.99	862.08	NM	11.05	10.88	0.17	854.09*	0.10	3.53	0.10	3.53
LMW-12-10	3/6/2017	866.82	863.60	21.40	NA	9.70	NA	NA	2.00	2.00	2.00	2.00
LMW-12-10	4/25/2017	866.82	863.60	NM	15.82	8.38	7.44	857.69*	1.15	3.15	1.15	3.15
LMW-12-10	6/28/2017	866.82	863.60	NM	11.15	10.04	1.11	856.67*	0.15	3.30	0.15	3.30
LMW-12-10	7/27/2017	866.82	863.60	NM	11.45	10.85	0.60	855.91*	0.00	3.30	0.00	3.30
LMW-12-10	8/29/2017	866.82	863.60	NM	11.91	10.99	0.92	855.74*	0.00	3.30	0.00	3.30
LMW-12-10	9/29/2017	866.82	863.60	NM	13.02	11.55	1.47	855.12*	0.25	3.55	0.25	3.55
LMW-12-10	11/7/2017	866.82	863.60	NM	11.31	10.16	1.15	856.54*	0.20	3.75	0.20	3.75
LMW-12-10	11/22/2017	866.82	863.60	NM	10.95	10.27	0.68	856.48*	0.00	3.75	0.00	3.75
LMW-12-10	12/7/2017	866.82	863.60	NM	11.70	11.17	0.53	855.60*	0.05	3.80	0.05	3.80
LMW-14-12D	3/13/2017	864.59	862.11	NM	24.80	8.35	16.45	854.59*	2.50	2.50	2.50	2.50
LMW-14-12D	4/25/2017	864.59	862.11	NM	24.79	7.85	16.94	855.04*	2.60	5.10	2.60	5.10
LMW-14-12D	5/26/2017	864.59	862.11	NM	24.80	8.41	16.39	854.53*	2.70	7.80	2.70	7.80
LMW-14-12D	6/28/2017	864.59	862.11	NM	24.82	9.26	15.56	853.77*	2.50	10.30	2.50	10.30
LMW-14-12D	7/27/2017	864.59	862.11	NM	24.82	10.11	14.71	853.00*	2.40	12.70	2.40	12.70
LMW-14-12D	8/29/2017	864.59	862.11	NM	24.84	10.62	14.22	852.54*	2.50	15.20	2.50	15.20
LMW-14-12D	9/29/2017	864.59	862.11	NM	24.82	11.02	13.80	852.18*	0.00	15.20	0.00	15.20
LMW-14-12D	11/7/2017	864.59	862.11	NM	24.82	9.52	15.30	853.53*	2.50	17.70	2.50	17.70
LMW-14-12D	11/22/2017	864.59	862.11	NM	24.80	8.24	16.56	854.69*	2.70	20.40	2.70	20.40
LMW-14-12D	12/7/2017	864.59	862.11	24.90	NA	8.94	NA	NA	4.00	24.40	4.00	24.40
LMW-14-15D	3/13/2017	865.11	861.66	22.60	NA	9.19	13.41	NA	2.00	2.00	2.00	2.00
LMW-14-15D	4/25/2017	865.11	861.66	22.50	NA	9.60	12.90	NA	2.00	4.00	2.00	4.00
LMW-14-15D	5/26/2017	865.11	861.66	NM	22.65	9.96	12.69	853.87*	2.00	6.00	2.00	6.00
LMW-14-15D	6/28/2017	865.11	861.66	NM	22.63	10.61	12.02	853.29*	2.00	8.00	2.00	8.00
LMW-14-15D	7/27/2017	865.11	861.66	NM	22.64	11.02	11.62	852.92*	1.90	9.90	1.90	9.90
LMW-14-15D	8/29/2017	865.11	861.66	NM	22.64	11.61	11.03	852.39*	1.75	11.65	1.75	11.65
LMW-14-15D	9/29/2017	865.11	861.66	NM	22.63	12.39	10.24	851.69*	1.75	13.40	1.75	13.40
LMW-14-15D	11/7/2017	865.11	861.66	NM	22.63	10.80	11.83	853.12*	1.90	15.30	1.90	15.30
LMW-14-15D	11/22/2017	865.11	861.66	NM	22.17	9.51	12.66	854.33*	2.00	17.30	2.00	17.30
LMW-14-15D	12/7/2017	865.11	861.66	NM	19.95	10.46	9.49	853.70*	0.17	17.47	0.17	17.47
LMW-15-16D	3/13/2017	865.20	862.24	NM	21.25	12.30	8.95	852.00*	1.50	1.50	1.50	1.50
LMW-15-16D	5/26/2017	865.20	862.24	NM	24.10	11.56	12.54	852.38*	2.00	3.50	2.00	3.50
LMW-15-16D	6/28/2017	865.20	862.24	NM	18.40	13.13	5.27	851.54*	0.90	4.40	0.90	4.40
LMW-15-16D	7/27/2017	865.20	862.24	NM	17.76	13.85	3.91	850.96*	0.60	5.00	0.60	5.00
LMW-15-16D	8/29/2017	865.20	862.24	NM	18.45	14.31	4.14	850.47*	0.75	5.75	0.75	5.75
LMW-15-16D	9/29/2017	865.20	862.24	NM	22.22	14.61	7.61	849.83*	1.25	7.00	1.25	7.00
LMW-15-16D	11/7/2017	865.20	862.24	NM	18.49	13.48	5.01	851.22*	0.80	7.80	0.80	7.80
LMW-15-16D	11/22/2017	865.20	862.24	NM	15.65	12.35	3.30	852.52*	0.50	8.30	0.50	8.30
LMW-15-16D	12/7/2017	865.20	862.24	NM	15.36	13.20	2.16	851.78*	0.32	8.62	0.32	8.62

Table 4
LNAPL Recovery, January through December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Per Well Totals (January - December 2017)

Well ID	LNAPL Volume Recovered (gallons)	Total Liquid Recovered (gallons)
LMW-12-03D	3.53	3.53
LMW-12-10	3.80	3.80
LMW-14-12D	24.40	24.40
LMW-14-15D	17.47	17.47
LMW-15-16D	8.62	8.62
Total:	57.82	57.82

2017 Quarterly Event Totals

Quarter	LNAPL Volume Recovered (gallons)	Total Liquid Recovered (gallons)
1st Quarter 2017	8.50	8.50
2nd Quarter 2017	19.12	19.12
3rd Quarter 2017	14.38	14.38
4th Quarter 2017	15.82	15.82
Total:	57.82	57.82

Cumulative Totals (June 2015 - December 2017)

Well ID	LNAPL Volume Recovered (gallons)	Total Liquid Recovered (gallons)
LMW-12-03D	11.53	15.57
LMW-12-10	3.80	3.80
LMW-14-12D	48.60	52.44
LMW-14-15D	29.84	33.50
LMW-15-16D	19.16	20.90
Total:	112.93	126.21

Notes:
LNAPL = light nonaqueous phase liquid
msl = mean sea level
NA = not applicable
NM = not measured
PVC = polyvinyl chloride
RACER = Revitalizing Auto Communities Environmental Response
TOC = top of casing
* Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 gram per milliliter.
** Depth-to-water and depth-to-LNAPL measurements were collected at beginning of the associated quarterly groundwater sampling event or LNAPL gauging event.
*** Recovery performed via 1.5-inch-diameter weighted PVC bailers. Volume includes groundwater and LNAPL recovered.

Table 5
Groundwater Elevations, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 2								
AS-16-01	4/24/2017	72	77	862.74	862.13	75.42	61.45	801.29
AS-16-01	8/30/2017	72	77	862.74	862.13	75.35	61.85	800.89
AS-16-01	12/4/2017	72	77	862.74	862.13	75.35	59.60	803.14
AS-16-02	4/24/2017	73	78	861.96	862.17	76.42	64.81	797.15
AS-16-02	8/30/2017	73	78	861.96	862.17	76.18	63.83	798.13
AS-16-02	12/4/2017	73	78	861.96	862.17	79.65	59.85	802.11
LMW-12-01	3/7/2017	7	12	864.91	862.14	NM	9.31	855.60
LMW-12-01	4/24/2017	7	12	864.91	862.14	14.76	8.36	856.55
LMW-12-01	8/29/2017	7	12	864.91	862.14	NM	11.91	853.00
LMW-12-01	12/4/2017	7	12	864.91	862.14	14.76	7.73	857.18
LMW-12-02	3/7/2017	5	10	865.25	862.17	NM	7.01	858.24
LMW-12-02	4/24/2017	5	10	865.25	862.17	12.90	6.54	858.71
LMW-12-02	8/29/2017	5	10	865.25	862.17	NM	9.11	856.14
LMW-12-02	12/4/2017	5	10	865.25	862.17	12.90	7.76	857.49
LMW-12-03D	3/7/2017	17.3	22.3	864.99	862.08	NM	13.90	854.5*
LMW-12-03D	4/24/2017	17.3	22.3	864.99	862.08	NM	12.45	854.97*
LMW-12-03D	5/26/2017	17.3	22.3	864.99	862.08	NM	12.35	854.39*
LMW-12-03D	6/28/2017	17.3	22.3	864.99	862.08	NM	13.51	853.65*
LMW-12-03D	7/27/2017	17.3	22.3	864.99	862.08	NM	14.12	852.90*
LMW-12-03D	8/29/2017	17.3	22.3	864.99	862.08	NM	14.35	852.80*
LMW-12-03D	9/29/2017	17.3	22.3	864.99	862.08	NM	16.35	851.91*
LMW-12-03D	11/7/2017	17.3	22.3	864.99	862.08	NM	13.70	853.47*
LMW-12-03D	11/22/2017	17.3	22.3	864.99	862.08	NM	11.90	854.59*
LMW-12-03D	12/4/2017	17.3	22.3	864.99	862.08	NM	11.05	854.09*
LMW-12-03S	3/7/2017	4	9	864.93	862.06	NM	7.79	857.14
LMW-12-03S	4/24/2017	4	9	864.93	862.06	11.75	7.25	857.68
LMW-12-03S	8/29/2017	4	9	864.93	862.06	NM	8.55	856.38
LMW-12-03S	12/4/2017	4	9	864.93	862.06	NM	8.31	856.63*
LMW-12-04	3/7/2017	16	21	864.94	862.12	NM	10.02	854.92
LMW-12-04	4/24/2017	16	21	864.94	862.12	23.66	9.53	855.41
LMW-12-04	8/29/2017	16	21	864.94	862.12	NM	11.87	853.07
LMW-12-04	12/4/2017	16	21	864.94	862.12	23.68	10.51	854.43
LMW-12-05	3/7/2017	7	12	865.03	862.17	NM	11.10	854.22*
LMW-12-05	4/24/2017	7	12	865.03	862.17	NM	9.75	855.41*
LMW-12-05	8/29/2017	7	12	865.03	862.17	NM	12.71	852.45*
LMW-12-05	12/4/2017	7	12	865.03	862.17	NM	11.05	854.08*
LMW-12-06	3/7/2017	4	9	865.02	862.15	NM	7.19	857.83
LMW-12-06	4/24/2017	4	9	865.02	862.15	12.04	7.05	857.97
LMW-12-06	8/29/2017	4	9	865.02	862.15	NM	7.48	857.54
LMW-12-06	12/4/2017	4	9	865.02	862.15	11.96	7.35	857.67
LMW-12-07	3/7/2017	4	9	864.13	861.50	NM	5.58	858.55
LMW-12-07	4/24/2017	4	9	864.13	861.50	11.95	5.65	858.48
LMW-12-07	8/29/2017	4	9	864.13	861.50	NM	7.20	856.93
LMW-12-07	12/4/2017	4	9	864.13	861.50	11.94	6.00	858.13
LMW-12-08	3/7/2017	8	13	864.40	861.56	NM	10.00	856.13*
LMW-12-08	4/24/2017	8	13	864.40	861.56	NM	9.65	856.21*
LMW-12-08	8/29/2017	8	13	864.40	861.56	NM	11.33	854.94*
LMW-12-08	12/4/2017	8	13	864.40	861.56	NM	10.80	855.65*
LMW-14-12D	3/7/2017	18	23	864.59	862.11	NM	24.80	854.59*
LMW-14-12D	4/24/2017	18	23	864.59	862.11	NM	24.79	855.04*
LMW-14-12D	5/26/2017	18	23	864.59	862.11	NM	24.80	854.53*
LMW-14-12D	6/28/2017	18	23	864.59	862.11	NM	24.82	853.77*
LMW-14-12D	7/27/2017	18	23	864.59	862.11	NM	24.82	853.00*

Table 5
Groundwater Elevations, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 2								
LMW-14-12D	8/29/2017	18	23	864.59	862.11	NM	24.84	852.54*
LMW-14-12D	9/29/2017	18	23	864.59	862.11	NM	24.82	852.18*
LMW-14-12D	11/7/2017	18	23	864.59	862.11	NM	24.82	853.53*
LMW-14-12D	11/22/2017	18	23	864.59	862.11	NM	24.80	854.69*
LMW-14-12D	12/4/2017	18	23	864.59	862.11	24.90	NM	NM
LMW-14-13D	3/7/2017	17.5	22.5	865.03	862.06	NM	10.20	854.83
LMW-14-13D	4/24/2017	17.5	22.5	865.03	862.06	24.31	9.44	855.59
LMW-14-13D	5/26/2017	17.5	22.5	865.03	862.06	NM	9.98	855.05
LMW-14-13D	6/28/2017	17.5	22.5	865.03	862.06	NM	10.79	854.24
LMW-14-13D	7/27/2017	17.5	22.5	865.03	862.06	NM	11.54	853.49
LMW-14-13D	8/29/2017	17.5	22.5	865.03	862.06	NM	11.90	853.13
LMW-14-13D	9/29/2017	17.5	22.5	865.03	862.06	NM	12.83	852.20
LMW-14-13D	11/7/2017	17.5	22.5	865.03	862.06	NM	10.97	854.06
LMW-14-13D	11/22/2017	17.5	22.5	865.03	862.06	NM	9.78	855.25
LMW-14-13D	12/4/2017	17.5	22.5	865.03	862.06	24.34	10.43	854.60
LMW-14-14D	3/7/2017	18	23	864.89	861.90	NM	12.50	852.39
LMW-14-14D	4/24/2017	18	23	864.89	861.90	25.05	11.90	852.99
LMW-14-14D	5/26/2017	18	23	864.89	861.90	NM	12.11	852.78
LMW-14-14D	6/28/2017	18	23	864.89	861.90	NM	12.75	852.14
LMW-14-14D	7/27/2017	18	23	864.89	861.90	NM	13.54	851.35
LMW-14-14D	8/29/2017	18	23	864.89	861.90	NM	14.74	850.15
LMW-14-14D	9/29/2017	18	23	864.89	861.90	NM	14.71	850.18
LMW-14-14D	11/7/2017	18	23	864.89	861.90	NM	12.95	851.94
LMW-14-14D	11/22/2017	18	23	864.89	861.90	NM	11.89	853.00
LMW-14-14D	12/4/2017	18	23	864.89	861.90	25.03	12.66	852.23
LMW-14-15D	3/7/2017	18	23	865.11	861.66	22.60	NA	NA
LMW-14-15D	4/24/2017	18	23	865.11	861.66	22.50	NA	NA
LMW-14-15D	5/26/2017	18	23	865.11	861.66	NM	22.65	853.87*
LMW-14-15D	6/28/2017	18	23	865.11	861.66	NM	22.63	853.29*
LMW-14-15D	7/27/2017	18	23	865.11	861.66	NM	22.64	852.92*
LMW-14-15D	8/29/2017	18	23	865.11	861.66	NM	22.64	852.39*
LMW-14-15D	9/29/2017	18	23	865.11	861.66	NM	22.63	851.69*
LMW-14-15D	11/7/2017	18	23	865.11	861.66	NM	22.63	853.12*
LMW-14-15D	11/22/2017	18	23	865.11	861.66	NM	22.17	854.33*
LMW-14-15D	12/4/2017	18	23	865.11	861.66	NM	19.95	853.70*
LMW-15-16D	3/7/2017	19.5	24.5	865.20	862.24	NM	21.25	852.00*
LMW-15-16D	4/24/2017	19.5	24.5	865.20	862.24	NM	22.73	852.57*
LMW-15-16D	5/26/2017	19.5	24.5	865.20	862.24	NM	24.10	852.38*
LMW-15-16D	6/28/2017	19.5	24.5	865.20	862.24	NM	18.40	851.54*
LMW-15-16D	7/27/2017	19.5	24.5	865.20	862.24	NM	17.76	850.96*
LMW-15-16D	8/29/2017	19.5	24.5	865.20	862.24	NM	18.45	850.47*
LMW-15-16D	9/29/2017	19.5	24.5	865.20	862.24	NM	22.22	849.83*
LMW-15-16D	11/7/2017	19.5	24.5	865.20	862.24	NM	18.49	851.22*
LMW-15-16D	11/22/2017	19.5	24.5	865.20	862.24	NM	15.65	852.52*
LMW-15-16D	12/4/2017	19.5	24.5	865.20	862.24	NM	15.36	851.78*
LMW-15-17D	3/7/2017	20	25	865.21	862.24	NM	10.45	854.76
LMW-15-17D	4/24/2017	20	25	865.21	862.24	27.28	4.80	860.41
LMW-15-17D	5/26/2017	20	25	865.21	862.24	NM	11.46	853.75
LMW-15-17D	6/28/2017	20	25	865.21	862.24	27.31	11.16	854.05
LMW-15-17D	7/27/2017	20	25	865.21	862.24	NM	11.99	853.22
LMW-15-17D	8/29/2017	20	25	865.21	862.24	NM	12.14	853.07
LMW-15-17D	9/29/2017	20	25	865.21	862.24	NM	13.17	852.04
LMW-15-17D	11/7/2017	20	25	865.21	862.24	NM	11.38	853.83

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 2								
LMW-15-17D	11/22/2017	20	25	865.21	862.24	NM	10.30	854.91
LMW-15-17D	12/4/2017	20	25	865.21	862.24	27.29	10.82	854.39
MW-01(2)	4/24/2017	10	20	875.79	876.10	15.95	6.49	869.30
MW-02(2)	4/24/2017	12	22	875.96	876.20	21.20	8.40	867.56
MW-03(2)	4/24/2017	12	22	876.70	876.79	19.15	6.80	869.90
MW-12-01	4/24/2017	87	110	867.94	865.46	111.10	78.60	789.34
MW-12-01	12/4/2017	87	110	867.94	865.46	93.70	75.64	792.30
MW-12-02	4/24/2017	87	110	853.91	851.88	97.10	68.75	785.16
MW-12-02	12/4/2017	87	110	853.91	851.88	101.22	66.80	787.11
MW-12-05R	4/24/2017	100	112	864.79	862.30	115.50	77.35	787.44
MW-12-05R	12/4/2017	100	112	864.79	862.30	112.00	75.00	789.79
MW-12-06	4/24/2017	80.6	99.5	864.64	861.69	89.00	76.15	788.49
MW-12-06	12/4/2017	80.6	99.5	864.64	861.69	103.60	73.68	790.96
MW-12-07	4/24/2017	10	15	872.11	869.21	17.75	5.99	866.12
MW-12-08	4/24/2017	19	24	864.53	861.55	27.43	5.74	858.79
MW-12-09	4/24/2017	14	19	863.54	860.63	21.65	13.21	850.33
MW-12-17	4/24/2017	9.5	14.5	875.47	875.83	14.00	5.72	869.75
MW-12-18	4/24/2017	28	33	866.43	864.19	34.85	22.74	843.69
MW-12-18	12/4/2017	28	33	866.43	864.19	34.64	24.50	841.93
MW-13-42	4/24/2017	70	75	861.61	860.03	78.00	74.91	786.70
MW-13-43	4/24/2017	72	77	863.82	860.97	80.60	70.36	793.46
MW-13-43	12/4/2017	72	77	863.82	860.97	79.73	69.11	794.71
MW-13-44	4/24/2017	96	115	864.24	861.03	122.50	78.64	785.60
MW-13-44	12/4/2017	96	115	864.24	861.03	119.16	76.51	787.73
MW-13-45	4/24/2017	72	77	863.80	861.54	79.60	69.31	794.49
MW-13-45	12/4/2017	72	77	863.80	861.54	78.23	68.12	795.68
MW-13-51	4/24/2017	77	87	875.34	872.51	89.79	73.99	801.35
MW-14-54	4/24/2017	14	19	865.21	862.21	19.07	12.71	852.50
MW-14-55	4/24/2017	13	18	864.17	861.73	20.05	15.73	848.44
MW-14-56	4/24/2017	71	76	863.27	860.56	79.02	73.20	790.07
MW-14-56	12/4/2017	71	76	863.27	860.56	79.25	56.84	806.43
MW-14-57	4/24/2017	15	20	863.97	861.10	21.40	12.57	851.40
MW-14-58	4/24/2017	22	27	863.12	860.12	29.92	13.65	849.47
MW-14-58	12/4/2017	22	27	863.12	860.12	29.90	14.30	848.82
MW-14-59	4/24/2017	12	17	864.61	861.80	18.85	7.16	857.45
MW-14-60	4/24/2017	15	20	864.65	861.80	23.55	12.36	852.29
MW-14-61	4/24/2017	70	75	865.51	862.30	78.30	72.06	793.45
MW-14-62	4/24/2017	12	17	865.17	862.25	19.63	5.80	859.37
MW-14-63	4/24/2017	68	73	854.64	851.68	77.60	68.82	785.82
MW-14-63	12/4/2017	68	73	854.64	851.68	76.71	66.66	787.98
MW-15-72	4/24/2017	63	68	865.09	862.35	71.30	59.67	805.42
MW-15-72	12/4/2017	63	68	865.09	862.35	70.54	59.09	806.00
MW-15-73	4/24/2017	78	83	861.56	859.12	82.20	74.69	786.87
MW-15-73	12/4/2017	78	83	861.56	859.12	80.90	72.03	789.53
MW-16-74	4/24/2017	66	71	864.81	862.10	73.70	68.32	796.49
MW-16-74	12/4/2017	66	71	864.81	862.10	73.70	67.71	797.10
MW-16-75	4/24/2017	66	71	864.87	862.13	74.10	65.41	799.46
MW-16-75	12/4/2017	66	71	864.87	862.13	74.85	62.62	802.25
MW-16-76	4/24/2017	70	75	867.76	865.12	82.15	67.61	800.15
MW-16-76	12/4/2017	70	75	867.76	865.12	82.50	66.46	801.30
MW-16-77	4/24/2017	66	71	866.17	863.42	74.12	64.85	801.32
MW-16-77	12/4/2017	66	71	866.17	863.42	74.50	63.71	802.46
MW-16-78	4/24/2017	68	73	864.98	862.09	76.20	68.51	796.47

Table 5
Groundwater Elevations, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 2								
MW-16-78	12/4/2017	68	73	864.98	862.09	76.75	68.74	796.24
MW-16-79	4/24/2017	68	73	864.80	862.07	76.20	70.50	794.30
MW-16-79	12/4/2017	68	73	864.80	862.07	76.77	68.55	796.25
MW-16-80	4/24/2017	68	73	853.03	853.41	74.20	66.83	786.20
MW-16-80	12/4/2017	68	73	853.03	853.41	73.43	64.53	788.50
MW-16-81	3/6/2017	70	75	864.68	862.04	77.35	69.78	794.90
MW-16-81	4/24/2017	70	75	864.68	862.04	78.30	69.24	795.44
MW-16-81	8/30/2017	70	75	864.68	862.04	77.33	68.84	795.84
MW-16-81	12/4/2017	70	75	864.68	862.04	77.30	68.25	796.43
MW-16-82	3/6/2017	70	75	864.79	862.10	77.20	70.41	794.38
MW-16-82	4/24/2017	70	75	864.79	862.10	78.30	69.75	795.04
MW-16-82	8/30/2017	70	75	864.79	862.10	77.16	69.17	795.62
MW-16-82	12/4/2017	70	75	864.79	862.10	77.10	68.59	796.20
MW-16-83	4/24/2017	71	76	862.97	860.17	79.50	75.00	787.97
MW-16-83	12/4/2017	71	76	862.97	860.17	80.00	72.30	790.67
MW-16-84	3/6/2017	72	77	864.09	861.81	81.15	74.49	789.60
MW-16-84	4/24/2017	72	77	864.09	861.81	82.00	73.74	790.35
MW-16-84	8/30/2017	72	77	864.09	861.81	81.15	72.45	791.64
MW-16-84	12/4/2017	72	77	864.09	861.81	81.10	71.85	792.24
MW-16-85	4/24/2017	74	79	864.77	861.87	83.30	74.83	789.94
MW-16-85	12/4/2017	74	79	864.77	861.87	81.80	72.85	791.92
MW-17-86	4/24/2017	73	78	864.55	861.92	82.20	71.24	793.31
MW-17-86	12/4/2017	73	78	864.55	861.92	81.40	69.33	795.22
MW-17-87	4/24/2017	100	112	862.82	860.44	106.00	75.34	787.48
MW-17-87	12/4/2017	100	112	862.82	860.44	115.40	72.68	790.14
P2-MW-01	4/24/2017	31	36	858.00	858.35	35.80	14.66	843.34
P2-MW-02	4/24/2017	31	41	872.24	872.70	40.22	37.01	835.23
P2-MW-03	4/24/2017	27	32	854.18	854.66	27.20	9.03	845.15
P2-MW-04	4/24/2017	26	36	862.28	862.59	35.70	10.02	852.26
P2-SB-03	4/24/2017	14	19	863.89	861.03	22.05	16.53	847.36
P2-SB-06	4/24/2017	24	29	866.06	862.09	33.62	18.48	847.58
P2-SB-20	4/24/2017	8	13	864.46	861.12	16.20	8.27	856.19
P2-SB-37	3/7/2017	5	10	865.90	861.90	NM	7.00	859.89*
P2-SB-37	4/24/2017	5	10	865.90	861.90	NM	6.78	860.05*
P2-SB-37	8/29/2017	5	10	865.90	861.90	NM	9.37	857.47*
P2-SB-37	12/4/2017	5	10	865.90	861.90	NM	9.11	857.32*
PMW-01	3/7/2017	2.59	7.59	860.85	861.33	NM	4.05	858.74*
PMW-01	4/24/2017	2.59	7.59	860.85	861.33	NM	4.85	858.83*
PMW-01	8/29/2017	2.59	7.59	860.85	861.33	NM	6.40	857.22*
PMW-01	12/4/2017	2.59	7.59	860.85	861.33	NM	5.20	857.56*
PMW-02	3/7/2017	2.59	7.59	860.94	861.33	NM	0.02	860.94*
PMW-02	4/24/2017	2.59	7.59	860.94	861.33	7.50	1.23	859.71
PMW-02	8/29/2017	2.59	7.59	860.94	861.33	NM	2.69	858.26*
PMW-02	12/4/2017	2.59	7.59	860.94	861.33	NM	1.77	859.18*
PMW-03	3/7/2017	1.2	6.2	861.59	862.12	NM	2.35	859.24
PMW-03	4/24/2017	1.2	6.2	861.59	862.12	6.01	2.01	859.58
PMW-03	8/29/2017	1.2	6.2	861.59	862.12	NM	3.59	858.00
PMW-03	12/4/2017	1.2	6.2	861.59	862.12	6.20	2.50	859.09
PW-14-01	4/24/2017	71.6	76.8	864.97	862.38	85.65	65.85	799.12
PW-14-01	8/30/2017	71.6	76.8	864.97	862.38	81.83	65.22	799.75
PW-14-01	12/4/2017	71.6	76.8	864.97	862.38	81.80	63.77	801.20
PW-14-02	4/24/2017	75	80	863.87	860.93	88.10	70.05	793.82
PW-14-02	12/4/2017	75	80	863.87	860.93	85.00	68.87	795.00

Table 5
Groundwater Elevations, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 2								
TW-14-01	4/24/2017	70	75	865.08	862.27	78.20	66.04	799.04
TW-14-01	8/30/2017	70	75	865.08	862.27	78.16	65.08	800.00
TW-14-01	12/4/2017	70	75	865.08	862.27	78.05	62.75	802.33
TW-14-02	4/24/2017	67	72	865.01	862.13	74.19	63.90	801.11
TW-14-02	8/30/2017	67	72	865.01	862.13	74.15	63.24	801.77
TW-14-02	12/4/2017	67	72	865.01	862.13	74.10	61.75	803.26
TW-16-01	4/24/2017	73	78	861.81	862.16	78.00	63.78	798.03
TW-16-01	8/30/2017	73	78	861.81	862.16	77.91	62.73	799.08
TW-16-01	12/4/2017	73	78	861.81	862.16	77.90	59.52	802.29
Plant 3								
CH-14-RO	4/24/2017	7	12	866.44	863.68	14.84	6.94	859.50
LMW-12-09	3/6/2017	3	8	863.22	860.40	10.75	4.25	858.97
LMW-12-09	4/24/2017	3	8	863.22	860.40	10.75	4.29	858.93
LMW-12-09	8/29/2017	3	8	863.22	860.40	NM	5.38	857.84
LMW-12-09	12/4/2017	3	8	863.22	860.40	10.81	4.56	858.66
LMW-12-10	3/6/2017	14	19	866.82	863.60	21.40	NM	NM
LMW-12-10	4/24/2017	14	19	866.82	863.60	NM	15.82	857.69*
LMW-12-10	5/26/2017	14	19	866.82	863.60	NM	10.32	857.10*
LMW-12-10	6/28/2017	14	19	866.82	863.60	NM	11.15	856.67*
LMW-12-10	7/27/2017	14	19	866.82	863.60	NM	11.45	855.91*
LMW-12-10	8/29/2017	14	19	866.82	863.60	NM	11.91	855.74*
LMW-12-10	9/29/2017	14	19	866.82	863.60	NM	13.02	855.12*
LMW-12-10	11/7/2017	14	19	866.82	863.60	NM	11.31	856.54*
LMW-12-10	11/22/2017	14	19	866.82	863.60	NM	10.95	856.48*
LMW-12-10	12/4/2017	14	19	866.82	863.60	NM	11.70	855.60*
LMW-12-11	3/6/2017	15	20	866.53	863.53	22.85	11.91	854.62
LMW-12-11	4/24/2017	15	20	866.53	863.53	22.84	11.06	855.47
LMW-12-11	8/29/2017	15	20	866.53	863.53	NM	12.69	853.84
LMW-12-11	12/4/2017	15	20	866.53	863.53	22.90	12.06	854.47
MW-02-01(3)	4/24/2017	59	69	865.54	863.35	72.11	54.06	811.48
MW-02-02(3)	4/24/2017	74	84	862.70	863.11	84.11	66.83	795.87
MW-02-03(3)	4/24/2017	79	89	859.63	859.90	90.10	64.37	795.26
MW-02-04(3)	4/24/2017	76	86	862.61	862.93	84.19	64.31	798.30
MW-04(3)	4/24/2017	10.5	15.5	859.40	859.79	15.73	3.94	855.46
MW-04-01(3)	4/24/2017	95	105	862.61	862.93	106.20	53.39	809.22
MW-04-02(3)	4/24/2017	126	136	861.09	861.26	133.80	66.58	794.51
MW-04-03(3)	4/24/2017	80	90	860.72	861.00	88.19	65.25	795.47
MW-04-04(3)	4/24/2017	72	82	855.72	856.11	82.15	59.93	795.79
MW-05(3)	4/24/2017	10	15	859.02	859.79	15.21	3.83	855.19
MW-06(3)	4/24/2017	6.5	11.5	859.52	859.79	11.52	2.74	856.78
MW-12-04	4/25/2017	77	100	844.08	844.26	99.96	50.46	793.62
MW-12-19	4/24/2017	5	10	859.55	859.96	8.90	5.79	853.76
MW-12-20	4/24/2017	75	80	864.20	861.45	79.49	68.64	795.56
MW-12-21	4/24/2017	70	75	864.50	861.45	78.03	68.24	796.26
MW-12-21	12/4/2017	70	75	864.50	861.45	78.04	67.04	797.46
MW-13-22	4/24/2017	89	94	864.37	861.50	97.32	71.07	793.30
MW-13-23	4/24/2017	69	74	864.31	861.45	78.20	72.34	791.97
MW-13-24	4/27/2017	69	74	864.35	861.48	77.33	67.69	796.66
MW-13-25	4/24/2017	67	72	863.77	860.49	75.04	69.60	794.17
MW-13-25	12/4/2017	67	72	863.77	860.49	74.98	68.57	795.20
MW-13-26	4/24/2017	72	77	863.95	861.67	79.15	67.56	796.39
MW-13-27	4/24/2017	67	72	864.50	861.54	75.88	71.24	793.26
MW-13-28	4/24/2017	99	115.5	864.42	861.61	118.45	71.73	792.69

Table 5
Groundwater Elevations, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 3								
MW-13-28	12/4/2017	99	115.5	864.42	861.61	114.73	70.18	794.24
MW-13-29	4/24/2017	68	73	862.81	859.81	76.30	69.72	793.09
MW-13-30	4/24/2017	72	77	864.53	861.66	79.71	69.79	794.74
MW-13-31	4/24/2017	5	10	861.27	858.36	12.80	7.29	853.98
MW-13-31	12/4/2017	5	10	861.27	858.36	12.79	8.46	852.81
MW-13-32	4/24/2017	5	10	860.11	857.32	12.64	6.03	854.08
MW-13-32	12/4/2017	5	10	860.11	857.32	12.63	7.14	852.97
MW-13-33	4/24/2017	12	17	860.71	857.69	19.14	8.69	852.02
MW-13-34	4/25/2017	74	79	853.92	851.82	79.93	67.09	786.83
MW-13-34	12/4/2017	74	79	853.92	851.82	79.93	65.29	788.63
MW-13-37	4/24/2017	97	112	866.02	863.75	118.20	72.98	793.04
MW-13-38	4/24/2017	107	124	866.47	863.71	131.30	73.83	792.64
MW-13-38	12/4/2017	107	124	866.47	863.71	126.32	72.70	793.77
MW-13-39B	4/24/2017	97	112	860.20	857.33	109.71	67.42	792.78
MW-13-40	4/24/2017	72	77	862.67	859.69	79.25	64.71	797.96
MW-13-41	4/24/2017	77	82	866.38	863.68	81.83	65.11	801.27
MW-13-46	4/25/2017	68	73	854.54	852.12	74.63	65.89	788.65
MW-13-46	12/4/2017	68	73	854.54	852.12	74.60	64.17	790.37
MW-13-47	4/24/2017	99	119	853.74	851.89	114.18	66.84	786.90
MW-13-47	12/4/2017	99	119	853.74	851.89	114.18	65.02	788.72
MW-13-48	4/25/2017	65	70	854.83	852.17	73.06	61.43	793.40
MW-13-48	12/4/2017	65	70	854.83	852.17	73.04	60.35	794.48
MW-13-49	4/25/2017	73	78	853.01	850.55	81.65	67.25	785.76
MW-14-64	4/24/2017	98.6	103.6	864.56	861.77	107.94	71.23	793.33
MW-14-65	4/24/2017	5	10	866.34	863.71	13.20	6.25	860.09
MW-15-71	4/24/2017	110	115	864.56	861.58	119.45	69.16	795.40
MW-19	4/24/2017	55	65	859.74	859.92	64.95	53.90	805.84
MW-22	4/24/2017	52.5	62.5	859.69	860.08	63.95	52.97	806.72
MW-23	4/24/2017	52	62	859.45	859.76	61.35	52.14	807.31
MW-88-1	4/24/2017	103.5	140	858.75	859.06	139.65	70.59	788.16
MW-91-2	4/24/2017	68	78	863.62	863.88	81.40	61.49	802.13
MW-91-3	4/24/2017	105	117	860.81	859.35	120.59	71.09	789.72
MW-91-4	4/24/2017	116	132.5	855.59	855.93	132.89	61.63	793.96
MW-91-5	4/24/2017	112.5	128	860.61	861.20	126.33	65.19	795.42
MW-91-5	12/4/2017	112.5	128	860.61	861.20	126.43	63.90	796.71
MW-91-6	4/25/2017	82	98	851.84	852.22	95.78	63.11	788.73
MW-91-6	12/4/2017	82	98	851.84	852.22	95.42	61.44	790.40
P3-SB-07	4/24/2017	11	16	866.84	863.63	19.64	8.76	858.08
P3-SB-28	4/24/2017	8	13	866.43	863.63	10.36	5.20	861.23
PW-14-03	4/24/2017	85	90	864.31	861.55	102.00	73.56	790.75
PW-14-03	12/4/2017	85	90	864.31	861.55	94.27	71.99	792.32
UNK-09	4/24/2017	11	16	859.42	860.02	15.28	2.48	856.94
UNK-10	4/24/2017	11	16	859.34	860.05	15.33	2.83	856.51
UNK-11	4/24/2017	6.5	11.5	859.91	860.17	11.82	4.29	855.62
UNK-13	3/6/2017	11	16	859.11	859.91	14.95	3.98	855.13
UNK-13	4/24/2017	11	16	859.11	859.91	14.96	3.89	855.22
UNK-13	8/29/2017	11	16	859.11	859.91	NM	4.37	854.74
UNK-13	12/4/2017	11	16	859.11	859.91	15.05	3.83	855.28
UNK-14	3/6/2017	10.4	15.4	859.32	859.70	NM	4.78	856.12*
UNK-14	4/24/2017	10.4	15.4	859.32	859.70	NM	4.56	856.37*
UNK-14	8/29/2017	10.4	15.4	859.32	859.70	NM	4.59	855.26*
UNK-14	12/4/2017	10.4	15.4	859.32	859.70	NM	3.24	856.09*
UNK-15	4/24/2017	11	16	859.56	859.94	NM	2.50	857.06

Table 5
Groundwater Elevations, January to December 2017
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 6								
MW-02-01(6)	4/24/2017	35	45	865.54	863.35	40.08	27.55	837.99
MW-02-02(6)	4/24/2017	35	45	868.04	868.41	43.39	29.93	838.11
MW-02-03(6)	4/27/2017	35	45	869.54	869.97	44.62	30.72	838.82
MW-03-02	4/24/2017	30	40	864.52	864.76	39.35	21.98	842.54
MW-03-04	4/24/2017	33	43	865.28	865.53	42.69	22.12	843.16
MW-03-05	4/24/2017	35	45	868.90	869.14	NM	DRY	DRY
MW-03-06	4/24/2017	30	40	870.45	870.80	40.57	36.20	834.25
MW-03-07	4/24/2017	30	40	866.88	867.02	40.50	26.16	840.72
MW-03-08	4/24/2017	35	45	869.03	869.39	44.93	33.38	835.65
MW-04-01(6)	4/24/2017	78	88	866.85	867.15	87.97	75.65	791.20
MW-04-04R	4/24/2017	82	110	873.31	870.64	111.08	81.43	791.88
MW-04-05(6)	4/24/2017	20	30	858.33	858.87	29.63	9.52	848.81
MW-04-06R	4/24/2017	74	99.5	861.56	858.59	78.02	71.01	790.55
MW-12-03	4/24/2017	57	80	859.10	856.71	82.31	68.80	790.30
MW-12-10	4/24/2017	8	13	860.89	858.82	17.97	10.29	850.60
MW-12-11	4/24/2017	13	18	857.26	857.68	16.79	2.06	855.20
MW-12-11	12/4/2017	13	18	857.26	857.68	16.79	5.13	852.13
MW-12-12	4/24/2017	13	18	874.34	874.61	17.21	6.28	868.06
MW-12-12	12/4/2017	13	18	874.34	874.61	17.20	7.75	866.59
MW-12-13	4/24/2017	18.5	23.5	882.60	880.51	25.41	9.80	872.80
MW-12-13	12/4/2017	18.5	23.5	882.60	880.51	25.40	9.94	872.66
MW-12-14	4/24/2017	25	30	872.56	869.28	32.05	23.94	848.62
MW-12-15	4/24/2017	18	23	865.23	865.49	22.66	19.66	845.57
MW-12-16	4/24/2017	28	33	864.24	864.73	32.18	22.99	841.25
MW-12-16	12/4/2017	28	33	864.24	864.73	32.16	22.70	841.54
MW-13-35	4/24/2017	25	30	864.81	865.23	29.50	23.74	841.07
MW-13-35	12/4/2017	25	30	864.81	865.23	29.45	23.45	841.36
MW-13-36R	4/24/2017	5.5	10.5	878.04	875.28	12.78	4.89	873.15
MW-13-36R	12/4/2017	5.5	10.5	878.04	875.28	12.77	6.03	872.01
MW-13-50	4/24/2017	85	107	872.85	869.93	109.87	82.04	790.81
MW-13-52	4/24/2017	70	80	872.50	869.84	81.45	70.43	802.07
MW-13-53	4/24/2017	73	83	875.56	873.10	85.45	77.02	798.54
MW-14-66	4/24/2017	14	19	877.85	874.73	22.22	5.27	872.58
MW-14-67	4/24/2017	13	18	877.76	875.07	20.84	4.73	873.03
MW-14-68	4/24/2017	36	41	878.44	875.42	44.08	DRY	DRY
MW-14-69	4/24/2017	41	46	883.62	880.72	48.99	DRY	DRY
MW-14-70	4/24/2017	16	21	882.79	880.08	23.12	9.60	873.19
MWBP-10-UST5-6	4/24/2017	28	38	867.70	867.99	36.85	30.73	836.97
MWBP-10-UST5-6	12/4/2017	28	38	867.70	867.99	36.83	30.66	837.04
MWBP-11-UST1-4	4/24/2017	9	19	868.66	869.07	11.22	2.65	866.01
MWBP-12A-UST1-4	4/24/2017	28	38	869.74	869.96	36.72	29.29	840.45
MWBP-12-UST1-4	4/24/2017	15	25	870.02	870.58	11.24	7.90	862.12
MWBP-12-UST5-6	4/24/2017	28	38	NS	NS	38.50	32.28	NS
MWBP-13A-UST1-4	4/24/2017	28	38	869.99	870.10	37.99	32.41	837.58
P6-MW-01	4/24/2017	23	28	870.10	866.87	31.23	28.96	841.14
P6-SB-07	4/24/2017	15	20	877.36	874.36	23.62	5.45	871.91
P6-SB-18	4/24/2017	3	8	878.46	874.60	12.15	4.46	874.00
P6-SB-21	4/24/2017	3	8	874.20	870.92	11.12	2.64	871.56
P6-SB-35	4/24/2017	3	8	877.76	874.28	11.97	3.96	873.80
P6-SB-37	4/24/2017	5	10	878.12	874.32	13.93	4.43	873.69
SME-MW-02	4/24/2017	33	38	869.30	NS	37.28	33.26	836.04

Table 6
Bedrock Vertical Gradients
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

		Screen (feet belowgrade)			Reference Elevation (feet amsl)	Groundwater Elevation 4/24/17 (feet amsl)	Vertical Gradient (ft/ft)	Formation
		Top	Bottom	Mid-point				
Plant 2								
MW-14-63	W. Bedrock	68	73	70.5	854.64	785.82	0.02	GR Fm
MW-12-02	Bedrock	87	110	98.5	853.91	785.16		
MW-13-43	W. Bedrock	72	77	74.5	863.82	793.46	0.25	Sag Fm
MW-13-44	Bedrock	96	115	105.5	864.24	785.60		
MW-14-61	W. Bedrock	70	75	72.5	865.51	793.45	0.28	Sag Fm
MW-12-06	Bedrock	80.6	99.5	90.1	864.64	788.49		
MW-15-72	W. Bedrock	63	68	65.5	865.09	805.42	0.44	Sag Fm
MW-12-05R	Bedrock	100	112	106.0	864.79	787.44		
Plant 3								
MW-13-22	W. Bedrock	89	94	91.5	864.37	793.30	0.04	GR Fm
MW-13-28	Bedrock	99	115.5	107.3	864.42	792.69		
MW-13-46	W. Bedrock	68	73	70.5	854.54	788.65	0.00	GR Fm
MW-91-6	Bedrock	82	98	90	851.84	788.73		
MW-04-03(3)	Deep Overburden	80	90	85	860.72	795.47	0.02	GR Fm
MW-04-02(3)	Bedrock	126	136	131	861.09	794.51		
MW-04-04(3)	Deep Overburden	72	82	77	855.72	795.79	0.04	GR Fm
MW-91-4	Bedrock	116	132.5	124.3	855.59	793.96		
MW-13-41	Deep Overburden	77	82	79.5	866.38	801.27	0.24	Sag Fm
MW-13-38	Bedrock	107	124	115.5	866.47	792.64		
Plant 6								
MW-13-52	W. Bedrock	70	80	75	872.50	802.07	0.54	Sag Fm
MW-13-50	Bedrock	85	107	96	872.85	790.81		

Notes:
ft/ft = foot per foot
GR Fm = Grand River Formation
amsl = above mean sea level
RACER = Revitalizing Auto Communities Environmental Response
Sag Fm = Saginaw Formation
W. Bedrock = weathered bedrock

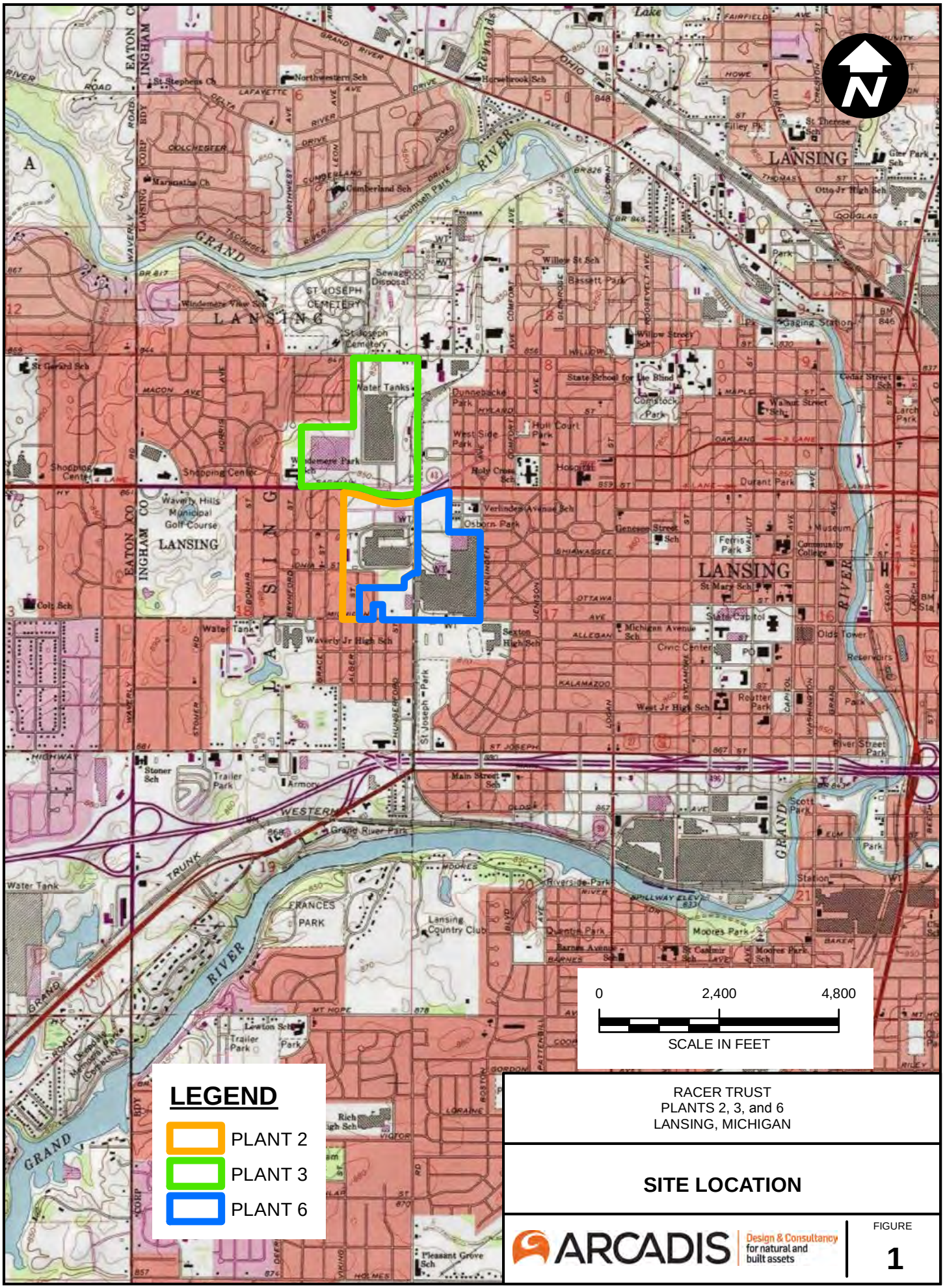
Vertical Gradient Geometric Mean Sag Fm	0.33
Vertical Gradient Geometric Mean GR Fm	0.02

Table 7
Mann-Kendall Trend Test Results
2017 Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Analyte	Well ID	Start Date	End Date	Most Recent Result	Recent Result Units	Sample Size (*n*)	Minimum Result	Maximum Result	Standard Deviation	Arithmetic Mean	Geometric Mean	Sum of Trend (*S*)	Probability (*p*)	Result	% of Detects
Bedrock															
Metals															
Arsenic	MW-91-5	10/12/2011	05/06/2016	0.011	mg/L	7	<0.002	0.011	0.0330	0.009	0.008	13	0.0350	Increasing	86%
Perched															
Metals															
Arsenic	MW-03(2)	10/18/2011	05/09/2016	0.005	mg/L	13	<0.002	0.015	4.62E-03	0.007	0.005	23	0.0850	Increasing	85%
Arsenic	MW-03-06	11/07/2011	05/13/2016	0.02	mg/L	11	0.005	0.033	8.93E-03	0.017	0.015	24	0.0362	Increasing	100%
Arsenic	MW-12-11	12/18/2012	12/05/2017	0.062	mg/L	13	<0.002	0.062	0.0156	0.012	0.008	-2	0.4754	No Trend	92%
Arsenic	MW-12-16	12/18/2012	12/05/2017	0.051	mg/L	12	0.011	0.051	0.0118	0.024	0.021	35	0.0094	Increasing	100%
Arsenic	MW-13-35	09/20/2013	12/05/2017	<0.002	mg/L	12	<0.002	0.012	3.46E-03	0.005	0.004	-45	0.0010	Decreasing	67%
Arsenic	MWBP-10-UST5-6	10/07/2011	12/06/2017	0.051	mg/L	15	<0.002	0.051	0.0145	0.011	0.006	69	0.0003	Increasing	80%
Arsenic	MWBP-12-UST1-4	10/18/2011	05/06/2016	0.007	mg/L	11	0.006	0.018	4.13E-03	0.013	0.012	8	0.2907	No Trend	100%
Copper	MW-13-31	08/22/2013	12/06/2017	0.011	mg/L	16	<0.005	0.266	0.0749	0.043	0.016	-19	0.2065	No Trend	94%
Copper	MW-13-32	08/27/2013	12/06/2017	0.013	mg/L	16	<0.005	0.067	0.0166	0.018	0.013	-68	0.0012	Decreasing	88%
Nickel	MW-12-11	12/18/2012	12/05/2017	0.044	mg/L	13	0.005	0.493	0.134	0.080	0.036	12	0.2510	No Trend	100%
Nickel	MW-12-12	12/18/2012	12/06/2017	0.664	mg/L	14	0.007	1.15	0.350	0.230	0.077	3	0.4564	No Trend	100%
Nickel	MW-12-18	12/19/2012	05/13/2016	0.007	mg/L	5	0.006	0.104	0.0479	0.044	0.022	-8	0.0420	Decreasing	100%
Nickel	MW-13-31	08/22/2013	12/06/2017	0.155	mg/L	16	0.013	20.7	5.150	1.638	0.090	10	0.3427	No Trend	100%
Nickel	MW-13-32	08/27/2013	12/06/2017	0.791	mg/L	16	0.043	4.66	1.257	1.420	0.901	-2	0.4820	No Trend	100%
Vanadium	MW-13-36R	12/18/2013	12/05/2017	0.027	mg/L	13	<0.005	0.027	5.90E-03	0.011	0.010	19	0.1335	No Trend	92%
Volatile Organic Compounds															
1,4-Dioxane	MW-14-58	09/17/2014	12/06/2017	30	µg/L	9	14	71	18.8	41.222	36.883	-2	0.4600	No Trend	100%
Benzene	MWBP-12-UST1-4	10/18/2011	04/27/2017	117	µg/L	11	<1	157	58.8	49.000	14.360	43	0.0005	Increasing	73%
Weathered Bedrock and Deep Overburden															
Metals															
Arsenic	MW-13-40	12/17/2013	05/12/2016	0.026	mg/L	9	0.015	0.032	5.45E-03	0.025	0.024	15	0.0750	Increasing	100%
Nickel	MW-14-56	09/18/2014	06/03/2015	0.607	mg/L	4	0.053	0.683	0.342	0.350	0.188	2	0.3750	No Trend	100%
Volatile Organic Compounds															
1,4-Dioxane	MW-12-21	02/08/2013	12/05/2017	200	µg/L	13	<5	510	143	346.154	256.782	-35	0.0188	Decreasing	92%
1,4-Dioxane	MW-13-22	03/28/2013	04/28/2017	154	µg/L	14	52	270	68.2	171.071	154.256	3	0.4563	No Trend	100%
1,4-Dioxane	MW-13-25	04/02/2013	12/05/2017	12	µg/L	14	<5	25	5.86	13.714	12.415	45	0.0077	Increasing	86%
1,4-Dioxane	MW-13-29	04/23/2013	05/02/2017	23	µg/L	11	15	130	32.6	33.818	27.204	-34	0.0050	Decreasing	100%
1,4-Dioxane	MW-13-34	08/20/2013	12/06/2017	93	µg/L	13	17	99	21.9	60.538	56.096	46	0.0030	Increasing	100%
1,4-Dioxane	MW-13-41	12/17/2013	05/01/2017	18	µg/L	10	11	19	3.31	13.900	13.565	0	0.5360	No Trend	100%
1,4-Dioxane	MW-13-43	12/13/2013	12/06/2017	260	µg/L	15	220	360	43.1	288.666	285.675	5	0.4212	No Trend	100%
1,4-Dioxane	MW-13-45	12/13/2013	12/06/2017	54	µg/L	15	<3	56	15.2	40.600	34.927	49	0.0086	Increasing	93%
1,4-Dioxane	MW-13-48	12/19/2013	12/06/2017	154	µg/L	14	34	380	101	182.786	149.840	50	0.0036	Increasing	100%
1,4-Dioxane	MW-14-56	09/18/2014	12/06/2017	9	µg/L	12	<5	10	1.50	7.333	7.194	34	0.0103	Increasing	83%
1,4-Dioxane	MW-15-72	03/16/2016	12/07/2017	290	µg/L	7	135	300	57.7	235.000	227.998	9	0.1190	No Trend	100%
1,4-Dioxane	MW-16-80	06/28/2016	12/05/2017	27	µg/L	5	<3	46	15.6	25.400	18.798	2	0.4080	No Trend	80%
1,4-Dioxane	MW-16-81	06/28/2016	12/07/2017	840	µg/L	7	100	840	257	451.429	373.264	17	0.0054	Increasing	100%
1,4-Dioxane	MW-16-84	09/23/2016	12/07/2017	35	µg/L	6	29	52	8.61	41.166	40.382	5	0.2350	No Trend	100%
1,4-Dioxane	PW-14-02	09/18/2014	12/07/2017	230	µg/L	9	103	580	155	303.667	269.538	-9	0.2090	No Trend	100%
1,4-Dioxane	PW-14-03	09/18/2014	12/07/2017	530	µg/L	9	77	530	144	338.556	296.331	13	0.1100	No Trend	100%

Notes:
mg/L = milligrams per liter
n = number of samples
p = Indication of statistical significance of trend direction. Concentration trends considered statistically significant at p-values less than 0.1 (90% confidence level).
RACER = Revitalizing Auto Communities Environmental Response
% = percent
< = less than
S = Mann-Kendall test statistic. Sign indicates trend direction.
µg/L = micrograms per liter

FIGURES



CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\Phase 2 RFI Report Figs\FIG 1 - SITE LOCATION.mxd PLOTTED: 3/11/2013 12:44:25 PM BY: PCurry

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENVIRACER_Lansing\Docs\2017 Annual Report\FIG 2 P2&6 Monitoring Wells_20180502.mxd PLOTTED: 5/2/2018 12:52:42 PM BY: rjmiller

FORMER APC FACILITY

MW-12-02
MW-14-63
P2-MW-01
P2-MW-03
MW-16-80
MW-13-43
MW-13-44
PW-14-02
MW-13-42
P2-SB-20
MW-13-45
P2-SB-03
MW-15-73
MW-14-59
MW-16-85
MW-14-58
MW-17-87
MW-16-83
MW-16-82
MW-16-84
MW-14-60
MW-17-86
LMW-14-14D
LMW-12-02
LMW-12-08
MW-12-05R
LMW-12-03D/S
PMW-02
PMW-01
MW-15-72
LMW-14-13D
LMW-12-07
P2-MW-04
LMW-12-06
LMW-12-01
MW-14-61
P2-SB-37
MW-12-06
MW-14-57
LMW-15-17D
PMW-03
MW-12-09
LMW-12-05
MW-14-56
LMW-14-12D
LMW-14-15D
P2-SB-06
LMW-15-16D
MW-14-62
MW-16-81
LMW-12-04
MW-16-79
MW-12-18
TW-16-01
AS-16-01
MW-16-74
MW-14-55
MW-14-54
AS-16-02
TW-14-02
MW-16-78
MW-16-76
TW-14-01
PW-14-01
MW-12-01
MW-16-77
MW-16-75
MW-12-07
MW-12-08
P2-MW-02
MW-13-51
MW-13-50
MW-13-52
MW-13-53
MW-12-17
MW-03(2)
MW-02(2)
MW-01(2)
MWBP-12-UST5-6
MWBP-10-UST5-6
MW-12-03
MW-12-10
MW-04-06R
MW-12-11
MW-03-02
MW-12-12
MW-14-70
MW-03-04
MW-03-05
P6-SB-18
MW-12-13
MW-14-69
MW-03-07
MW-02-01(6)
MW-14-66
MW-02-03(6)
MW-04-01(6)
MW-02-02(6)
MW-03-06
MW-14-67
SME-MW-02
P6-SB-37
MW-14-68
MW-03-08
MW-04-04R
P6-SB-35
MW-13-36R
P6-SB-21
P6-SB-07
MWBP-13A-UST1-4
MWBP-12-UST1-4
MWBP-12A-UST1-4
MWBP-11-UST1-4
P6-MW-01
MW-12-14
MW-12-16
MW-13-35
MW-12-15

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airb

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- APC PERCHED 1,4-DIOXANE >7.2 µg/L
- APC POTENTIAL AREA OF WEATHERED BEDROCK IMPACTS >7.2 µg/L (ESTIMATED FROM OFF-SITE VAP BORINGS AND INCONGRUENT IMPACTS TO RACER WEATHERED BEDROCK WELLS)
- APPROXIMATE EXTENT OF LNAPL
- EXTENT VOCs IN PERCHED ZONE > DW CRITERIA
- PERCHED 1,4-DIOXANE IMPACTS > THAN PROPOSED DW CRITERIA (7.2 µg/L)
- LOWER 1,4-DIOXANE IMPACTS > THAN PROPOSED DW CRITERIA (7.2 µg/L)

APPROXIMATE PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTE:

PLUMES INCLUDED ON THIS FIGURE INCORPORATE DATA COLLECTED DURING 2011-2017 RFI ACTIVITIES, UPDATED BASED ON RECENT GROUNDWATER MONITORING DATA.

APC: ADAM'S PLATING COMPANY
DW: DRINKING WATER
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
RFI: RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION
VOCs: VOLATILE ORGANIC COMPOUNDS
µg/L: MICROGRAMS PER LITER

0 250 500
SCALE IN FEET

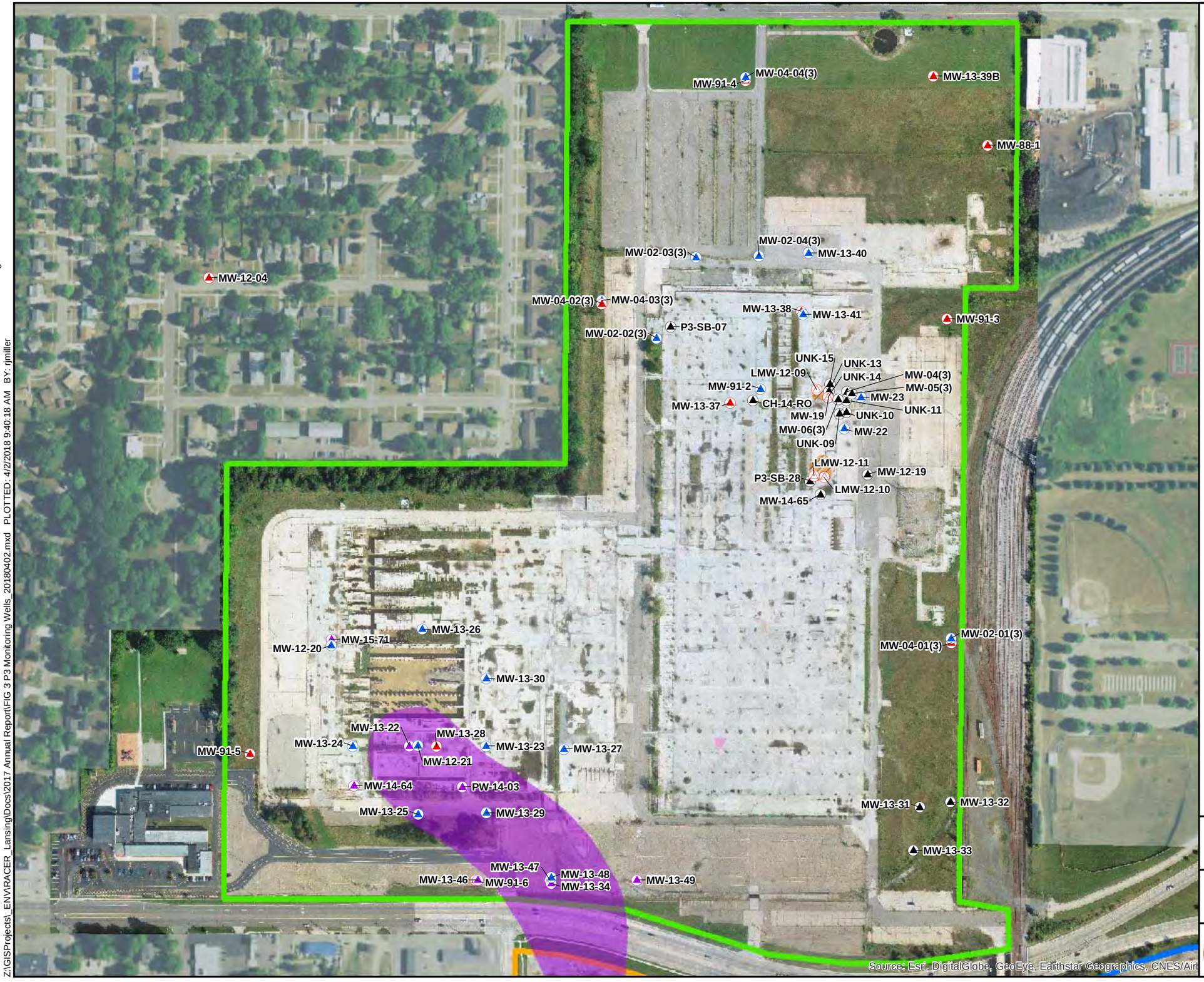
RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

SUMMARY OF PLANTS 2 AND 6 MONITORING WELLS AND PLUMES

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

DIV: ENV DB: A.SMITH PIC: CPM: R. Christensen TM: A. Villhauer TR: PROJECT NUMBER: B0064479.2018
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Annual Report\FIG 3 P3 Monitoring Wells_20180402.mxd PLOTTED: 4/2/2018 9:40:18 AM BY: rjmiller



LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- APPROXIMATE EXTENT OF LNAPL
- PERCHED 1,4-DIOXANE IMPACTS > THAN PROPOSED DW CRITERIA (8.5 ug/L)
- LOWER 1,4-DIOXANE IMPACTS > THAN PROPOSED DW CRITERIA (7.2 µg/L)

APPROXIMATE PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTE:

PLUMES INCLUDED ON THIS FIGURE INCORPORATE DATA COLLECTED DURING 2011-2017 RFI ACTIVITIES, UPDATED BASED ON RECENT GROUNDWATER MONITORING DATA.

DW: DRINKING WATER
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
RFI: RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION
VOCs: VOLATILE ORGANIC COMPOUNDS
µg/L: MICROGRAMS PER LITER

0 275 550
SCALE IN FEET

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

SUMMARY OF PLANT 3 MONITORING WELLS AND PLUMES

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

MW-91-4
1.3 ug/L
MW-13-39B
0.33 ug/L
MW-12-04
0.86 ug/L
MW-13-28
1.9 ug/L
0.37 ug/L
MW-91-5
MW-14-64
0.39 ug/L
MW-91-6
MW-13-47
0.61 ug/L
1.3 ug/L
0.42 ug/L
MW-12-02
MW-13-44
0.46 ug/L
2.3 ug/L
MW-17-87
MW-12-05R
0.63 ug/L
MW-12-06
<0.2 ug/L
MW-12-01
<0.2 ug/L
<0.2 ug/L
MW-13-50

LEGEND

- PROPOSED BEDROCK SAMPLING LOCATIONS
- MONITORING WELL LOCATION
- MUNICIPAL WATER SUPPLY WELLS
- APC POTENTIAL AREA OF WEATHERED BEDROCK IMPACTS >7.2 µg/L (ESTIMATED FROM OFF-SITE VAP BORINGS AND INCONGRUENT IMPACTS TO RACER WEATHERED BEDROCK WELLS)
- LOWER 1,4-DIOXANE PLUME > PROPOSED DW CRITERIA (7.2 µg/L)
- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

SAMPLES WILL BE ANALYZED FOR LOW-LEVEL 1,4-DIOXANE USING EPA METHOD 522.

0 300 600
SCALE IN FEET

Source: Esri, DigitalGlobe, Ge
AeroGRID, IGN, and the GIS U

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

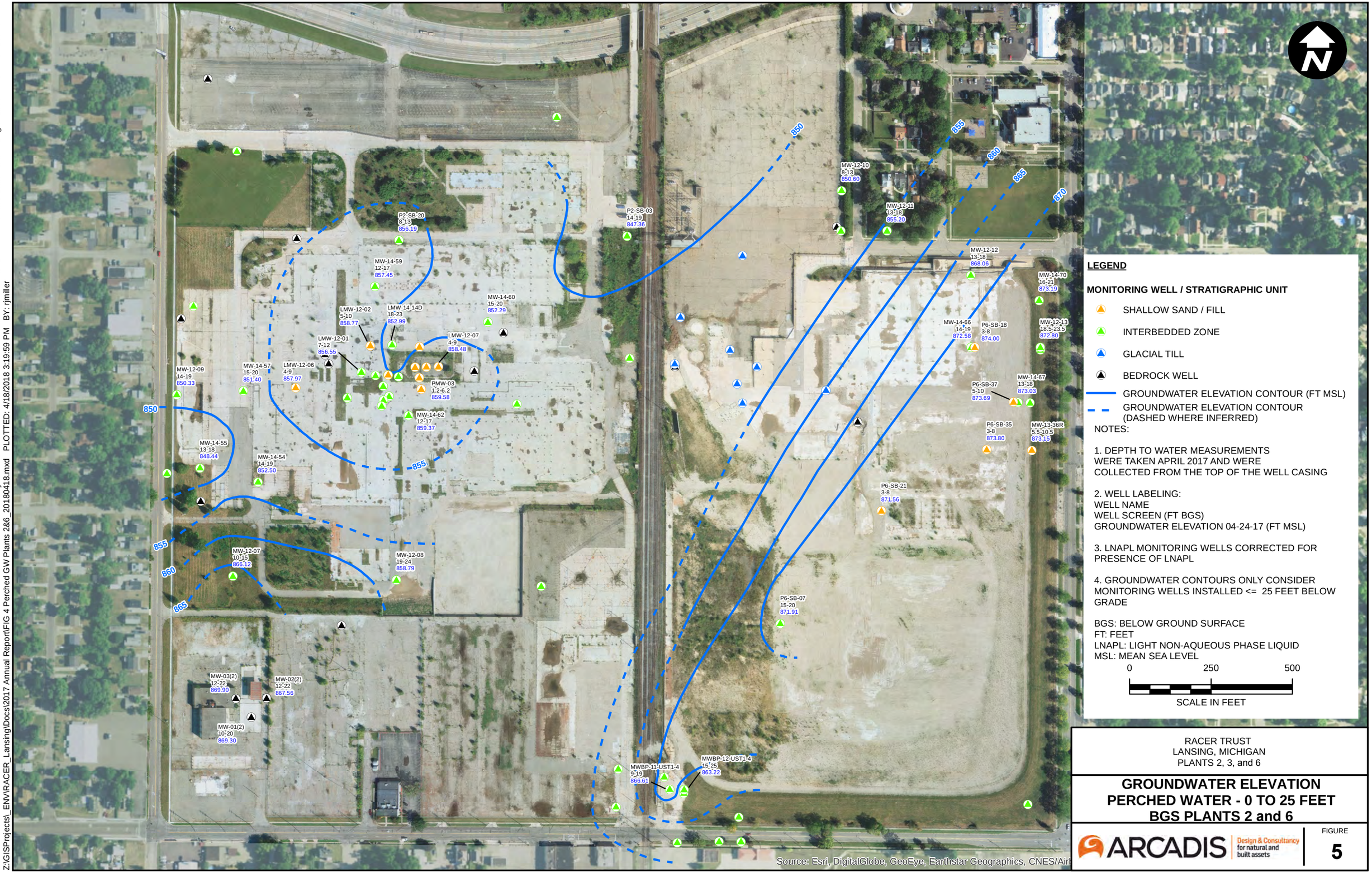
LOW-LEVEL 1,4-DIOXANE SAMPLING LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Workplan Figures\Low-Level 1,4-D_20180425.mxd PLOTTED: 4/25/2018 5:28:20 PM BY: rjmiller

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B006479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Annual Report\FIG 4 Perched GW Plants 2&6_20180418.mxd PLOTTED: 4/18/2018 3:19:59 PM BY: rjmiller



LEGEND

MONITORING WELL / STRATIGRAPHIC UNIT

- SHALLOW SAND / FILL
- INTERBEDDED ZONE
- GLACIAL TILL
- BEDROCK WELL
- GROUNDWATER ELEVATION CONTOUR (FT MSL)
- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)

NOTES:

1. DEPTH TO WATER MEASUREMENTS WERE TAKEN APRIL 2017 AND WERE COLLECTED FROM THE TOP OF THE WELL CASING

2. WELL LABELING:
WELL NAME
WELL SCREEN (FT BGS)
GROUNDWATER ELEVATION 04-24-17 (FT MSL)

3. LNAPL MONITORING WELLS CORRECTED FOR PRESENCE OF LNAPL

4. GROUNDWATER CONTOURS ONLY CONSIDER MONITORING WELLS INSTALLED <= 25 FEET BELOW GRADE

BGS: BELOW GROUND SURFACE
FT: FEET
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
MSL: MEAN SEA LEVEL

0 250 500

SCALE IN FEET

RACER TRUST
LANSING, MICHIGAN
PLANTS 2, 3, and 6

GROUNDWATER ELEVATION PERCHED WATER - 0 TO 25 FEET BGS PLANTS 2 and 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GIS\Projects_ENV\RACER_Lansing\Docs\2017 Annual Report\FIG 5 Perched GW Plant 3_20180323.mxd PLOTTED: 3/26/2018 8:45:35 AM BY: rjmiller



CH-14-RO
7-12
859.50

LMW-12-09
3-8
858.93

UNK-15
11-16
857.06

UNK-13
11-16
855.22

MW-04(3)
10.5-15.5
855.46

MW-05(3)
10-15
855.19

MW-06(3)
6.5-11.5
856.78

UNK-14
10.4-15.4
856.37*

UNK-11
6.5-11.5
855.62

UNK-09
11-16
856.94

UNK-10
11-16
856.51

LMW-12-11
15-20
855.47

LMW-12-10
14-19
857.69*

P3-SB-28
8-13
861.23

MW-14-65
5-10
860.09

MW-12-19
5-10
852.68**

858
856
857
859
861

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airb

LEGEND

MONITORING WELL / STRATIGRAPHIC UNIT

- SHALLOW SAND / FILL
- INTERBEDDED ZONE
- GLACIAL TILL
- BEDROCK WELL
- NO LOG
- GROUNDWATER ELEVATION CONTOUR (FT MSL)
- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)

NOTES:

1. DEPTH TO WATER MEASUREMENTS WERE TAKEN APRIL 2017 AND WERE COLLECTED FROM THE TOP OF THE WELL CASING.

2. WELL LABELING:
WELL NAME
WELL SCREEN (FT BGS)
GROUNDWATER ELEVATION 04-24-17 (FT MSL)

3. LNAPL MONITORING WELLS CORRECTED FOR PRESENCE OF LNAPL

4. GROUNDWATER CONTOURS ONLY CONSIDER MONITORING WELLS INSTALLED <= 25 FEET BELOW GRADE

BGS: BELOW GROUND SURFACE
FT: FEET
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
ASTERISK (*): Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 g/mL
DOUBLE ASTERISK (**): Groundwater elevation not used for groundwater contouring
MSL: MEAN SEA LEVEL

0 40 80
SCALE IN FEET

RACER TRUST
LANSING, MICHIGAN
PLANTS 2, 3, and 6

GROUNDWATER ELEVATION PERCHED WATER 0 TO 25 FEET BGS CENTRAL PLANT 3

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Vilhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENVRACER_Lansing\Docs\2017 Annual Report\FIG 6 Deep OB GW Plant 3_20180323.mxd PLOTTED: 3/26/2018 8:42:10 AM BY: rjmiller

MW-04-04(3)
72-82
795.79

MW-02-04(3)
76-86
798.30

MW-13-40
72-77
797.96

MW-02-03(3)
79-89
795.26

MW-04-03(3)
80-90
795.47

MW-02-02(3)
74-84
795.87

MW-13-41
77-82
801.27

MW-91-2
68-78
802.13

MW-19
55-65
805.84

MW-23
52-62
807.31

MW-22
52.5-62.5
806.72

MW-02-01(3)
59-69
811.48

MW-13-26
72-77
796.39

MW-12-20
75-80
795.56

MW-13-30
72-77
794.74

MW-13-24
69-74
796.66

MW-12-21
70-75
796.26

MW-13-23
69-74
791.97

MW-13-27
67-72
793.26

MW-13-25
67-72
794.17

MW-13-29
68-73
793.09

MW-13-48
65-70
793.40

797
799
801
803
805
807
809
811
795
793

LEGEND

MONITORING WELL / STRATIGRAPHY

- DEEP OVERBURDEN
- OTHER WELL
- GROUNDWATER ELEVATION CONTOUR (FT MSL)
- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)

NOTES:

1) DEPTH TO WATER MEASUREMENTS WERE TAKEN APRIL 2017 AND WERE COLLECTED FROM THE TOP OF THE WELL CASING.

2. WELL LABELING:
WELL NAME
WELL SCREEN (FT BGS)
GROUNDWATER ELEVATION 04-24-17 (FT MSL)

BGS: BELOW GROUND SURFACE
FT: FEET
MSL: MEAN SEA LEVEL

0 260 520
SCALE IN FEET

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Air

RACER TRUST
LANSING, MICHIGAN
PLANTS 2, 3, and 6

GROUNDWATER ELEVATION DEEP OVERBURDEN PLANT 3

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7

794
792
790
788
786
784
782
780
778
776

MW-91-4
793.96 /
793.96 *

MW-13-39B
792.78 /
787.66

MW-88-1
788.16 /
788.16 (B)

MW-12-04
793.62 /
793.62 * NU

MW-04-02(3)
794.51 /
794.51 *

MW-13-38
792.64 /
789.04

MW-91-3
789.72 /
786.08

MW-13-37
793.04
/ 785.80

GRAND RIVER FORMATION

SAGINAW FORMATION

MW-04-01(3)
809.22 /
800.77 NU

MW-91-5
795.42 /
795.42 *

MW-13-28
792.69 /
792.69 *

MW-91-6
788.73 /
788.73 *

MW-13-47
786.90 /
786.90 *

MW-12-02
785.16 /
785.16 *

MW-12-03
790.3 /
775.22

MW-13-44
785.60 /
779.59

MW-04-06R
790.55 /
775.44

MW-12-05R
787.44 /
781.17

MW-12-06
788.49 /
777.16

MW-04-01(6)
791.20 /
775.74

MW-17-87
787.48 /
781.83

MW-04-04R
791.88 /
776.26

MW-12-01
789.34 /
779.56

MW-13-50
790.81 /
778.73

0 490 980
SCALE IN FEET

LEGEND

- GROUNDWATER ELEVATION CONTOUR (FT MSL)
- APPROXIMATE LOCATION OF GROUNDWATER ELEVATION CONTOUR (FT MSL)
- APPROXIMATE LOCATION OF GRAND RIVER/SAGINAW FORMATION GEOLOGIC CONTACT
- BEDROCK MONITORING WELL

NOTES:

Monitoring wells located in the Saginaw Formation are corrected for an average vertical gradient of 0.33 (ft/ft, downward).

* - Monitoring wells located in Grand River Formation not corrected for vertical gradient.

(B) - Baseline well (deepest well)

NU - Groundwater elevation not used in contour map creation. Well MW-04-01(3) has historically measured high relative to other bedrock wells.

793.41/789.50 - Uncorrected GW Elev / Corrected GW Elev

Groundwater elevation measurements collected from well top of casing on April 24, 2017.

Elevation is given in feet above mean sea level.

Elev: elevation
ft: feet
GW: groundwater
MSL: Mean Sea Level
µg/L: micrograms per liter

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

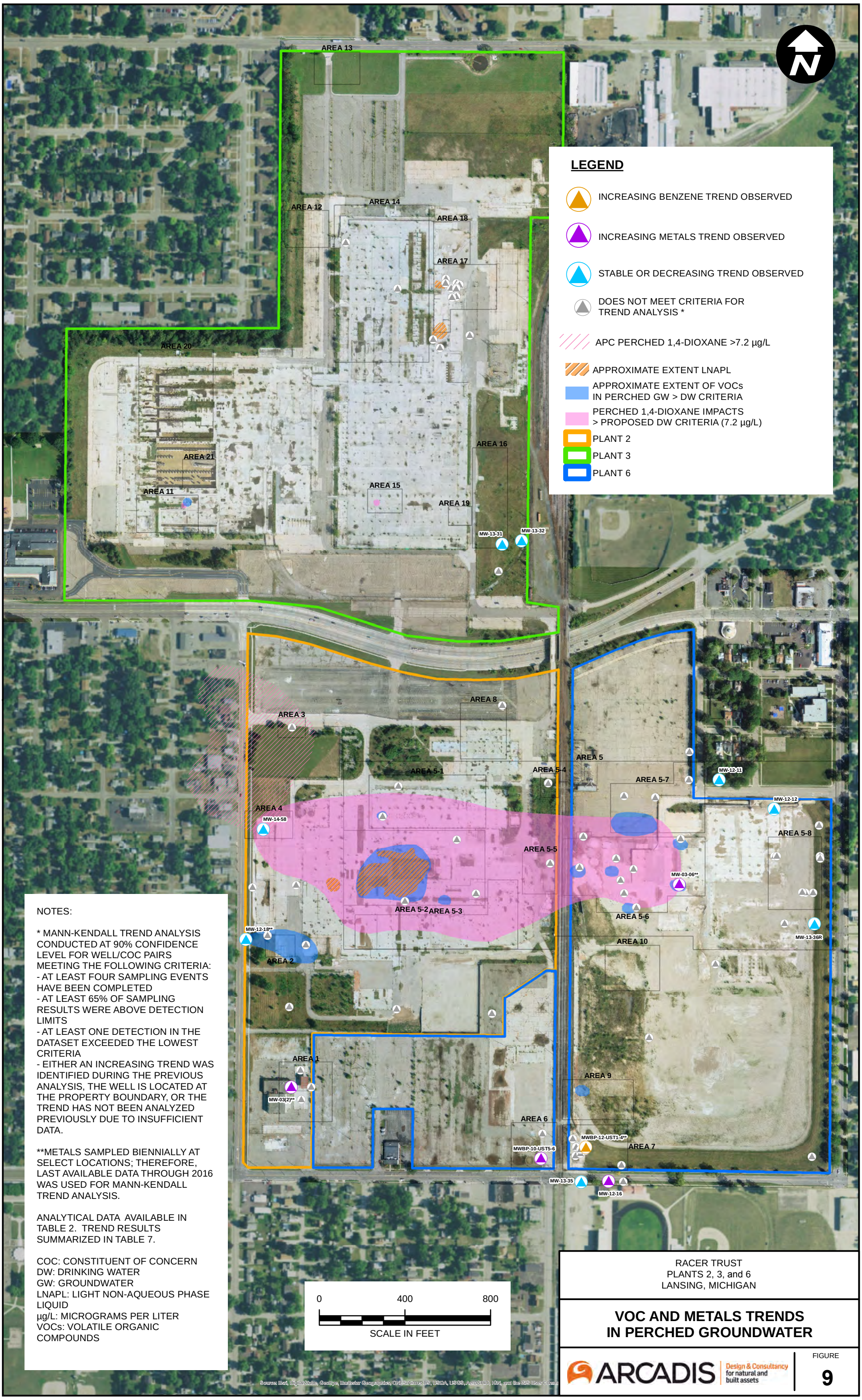
BEDROCK GROUNDWATER ELEVATION SUMMARY APRIL 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8

Source: Esri, DigitalGlobe, GeoEye, AeroGRID, IGN, and the GIS U

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Annual Report\FIG 7 BR GW Contour 05-16_20180418.mxd PLOTTED: 4/18/2018 5:41:30 PM BY: rjmiller



LEGEND

- INCREASING BENZENE TREND OBSERVED
- INCREASING METALS TREND OBSERVED
- STABLE OR DECREASING TREND OBSERVED
- DOES NOT MEET CRITERIA FOR TREND ANALYSIS *
- APC PERCHED 1,4-DIOXANE >7.2 µg/L
- APPROXIMATE EXTENT LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

* MANN-KENDALL TREND ANALYSIS CONDUCTED AT 90% CONFIDENCE LEVEL FOR WELL/COC PAIRS MEETING THE FOLLOWING CRITERIA:
- AT LEAST FOUR SAMPLING EVENTS HAVE BEEN COMPLETED
- AT LEAST 65% OF SAMPLING RESULTS WERE ABOVE DETECTION LIMITS
- AT LEAST ONE DETECTION IN THE DATASET EXCEEDED THE LOWEST CRITERIA
- EITHER AN INCREASING TREND WAS IDENTIFIED DURING THE PREVIOUS ANALYSIS, THE WELL IS LOCATED AT THE PROPERTY BOUNDARY, OR THE TREND HAS NOT BEEN ANALYZED PREVIOUSLY DUE TO INSUFFICIENT DATA.

**METALS SAMPLED BIENNIALLY AT SELECT LOCATIONS; THEREFORE, LAST AVAILABLE DATA THROUGH 2016 WAS USED FOR MANN-KENDALL TREND ANALYSIS.

ANALYTICAL DATA AVAILABLE IN TABLE 2. TREND RESULTS SUMMARIZED IN TABLE 7.

COC: CONSTITUENT OF CONCERN
DW: DRINKING WATER
GW: GROUNDWATER
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
µg/L: MICROGRAMS PER LITER
VOCs: VOLATILE ORGANIC COMPOUNDS

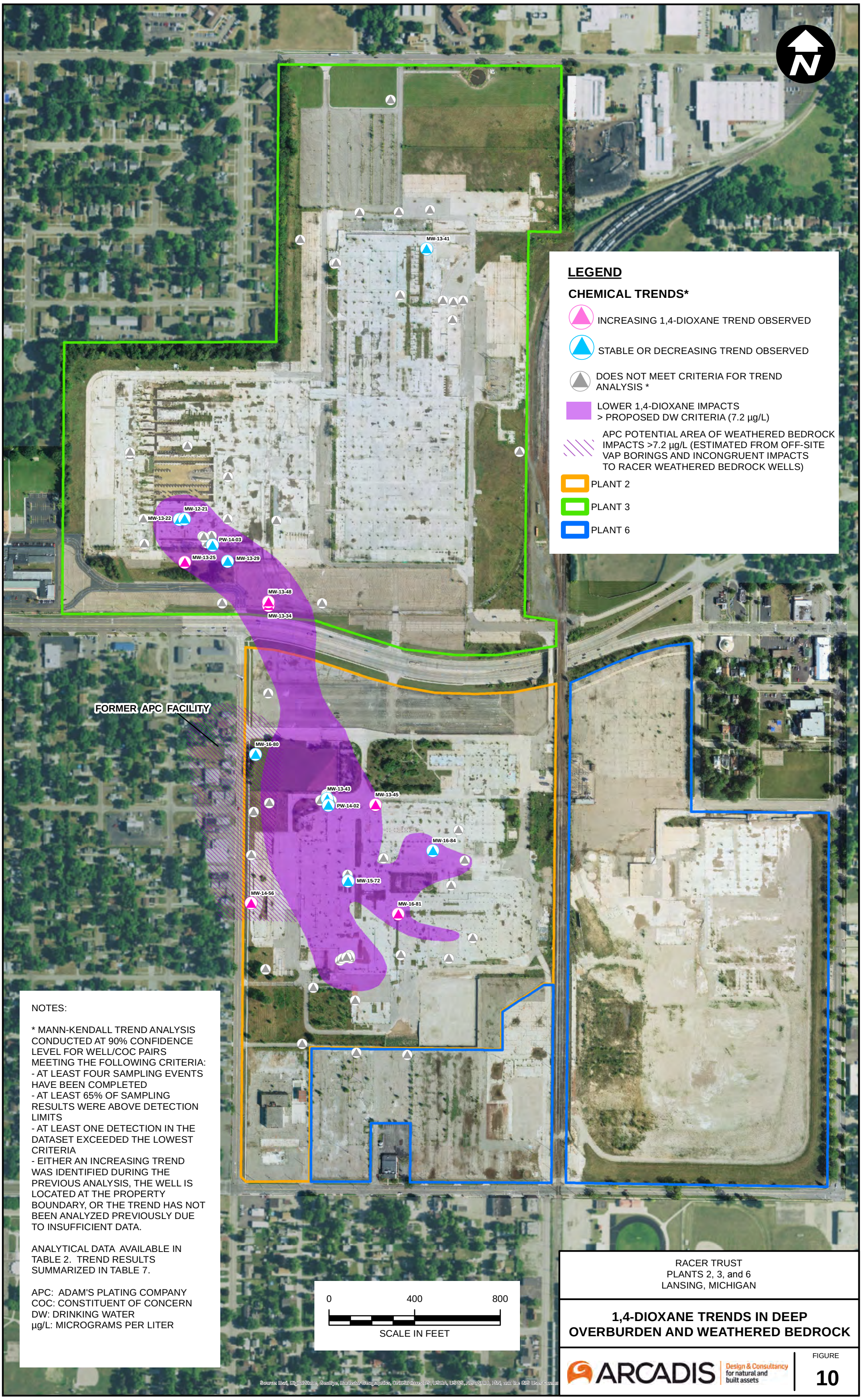
RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

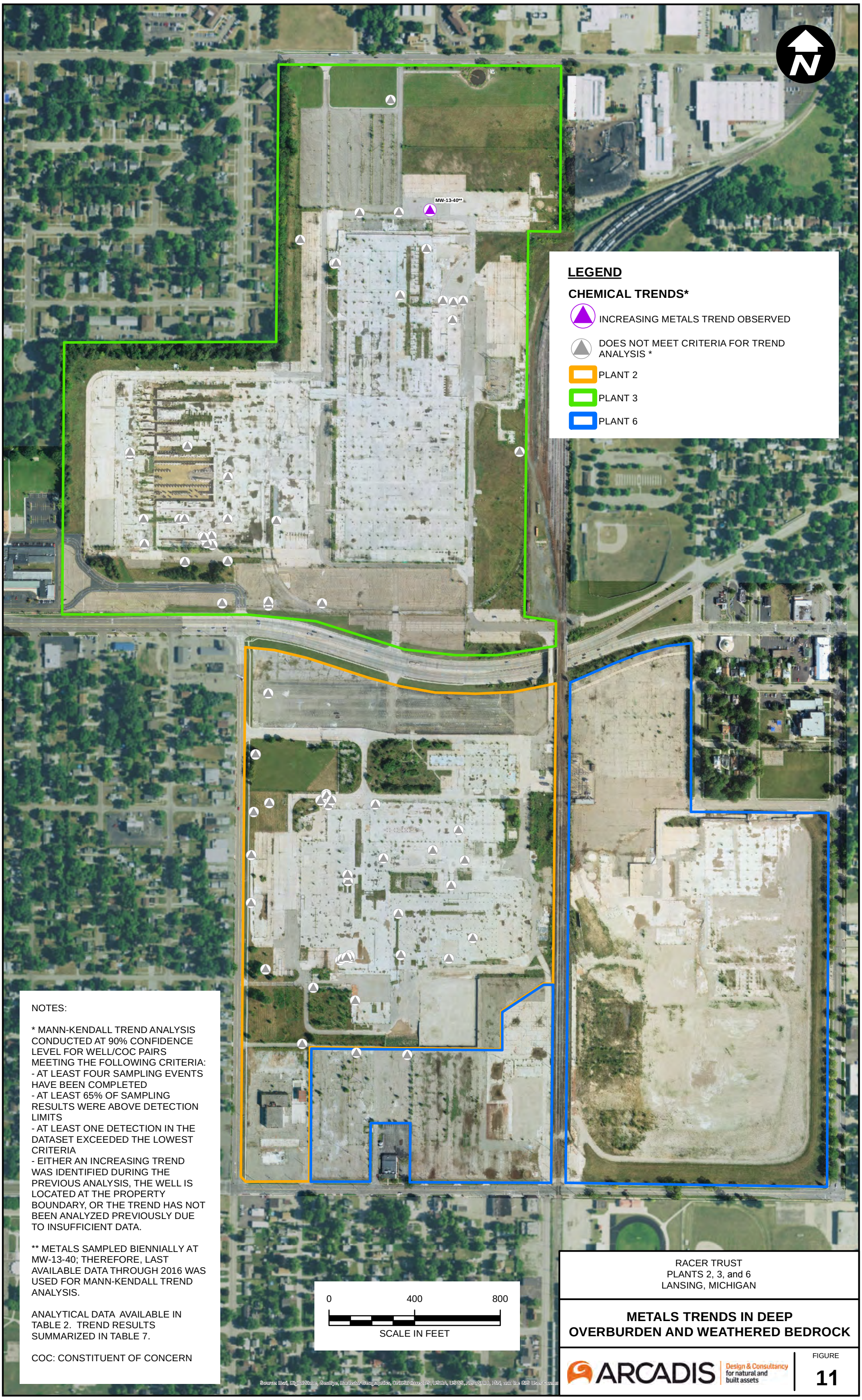
VOC AND METALS TRENDS IN PERCHED GROUNDWATER

ARCADIS Design & Consultancy for natural and built assets

FIGURE
9

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENVRACER_Lansing\Docs\2017 Annual Report\FIG 8 Perched Trends_20180502.mxd PLOTTED: 5/2/2018 1:33:39 PM BY: rjmiller


MW-13-41
MW-12-21
MW-13-22
PW-14-03
MW-13-25
MW-13-29
MW-13-48
MW-13-34
FORMER APC FACILITY
MW-16-80
MW-13-43
MW-13-45
PW-14-02
MW-16-84
MW-15-72
MW-14-56
MW-16-81
LEGEND
CHEMICAL TRENDS*
INCREASING 1,4-DIOXANE TREND OBSERVED
STABLE OR DECREASING TREND OBSERVED
DOES NOT MEET CRITERIA FOR TREND ANALYSIS *
LOWER 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
APC POTENTIAL AREA OF WEATHERED BEDROCK IMPACTS >7.2 µg/L (ESTIMATED FROM OFF-SITE VAP BORINGS AND INCONGRUENT IMPACTS TO RACER WEATHERED BEDROCK WELLS)
PLANT 2
PLANT 3
PLANT 6
NOTES:
* MANN-KENDALL TREND ANALYSIS CONDUCTED AT 90% CONFIDENCE LEVEL FOR WELL/COC PAIRS MEETING THE FOLLOWING CRITERIA:
- AT LEAST FOUR SAMPLING EVENTS HAVE BEEN COMPLETED
- AT LEAST 65% OF SAMPLING RESULTS WERE ABOVE DETECTION LIMITS
- AT LEAST ONE DETECTION IN THE DATASET EXCEEDED THE LOWEST CRITERIA
- EITHER AN INCREASING TREND WAS IDENTIFIED DURING THE PREVIOUS ANALYSIS, THE WELL IS LOCATED AT THE PROPERTY BOUNDARY, OR THE TREND HAS NOT BEEN ANALYZED PREVIOUSLY DUE TO INSUFFICIENT DATA.
ANALYTICAL DATA AVAILABLE IN TABLE 2. TREND RESULTS SUMMARIZED IN TABLE 7.
APC: ADAM'S PLATING COMPANY
COC: CONSTITUENT OF CONCERN
DW: DRINKING WATER
µg/L: MICROGRAMS PER LITER
0
400
800
SCALE IN FEET
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Comm
RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN
1,4-DIOXANE TRENDS IN DEEP OVERBURDEN AND WEATHERED BEDROCK
ARCADIS Design & Consultancy for natural and built assets
FIGURE
10
CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Annual Report\FIG 9 Deep OB Weathered BR Trends_20180425_APC_version2.mxd PLOTTED: 4/25/2018 4:18:49 PM BY: rjmiller



CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Annual Report\FIG 10 Metals Trend Deep Overburdened_Weathered BR_20180419.mxd PLOTTED: 4/19/2018 8:19:53 AM BY: rjmiller

APPENDIX A

Lansing Township Municipal Well Locations and Data

(on attached CD)

TWP-90-06

TWP-90-05
0.28 ug/L

TWP-90-04
0.13 J ug/L

TWP-90-03
0.15 J ug/L

TWP-90-02

LEGEND

MUNICIPAL WATER SUPPLY WELLS WERE SAMPLED IN DECEMBER 2017 FOR 1,4-DIOXANE VIA EPA METHOD 522.
J - ESTIMATED CONCENTRATION
ug/L - MICROGRAMS PER LITER

- MUNICIPAL WATER SUPPLY WELLS
- LOWER 1,4-DIOXANE PLUME > PROPOSED DW CRITERIA (7.2 µg/L)
- PLANT 2
- PLANT 3
- PLANT 6

0 670 1,340
SCALE IN FEET

Source: Esri, DigitalGlobe, Ge
Getmapping, Aerogrid, IGN, IG

RACER TRUST
LANSING, MICHIGAN

MUNICIPAL WATER SUPPLY WELLS
DECEMBER 2017 1,4-DIOXANE RESULTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A-1

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\working\Lansing WHPAs.mxd PLOTTED: 1/24/2017 12:21:12 PM BY: dolexa

Table 1
Township Well Sampling Results
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected:	Units	MI GW (DEQ2013) RES DW	TWP-90-3 12/18/17	TWP-90-4 12/18/17	TWP-90-5 12/18/17
Volatile Organics					
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	NA	NA	NA
1,4-Dioxane	ug/L	7.2	**0.15 J**	**0.13 J**	**0.28**
1,1,2-Trichloroethane	ug/L	5	NA	NA	NA
Acetone	ug/L	730	NA	NA	NA
Carbon disulfide	ug/L	800	NA	NA	NA
Methyl acetate	ug/L	- -	NA	NA	NA
Methyl tert butyl ether (MTBE)	ug/L	40	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	NA	NA	NA
Chloromethane (Methyl chloride)	ug/L	260	NA	NA	NA
Vinyl chloride	ug/L	2	NA	NA	NA
Bromomethane (Methyl bromide)	ug/L	10	NA	NA	NA
Chloroethane	ug/L	430	NA	NA	NA
Trichlorofluoromethane (CFC-11)	ug/L	2,600	NA	NA	NA
1,1-Dichloroethane	ug/L	880	NA	NA	NA
1,1-Dichloroethene	ug/L	7	NA	NA	NA
cis-1,2-Dichloroethene	ug/L	70	NA	NA	NA
trans-1,2-Dichloroethene	ug/L	100	NA	NA	NA
Methylene chloride	ug/L	5	NA	NA	NA
1,1,1-Trichloroethane	ug/L	200	NA	NA	NA
2-Hexanone	ug/L	1,000	NA	NA	NA
Chloroform (Trichloromethane)	ug/L	80	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone)	ug/L	1,800	NA	NA	NA
Carbon tetrachloride	ug/L	5	NA	NA	NA
Cyclohexane	ug/L	- -	NA	NA	NA
Benzene	ug/L	5	NA	NA	NA
1,2-Dichloroethane	ug/L	5	NA	NA	NA
Trichloroethene	ug/L	5	NA	NA	NA
1,2-Dichloropropane	ug/L	5	NA	NA	NA
Bromodichloromethane	ug/L	80	NA	NA	NA
Methyl cyclohexane	ug/L	- -	NA	NA	NA
cis-1,3-Dichloropropene	ug/L	- -	NA	NA	NA
Toluene	ug/L	790	NA	NA	NA
trans-1,3-Dichloropropene	ug/L	- -	NA	NA	NA
1,1,2-Trichloroethane	ug/L	5	NA	NA	NA
Tetrachloroethene	ug/L	5	NA	NA	NA
Dibromochloromethane	ug/L	80	NA	NA	NA
Chlorobenzene	ug/L	100	NA	NA	NA
1,1,2,2-Tetrachloroethane	ug/L	8.5	NA	NA	NA
Ethylbenzene	ug/L	74	NA	NA	NA
o-Xylene	ug/L	- -	NA	NA	NA
m&p-Xylene	ug/L	- -	NA	NA	NA
Styrene	ug/L	100	NA	NA	NA
Isopropyl benzene	ug/L	800	NA	NA	NA
Bromoform	ug/L	80	NA	NA	NA
1,2-Dichlorobenzene	ug/L	600	NA	NA	NA
1,4-Dichlorobenzene	ug/L	75	NA	NA	NA
1,3-Dichlorobenzene	ug/L	6.6	NA	NA	NA
1,2,4-Trichlorobenzene	ug/L	70	NA	NA	NA

Table Notes:
1,4-Dioxane is compared to a drinking water criteria of 7.2 µg/L per the *MDEQ Establishment of Cleanup Criteria for 1,4 -Dioxane: Emergency Rules* dated October 27, 2016.
Bold fonts represent data where detections were noted above the MDL but below MDEQ Part 201 Generic Cleanup Criteria.
µg/L - micrograms per liter
NA - Not Analyzed

2013 MDEQ Criteria Footnotes:
RES DW = Residential Drinking Water Criteria
- - = Not listed in the MDEQ Criteria Tables

Lab and Validation Data Qualifiers:
J = The compound/constituent was positively identified; however, the associated numerical value is below the reporting limit an estimated concentration only

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 240-89559-1
Client Project/Site: Racer Lansing B0064479.2017.00603

For:
ARCADIS U.S., Inc.
101 South Washington Square
Suite 400
Lansing, Michigan 48933

Attn: Alex Villhauer

Denise Pohl

Authorized for release by:
1/8/2018 5:20:26 PM

Denise Pohl, Project Manager II
(330)966-9789
denise.pohl@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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

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

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Detection Summary 7
Client Sample Results 8
Surrogate Summary 13
QC Sample Results 14
QC Association Summary 15
Lab Chronicle 16
Certification Summary 17
Chain of Custody 18
Receipt Checklists 23

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
<	,9H%&'!Ä (!IÄ('9'8J!Ä(K' ('9'8JLÄH(M*$(+N!(9*!(HÄ!Ä&!ÄH=
)	:Ä N8!(% (8Ä (!I'9(!IÄ(:B(+N!(C$Ä'!Ä$(!I'9(*$(ÄON'8(!*(!IÄ(P- B('9H(!IÄ(&*9&Ä9!$'!%*9(% ('9('QQ$*R%#'!Ä(S'8NÄ=

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
T	B% !ÄH(N9HÄ$(!IÄ(U-U(&*8N#9(!*(HÄ %C9'!Ä(!I'!(!IÄ($Ä N8Q*$!ÄÄ(*9('(H$J(KÄ%CI!(+' %
V:	?Ä$&Ä9!(:Ä&*SÄ$J
7WB	7*9!'%9 (W$ÄÄ(B%ON%H
7XW	7*9!'%9 (X*(W$ÄÄ(B%ON%H
-Y:	-NQ8%&'!Ä(Y$$*$(:'!%*(Z9*$#'8%LÄH('+ *8N!Ä(H%MMÄ$Ä9&Ä[
-%8(W'&	-%8N!%*9(W'&!*$
-B	-Ä!Ä&!%*9(B%#%!(Z-*-A-\Y[
-B>(:">(:Y>(,X	,9H%&'!Ä ('(-%8N!%*9>(:Ä2'9'8J % >(:Ä2ÄR!$'&!*$(*9H%!%*9'8(,9%!%'8(#Ä!'8 A'9%*9('9'8J % (*M(!IÄ('#Q8Ä
-B7	-Ä&% %*9(BÄSÄ8(7*9&Ä9!$'!%*9(Z:'H%*&IÄ#% !$J[
Y-B	Y !%#'!ÄH(-Ä!Ä&!%*9(B%#%!(Z-%*R%9[
B\-	B%#%!(*M(-Ä!Ä&!%*9(Z-*-A-\Y[
B\]	B%#%!(*M(]N'9!%!'!%*9(Z-*-A-\Y[
P-"	P %9%#N#(-Ä!Ä&!'+8Ä("&!%S%!J(Z:'H%*&IÄ#% !$J[
P-7	P %9%#N#(-Ä!Ä&!'+8Ä(7*9&Ä9!$'!%*9(Z:'H%*&IÄ#% !$J[
P-B	P Ä!I*H(-Ä!Ä&!%*9(B%#%!
PB	P%9%#N#(BÄSÄ8(Z-%*R%9[
X7	X*!(7'8&N8'!ÄH
X-	X*!(-Ä!Ä&!ÄH('!(!IÄ($ÄQ*$!%9C(8%#%!(Z*$(P-B(*$(Y-B(%M(I*K9[
?]B	?$'&!%&'8(]N'9!%!'!%*9(B%#%!
]7	]N'8%!J(7*9!$*8
:Y:	:Ä8'!%SÄ(Y$$*$(:'!%*(Z:'H%*&IÄ#% !$J[
:B	:ÄQ*$!%9C(B%#%!(*$(:ÄONÄ !ÄH(B%#%!(Z:'H%*&IÄ#% !$J[
:?-	:Ä8'!%SÄ(?Ä$&Ä9!(-%MMÄ$Ä9&Ä>('(#Ä' N$Ä(*M(!IÄ($Ä8'$Ä$&Ä(!%MMÄ9(!K*(Q*%9!
ĀYW	Ā*R%&%!J(YON%S'8Ä9!(W'&!*$(Z-%*R%9[
ĀY]	Ā*R%&%!J(YON%S'8Ä9!(]N*!%Ä9!(Z-%*R%9[

Job ID: 240-89559-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Lansing B0064479.2017.00603

Report Number: 240-89559-1

H #I%#!I!%!J.!K# 5"0%"5#!L%30%MÄ3C0%52%M55#"5#!0-%0#3[illegible]

K256À!10%O!2!%!".5P"#!2!L%52%3"513À !0%560!2Q!L,%%)"%3[illegible]

Ä 1 #0-%O #I%3"N%!J.!K# 5"0%"5#!L%6!Ä5O,%%S3.I%031KÄ!%[illegible]

#I%1!#I5L,%%)"%051!%.30!0-%LP!%#5% "#!2M!2!".!%52%3"[illegible]

#I%2!K52# "C%Ä 1 #0%32!%3L@P0#!L%2!Ä3# Q!%#5%#!L ÄP# 5"%2!RP

/I!%=77%>-8:(5J3"!%3"3ÀN0 0%O30%K!2M521!L%3#%#I!%/!0#&[illegible]

/!0#&1!2 .3%Ā3"#5"%3##!0#0%#5%#I!%Q3À L #N%5M%#I!%[illegible]

K!2M521!L%6N%/!0#&1!2 .3%M3. À # !0%O!2!%L5"!%P0 "C%![illegible]

3KKÄ .3# 5"%1!#I5L0,%%/!0#&1!2 .3X0%5K!23# 5"0%C25PK0%[illegible]

I3Q!%6!"%M5P"L%#5%6!%.51KÀ 3"#%O #I%À36523#52N%K[illegible]

/I!%#!0#%2!0PÄ#0% "%#I 0%2!K52#%1!!#%3ÀÄ%YSB&?%2[illegible]

#5%YSB&?%2!RP 2!1!"#0%32!%"5#!L% "%#I 0%2!K52#,%%?[illegible]

3KK25Q3À%5M%#I!%Ä36523#52N,

Ā3À.PÄ3# 5"0%32!%K!2M521!L%6!M52!%25P"L "C%#5%3Q5[illegible]

&ÀÄ%I5ÀL "C%# 1!0%O!2!%1!#%3"L%K25K!2%K2!0!2Q3# 5"[illegible]

"L Q LP3À%0!.# 5"0%6!Ä5O,

&ÀÄ%05Ä L%031KÄ!%2!0PÄ#0%32!%2!K52#!L%5"%3"%Z3[illegible]

1!#I5L%I!3L!2,

/I 0%Ä36523#52N%2!K52#% 0%.5"M L!"# 3Ä%3"L% 0% "[illegible]

RECEIPT

/I!%031KÀ!0%O!2!%2!.! Q!L%5"%>7A><A79>F%;$89%&\]%#I!%[illegible]

.!,%%/I!%#!1K!23#P2!%5M%#I!%.55À!2%3#%2!.! K#%O30%G,<^%Ā,

1,4-DIOXANE

*31KÄ!0%UD:9>_>7>;>F%`789:;<==<:>a-%/H?:<9:98_>7>;>F%`789:;<==[illegible]

`789:;<==<:8a%3"L%(+?:9>_>7>;>F%`789:;<==<:=a%O!2!%3"3ÀNT![illegible]

O!2!%K2!K32!L%5"%9>A97A79>;%3"L%>7A7FA79>F%3"L%3"3ÀN[illegible]

\!#I5L`0a%G=G=&$%&%L!Q 3# 5"%M251%#I!%*#3"L32L%VK![illegible]

#I!2!%O30%5"ÀN%8=%1B%5M%031KÀ!%Q5ÀP1!%3Q3 Ä36[illegible]

Y5%3LL # 5"3Ä%3"3ÀN# .3Ä%52%RP3À #N% 00P!0%O!2![illegible]

Method Summary

Method	Method Description	Protocol	Laboratory
5//	6>0(-%*I'9Ä(JK7AL;(;,LM	H?"	Ā"B(D<:

Protocol References:

H?"(N(<;(H9O%$*9#Ä9!'8(?$*!Ä&!%*9("CÄ9&P

Laboratory References:

Ā"B(D<:(N(ĀÄ !"#Ä$%&'(DQ$8%9C!*9>(G1(7*##Q9%!P(-$%OÄ>(;Q%QÄ(bQ$8%9C!*9>(SĀ(1501G>(ĀHB(J31/MEE126441

Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
/0123455426	HD216I6/636F	J'!Ä$	6/A63A6F(6G.556	/A64A6F(13.01
/012345542/	ĀJ?241210I6/636F	J'!Ä$	6/A63A6F(6G.016	/A64A6F(13.01
/012345542G	ĀJ?241215I6/636F	J'!Ä$	6/A63A6F(6G.516	/A64A6F(13.01
/0123455420	ĀJ?24121GI6/636F	J'!Ä$	6/A63A6F(60.15	6/A64A6F(13.01
/0123455425	-<?216I6/636F	J'!Ä$	6/A63A6F(11.11	6/A64A6F(13.01

Detection Summary

Client Sample ID: FB-01_121817 — Lab Sample ID: 240-89559-1

(H*(-Ä!Ä&!%*9 =

Client Sample ID: TWP-90-04_121817 — Lab Sample ID: 240-89559-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6>02-%*I'9Ä	1=6G)		1=/1	1=1F0	JCAB	6		5//	Ā*!'8AH"

Client Sample ID: TWP-90-05_121817 — Lab Sample ID: 240-89559-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6>02-%*I'9Ä	1=/3		1=//	1=13/	JCAB	6		5//	Ā*!'8AH"

Client Sample ID: TWP-90-03_121817 — Lab Sample ID: 240-89559-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6>02-%*I'9Ä	1=65)		1=/1	1=1F0	JCAB	6		5//	Ā*!'8AH"

Client Sample ID: DUP-01_121817 — Lab Sample ID: 240-89559-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6>02-%*I'9Ä	1=6G)		1=/1	1=1F0	JCAB	6		5//	Ā*!'8AH"

Client Sample Results

Client Sample ID: FB-01_121817
Date Collected: 12/18/17 13:55
Date Received: 12/19/17 08:40

Lab Sample ID: 240-89559-1
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6>02-%*H'9Ä	1=/1	<	1=/1	1=1F0	ICAB		6/A/FA6F(64./4	6/A/3A6F(/G.GG	6

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*67*		*46 - 130*	*12/27/17 19:29*	*12/28/17 23:33*	*1*

Client Sample Results

Client Sample ID: TWP-90-04_121817 — **Lab Sample ID: 240-89559-2**
Date Collected: 12/18/17 13:40 — **Matrix: Water**
Date Received: 12/19/17 08:40

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.13**	**J**	1=/1	1=1F0	ICAB		6/A/FA6F(64./4	6/A/3A6F(/G.03	6

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*72*		*46 - 130*	*12/27/17 19:29*	*12/28/17 23:48*	*1*

Client Sample Results

Client Sample ID: TWP-90-05_121817 — **Lab Sample ID: 240-89559-3**
Date Collected: 12/18/17 13:50 — **Matrix: Water**
Date Received: 12/19/17 08:40

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.28**		1=//	1=13/	ICAB		16A1/A63(/1.G4	16A10A63(66.06	6

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*85*		*46 - 130*	*01/02/18 20:39*	*01/04/18 11:41*	*1*

Client Sample Results

Client Sample ID: TWP-90-03_121817 — **Lab Sample ID: 240-89559-4**
Date Collected: 12/18/17 14:05 — **Matrix: Water**
Date Received: 12/19/17 08:40

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.15**	**J**	1=/1	1=1F0	ICAB		6/A/FA6F(64./4	6/A/4A6F(11.GG	6

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*74*		*46 - 130*	*12/27/17 19:29*	*12/29/17 00:33*	*1*

Client Sample Results

Client Sample ID: DUP-01_121817 — **Lab Sample ID: 240-89559-5**
Date Collected: 12/18/17 00:00 — **Matrix: Water**
Date Received: 12/19/17 08:40

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.13**	**J**	1=/1	1=1F0	ICAB		6/A/FA6F(64./4	6/A/4A6F(11.03	6

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*70*		*46 - 130*	*12/27/17 19:29*	*12/29/17 00:48*	*1*

Surrogate Summary

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DXE
Lab Sample ID	Client Sample ID	(46-130)
/0123455426	HD216I6/636F	EF
/012345542/	ĀJ?241210I6/636F	F/
/012345542G	ĀJ?241215I6/636F	35
/0123455420	ĀJ?24121GI6/636F	F0
/0123455425	-<?216I6/636F	F1
B7;(/1126/0451A/2"	B'+(7*9!$*8(;'#K8Ä	F/
B7;(/1126/51FEA/2"	B'+(7*9!$*8(;'#K8Ä	3G
B7;-(/1126/51FEAG2"	B'+(7*9!$*8(;'#K8Ä(-LK	F0
MD(/1126/0451A62"	MÄ!N*O(D8'9P	F/
MD(/1126/51FEA62"	MÄ!N*O(D8'9P	FG

Surrogate Legend

-QR(S(6>02-%*T'9Ä2O3(U;L$$V

QC Sample Results

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-124950/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 124969 — **Prep Batch: 124950**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6>02-%*H'9Ä	1=/1	<	1=/1	1=1F0	ICAB		6/A/FA6F(64./4	6/A/3A6F(64.15	6

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*67*		*43 - 102*	*17/76/16 19:79*	*17/78/16 19:25*	*1*

Lab Sample ID: LCS 200-124950/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 124969 — **Prep Batch: 124950**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
6>02-%*H'9Ä	/=11	6=50		ICAB		FF	F1 26G1

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*67*		*43 - 102*

Lab Sample ID: MB 200-125076/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 125106 — **Prep Batch: 125076**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6>02-%*H'9Ä	1=/1	<	1=/1	1=1F0	ICAB		16A1/A63(/1.G4	16A10A63(66./F	6

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*60*		*43 - 102*	*21/27/18 72:09*	*21/24/18 11:76*	*1*

Lab Sample ID: LCS 200-125076/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 125106 — **Prep Batch: 125076**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
6>02-%*H'9Ä	3=11	F=EE		ICAB		4E	F1 26G1

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*80*		*43 - 102*

Lab Sample ID: LCSD 200-125076/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 125106 — **Prep Batch: 125076**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
6>02-%*H'9Ä	3=11	E=46		ICAB		3E	F1 26G1	61	GI

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*64*		*43 - 102*

QC Association Summary

GC/MS Semi VOA

Prep Batch: 124950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
/0123455426	I D216J6/636F	Ā*!'8AK"	H'!Ä$	G5G5"	
/012345542/	ĀH?241210J6/636F	Ā*!'8AK"	H'!Ä$	G5G5"	
/0123455420	ĀH?24121GJ6/636F	Ā*!'8AK"	H'!Ä$	G5G5"	
/0123455425	-<?216J6/636F	Ā*!'8AK"	H'!Ä$	G5G5"	
LD(/1126/0451A62"	L Ä!M*N(D8'9O	Ā*!'8AK"	H'!Ä$	G5G5"	
B7;(/1126/0451A/2"	B'+(7*9!$*8(;'#P8Ä	Ā*!'8AK"	H'!Ä$	G5G5"	

Analysis Batch: 124969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
/0123455426	I D216J6/636F	Ā*!'8AK"	H'!Ä$	5//	6/0451
/012345542/	ĀH?241210J6/636F	Ā*!'8AK"	H'!Ä$	5//	6/0451
/0123455420	ĀH?24121GJ6/636F	Ā*!'8AK"	H'!Ä$	5//	6/0451
/0123455425	-<?216J6/636F	Ā*!'8AK"	H'!Ä$	5//	6/0451
LD(/1126/0451A62"	L Ä!M*N(D8'9O	Ā*!'8AK"	H'!Ä$	5//	6/0451
B7;(/1126/0451A/2"	B'+(7*9!$*8(;'#P8Ä	Ā*!'8AK"	H'!Ä$	5//	6/0451

Prep Batch: 125076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
/012345542G	ĀH?241215J6/636F	Ā*!'8AK"	H'!Ä$	G5G5"	
LD(/1126/51FEA62"	L Ä!M*N(D8'9O	Ā*!'8AK"	H'!Ä$	G5G5"	
B7;(/1126/51FEA/2"	B'+(7*9!$*8(;'#P8Ä	Ā*!'8AK"	H'!Ä$	G5G5"	
B7;-(/1126/51FEAG2"	B'+(7*9!$*8(;'#P8Ä(-QP	Ā*!'8AK"	H'!Ä$	G5G5"	

Analysis Batch: 125106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
/012345542G	ĀH?241215J6/636F	Ā*!'8AK"	H'!Ä$	5//	6/51FE
LD(/1126/51FEA62"	L Ä!M*N(D8'9O	Ā*!'8AK"	H'!Ä$	5//	6/51FE
B7;(/1126/51FEA/2"	B'+(7*9!$*8(;'#P8Ä	Ā*!'8AK"	H'!Ä$	5//	6/51FE
B7;-(/1126/51FEAG2"	B'+(7*9!$*8(;'#P8Ä(-QP	Ā*!'8AK"	H'!Ä$	5//	6/51FE

Client Sample ID: FB-01_121817
Lab Sample ID: 240-89559-1
Date Collected: 12/18/17 13:55
Matrix: Water
Date Received: 12/19/17 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
/5#3ÀAJ&	?2!H	G=G=&			>78<=9	>7A7FA>F%><$7	7<B	/&B%D+'
/5#3ÀAJ&	&"3ÀK0 0	=77		>	>78<E<	>7A7;A>F%7G$&&	&D	/&B%D+'

Client Sample ID: TWP-90-04_121817
Lab Sample ID: 240-89559-2
Date Collected: 12/18/17 13:40
Matrix: Water
Date Received: 12/19/17 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
/5#3ÀAJ&	?2!H	G=G=&			>78<=9	>7A7FA>F%><$7	7<B	/&B%D+'
/5#3ÀAJ&	&"3ÀK0 0	=77		>	>78<E<	>7A7;A>F%7G$&&	>D	/&B%D+'

Client Sample ID: TWP-90-05_121817
Lab Sample ID: 240-89559-3
Date Collected: 12/18/17 13:50
Matrix: Water
Date Received: 12/19/17 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
/5#3ÀAJ&	?2!H	G=G=&			>7=9FE	9>A97A>;%79$G	<B	/&B%D+'
/5#3ÀAJ&	&"3ÀK0 0	=77		>	>7=>9E	9>A98A>;%>>$8	>?D	/&B%D+'

Client Sample ID: TWP-90-03_121817
Lab Sample ID: 240-89559-4
Date Collected: 12/18/17 14:05
Matrix: Water
Date Received: 12/19/17 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
/5#3ÀAJ&	?2!H	G=G=&			>78<=9	>7A7FA>F%><$7	7<B	/&B%D+'
/5#3ÀAJ&	&"3ÀK0 0	=77		>	>78<E<	>7A7<A>F%99$&&	&D	/&B%D+'

Client Sample ID: DUP-01_121817
Lab Sample ID: 240-89559-5
Date Collected: 12/18/17 00:00
Matrix: Water
Date Received: 12/19/17 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
/5#3ÀAJ&	?2!H	G=G=&			>78<=9	>7A7FA>F%><$7	7<B	/&B%D+'
/5#3ÀAJ&	&"3ÀK0 0	=77		>	>78<E<	>7A7<A>F%99$&&	>D	/&B%D+'

Laboratory References:

/&B%D+'%L%/!0#&1!2 .3%DM2À "C#5"-%G9%Ā511M" #K%(2 N!-%%5M#%%DM2À "C#5"-%P/%9=89G-%/QB%R;97SEE9:><<9

Accreditation/Certification Summary

ĀÀ !"#$%&'Ā&()*%+,*,-%)"., /!0#&1!2 .3%456%)($%789:;<==<:>
?25@!.#A* #!$%'3.!2%B3"0 "C%D99E88F<,79>F,99E9G

Laboratory: TestAmerica Canton

&ÀÄ%3..2!H #3# 5"0A.!2# I .3# 5"0%J!ÀH%6K%#J 0%Ä36[illegible]%3..2!H #3# 5"0A.!2# I .3# 5"0%32!%3[illegible]

Authority	Program	EPA Region	Identification Number	Expiration Date
Ā3À I52" 3	*#3#!%?25C231	<	7<7F	97:7G:>;
Ā5""!.# .N#	* #3#!%?25C231	>	?O:9=<9	>7:G>:>F%P
QÀ52 H3	LRB&?	8	R;F77=	9E:G9:>;
)ÀÄ "5 0	LRB&?	=	799998	9F:G>:>;
S3"030	LRB&?	F	R:>9GGE	9>:G>:>;%P
S!"#N.TK%U+*/V	* #3#!%?25C231	8	=;	97:7G:>;
S!"#N.TK%UWWV	*#3#!%?25C231	8	<;9>E	>7:G>:>F%P
X ""!05#3	L RB&?	=	9G<:<<<:G8;	>7:G>:>;
X ""!05#3%U?!#25IN"HV	*#3#!%?25C231	>	G=9E	9F:G>:>;
L!Y3H3	*#3#!%?25C231	<	Z O:9998;799;&	9F:G>:>;
L![%4!20!K	L RB&?	7	Z O99>	9E:G9:>;
L![%\52T	LRB&?	7	>9<F=	9G:G>:>;
ZJ 5%]&?	*#3#!%?25C231	=	ĀB9978	9<:9E:><
Z2!C5"	LRB&?	>9	89E7	97:7G:>;
?!""0KÀY3" 3	LRB&?	G	E;:99G89	9;:G>:>;
/!^30	L RB&?	E	/ >98F98=>F:>F:<	9;:G>:>;
+*(&	Q!H!23À		?GG9:>E:99898	>7:7;:><
] 2C " 3	LRB&?	G	8E9>F=	9<:>8:>;
W30J "C#5"	*#3#!%?25C231	>9	Ā<F>	9>:>7:>;%P
W!0#%] 2C " 3%(R?	* #3#!%?25C231	G	7>9	>7:G>:>;

Laboratory: TestAmerica Burlington

&ÀÄ%3..2!H #3# 5"0A.!2# I .3# 5"0%J!ÀH%6K%#J 0%Ä36[illegible]%3..2!H #3# 5"0A.!2# I .3# 5"0%32!%3[illegible]

Authority	Program	EPA Region	Identification Number	Expiration Date
Ā5""!.# .N#	*#3#!%?25C231	>	?O:9F=>	9<:G9:><
(R%O3_,%*N60#,%ĀÄ!3"NM%&.#%UO*Ā&3#!%?25C231	G	L &	97:97:>;
QÀ52 H3	LRB&?	8	R;F8EF	9E:G9:>;
B:&:D	(5(%RB&?		B7GGE	97:7=:79
X3 "!	*#3#!%?25C231	>	] /9999;	98:>F:><
X ""!05#3	L RB&?	=	9=9:<<<:8GE	>7:G>:>;
L![%O31M0J 2!	L RB&?	>	799E	>7:>;:>;
L![%4!20!K	L RB&?	7	] /<F7	9E:G9:>;
L![%\52T	LRB&?	7	>9G<>	98:9>:>;
?!""0KÀY3" 3	LRB&?	G	E;:998;<	98:G9:>;
'J5H!%)0Ä3"H	*#3#!%?25C231	>	B&Z997<;	>7:G9:>F%P
+*%Q 0J%`%W ÀHÀ I!	Q!H!23À		BR:9=;88;:9	9F:G>:>;
+*(&	Q!H!23À		?GG9:>>:999<G	>7:9=:><
]!215"#	*#3#!%?25C231	>	] /:8999	>7:G>:>F%P
] 2C " 3	LRB&?	G	8E979<	>7:>8:>;

P%&..2!H #3# 5"AĀ!2# I .3# 5"%2!"![3À%M!"H "C%:%3..2!H #3# 5"%.5"0 H!2!H%Y3À H,

/!0#&1!2 .3%Ā3"#5"

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

4.2/3.9

Chain of Custody Record

MICHIGAN 190

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler:	Lab PM: Pohl, Denise	Carrier Tracking No(s):	COC No: 240-47837-20863.1
Client Contact: Alex Villhauer	Phone:	E-Mail: denise.pohl@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.				Job #:

Address: 101 South Washington Square Suite 400	Due Date Requested:
City: Lansing	TAT Requested (days):
State, Zip: MI, 48933	
Phone:	PO #: B0064479.2017.00603
Email: alex.villhauer@arcadis.com	WO #: Project #: B0064607.2016.00001
Project Name: Racer Lansing - method	Project #: 24017406
Site:	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

240-89559 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - 1,4-Dioxane	Total Num	Special Instructions/Note:
			Preservation Code				A		
FB-01_121817	12/18/17	13:55	G	Water			1		
TWP-90-04_121817	12/18/17	13:40	G	Water			1		TWP-04
TWP-90-05_121817	12/18/17	13:50	G	Water			1		
TWP-90-03_121817	12/18/17	14:05	G	Water			1		
DUP-01_121817	12/18/17	—	G	Water			1		
				Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[illegible] Dragon	12/13/17 0840	TABurl			
[illegible] ARCADIS	12/18/17 15:30	ARCADIS		12/18/17 1530	FBL
[illegible]	12/18/17 16:00	FBL		12/19/17 840	TA

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 89559
Canton Facility

Client Arcadis U.S. Site Name _____ Cooler unpacked by:

Cooler Received on 12/19/17 Opened on 12/19/17

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

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

TestAmerica Cooler # _____ Foam Box (Client Cooler) Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.3** °C) Observed Cooler Temp. 4.2 °C Corrected Cooler Temp. 3.9 °C
   IR GUN #36 (CF **+0.3**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
   ~~IR GUN # 627 (CF **-1.3**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C~~

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels be reconciled with the COC?	(Yes)	No
9. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10. Sufficient quantity received to perform indicated analyses?	(Yes)	No
11. Are these work share samples?	Yes	(No)
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes No	(NA) pH Strip Lot# **HC730269**
13. Were VOAs on the COC?	Yes	(No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes No	(NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes	(No)
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	(No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

_____

_____

_____

_____

_____

17. SAMPLE CONDITION

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

18. SAMPLE PRESERVATION

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

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
FB-01_121817	240-89559-A-1	Amber Glass 250mL - hydrochloric	<2	_____	_____
TWP-90-04_121817	240-89559-A-2	Amber Glass 250mL - hydrochloric	<2	_____	_____
TWP-90-05_121817	240-89559-A-3	Amber Glass 250mL - hydrochloric	<2	_____	_____
TWP-90-03_121817	240-89559-A-4	Amber Glass 250mL - hydrochloric	<2	_____	_____
DUP-01_121817	240-89559-A-5	Amber Glass 250mL - hydrochloric	<2	_____	_____

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

240-89559 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Pohl, Denise	COC No: 40-81091.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.pohl@testamericainc.com	State: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):	Job #: 240-89559-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 1/2/2018		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: Racer Lansing B0064480.2016.00603	Project #: 24017406		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/3535A	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
FB-01_121817 (240-89559-1)	12/18/17	13:55 Eastern		Water			X	1	
TWP-90-04_121817 (240-89559-2)	12/18/17	13:40 Eastern		Water			X	1	
TWP-90-05_121817 (240-89559-3)	12/18/17	13:50 Eastern		Water			X	1	
TWP-90-03_121817 (240-89559-4)	12/18/17	14:05 Eastern		Water			X	1	
DUP-01_121817 (240-89559-5)	12/18/17	Eastern		Water			X	1	

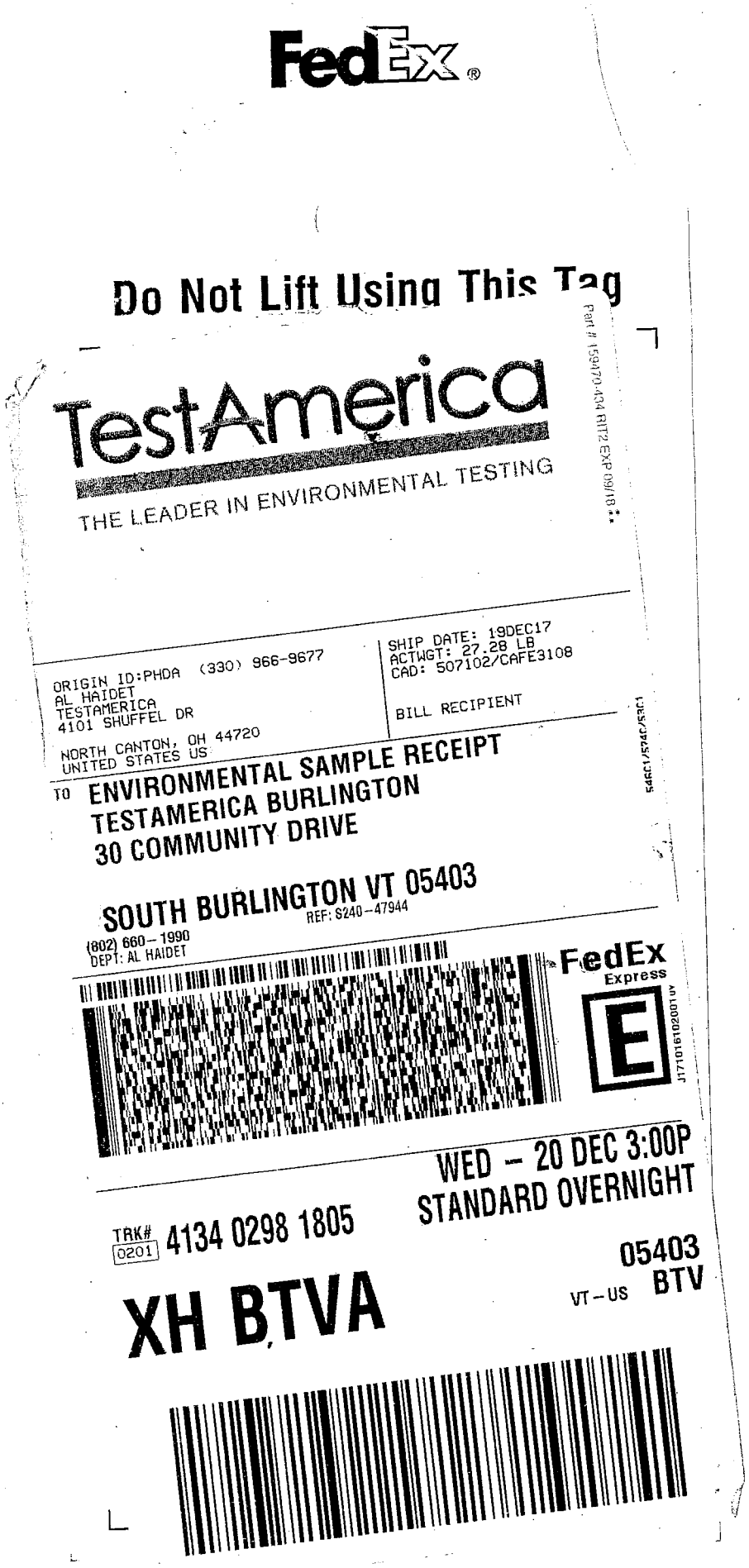
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 12-14-17 1415	Company	Received by:	Date/Time: 12/20/17 1040	Company TAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes ~~Δ~~ No	Custody Seal No.: N/A	Cooler Temperature(s) °C and Other Remarks: 2.0

Ver: 09/20/2016



FedEx®

Do Not Lift Using This Tag

Part # 159470-434 RIT2 EXP 09/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:PHDA (330) 966-9677
AL HAIDET
TESTAMERICA
4101 SHUFFEL DR
NORTH CANTON, OH 44720
UNITED STATES US

SHIP DATE: 19DEC17
ACTWGT: 27.28 LB
CAD: 507102/CAFE3108

BILL RECIPIENT

TO ENVIRONMENTAL SAMPLE RECEIPT
TESTAMERICA BURLINGTON
30 COMMUNITY DRIVE

SOUTH BURLINGTON VT 05403

REF: 8240-47944

(802) 660-1990
DEPT: AL HAIDET

FedEx Express

J171016102001uv

WED - 20 DEC 3:00P
STANDARD OVERNIGHT

TRK# 0201 4134 0298 1805

XH BTVA

05403
VT - US BTV

Login Sample Receipt Checklist

ĀÄ !"#$%&'Ā&()*%+,*,-%)"., /01%2341!5$%6789:;<<;9=

Login Number: 89559
List Number: 2
Creator: Hahl, Victoria L

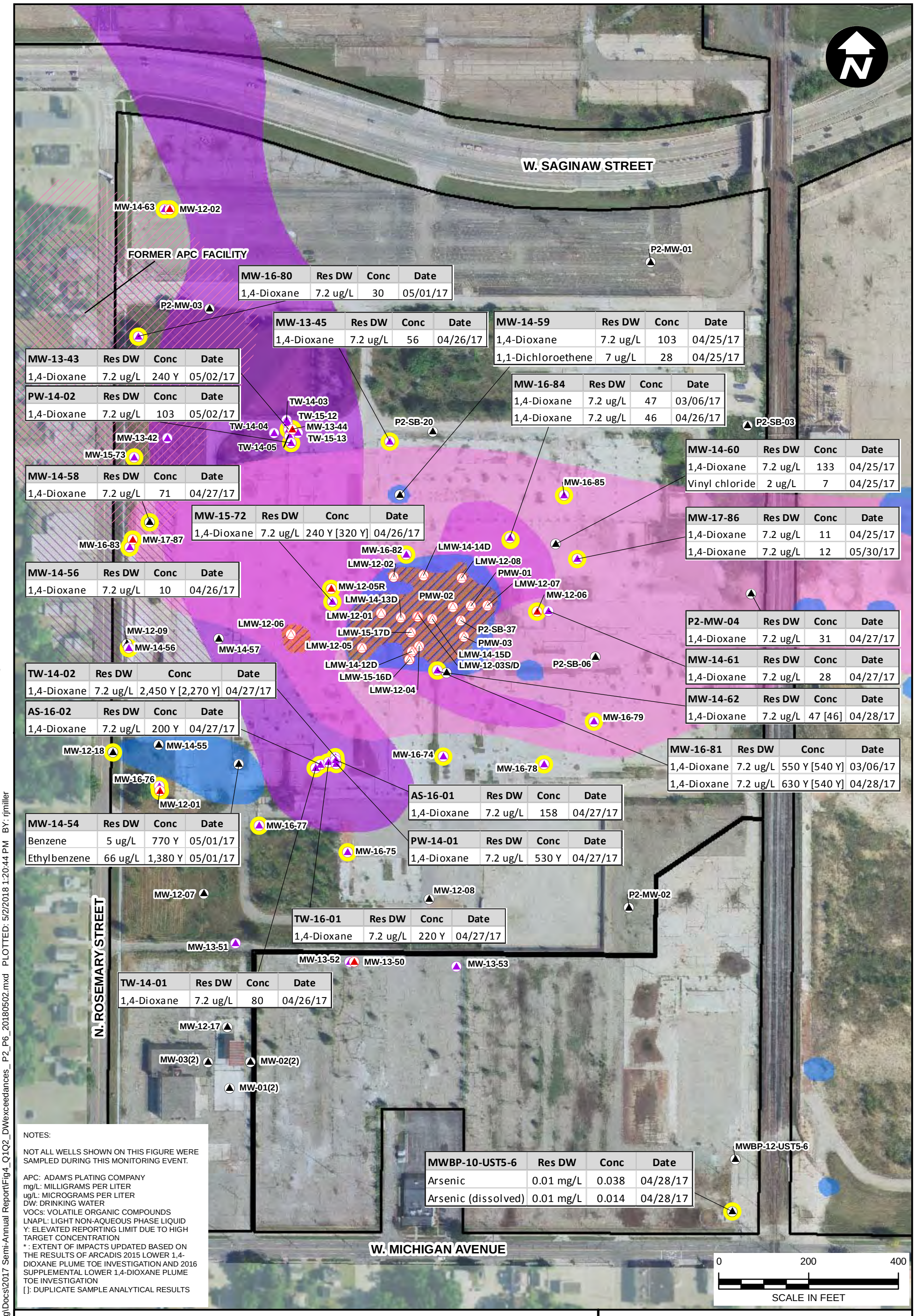
List Source: TestAmerica Burlington
List Creation: 12/20/17 01:00 PM

Question	Answer	Comment
'?@ 0?.# A #B%C?D"E#%.F!.G!@%05% D%HIJ%1?.GK503"@%B1%4D3[illegible]1 4!#!5,		L?1%@0!D%"0#%?..!M#%5?@ 0?.# A!%D?4MÀ!D,
>F!%.00À!5ED%.3D#0@B%D!?À-% O%M5!D!"#-% D% "#?.#,	N?ÀD!	20#%M5!D!"#
*?4MÀ!%.3D#0@B%D!?ÀD-% O%M5!D!"#-%?5!% "#?.#,	>53!	
>F!%.00À!5%05%D?4MÀ!D%@0%"0#%?MM!?5%#0%F?A!%1!!"%%04M504 D%@%05 #?4M!5!@%C #F,		
*?4MÀ!D%C!5!%5!.! A!@%0"% .!,	>53!	
Ā00À!5%>!4M!5?#35!% D%?..!M#?1À!,	>53!	
Ā00À!5%>!4M!5?#35!% D%5!.05@!@,	>53!	6,8%PĀ
ĀQĀ% D%M5!D!"#,	>53!	
ĀQĀ% D%O ÀÄ!@%03#% "% "G%?"@%À!K 1À!,	>53!	
ĀQĀ% D%O ÀÄ!@%03#%C #F%?ÀÄ%M!5# "!"#% "O054?# 0",	>53!	
)D%#F!%N !À@%*?4MÀ!5ED%"?4!%M5!D!"#%0"%ĀQĀR	2I&	'!.! A!@%M50S!.#%?D%D31.0"#5?.#,
>F!5!%?5!%"0%@ D.5!M?". !D%1!#C!!"%#F!%.0"#? "!5D%5!.! A!@%%Ā@%,	>53!	
*?4MÀ!D%?5!%5!.! A!@%C #F "%T0À@ "K%> 4!%U!V.Ä3@ "K%%#D#F%C #F% T>DW	>53!	
*?4MÀ!%.0"#? "!5D%F?A!%À!K 1À!%À?1!ÀD,	>53!	
Ā0"#? "!5D%?5!%"0#%150G!"%05%À!?G "K,	>53!	
*?4MÀ!%.0ÄÀ!.# 0"%@?#!I# 4!D%?5!%M50A @!@,	>53!	
&MM50M5 ?#!%D?4MÀ!%.0"#? "!5D%?5!%3D!@,	>53!	
*?4MÀ!%10##À!D%?5!%.04MÀ!#!ÀB%O ÄÀ!@,	2I&	
*?4MÀ!%X5!D!5A?# 0"%Y!5 O !@,	>53!	
>F!5!% D%D3OO . !"#%A0À,%O05%?ÀÄ%5!Z3!D#!@%?"5ZÀ3!D#!@%%.À,%?"B%3 [*I[*(D	>53!	
Ā0"#? "!5D%5!Z3 5 "K%\!50%F!?@DM?.!%F?A!%"0%F!?@DM?.!%%05%1311À! H]44%U=I7^W,	>53!	
[3À# MF?D .%D?4MÀ!D%?5!%"0#%M5!D!"#,	>53!	
*?4MÀ!D%@0%"0#%5!Z3 5!%DMÀ ## "K%05%.04M0D # "K,	>53!	
'!D @3?À%ĀFÀ05 "!%ĀF!.G!@,	2I&	

APPENDIX B

Quarterly Figures

(on attached CD)



MW-16-80	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	30	05/01/17

MW-13-45	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	56	04/26/17

MW-14-59	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	103	04/25/17
1,1-Dichloroethene	7 ug/L	28	04/25/17

MW-13-43	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	240 Y	05/02/17

PW-14-02	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	103	05/02/17

MW-16-84	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	47	03/06/17
1,4-Dioxane	7.2 ug/L	46	04/26/17

MW-14-60	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	133	04/25/17
Vinyl chloride	2 ug/L	7	04/25/17

MW-14-58	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	71	04/27/17

MW-15-72	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	240 Y [320 Y]	04/26/17

MW-17-86	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	11	04/25/17
1,4-Dioxane	7.2 ug/L	12	05/30/17

MW-14-56	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	10	04/26/17

P2-MW-04	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	31	04/27/17

MW-14-61	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	28	04/27/17

TW-14-02	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	2,450 Y [2,270 Y]	04/27/17

MW-14-62	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	47 [46]	04/28/17

AS-16-02	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	200 Y	04/27/17

MW-16-81	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	550 Y [540 Y]	03/06/17
1,4-Dioxane	7.2 ug/L	630 Y [540 Y]	04/28/17

AS-16-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	158	04/27/17

MW-14-54	Res DW	Conc	Date
Benzene	5 ug/L	770 Y	05/01/17
Ethylbenzene	66 ug/L	1,380 Y	05/01/17

PW-14-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	530 Y	04/27/17

TW-16-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	220 Y	04/27/17

TW-14-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	80	04/26/17

MWBP-10-UST5-6	Res DW	Conc	Date
Arsenic	0.01 mg/L	0.038	04/28/17
Arsenic (dissolved)	0.01 mg/L	0.014	04/28/17

NOTES:

NOT ALL WELLS SHOWN ON THIS FIGURE WERE SAMPLED DURING THIS MONITORING EVENT.

APC: ADAM'S PLATING COMPANY
mg/L: MILLIGRAMS PER LITER
ug/L: MICROGRAMS PER LITER
DW: DRINKING WATER
VOCs: VOLATILE ORGANIC COMPOUNDS
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
Y: ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
* : EXTENT OF IMPACTS UPDATED BASED ON THE RESULTS OF ARCADIS 2015 LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION AND 2016 SUPPLEMENTAL LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION
[ ]: DUPLICATE SAMPLE ANALYTICAL RESULTS

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- 1Q AND 2Q 2017 SAMPLED MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- APC PERCHED 1,4-DIOXANE >7.2 µg/L (DASHED WHERE ESTIMATED OR COMINGLED)
- APC POTENTIAL AREA OF WEATHERED BEDROCK IMPACTS >7.2 µg/L (ESTIMATED FROM OFF-SITE VAP BORINGS AND INCONGRUENT IMPACTS TO RACER WEATHERED BEDROCK WELLS)
- APPROX. EXTENT VOCs IN PERCHED ZONE
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- LOWER 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L) *
- PROPERTY BOUNDARY

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

FIRST AND SECOND QUARTER 2017 DRINKING WATER EXCEEDANCES PLANT 2 AND W. PLANT 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE
B-1

CITY: Novi DIV: ENV DB: D. OLEXA PIC: D. KAIDING PM: C. KIKER TM: K. PADRON TR: P. CURRY PROJECT NUMBER: B0064479.2016 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Semi-Annual Report\Fig4_Q1Q2_DWexceedances_P2_P6_20180502.mxd PLOTTED: 5/2/2018 1:20:44 PM BY: rjmiller

W. WILLOW STREET

MW-04-04(3)
MW-91-4
MW-13-39B
MW-88-1
MW-13-40
MW-02-03(3)
MW-02-04(3)
MW-12-04
MW-04-03(3)
MW-04-02
P3-SB-07
MW-02-02(3)
MW-93-1
MW-13-38
MW-91-3
MW-91-2 | Res DW | Conc | Date
Lead | 0.001 mg/L | 0.003 | 05/01/17
UNK-15
LMW-12-09-13
MW-04(3)
MW-05
MW-23
MW-13-37
UNK-14
MW-19
UNK-11
MW-06(3)
UNK-10
UNK-09
MW-22
CH-14-RO | Res DW | Conc | Date
Chromium VI | 0.1 mg/L | 12.6 | 05/01/17
LMW-12-11
P3-SB-28
MW-12-19
LMW-12-10
MW-14-65
MW-13-26
MW-15-71
MW-12-20
MW-02-01(3)
MW-04-01(3)
MW-13-22 | Res DW | Conc | Date
1,4-Dioxane | 7.2 ug/L | 154 | 04/28/17
MW-13-30
MW-12-21 | Res DW | Conc | Date
1,4-Dioxane | 7.2 ug/L | 360 Y | 04/28/17
MW-13-32 | Res DW | Conc | Date
Nickel | 0.036 mg/L | 0.542 [0.551] | 05/03/17
MW-91-5
MW-13-24
MW-13-23
MW-13-27
MW-13-28
PW-14-03 | Res DW | Conc | Date
1,4-Dioxane | 7.2 ug/L | 140 Y | 05/03/17
MW-14-64
MW-13-29 | Res DW | Conc | Date
1,4-Dioxane | 7.2 ug/L | 23 [26] | 05/02/17
MW-13-31
MW-13-25
MW-13-48 | Res DW | Conc | Date
1,4-Dioxane | 7.2 ug/L | 250 Y [200 Y] | 05/02/17
MW-13-33
MW-13-25 | Res DW | Conc | Date
1,4-Dioxane | 7.2 ug/L | 17 | 05/03/17
MW-13-46
MW-91-6
MW-13-47
MW-13-49
MW-13-34 | Res DW | Conc | Date
1,4-Dioxane | 7.2 ug/L | 82 | 05/02/17
W. SAGINAW STREET
N. ROSEMARY STREET

NOTES:

NOT ALL WELLS SHOWN ON THIS FIGURE WERE SAMPLED DURING THIS MONITORING EVENT.

mg/L: MILLIGRAMS PER LITER
ug/L: MICROGRAMS PER LITER
DW: DRINKING WATER
VOCs: VOLATILE ORGANIC COMPOUNDS
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
Y: ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
[ ]: DUPLICATE SAMPLE ANALYTICAL RESULTS

0 250 500
SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL; TEST MW
- BEDROCK MONITORING WELL
- 1Q AND 2Q 2017 SAMPLED MONITORING WELL

- APPROXIMATE EXTENT LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- LOWER 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L) *
- PROPERTY BOUNDARY

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

FIRST AND SECOND QUARTER 2017 DRINKING WATER EXCEEDANCES PLANT 3

ARCADIS Design & Consultancy for natural and built assets

FIGURE
B-2

CITY: Novi DIV: ENV DB: D. OLEXA PIC: D. KAIDING PM: C. KIKER TM: K. PADRON TR: P. CURRY PROJECT NUMBER: B0064479.2016 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
\\corpstorage\Data\ArcGIS\Data\GISProjects_ENV\RACER_Lansing\Docs\2017 Semi-Annual Report\Fig5_Q1Q2_DWexceedances_ P3.mxd PLOTTED: 8/16/2017 4:24:52 PM BY: dolexa

MW-12-03
MW-12-10R
MW-04-06R
MW-04-05
MW-12-11
MW-03-02
MW-03-05
MW-14-70
MW-02-01(6)
MW-03-07
MW-04-01(6)
MW-02-02(6)
SME-MW-02
MW-04-04R
P6-SB-18
MW-14-66
MW-14-69
MW-14-67
P6-SB-37
MW-14-68
P6-SB-35
P6-SB-21
P6-SB-07
MWBP-13A-UST1-4
MWBP-11-UST1-4
MWBP-10-UST1-4
MWBP-10A-UST1-4
UNK-03
MWBP-12A-UST1-4
B-BP-16
P6-MW-01
MW-13-35
MW-12-15
MW-12-14

MW-12-12	Res DW	Conc	Date
Lead	0.001 mg/L	0.004	04/25/17

MW-03-04	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	36	04/26/17

MW-12-13	Res DW	Conc	Date
Nickel	0.036 mg/L	0.071	04/25/17

MW-02-03(6)	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	21	05/01/17

MW-03-08	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	<3 [8]	04/27/17
Vinyl chloride	2 ug/L	<1 [11]	04/27/17

MW-03-06	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	9	04/27/17
Vinyl chloride	2 ug/L	11	04/27/17

MW-13-36R	Res DW	Conc	Date
Vanadium	0.004 mg/L	0.008	04/25/17

MWBP-12-UST1-4	Res DW	Conc	Date
Benzene	5 ug/L	117	04/27/17

MW-12-16	Res DW	Conc	Date
Arsenic	0.01 mg/L	0.017	04/28/17

NOTES:

NOT ALL WELLS SHOWN ON THIS FIGURE WERE SAMPLED DURING THIS MONITORING EVENT.

mg/L: MILLIGRAMS PER LITER
ug/L: MICROGRAMS PER LITER
DW: DRINKING WATER
VOCs: VOLATILE ORGANIC COMPOUNDS
Y: ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
* : EXTENT OF IMPACTS UPDATED BASED ON THE RESULTS OF ARCADIS 2015 LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION AND 2016 SUPPLEMENTAL LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION
[ ]: DUPLICATE SAMPLE ANALYTICAL RESULTS

0 200 400
SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- PERCHED MONITORING WELL
- BEDROCK MONITORING WELL
- 1Q AND 2Q 2017 SAMPLED MONITORING WELL

- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- PROPERTY BOUNDARY

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

FIRST AND SECOND QUARTER 2017 DRINKING WATER EXCEEDANCES E. PLANT 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE
B-3

CITY: Novi DIV: ENV DB: D. OLEXA PIC: D. KAIDING PM: C. KIKER TM: K. PADRON TR: P. CURRY PROJECT NUMBER: B0064479.2016 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
\\corpstorage\Data\ArcGisData\GISProjects_ENV\RACER_Lansing\Docs\2017 Semi-Annual Report\Fig6_Q1Q2_DWexceedances_ EP6.mxd PLOTTED: 8/16/2017 4:39:29 PM BY: dolexa

W. SAGINAW STREET

FORMER APC FACILITY

MW-14-63 MW-12-02

P2-MW-01

P2-MW-03

MW-16-80	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	27	12/05/17

MW-13-43	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	260 Y	12/06/17

MW-13-45	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	54	12/06/17

MW-13-44

MW-13-42

P2-SB-20

P2-SB-03

MW-15-73

PW-14-02 [Duplicate]	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	230 Y [220 Y]	12/07/17

MW-14-59

MW-16-85

MW-16-84	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	52	09/07/17
1,4-Dioxane	7.2 ug/L	35	12/07/17

MW-14-58 [Duplicate]	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	30 [29]	12/06/17

MW-17-87

MW-16-83

MW-14-60

MW-17-86	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	29	12/06/17

MW-16-82

LMW-12-02

LMW-14-14D

LMW-12-08

MW-15-72	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	290 Y	12/07/17

MW-12-05R

LMW-12-03D

PMW-02

PMW-01

P2-MW-04

LMW-12-03S

LMW-14-15D

LMW-12-07

MW-14-61

MW-14-56	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	9	12/06/17

LMW-12-01

LMW-14-13D

P2-SB-37

MW-12-06

MW-12-09

MW-14-57

LMW-12-06

LMW-15-17D

LMW-12-04

PMW-03

LMW-12-05

LMW-14-12D

LMW-15-16D

P2-SB-06

MW-16-81 [Duplicate]	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	520 Y [530 Y]	09/07/17
1,4-Dioxane	7.2 ug/L	840 Y [910 Y]	12/07/17

MW-14-62

AS-16-02	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	59	08/31/17

AS-16-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	280 Y	08/31/17
1,4-Dioxane	7.2 ug/L	1,020 Y	12/06/17

MW-16-79

MW-14-55

MW-12-18

MW-14-54

MW-16-74

MW-16-78

TW-14-02 [Duplicate]	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	2,300 Y	08/30/17
1,4-Dioxane	7.2 ug/L	2,100 Y [1,960 Y]	12/07/17

MW-16-76

MW-12-01

TW-14-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	86	08/30/17
1,4-Dioxane	7.2 ug/L	16	12/07/17

PW-14-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	490 Y	08/30/17
1,4-Dioxane	7.2 ug/L	530 Y	12/07/17

MW-16-77

MW-16-75

TW-16-01	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	260 Y	08/30/17
1,4-Dioxane	7.2 ug/L	910 Y	12/06/17

MW-12-07

MW-12-08

P2-MW-02

N. ROSEMARY STREET

MW-13-51

MW-13-52

MW-13-50

MW-13-53

MW-12-17

MW-03(2)

MW-02(2)

MW-01(2)

MWBP-12-UST5-6

MWBP-10-UST5-6	Res DW	Conc	Date
Arsenic	0.01 mg/L	0.051	12/06/17

W. MICHIGAN AVENUE

NOTES:

NOT ALL WELLS SHOWN ON THIS FIGURE WERE SAMPLED DURING THIS MONITORING EVENT.

THE LOWER 1,4-DIOXANE IMPACTS ALONG THE WESTERN PROPERTY BOUNDARY ARE LIKELY ATTRIBUTED TO THE ADAMS PLATING COMPANY (APC) 1,4-DIOXANE PLUME.

DW: DRINKING WATER
GW: GROUNDWATER
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
mg/L: MILLIGRAMS PER LITER
ug/L: MICROGRAMS PER LITER
VOCs: VOLATILE ORGANIC COMPOUNDS
Y: ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
* : EXTENT OF IMPACTS UPDATED BASED ON THE RESULTS OF ARCADIS 2015 LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION AND 2016 SUPPLEMENTAL LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION
[ ]: DUPLICATE SAMPLE ANALYTICAL RESULTS

0 200 400

SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- 3Q AND 4Q 2017 SAMPLED MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- APC PERCHED 1,4-DIOXANE >7.2 µg/L (DASHED WHERE ESTIMATED OR COMINGLED)
- APC POTENTIAL AREA OF WEATHERED BEDROCK IMPACTS >7.2 µg/L (ESTIMATED FROM OFF-SITE VAP BORINGS AND INCONGRUENT IMPACTS TO RACER WEATHERED BEDROCK WELLS)
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- LOWER 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L) *
- PROPERTY BOUNDARY

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

THIRD AND FOURTH QUARTER 2017 DRINKING WATER EXCEEDANCES PLANT 2 AND W. PLANT 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE
B-4

CITY: Novi DIV: ENV DB: PIC: CPM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Semi-Annual Report\Fig4_Q3Q4_DWexceedances_ P2_P6_20180502.mxd PLOTTED: 5/2/2018 1:28:58 PM BY: rjmiller

W. WILLOW STREET

MW-91-4
MW-04-04(3)
MW-13-39B
MW-88-1
MW-02-03(3)
MW-02-04(3)
MW-13-40
MW-12-04
MW-04-03(3)
MW-04-02
MW-13-38
MW-13-41
MW-91-3
P3-SB-07
MW-02-02(3)
UNK-15
UNK-13
LMW-12-09
MW-05
MW-04
UNK-11
MW-91-2
UNK-14
MW-23
MW-13-37
CH-14-RO
MW-19
MW-06
UNK-09
UNK-10
MW-22
LMW-12-11
LMW-12-10
MW-12-19
P3-SB-28
MW-14-65
MW-13-26
MW-15-71
MW-12-20
MW-02-01(3)
MW-04-01(3)
MW-13-30
MW-13-24
MW-13-22
MW-13-28
MW-13-23
MW-13-27
MW-91-5
MW-14-64
MW-13-29
MW-13-33
MW-13-46
MW-91-6
MW-13-47
MW-13-49
N. ROSEMARY STREET
W. SAGINAW STREET

MW-12-21	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	200 Y	12/05/17

PW-14-03 [Duplicate]	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	530 Y [510 Y]	12/07/17

MW-13-25	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	12	12/05/17

MW-13-48	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	154	12/06/17

MW-13-34	Res DW	Conc	Date
1,4-Dioxane	7.2 ug/L	93	12/06/17

MW-13-32	Res DW	Conc	Date
Nickel	0.1 mg/L	0.791	12/06/17

MW-13-31	Res DW	Conc	Date
Nickel	0.1 mg/L	0.155	12/06/17

NOTES:

NOT ALL WELLS SHOWN ON THIS FIGURE WERE SAMPLED DURING THIS MONITORING EVENT.

DW: DRINKING WATER
GW: GROUNDWATER
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
mg/L: MILLIGRAMS PER LITER
ug/L: MICROGRAMS PER LITER
VOCs: VOLATILE ORGANIC COMPOUNDS
Y: ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
[ ]: DUPLICATE SAMPLE ANALYTICAL RESULTS

0 250 500
SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL; TEST MW
- BEDROCK MONITORING WELL
- 3Q AND 4Q 2017 SAMPLED MONITORING WELL

- APPROXIMATE EXTENT LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- LOWER 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- PROPERTY BOUNDARY

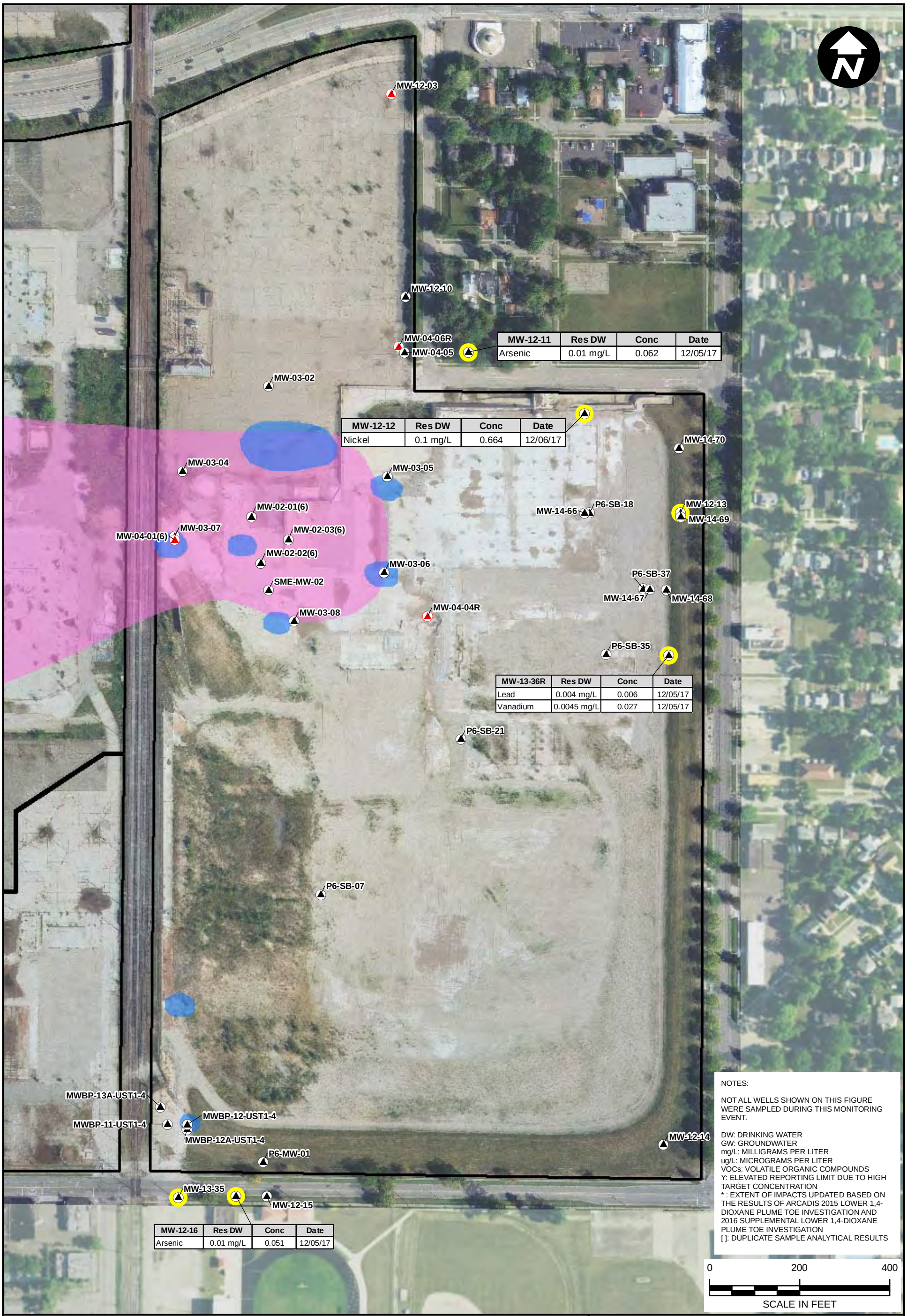
RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

THIRD AND FOURTH QUARTER 2017 DRINKING WATER EXCEEDANCES PLANT 3

ARCADIS Design & Consultancy for natural and built assets

FIGURE
B-5

CITY: Novi DIV: ENV DB: PIC: CPM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENVRACER_Lansing\Docs\2017 Semi-Annual Report\Fig5_Q3Q4_DWexceedances_P3_20180402.mxd PLOTTED: 4/2/2018 10:17:22 AM BY: rjmiller



MW-12-11	Res DW	Conc	Date
Arsenic	0.01 mg/L	0.062	12/05/17

MW-12-12	Res DW	Conc	Date
Nickel	0.1 mg/L	0.664	12/06/17

MW-13-36R	Res DW	Conc	Date
Lead	0.004 mg/L	0.006	12/05/17
Vanadium	0.0045 mg/L	0.027	12/05/17

MW-12-16	Res DW	Conc	Date
Arsenic	0.01 mg/L	0.051	12/05/17

NOTES:

NOT ALL WELLS SHOWN ON THIS FIGURE WERE SAMPLED DURING THIS MONITORING EVENT.

DW: DRINKING WATER
GW: GROUNDWATER
mg/L: MILLIGRAMS PER LITER
ug/L: MICROGRAMS PER LITER
VOCs: VOLATILE ORGANIC COMPOUNDS
Y: ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
* : EXTENT OF IMPACTS UPDATED BASED ON THE RESULTS OF ARCADIS 2015 LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION AND 2016 SUPPLEMENTAL LOWER 1,4-DIOXANE PLUME TOE INVESTIGATION
[ ]: DUPLICATE SAMPLE ANALYTICAL RESULTS

LEGEND

EXISTING MONITORING WELLS

- PERCHED MONITORING WELL
- BEDROCK MONITORING WELL
- 3Q AND 4Q 2017 SAMPLED MONITORING WELL

- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (7.2 µg/L)
- PROPERTY BOUNDARY

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

THIRD AND FOURTH QUARTER 2017 DRINKING WATER EXCEEDANCES E. PLANT 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE
B-6

CITY: Novi DIV: ENV DB: PIC: CPM: R. Christensen TM: A. Villhauer TR: P. Curry PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Semi-Annual Report\Fig6_Q3Q4_DWexceedances_EP6_20180402.mxd PLOTTED: 4/2/2018 10:26:32 AM BY: rjmiller

APPENDIX C

Laboratory Analytical Reports

(On attached CD)

First Quarter



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 240-77563-1
Client Project/Site: Racer - Lansing

For:
ARCADIS U.S., Inc.
101 South Washington Square
Suite 400
Lansing, Michigan 48933

Attn: Alex Villhauer

Denise Pohl

Authorized for release by:
4/18/2017 2:50:08 PM

Denise Pohl, Project Manager II
(330)966-9789
denise.pohl@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

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

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

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Detection Summary 7
Client Sample Results 9
Surrogate Summary 25
QC Sample Results 26
QC Association Summary 27
Lab Chronicle 28
Certification Summary 31
Chain of Custody 32
Receipt Checklists 38

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 240-77563-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer - Lansing

Report Number: 240-77563-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

The 522 1,4-Dioxane analysis was performed at the TestAmerica Burlington Laboratory.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 4/1/2017 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7º C.

1,4-DIOXANE

Samples MW-13-39B_032817 (240-77563-1), MW-91-4_032817 (240-77563-2), MW-91-5_032817 (240-77563-3), DUP-1_032817 (240-77563-4), MW-14-64_032917 (240-77563-5), MW-13-28_032917 (240-77563-6), MW-13-47_033017 (240-77563-7), MW-12-02_033017 (240-77563-8), MW-13-50_033017 (240-77563-9), MW-91-6_033017 (240-77563-10), MW-13-44_033017 (240-77563-11), DUP-2_033017 (240-77563-12), MW-12-01_033117 (240-77563-13), MW-12-06_033117 (240-77563-14), EQUIPMENT BLANK_033117 (240-77563-15) and FIELD BLANK_033117 (240-77563-16) were analyzed for 1,4-Dioxane in accordance with EPA Method 522. The samples were prepared on 04/13/2017 and analyzed on 04/14/2017.

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-77563-1	MW-13-39B_032817	Water	03/28/17 12:35	04/01/17 10:00
240-77563-2	MW-91-4_032817	Water	03/28/17 14:40	04/01/17 10:00
240-77563-3	MW-91-5_032817	Water	03/28/17 16:35	04/01/17 10:00
240-77563-4	DUP-1_032817	Water	03/28/17 00:00	04/01/17 10:00
240-77563-5	MW-14-64_032917	Water	03/29/17 11:00	04/01/17 10:00
240-77563-6	MW-13-28_032917	Water	03/29/17 12:50	04/01/17 10:00
240-77563-7	MW-13-47_033017	Water	03/30/17 11:40	04/01/17 10:00
240-77563-8	MW-12-02_033017	Water	03/30/17 13:25	04/01/17 10:00
240-77563-9	MW-13-50_033017	Water	03/30/17 15:10	04/01/17 10:00
240-77563-10	MW-91-6_033017	Water	03/30/17 16:55	04/01/17 10:00
240-77563-11	MW-13-44_033017	Water	03/30/17 18:45	04/01/17 10:00
240-77563-12	DUP-2_033017	Water	03/30/17 00:00	04/01/17 10:00
240-77563-13	MW-12-01_033117	Water	03/31/17 11:10	04/01/17 10:00
240-77563-14	MW-12-06_033117	Water	03/31/17 13:05	04/01/17 10:00
240-77563-15	EQUIPMENT BLANK_033117	Water	03/31/17 13:40	04/01/17 10:00
240-77563-16	FIELD BLANK_033117	Water	03/31/17 13:50	04/01/17 10:00

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-39B_032817 — Lab Sample ID: 240-77563-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.33		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-91-4_032817 — Lab Sample ID: 240-77563-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.3		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-91-5_032817 — Lab Sample ID: 240-77563-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.37		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: DUP-1_032817 — Lab Sample ID: 240-77563-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.28		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-14-64_032917 — Lab Sample ID: 240-77563-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.39		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-13-28_032917 — Lab Sample ID: 240-77563-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.9		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-13-47_033017 — Lab Sample ID: 240-77563-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.3		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-12-02_033017 — Lab Sample ID: 240-77563-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.42		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-13-50_033017 — Lab Sample ID: 240-77563-9

No Detections.

Client Sample ID: MW-91-6_033017 — Lab Sample ID: 240-77563-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.61		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-13-44_033017 — Lab Sample ID: 240-77563-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.46		0.20	0.057	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: DUP-2_033017 — Lab Sample ID: 240-77563-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.47		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-12-01_033117 — Lab Sample ID: 240-77563-13

No Detections.

Client Sample ID: MW-12-06_033117 — Lab Sample ID: 240-77563-14

No Detections.

Client Sample ID: EQUIPMENT BLANK_033117 — Lab Sample ID: 240-77563-15

No Detections.

Client Sample ID: FIELD BLANK_033117 — Lab Sample ID: 240-77563-16

No Detections.

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-39B_032817
Date Collected: 03/28/17 12:35
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-1
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.33		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 11:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*96*		*46 - 130*	*04/13/17 16:30*	*04/14/17 11:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-91-4_032817
Date Collected: 03/28/17 14:40
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-2
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.3		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 11:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*89*		*46 - 130*	*04/13/17 16:30*	*04/14/17 11:35*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-91-5_032817
Date Collected: 03/28/17 16:35
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-3
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.37		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*93*		*46 - 130*	*04/13/17 16:30*	*04/14/17 11:52*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: DUP-1_032817
Date Collected: 03/28/17 00:00
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-4
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.28		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 12:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*86*		*46 - 130*	*04/13/17 16:30*	*04/14/17 12:09*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-14-64_032917
Date Collected: 03/29/17 11:00
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-5
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.39		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 12:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*92*		*46 - 130*	*04/13/17 16:30*	*04/14/17 12:26*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-28_032917
Date Collected: 03/29/17 12:50
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-6
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.9		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 12:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*96*		*46 - 130*	*04/13/17 16:30*	*04/14/17 12:43*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-47_033017
Date Collected: 03/30/17 11:40
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-7
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.3		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*97*		*46 - 130*	*04/13/17 16:30*	*04/14/17 13:01*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-12-02_033017
Date Collected: 03/30/17 13:25
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-8
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.42		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 13:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*89*		*46 - 130*	*04/13/17 16:30*	*04/14/17 13:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-50_033017
Date Collected: 03/30/17 15:10
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-9
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		04/13/17 16:30	04/14/17 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*110*		*46 - 130*	*04/13/17 16:30*	*04/14/17 13:35*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-91-6_033017
Date Collected: 03/30/17 16:55
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-10
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.61		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*101*		*46 - 130*	*04/13/17 16:30*	*04/14/17 14:44*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-44_033017
Date Collected: 03/30/17 18:45
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-11
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.46		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 15:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*94*		*46 - 130*	*04/13/17 16:30*	*04/14/17 15:01*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: DUP-2_033017
Date Collected: 03/30/17 00:00
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-12
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.47		0.20	0.057	ug/L		04/13/17 16:30	04/14/17 15:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*103*		*46 - 130*	*04/13/17 16:30*	*04/14/17 15:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-12-01_033117
Date Collected: 03/31/17 11:10
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-13
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		04/13/17 16:30	04/14/17 15:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*99*		*46 - 130*	*04/13/17 16:30*	*04/14/17 15:35*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-12-06_033117
Date Collected: 03/31/17 13:05
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-14
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		04/13/17 16:30	04/14/17 15:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*94*		*46 - 130*	*04/13/17 16:30*	*04/14/17 15:52*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: EQUIPMENT BLANK_033117
Date Collected: 03/31/17 13:40
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-15
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		04/13/17 16:30	04/14/17 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*97*		*46 - 130*	*04/13/17 16:30*	*04/14/17 16:09*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: FIELD BLANK_033117
Date Collected: 03/31/17 13:50
Date Received: 04/01/17 10:00

Lab Sample ID: 240-77563-16
Matrix: Water

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		04/13/17 16:30	04/14/17 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*95*		*46 - 130*	*04/13/17 16:30*	*04/14/17 16:26*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	14DD8 (46-130)								
240-77563-1	MW-13-39B_032817	96								
240-77563-2	MW-91-4_032817	89								
240-77563-3	MW-91-5_032817	93								
240-77563-4	DUP-1_032817	86								
240-77563-5	MW-14-64_032917	92								
240-77563-6	MW-13-28_032917	96								
240-77563-7	MW-13-47_033017	97								
240-77563-8	MW-12-02_033017	89								
240-77563-9	MW-13-50_033017	110								
240-77563-9 MS	MW-13-50_033017	99								
240-77563-9 MSD	MW-13-50_033017	108								
240-77563-10	MW-91-6_033017	101								
240-77563-11	MW-13-44_033017	94								
240-77563-12	DUP-2_033017	103								
240-77563-13	MW-12-01_033117	99								
240-77563-14	MW-12-06_033117	94								
240-77563-15	EQUIPMENT BLANK_033117	97								
240-77563-16	FIELD BLANK_033117	95								
LCS 200-115792/2-A	Lab Control Sample	93								
MB 200-115792/1-A	Method Blank	83								

Surrogate Legend

14DD8 = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-115792/1-A
Matrix: Water
Analysis Batch: 115811

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 115792

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		04/13/17 16:30	04/14/17 11:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*83*		*46 - 130*	*04/13/17 16:30*	*04/14/17 11:01*	*1*

Lab Sample ID: LCS 200-115792/2-A
Matrix: Water
Analysis Batch: 115811

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 115792

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			2.00	1.94		ug/L		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*93*		*46 - 130*

Lab Sample ID: 240-77563-9 MS
Matrix: Water
Analysis Batch: 115811

Client Sample ID: MW-13-50_033017
Prep Type: Total/NA
Prep Batch: 115792

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	0.20	U	2.00	2.04		ug/L		102	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*99*		*46 - 130*

Lab Sample ID: 240-77563-9 MSD
Matrix: Water
Analysis Batch: 115811

Client Sample ID: MW-13-50_033017
Prep Type: Total/NA
Prep Batch: 115792

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	0.20	U	2.00	2.26		ug/L		113	70 - 130	10	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*108*		*46 - 130*

GC/MS Semi VOA

Prep Batch: 115792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-77563-1	MW-13-39B_032817	Total/NA	Water	3535A	
240-77563-2	MW-91-4_032817	Total/NA	Water	3535A	
240-77563-3	MW-91-5_032817	Total/NA	Water	3535A	
240-77563-4	DUP-1_032817	Total/NA	Water	3535A	
240-77563-5	MW-14-64_032917	Total/NA	Water	3535A	
240-77563-6	MW-13-28_032917	Total/NA	Water	3535A	
240-77563-7	MW-13-47_033017	Total/NA	Water	3535A	
240-77563-8	MW-12-02_033017	Total/NA	Water	3535A	
240-77563-9	MW-13-50_033017	Total/NA	Water	3535A	
240-77563-10	MW-91-6_033017	Total/NA	Water	3535A	
240-77563-11	MW-13-44_033017	Total/NA	Water	3535A	
240-77563-12	DUP-2_033017	Total/NA	Water	3535A	
240-77563-13	MW-12-01_033117	Total/NA	Water	3535A	
240-77563-14	MW-12-06_033117	Total/NA	Water	3535A	
240-77563-15	EQUIPMENT BLANK_033117	Total/NA	Water	3535A	
240-77563-16	FIELD BLANK_033117	Total/NA	Water	3535A	
MB 200-115792/1-A	Method Blank	Total/NA	Water	3535A	
LCS 200-115792/2-A	Lab Control Sample	Total/NA	Water	3535A	
240-77563-9 MS	MW-13-50_033017	Total/NA	Water	3535A	
240-77563-9 MSD	MW-13-50_033017	Total/NA	Water	3535A	

Analysis Batch: 115811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-77563-1	MW-13-39B_032817	Total/NA	Water	522	115792
240-77563-2	MW-91-4_032817	Total/NA	Water	522	115792
240-77563-3	MW-91-5_032817	Total/NA	Water	522	115792
240-77563-4	DUP-1_032817	Total/NA	Water	522	115792
240-77563-5	MW-14-64_032917	Total/NA	Water	522	115792
240-77563-6	MW-13-28_032917	Total/NA	Water	522	115792
240-77563-7	MW-13-47_033017	Total/NA	Water	522	115792
240-77563-8	MW-12-02_033017	Total/NA	Water	522	115792
240-77563-9	MW-13-50_033017	Total/NA	Water	522	115792
240-77563-10	MW-91-6_033017	Total/NA	Water	522	115792
240-77563-11	MW-13-44_033017	Total/NA	Water	522	115792
240-77563-12	DUP-2_033017	Total/NA	Water	522	115792
240-77563-13	MW-12-01_033117	Total/NA	Water	522	115792
240-77563-14	MW-12-06_033117	Total/NA	Water	522	115792
240-77563-15	EQUIPMENT BLANK_033117	Total/NA	Water	522	115792
240-77563-16	FIELD BLANK_033117	Total/NA	Water	522	115792
MB 200-115792/1-A	Method Blank	Total/NA	Water	522	115792
LCS 200-115792/2-A	Lab Control Sample	Total/NA	Water	522	115792
240-77563-9 MS	MW-13-50_033017	Total/NA	Water	522	115792
240-77563-9 MSD	MW-13-50_033017	Total/NA	Water	522	115792

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-39B_032817
Lab Sample ID: 240-77563-1
Date Collected: 03/28/17 12:35
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 11:18	TPB	TAL BUR

Client Sample ID: MW-91-4_032817
Lab Sample ID: 240-77563-2
Date Collected: 03/28/17 14:40
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 11:35	TPB	TAL BUR

Client Sample ID: MW-91-5_032817
Lab Sample ID: 240-77563-3
Date Collected: 03/28/17 16:35
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 11:52	TPB	TAL BUR

Client Sample ID: DUP-1_032817
Lab Sample ID: 240-77563-4
Date Collected: 03/28/17 00:00
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 12:09	TPB	TAL BUR

Client Sample ID: MW-14-64_032917
Lab Sample ID: 240-77563-5
Date Collected: 03/29/17 11:00
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 12:26	TPB	TAL BUR

Client Sample ID: MW-13-28_032917
Lab Sample ID: 240-77563-6
Date Collected: 03/29/17 12:50
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 12:43	TPB	TAL BUR

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-13-47_033017
Lab Sample ID: 240-77563-7
Date Collected: 03/30/17 11:40
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 13:01	TPB	TAL BUR

Client Sample ID: MW-12-02_033017
Lab Sample ID: 240-77563-8
Date Collected: 03/30/17 13:25
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 13:18	TPB	TAL BUR

Client Sample ID: MW-13-50_033017
Lab Sample ID: 240-77563-9
Date Collected: 03/30/17 15:10
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 13:35	TPB	TAL BUR

Client Sample ID: MW-91-6_033017
Lab Sample ID: 240-77563-10
Date Collected: 03/30/17 16:55
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 14:44	TPB	TAL BUR

Client Sample ID: MW-13-44_033017
Lab Sample ID: 240-77563-11
Date Collected: 03/30/17 18:45
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 15:01	TPB	TAL BUR

Client Sample ID: DUP-2_033017
Lab Sample ID: 240-77563-12
Date Collected: 03/30/17 00:00
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 15:18	TPB	TAL BUR

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Client Sample ID: MW-12-01_033117
Lab Sample ID: 240-77563-13
Date Collected: 03/31/17 11:10
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 15:35	TPB	TAL BUR

Client Sample ID: MW-12-06_033117
Lab Sample ID: 240-77563-14
Date Collected: 03/31/17 13:05
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 15:52	TPB	TAL BUR

Client Sample ID: EQUIPMENT BLANK_033117
Lab Sample ID: 240-77563-15
Date Collected: 03/31/17 13:40
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 16:09	TPB	TAL BUR

Client Sample ID: FIELD BLANK_033117
Lab Sample ID: 240-77563-16
Date Collected: 03/31/17 13:50
Matrix: Water
Date Received: 04/01/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			115792	04/13/17 16:30	RCK	TAL BUR
Total/NA	Analysis	522		1	115811	04/14/17 16:26	TPB	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer - Lansing

TestAmerica Job ID: 240-77563-1

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	04-30-17 *
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17 *
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-17 *
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17
Texas	NELAP	6	T104704517-15-5	08-31-17
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-16 *
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17
L-A-B	DoD ELAP		L2336	03-25-17 *
Maine	State Program	1	VT00008	04-17-17 *
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-17 *
Pennsylvania	NELAP	3	68-00489	04-30-17 *
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

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

2.0/C1.7

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

MICHIGAN 190

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Dale Arnett	Lab PM: Pohl, Denise	Carrier Tracking No(s):	COC No: 240-41649-18101.1
Client Contact: Alex Villhauer	Phone: 248-344-2240	E-Mail: denise.pohl@testamericainc.com		Page: Page 1 of 3
Company: ARCADIS U.S., Inc.				Job #:

Address: 101 South Washington Square Suite 400	Due Date Requested:
City: Lansing	TAT Requested (days): Standard
State, Zip: MI, 48933	
Phone:	PO #: Purchase Order not required
Email: alex.villhauer@arcadis.com	WO #: Project #: B0064607.2016.00001
Project Name: Racer Lansing- method 522	Project #: 24017406
Site: Racer - Lansing	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - 522- 1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-13-39B_032817	3/28/17	1235	G	Water	N	N	1	1	
MW-91-4_032817	3/28/17	1440	G	Water	N	N	1	1	
MW-91-5_032817	3/28/17	1635	G	Water	N	N	1	1	
Dup-1_032817	3/28/17	-	G	Water	N	N	1	1	
MW-14-64_032917	3/29/17	1100	G	Water	N	N	1	1	
MW-13-28_032917	3/29/17	1250	G	Water	N	N	1	1	
MW-13-47_033017	3/30/17	1140	G	Water	N	N	1	1	
MW-12-02_033017	3/30/17	1325	G	Water	N	N	1	1	
MW-13-50_033017	3/30/17	1510	G	Water	N	Y	3	3	MS/MSD
MW-91-6_033017	3/30/17	1655	G	Water	N	N	1		
MW-13-44_033017	3/30/17	1845	G	Water	N	N	1		

240-77563 Chain of Custody

190

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Sample Kept at wet Ice.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Dale Arnett	3/31/17 1600			3/31/17 1620	TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/31/17 1630		Tony Burns	4/1/17 1000	TA Can
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

MICHIGAN 190

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Dale Arnett	Lab PM: Pohl, Denise	Carrier Tracking No(s):	COC No: 240-41649-18101.2
Client Contact: Alex Villhauer	Phone: 518-944-2340	E-Mail: denise.pohl@testamericainc.com		Page: Page 2 of 3
Company: ARCADIS U.S., Inc.				Job #:

Address: 101 South Washington Square Suite 400	Due Date Requested:	Analysis Requested
City: Lansing	TAT Requested (days): Standard	
State, Zip: MI, 48933		
Phone:	PO #: Purchase Order not required	
Email: alex.villhauer@arcadis.com	WO #: Project #: B0064607.2016.00001	
Project Name: Racer Lansing- method 522	Project #: 24017406	
Site: Racer Lansing	SSOW#:	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - 522-1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
Dup-2_033017	3/30/17	—	G	Water	N	N	1	1	
MW-12-01_033117	3/31/17	1110	G	Water	N	N	1	1	
MW-12-06_033117	3/31/17	1305	G	Water	N	N	1	1	
Equipment Blank_033117	3/31/17	1340	G	Water	N	N	1	1	
Field Blank_033117	3/31/17	1350	G	Water	N	N	1	1	
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Samples kept on wet Ice

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/31/17 1600			3/31/17 1600	TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/31/17 1630	TAL		4/1/17 1000	TA Can
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 171523

Client Arcadis Site Name

Cooler Received on 4/1/17 Opened on 4/1/17

Cooler unpacked by: Jerry Burns

FedEx: 1st Grd (Exp) UPS FAS Stetson Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # Foam Box ~~Client Cooler~~ Box Other

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-8 (CF **-0.3** °C) Observed Cooler Temp 2.0 °C Corrected Cooler Temp. 1.7 °C

IR GUN #36 (CF **+0.3**°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity	Yes	(No)
-Were custody seals on the outside of the cooler(s) signed & dated?	Yes	No (NA)
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes)	No
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels be reconciled with the COC?	(Yes)	No
9. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10. Sufficient quantity received to perform indicated analyses?	(Yes)	No
11. Are these work share samples?	Yes	(No)
If yes, Questions 11-15 have been checked at the originating laboratory.		
11. Were sample(s) at the correct pH upon receipt?	Yes	No (NA) pH Strip Lot# **HC682547**
12. Were VOAs on the COC?	Yes	(No)
13. Were air bubbles >6 mm in any VOA vials?	Yes	No (NA)
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	(No)
15. Was a LL Hg or Me Hg trip blank present?	Yes	(No)

Contacted PM Date by via Verbal Voice Mail Other

Concerning

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

15. SAMPLE CONDITION

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

Sample(s) were received in a broken container.

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

16. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.

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

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

240-77563 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Pohl, Denise		COC No: 240-68792.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.pohl@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-77563-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 4/13/2017			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403	PO #:			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	WO #:			
Email:	Project #: 24017406			
Project Name: Racer Lansing B0064480.2016.00603	SSOW#:			
Site:				

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/3535A												Total Number of containers	Special Instructions/Note:
			Preservation Code:																	
MW-13-39B_032817 (240-77563-1)	3/28/17	12:35 Eastern		Water			X												1	
MW-91-4_032817 (240-77563-2)	3/28/17	14:40 Eastern		Water			X												1	
MW-91-5_032817 (240-77563-3)	3/28/17	16:35 Eastern		Water			X												1	
DUP-1_032817 (240-77563-4)	3/28/17	Eastern		Water			X												1	
MW-14-64_032917 (240-77563-5)	3/29/17	11:00 Eastern		Water			X												1	
MW-13-28_032917 (240-77563-6)	3/29/17	12:50 Eastern		Water			X												1	
MW-13-47_033017 (240-77563-7)	3/30/17	11:40 Eastern		Water			X												1	
MW-12-02_033017 (240-77563-8)	3/30/17	13:25 Eastern		Water			X												1	
MW-13-50_033017 (240-77563-9)	3/30/17	15:10 Eastern		Water			X												3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 4/3/17 1830	Company 240	Received by: Freddie P Cate	Date/Time: 04/04/17 @ 1030	Company TABUCH4
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Pohl, Denise	Carrier Tracking No(s):	COC No: 240-68792.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.pohl@testamericainc.com	State of Origin: Michigan	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-77563-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 4/13/2017			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: Racer Lansing B0064480.2016.00603	Project #: 24017406			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

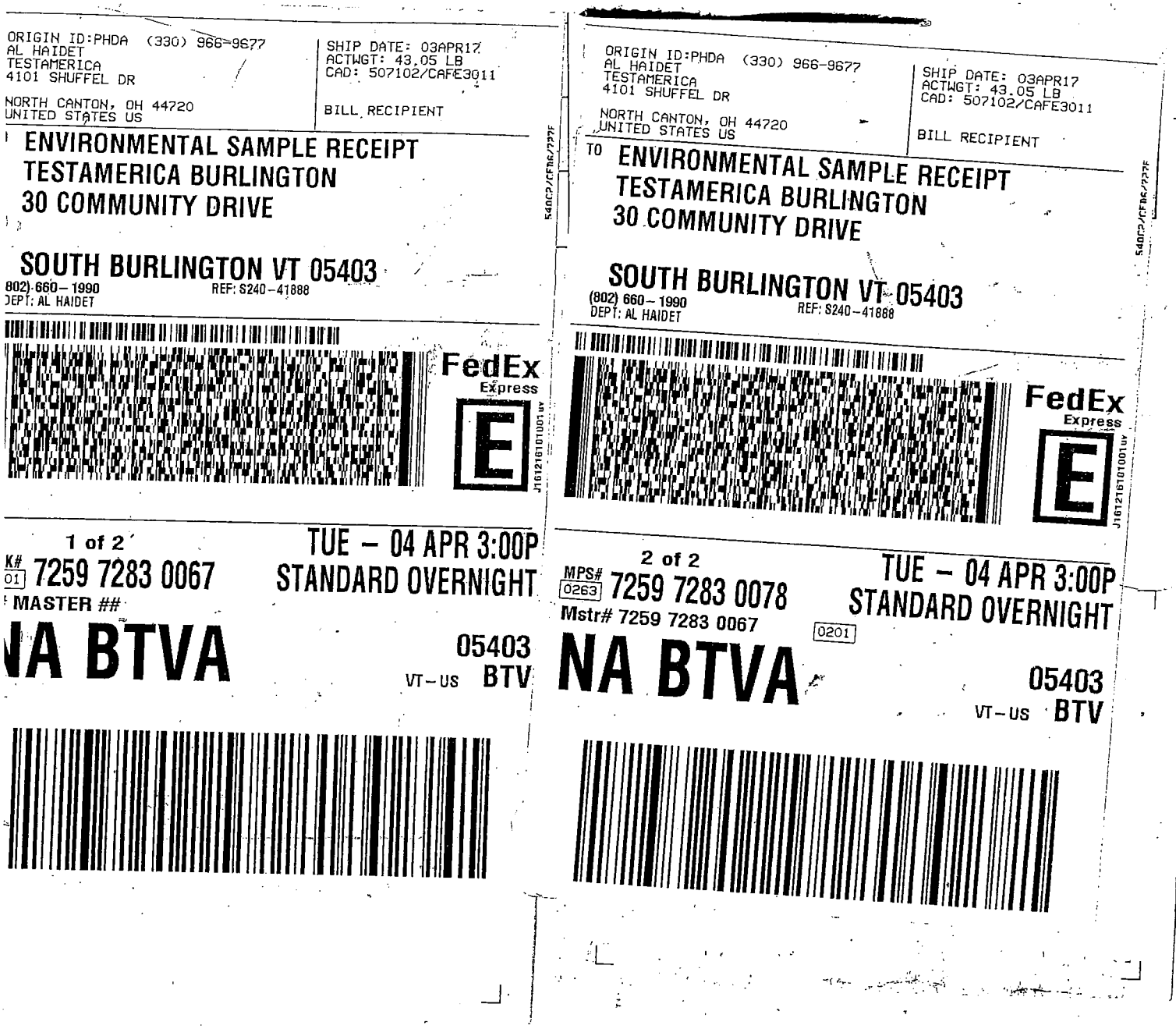
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/3535A	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-13-50_033017 (240-77563-9MSD)	3/30/17	15:10 Eastern	MSD	Water			X	1	
MW-13-50_033017 (240-77563-9MSS)	3/30/17	15:10 Eastern	MSS	Water			X	1	
MW-91-6_033017 (240-77563-10)	3/30/17	16:55 Eastern		Water			X	1	
MW-13-44_033017 (240-77563-11)	3/30/17	18:45 Eastern		Water			X	1	
DUP-2_033017 (240-77563-12)	3/30/17	Eastern		Water			X	1	
MW-12-01_033117 (240-77563-13)	3/31/17	11:10 Eastern		Water			X	1	
MW-12-06_033117 (240-77563-14)	3/31/17	13:05 Eastern		Water			X	1	
EQUIPMENT BLANK_033117 (240-77563-15)	3/31/17	13:40 Eastern		Water			X	1	
FIELD BLANK_033117 (240-77563-16)	3/31/17	13:50 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 4/3/17 - 1830	Company 240	Received by:	Date/Time: 04/04/17E 1030	Company TABURL	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6, 3.1



ORIGIN ID:PHDA (330) 966-9677
AL HAIDET
TESTAMERICA
4101 SHUFFEL DR

NORTH CANTON, OH 44720
UNITED STATES US

SHIP DATE: 03APR17
ACTWGT: 43.05 LB
CAD: 507102/CAFE3011

BILL RECIPIENT

ENVIRONMENTAL SAMPLE RECEIPT
TESTAMERICA BURLINGTON
30 COMMUNITY DRIVE

SOUTH BURLINGTON VT 05403
802) 660-1990 REF: S240-41888
)EPT: AL HAIDET

FedEx Express

1 of 2
K# 01 7259 7283 0067
MASTER ##

TUE - 04 APR 3:00P
STANDARD OVERNIGHT

NA BTVA

05403
VT-US BTV

ORIGIN ID:PHDA (330) 966-9677
AL HAIDET
TESTAMERICA
4101 SHUFFEL DR

NORTH CANTON, OH 44720
UNITED STATES US

SHIP DATE: 03APR17
ACTWGT: 43.05 LB
CAD: 507102/CAFE3011

BILL RECIPIENT

TO ENVIRONMENTAL SAMPLE RECEIPT
TESTAMERICA BURLINGTON
30 COMMUNITY DRIVE

SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: S240-41888
DEPT: AL HAIDET

FedEx Express

2 of 2
MPS# 0263 7259 7283 0078
Mstr# 7259 7283 0067

TUE - 04 APR 3:00P
STANDARD OVERNIGHT

0201

NA BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 240-77563-1

Login Number: 77563
List Number: 2
Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington
List Creation: 04/04/17 05:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6ºC; 3.0ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Analytical Laboratory Report

Report ID: S79728.01(01)
Generated on 03/20/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Patrick Curry, Jesse Wright, Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S79728.01-S79728.07
Project: B0064479.2017.00603
Collected Date: 03/06/2017
Submitted Date/Time: 03/06/2017 16:00
Sampled by: Billy J. Cobern
P.O. #: B0064479.2017.00603

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

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

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

Method Summary

Method	Version
ASTMD3278 - 96	ASTM Method D3278 - 96(2011)
N/A	Not Applicable
SW1311	SW 846 Method 1311 Revision 0 July 1992
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
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
SW8082A	SW 846 Method 8082A Revision 1 February 2007
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs
SW8270D	SW 846 Method 8270D Revision 4 February 2007
SW9045D	SW 846 Method 9045D Revision 4 November 2004

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S79728.01	MW-16-81_030617	Groundwater	03/06/17 11:40
S79728.02	MW-16-82_030617	Groundwater	03/06/17 12:50
S79728.03	MW-16-84_030617	Groundwater	03/06/17 14:15
S79728.04	MW-16-84_030617 MS	Groundwater	03/06/17 14:15
S79728.05	MW-16-84_030617 MSD	Groundwater	03/06/17 14:15
S79728.06	Dup-01_030617	Groundwater	03/06/17 00:01
S79728.07	LMW-12-10_WC_030617	Oil	03/06/17 15:10

Analytical Laboratory Report

Lab Sample ID: S79728.01
Sample Tag: MW-16-81_030617
Collected Date/Time: 03/06/2017 11:40
Matrix: Groundwater
COC Reference: 096630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	7.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	03/08/17 10:39	JML		
Organics - Volatiles								
1,4-Dioxane*	550	ug/L	30	SW8260B - SIM	03/07/17 16:15	JML		Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S79728.02
Sample Tag: MW-16-82_030617
Collected Date/Time: 03/06/2017 12:50
Matrix: Groundwater
COC Reference: 096630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	7.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	03/08/17 10:39	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	03/10/17 19:17	JML		

Analytical Laboratory Report

Lab Sample ID: S79728.03
Sample Tag: MW-16-84_030617
Collected Date/Time: 03/06/2017 14:15
Matrix: Groundwater
COC Reference: 096630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	7.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	03/08/17 10:39	JML		
Organics - Volatiles								
1,4-Dioxane*	47	ug/L	3	SW8260B - SIM	03/07/17 13:43	JML		

Analytical Laboratory Report

Lab Sample ID: S79728.04
Sample Tag: MW-16-84_030617 MS
Collected Date/Time: 03/06/2017 14:15
Matrix: Groundwater
COC Reference: 096630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	7.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	03/08/17 10:39	JML		
Organics - Volatiles								
1,4-Dioxane*	99	ug/L	3	SW8260B - SIM	03/07/17 12:25	JML		1

1-spiked at 50mg/L

Analytical Laboratory Report

Lab Sample ID: S79728.05
Sample Tag: MW-16-84_030617 MSD
Collected Date/Time: 03/06/2017 14:15
Matrix: Groundwater
COC Reference: 096630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	7.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	03/08/17 10:39	JML		
Organics - Volatiles								
1,4-Dioxane*	94	ug/L	3	SW8260B - SIM	03/07/17 12:44	JML		1

1-spiked at 50mg/L

Analytical Laboratory Report

Lab Sample ID: S79728.06
Sample Tag: Dup-01_030617
Collected Date/Time: 03/06/2017 00:01
Matrix: Groundwater
COC Reference: 096630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	7.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	03/08/17 10:39	JML		
Organics - Volatiles								
1,4-Dioxane*	540	ug/L	30	SW8260B - SIM	03/10/17 21:05	JML		Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S79728.07
Sample Tag: LMW-12-10_WC_030617
Collected Date/Time: 03/06/2017 15:10
Matrix: Oil
COC Reference: 096630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	32oz Glass	None	Yes	7.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Extraction / Prep.								
Extraction, PCB*	Completed			SW3550C	03/06/17 18:00	PLB		
Mercury Digestion*	Completed			SW7471B	03/13/17 10:00	RGS		
Metal Digestion*	Completed			SW3015A	03/17/17 08:30	CCM		
TCLP Zero Headspace Ext.*	<0.5%			SW1311	03/13/17 11:55	JBL		
TCLP/SPLP BNA Extraction*	Completed			SW3510C	03/07/17 20:05	EMR		
TCLP Extraction								
Inital Sample pH*	<0.5%			SW1311	03/13/17 11:57-03/13	JBL		
pH after 3.5 ml HCl*	<0.5%			SW1311	03/13/17 11:57-03/13	JBL		
% Solids*	<0.5%			SW1311	03/13/17 11:57-03/13	JBL		
Sample Used g*	<0.5%			SW1311	03/13/17 11:57-03/13	JBL		
Final Volume mL*	<0.5%			SW1311	03/13/17 11:57-03/13	JBL		
TCLP Extraction Fluid*	<0.5%			SW1311	03/13/17 11:57-03/13	JBL		
Final Extract pH*	<0.5%			SW1311	03/13/17 11:57-03/13	JBL		
Inorganics								
Flash Point*	174.0	oF	180	ASTMD3278 - 96	03/13/17 14:04	RYN	<140	
pH/ Corrosivity*	5.45	STD Units	0.01	SW9045D	03/10/17 17:45	ASB	2-12.5	
Metals								
Antimony, TCLP*	Not detected	mg/L	0.50	SW6020A	03/17/17 12:31	CCM		
Arsenic, TCLP*	4.67	mg/L	0.20	SW6020A	03/17/17 12:31	CCM	5.0	
Barium, TCLP*	1.74	mg/L	1.0	SW6020A	03/17/17 12:31	CCM	100.0	
Boron, TCLP*	Not detected	mg/L	2.0	SW6020A	03/17/17 12:31	CCM		
Cadmium, TCLP*	Not detected	mg/L	0.20	SW6020A	03/17/17 12:31	CCM	1.0	
Chromium, TCLP*	Not detected	mg/L	0.50	SW6020A	03/17/17 12:31	CCM	5.0	
Cobalt, TCLP*	Not detected	mg/L	0.50	SW6020A	03/17/17 12:31	CCM		
Copper, TCLP*	1.28	mg/L	0.50	SW6020A	03/17/17 12:31	CCM		
Lead, TCLP*	2.81	mg/L	0.20	SW6020A	03/17/17 12:31	CCM	5.0	
Manganese, TCLP*	Not detected	mg/L	0.50	SW6020A	03/17/17 12:31	CCM		
Mercury, TCLP*	0.003	mg/L	0.003	SW7471B	03/13/17 14:39	RGS	0.2	
Nickel, TCLP*	Not detected	mg/L	0.50	SW6020A	03/17/17 12:31	CCM		
Selenium, TCLP*	Not detected	mg/L	0.40	SW6020A	03/17/17 12:31	CCM	1.0	
Silver, TCLP*	Not detected	mg/L	0.20	SW6020A	03/17/17 12:31	CCM	5.0	
Vanadium, TCLP*	Not detected	mg/L	0.50	SW6020A	03/17/17 12:31	CCM		
Zinc, TCLP*	0.79	mg/L	0.50	SW6020A	03/17/17 12:31	CCM		
Organics - PCBs/Pesticides								
PCB List								
PCB-1016*	Not detected	ug/kg	1,000	SW8082A	03/07/17 17:43	JAN		
PCB-1242*	Not detected	ug/kg	1,000	SW8082A	03/07/17 17:43	JAN		
PCB-1221*	Not detected	ug/kg	1,000	SW8082A	03/07/17 17:43	JAN		
PCB-1232*	Not detected	ug/kg	1,000	SW8082A	03/07/17 17:43	JAN		

Lab Sample ID: S79728.07 (continued)
Sample Tag: LMW-12-10_WC_030617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	Limits	Flags
Organics - PCBs/Pesticides (continued)								
PCB List (continued)								
PCB-1248*	Not detected	ug/kg	1,000	SW8082A	03/07/17 17:43	JAN		
PCB-1254*	1,000	ug/kg	1,000	SW8082A	03/07/17 17:43	JAN		
PCB-1260*	Not detected	ug/kg	1,000	SW8082A	03/07/17 17:43	JAN		
Organics - Semi-Volatiles								
TCLP Semi Volatiles								
o-Cresol*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	200,000	X
p,m-Cresol*	Not detected	ug/L	200,000	SW8270D	03/08/17 03:01	PL	200,000	X
Pentachlorophenol*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	100,000	X
2,4,5-Trichlorophenol*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	400,000	X
2,4,6-Trichlorophenol*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	2,000	X
2,4-Dinitrotoluene*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	130	X
Hexachlorobenzene*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	130	X
Hexachlorobutadiene*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	500	X
Hexachloroethane*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	3,000	X
Nitrobenzene*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	2,000	X
Pyridine*	Not detected	ug/L	100,000	SW8270D	03/08/17 03:01	PL	5,000	X
Organics - Volatiles								
TCLP Volatiles								
Benzene*	28,000	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	500	Y!
Carbon tetrachloride*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	500	Y
Chlorobenzene*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	100,000	Y
Chloroform*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	6,000	Y
1,4-Dichlorobenzene*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	7,500	Y
1,2-Dichloroethane*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	500	Y
1,1-Dichloroethene*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	700	Y
2-Butanone (MEK)*	Not detected	ug/L	100,000	SW5030C/8260C	03/16/17 20:05	JML	200,000	Y
Tetrachloroethene*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	700	Y
Trichloroethene*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	500	Y
Vinyl chloride*	Not detected	ug/L	10,000	SW5030C/8260C	03/16/17 20:05	JML	200	Y

X-Elevated reporting limit due to matrix interference
Y-Elevated reporting limit due to high target concentration !-Result is outside of stated limit criteria

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

096630

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 101 S. Washington Square
CITY: Lansing STATE: MI ZIP CODE: 48933
PHONE NO.: 517-327-0111 FAX NO.: 517-337-0417 P.O. NO.: 60064479.2017.0063
E-MAIL ADDRESS: Randy.Christensen@Arcadis.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: 60064479.2017.0063
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Billy J. Cobern

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4 Dioxane	WASTE CHARACTERIZATION	Special Instructions
79728.01	3/6/17	11:40	MW-16-81_030617	GW	3		X						X		
02	3/6/17	12:50	MW-16-82_030617	GW	3		X						X		
03/04/05	3/6/17	14:15	MW-16-84_030617	GW	9		X						X		MS/MSD
06	3/6/17	—	DUP-01_030617	GW	3		X						X		
~~3/6/17~~	~~3/6/17~~	~~15:10~~	~~LMW-12-10_WC_030617~~												
07	3/6/17	15:10	LMW-12-10_WC_030617	GW	1	X								X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis ☒ Sampler DATE: 3/6/17 TIME: 16:00
RECEIVED BY: SIGNATURE/ORGANIZATION: M. Chilcote DATE: 3/6/17 TIME: 1600

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

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

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

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

NOTES: TEMP. ON ARRIVAL: 7.7

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

Rev. 5.18.12

Second Quarter



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-38308-1
Client Project/Site: Racer / Lansing, MI

For:
ARCADIS U.S., Inc.
101 South Washington Square
Suite 400
Lansing, Michigan 48933

Attn: Alex Villhauer

Denise Pohl

Authorized for release by:
5/5/2017 4:05:54 PM

Denise Pohl, Project Manager II
(330)966-9789
denise.pohl@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Detection Summary 5
Client Sample Results 6
Surrogate Summary 7
QC Sample Results 8
QC Association Summary 9
Lab Chronicle 10
Certification Summary 11
Method Summary 12
Sample Summary 13
Chain of Custody 14
Receipt Checklists 16

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Qualifiers

GC/MS Semi VOA

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 200-38308-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer / Lansing, MI

Report Number: 200-38308-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Burlington attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 4/21/2017 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

1,4-DIOXANE

Samples GR-NORTH_041817 (200-38308-1) and GR-SOUTH_041817 (200-38308-2) were analyzed for 1,4-Dioxane in accordance with EPA Method 522. The samples were prepared on 05/02/2017 and analyzed on 05/04/2017.

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Client Sample ID: GR-NORTH_041817 — Lab Sample ID: 200-38308-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.081	J	0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: GR-SOUTH_041817 — Lab Sample ID: 200-38308-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Client Sample ID: GR-NORTH_041817

Lab Sample ID: 200-38308-1

Date Collected: 04/18/17 14:45
Matrix: Water
Date Received: 04/21/17 10:15

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.081	J	0.20	0.057	ug/L		05/02/17 18:45	05/04/17 10:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*70*		*46 - 130*	*05/02/17 18:45*	*05/04/17 10:41*	*1*

Client Sample ID: GR-SOUTH_041817

Lab Sample ID: 200-38308-2

Date Collected: 04/18/17 15:10
Matrix: Water
Date Received: 04/21/17 10:15

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		05/02/17 18:45	05/04/17 11:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*85*		*46 - 130*	*05/02/17 18:45*	*05/04/17 11:29*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	14DD8 (46-130)								
200-38308-1	GR-NORTH_041817	70								
200-38308-1 MS	GR-NORTH_041817	85								
200-38308-1 MSD	GR-NORTH_041817	74								
200-38308-2	GR-SOUTH_041817	85								
LCS 200-116321/2-A	Lab Control Sample	95								
MB 200-116321/1-A	Method Blank	89								

Surrogate Legend

14DD8 = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-116321/1-A
Matrix: Water
Analysis Batch: 116359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 116321

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		05/02/17 18:45	05/04/17 09:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*89*		*46 - 130*	*05/02/17 18:45*	*05/04/17 09:05*	*1*

Lab Sample ID: LCS 200-116321/2-A
Matrix: Water
Analysis Batch: 116359

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 116321

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			2.00	1.91		ug/L		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*95*		*46 - 130*

Lab Sample ID: 200-38308-1 MS
Matrix: Water
Analysis Batch: 116359

Client Sample ID: GR-NORTH_041817
Prep Type: Total/NA
Prep Batch: 116321

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	0.081	J	2.00	2.01		ug/L		96	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*85*		*46 - 130*

Lab Sample ID: 200-38308-1 MSD
Matrix: Water
Analysis Batch: 116359

Client Sample ID: GR-NORTH_041817
Prep Type: Total/NA
Prep Batch: 116321

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	0.081	J	2.00	1.77		ug/L		84	70 - 130	13	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*74*		*46 - 130*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

GC/MS Semi VOA

Prep Batch: 116321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-38308-1	GR-NORTH_041817	Total/NA	Water	3535A	
200-38308-2	GR-SOUTH_041817	Total/NA	Water	3535A	
MB 200-116321/1-A	Method Blank	Total/NA	Water	3535A	
LCS 200-116321/2-A	Lab Control Sample	Total/NA	Water	3535A	
200-38308-1 MS	GR-NORTH_041817	Total/NA	Water	3535A	
200-38308-1 MSD	GR-NORTH_041817	Total/NA	Water	3535A	

Analysis Batch: 116359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-38308-1	GR-NORTH_041817	Total/NA	Water	522	116321
200-38308-2	GR-SOUTH_041817	Total/NA	Water	522	116321
MB 200-116321/1-A	Method Blank	Total/NA	Water	522	116321
LCS 200-116321/2-A	Lab Control Sample	Total/NA	Water	522	116321
200-38308-1 MS	GR-NORTH_041817	Total/NA	Water	522	116321
200-38308-1 MSD	GR-NORTH_041817	Total/NA	Water	522	116321

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Client Sample ID: GR-NORTH_041817
Lab Sample ID: 200-38308-1
Date Collected: 04/18/17 14:45
Matrix: Water
Date Received: 04/21/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			116321	05/02/17 18:45	BDL	TAL BUR
Total/NA	Analysis	522		1	116359	05/04/17 10:41	TPB	TAL BUR

Client Sample ID: GR-SOUTH_041817
Lab Sample ID: 200-38308-2
Date Collected: 04/18/17 15:10
Matrix: Water
Date Received: 04/21/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			116321	05/02/17 18:45	BDL	TAL BUR
Total/NA	Analysis	522		1	116359	05/04/17 11:29	TPB	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	04-30-17 *
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17 *
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-17 *
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-16 *
Wisconsin	State Program	5	999518190	08-31-17 *

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer / Lansing, MI

TestAmerica Job ID: 200-38308-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-38308-1	GR-NORTH_041817	Water	04/18/17 14:45	04/21/17 10:15
200-38308-2	GR-SOUTH_041817	Water	04/18/17 15:10	04/21/17 10:15

ARCADIS
Infrastructure · Water · Environment · Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #

Send Results to:

Contact & Company Name: Alex Villhauer	Telephone: 517-324-5036
Address: 101 Washington Square	Fax: —
City: Lansing State: MI Zip: 48933	E-mail Address: Alex.Villhauer@arcadis-us.com
Project Name/Location (City, State): Race / Lansing, MI	Project #: B0064479.2016.00102
Sampler's Printed Name: Dale Arnett	Sampler's Signature: Dale M. Arnett

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	1,4-D; 1,4-Dioxane
						B	N	2	250ml	
GR-North_041817	4/18/17	1745		G	GW					X
GR-South_041817	4/18/17	1510		G	W					X

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil; SE - Sediment; NL - NAPL/Oil
W - Water; SL - Sludge; SW - Sample Wipe
T - Tissue; A - Air; Other: _____

REMARKS

200-38308 Chain of Custody

Special Instructions/Comments: Samples kept on wet Ice

☐ **Special QA/QC Instructions(✓):**

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Test America	Cooler Custody Seal (✓)	Printed Name: Dale Arnett	Printed Name: Fedex	Printed Name:	Printed Name: Frederick Cota
☑ Cooler packed with ice (✓)	☐ Intact ☐ Not Intact	Signature: Dale Arnett	Signature: Fedex	Signature:	Signature: Frederick P Cota
Specify Turnaround Requirements: Standard	Sample Receipt:	Firm: ARCADIS	Firm/Courier: Fedex	Firm/Courier:	Firm: TAL-SRL
Shipping Tracking #:	Condition/Cooler Temp: 0.9°C	Date/Time: 4/19/17 1830	Date/Time: 4/18/17 1830	Date/Time:	Date/Time: 4/21/17 @ 1045

20730826 CofC AR Form 01.12.2007

Distribution: WHITE – Laboratory returns with results; YELLOW – Lab copy; PINK – Retained by ARCADIS

5/5/2017



ORIGIN ID:LANA (248) 994-2240
DALE ARNETT--B0064479.2017.00102
ARCADIS
101 S. WASHINGTON SQUARE

LANSING, MI 48933
UNITED STATES US

SHIP DATE: 20APR17
ACTWGT: 34.70 LB
CAD: 6991534/SSFO1801
DIMS: 20x20x13 IN

BILL THIRD PARTY

Part # 156297-XXX-XXX THU 01/18

TO

TEST AMERICA BRIGHTON
30 COMMUNITY DR STE 11

SOUTH BURLINGTON VT 05403

(802) 660-1990 REF:
INV:
PO: DEPT:

FedEx Express

TRK# 0201 7863 0972 6547

FRI - 21 APR 10:30A
PRIORITY OVERNIGHT

NA BTVA

DSR
05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 200-38308-1

Login Number: 38308
List Number: 1
Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.9ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	DA
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-38388-1
Client Project/Site: Racer Lansing

For:
ARCADIS U.S., Inc.
101 South Washington Square
Suite 400
Lansing, Michigan 48933

Attn: Alex Villhauer

Denise Pohl

Authorized for release by:
5/5/2017 4:10:08 PM

Denise Pohl, Project Manager II
(330)966-9789
denise.pohl@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Detection Summary 5
Client Sample Results 6
Surrogate Summary 7
QC Sample Results 8
QC Association Summary 9
Lab Chronicle 10
Certification Summary 11
Method Summary 12
Sample Summary 13
Chain of Custody 14
Receipt Checklists 16

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 200-38388-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Lansing

Report Number: 200-38388-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Burlington attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 4/28/2017 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.2° C.

1,4-DIOXANE

Samples MW-12-04_042617 (200-38388-1), MW-12-05R_042617 (200-38388-2) and MW-17-87_042617 (200-38388-3) were analyzed for 1,4-Dioxane in accordance with EPA Method 522. The samples were prepared on 05/02/2017 and analyzed on 05/04/2017.

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

Client Sample ID: MW-12-04_042617 — Lab Sample ID: 200-38388-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.86		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-12-05R_042617 — Lab Sample ID: 200-38388-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.63		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-17-87_042617 — Lab Sample ID: 200-38388-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.3		0.20	0.057	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-12-04_042617

Lab Sample ID: 200-38388-1
Matrix: Water
Date Collected: 04/26/17 11:35
Date Received: 04/28/17 10:05

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.86		0.20	0.057	ug/L		05/02/17 18:45	05/04/17 11:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*75*		*46 - 130*	*05/02/17 18:45*	*05/04/17 11:45*	*1*

Client Sample ID: MW-12-05R_042617

Lab Sample ID: 200-38388-2
Matrix: Water
Date Collected: 04/26/17 13:40
Date Received: 04/28/17 10:05

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.63		0.20	0.057	ug/L		05/02/17 18:45	05/04/17 12:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*84*		*46 - 130*	*05/02/17 18:45*	*05/04/17 12:01*	*1*

Client Sample ID: MW-17-87_042617

Lab Sample ID: 200-38388-3
Matrix: Water
Date Collected: 04/26/17 15:25
Date Received: 04/28/17 10:05

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.3		0.20	0.057	ug/L		05/02/17 18:45	05/04/17 12:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*91*		*46 - 130*	*05/02/17 18:45*	*05/04/17 12:17*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	14DD8 (46-130)								
200-38388-1	MW-12-04_042617	75								
200-38388-2	MW-12-05R_042617	84								
200-38388-3	MW-17-87_042617	91								
LCS 200-116321/2-A	Lab Control Sample	95								
MB 200-116321/1-A	Method Blank	89								

Surrogate Legend

14DD8 = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-116321/1-A
Matrix: Water
Analysis Batch: 116359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 116321

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		05/02/17 18:45	05/04/17 09:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*89*		*46 - 130*	*05/02/17 18:45*	*05/04/17 09:05*	*1*

Lab Sample ID: LCS 200-116321/2-A
Matrix: Water
Analysis Batch: 116359

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 116321

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			2.00	1.91		ug/L		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*95*		*46 - 130*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

GC/MS Semi VOA

Prep Batch: 116321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-38388-1	MW-12-04_042617	Total/NA	Water	3535A	
200-38388-2	MW-12-05R_042617	Total/NA	Water	3535A	
200-38388-3	MW-17-87_042617	Total/NA	Water	3535A	
MB 200-116321/1-A	Method Blank	Total/NA	Water	3535A	
LCS 200-116321/2-A	Lab Control Sample	Total/NA	Water	3535A	

Analysis Batch: 116359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-38388-1	MW-12-04_042617	Total/NA	Water	522	116321
200-38388-2	MW-12-05R_042617	Total/NA	Water	522	116321
200-38388-3	MW-17-87_042617	Total/NA	Water	522	116321
MB 200-116321/1-A	Method Blank	Total/NA	Water	522	116321
LCS 200-116321/2-A	Lab Control Sample	Total/NA	Water	522	116321

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

Client Sample ID: MW-12-04_042617
Lab Sample ID: 200-38388-1
Date Collected: 04/26/17 11:35
Matrix: Water
Date Received: 04/28/17 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			116321	05/02/17 18:45	BDL	TAL BUR
Total/NA	Analysis	522		1	116359	05/04/17 11:45	TPB	TAL BUR

Client Sample ID: MW-12-05R_042617
Lab Sample ID: 200-38388-2
Date Collected: 04/26/17 13:40
Matrix: Water
Date Received: 04/28/17 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			116321	05/02/17 18:45	BDL	TAL BUR
Total/NA	Analysis	522		1	116359	05/04/17 12:01	TPB	TAL BUR

Client Sample ID: MW-17-87_042617
Lab Sample ID: 200-38388-3
Date Collected: 04/26/17 15:25
Matrix: Water
Date Received: 04/28/17 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			116321	05/02/17 18:45	BDL	TAL BUR
Total/NA	Analysis	522		1	116359	05/04/17 12:17	TPB	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	04-30-17 *
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17 *
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-17 *
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-16 *
Wisconsin	State Program	5	999518190	08-31-17 *

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing

TestAmerica Job ID: 200-38388-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-38388-1	MW-12-04_042617	Water	04/26/17 11:35	04/28/17 10:05
200-38388-2	MW-12-05R_042617	Water	04/26/17 13:40	04/28/17 10:05
200-38388-3	MW-17-87_042617	Water	04/26/17 15:25	04/28/17 10:05

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

200-38388 COC

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Alex Villhauer	Site Contact: Austin Westhuis	Date: 4/26/17	COC No: 1
Arcadis U.S., Inc.	Tel/Fax: 616-780-3277	Lab Contact: Denise Pohl	Carrier:	1 of 1 COCs
101 South Washington Square, Suite 400	Analysis Turnaround Time			Sampler:
Lansing, MI 48933	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(517) 324-5036 Phone	TAT if different from Below			Walk-in Client:
alex.villhauer@arcadis.com	☒ ~~2 weeks~~			Lab Sampling:
Project Name: RACER Lansing - Method 522	☑ 1 week			Job / SDG No.:
Site:	☐ 2 days			
P O # B0064479.2017.00603	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Method 522-1,4-Dioxane	Sample Specific Notes:
MW-12-04_042617	4/26/17	1135	G	GW	2			X	
MW-12-05R_042617	4/26/17	1340	G	GW	2			X	
MW-17-87_042617	4/26/17	1525	G	GW	2			X	

MICHIGAN
190



Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

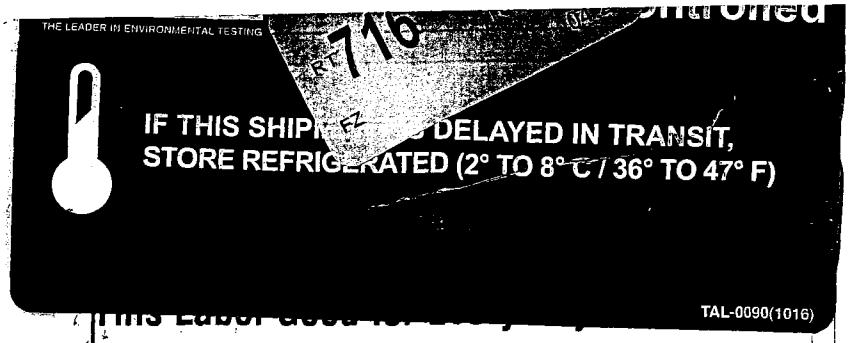
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____
Relinquished by: Kevin Bowers	Company: Arcadis	Date/Time: 4/26 5:08	Received by:	Company: TAL	Date/Time: 4/26/17 17:08
Relinquished by:	Company: TAL	Date/Time: 4/26/17 1710	Received by: Cold storage	Company: TAL	Date/Time: 4/26/17 1710
Relinquished by: cold storage to D. Ford.	Company: TAL	Date/Time: 4/27/17 11:35	Received in Laboratory by:	Company: TA Burl	Date/Time: 4/28/17 1005

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017



ORIGIN ID:DEDA (810) 229-2763
SHIPPING DEPARTMENT
TESTAMERICA
10448 CITATION DRIVE
SUITE 200
BRIGHTON, MI 48116
UNITED STATES US

SHIP DATE: 27APR17
ACTWGT: 20.05 LB
CAD: 0183192/CAFE3012

BILL RECIPIENT

TO SAMPLE RECIEVING
TEST AMERICA BURLINGTON
30 COMMUNITY DR
STE 11
SOUTH BURLINGTON VT 054036834
(802) 660-1990 REF:
INV:
PO: DEPT:

FedEx Express

TRK# 0201 6209 0770 0154

FRI - 28 APR 3:00P
STANDARD OVERNIGHT

NA BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 200-38388-1

Login Number: 38388
List Number: 1
Creator: Nye, Elizabeth A

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	827544
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.2º C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-38747-1
Client Project/Site: Racer Lansing Plant 2

For:
ARCADIS U.S., Inc.
101 South Washington Square
Suite 400
Lansing, Michigan 48933

Attn: Alex Villhauer

Authorized for release by:
6/14/2017 5:37:38 PM
John McFadden, Project Manager I
john.mcfadden@testamericainc.com

Designee for

Denise Pohl, Project Manager II
(330)966-9789
denise.pohl@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Detection Summary 5
Client Sample Results 6
Surrogate Summary 7
QC Sample Results 8
QC Association Summary 9
Lab Chronicle 10
Certification Summary 11
Method Summary 12
Sample Summary 13
Chain of Custody 14
Receipt Checklists 16

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Qualifiers

GC/MS Semi VOA

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

Glossary

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

Job ID: 200-38747-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Lansing Plant 2

Report Number: 200-38747-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 5/31/2017 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º C.

1,4-DIOXANE

Samples MW-12-05R_053017 (200-38747-1) and MW-17-87_053017 (200-38747-2) were analyzed for 1,4-Dioxane in accordance with EPA Method 522. The samples were prepared on 06/02/2017 and analyzed on 06/05/2017.

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Client Sample ID: MW-12-05R_053017 — Lab Sample ID: 200-38747-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.52		0.20	0.057	ug/L	1		522	Total/NA

Client Sample ID: MW-17-87_053017 — Lab Sample ID: 200-38747-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.1		0.20	0.057	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Client Sample ID: MW-12-05R_053017

Lab Sample ID: 200-38747-1

Date Collected: 05/30/17 14:15

Matrix: Water

Date Received: 05/31/17 10:20

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.52		0.20	0.057	ug/L		06/02/17 18:30	06/05/17 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*69*		*46 - 130*	*06/02/17 18:30*	*06/05/17 16:45*	*1*

Client Sample ID: MW-17-87_053017

Lab Sample ID: 200-38747-2

Date Collected: 05/30/17 15:35

Matrix: Water

Date Received: 05/31/17 10:20

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.1		0.20	0.057	ug/L		06/02/17 18:30	06/05/17 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*85*		*46 - 130*	*06/02/17 18:30*	*06/05/17 17:32*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	14DD8 (46-130)
200-38747-1	MW-12-05R_053017	69
200-38747-1 MS	MW-12-05R_053017	82
200-38747-1 MSD	MW-12-05R_053017	81
200-38747-2	MW-17-87_053017	85
LLCS 200-117240/2-A	Lab Control Sample	84
MB 200-117240/1-A	Method Blank	95

Surrogate Legend

14DD8 = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-117240/1-A
Matrix: Water
Analysis Batch: 117258

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 117240

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.057	ug/L		06/02/17 18:30	06/05/17 11:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*95*		*46 - 130*	*06/02/17 18:30*	*06/05/17 11:32*	*1*

Lab Sample ID: LLCS 200-117240/2-A
Matrix: Water
Analysis Batch: 117258

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 117240

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			0.200	0.160	J	ug/L		80	50 - 150		

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*84*		*46 - 130*

Lab Sample ID: 200-38747-1 MS
Matrix: Water
Analysis Batch: 117258

Client Sample ID: MW-12-05R_053017
Prep Type: Total/NA
Prep Batch: 117240

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	0.52		2.00	2.13		ug/L		81	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*82*		*46 - 130*

Lab Sample ID: 200-38747-1 MSD
Matrix: Water
Analysis Batch: 117258

Client Sample ID: MW-12-05R_053017
Prep Type: Total/NA
Prep Batch: 117240

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	0.52		2.00	2.19		ug/L		84	70 - 130	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*81*		*46 - 130*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

GC/MS Semi VOA

Prep Batch: 117240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-38747-1	MW-12-05R_053017	Total/NA	Water	3535A	
200-38747-2	MW-17-87_053017	Total/NA	Water	3535A	
MB 200-117240/1-A	Method Blank	Total/NA	Water	3535A	
LLCS 200-117240/2-A	Lab Control Sample	Total/NA	Water	3535A	
200-38747-1 MS	MW-12-05R_053017	Total/NA	Water	3535A	
200-38747-1 MSD	MW-12-05R_053017	Total/NA	Water	3535A	

Analysis Batch: 117258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-38747-1	MW-12-05R_053017	Total/NA	Water	522	117240
200-38747-2	MW-17-87_053017	Total/NA	Water	522	117240
MB 200-117240/1-A	Method Blank	Total/NA	Water	522	117240
LLCS 200-117240/2-A	Lab Control Sample	Total/NA	Water	522	117240
200-38747-1 MS	MW-12-05R_053017	Total/NA	Water	522	117240
200-38747-1 MSD	MW-12-05R_053017	Total/NA	Water	522	117240

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Client Sample ID: MW-12-05R_053017

Lab Sample ID: 200-38747-1

Date Collected: 05/30/17 14:15

Matrix: Water

Date Received: 05/31/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			117240	06/02/17 18:30	BDL	TAL BUR
Total/NA	Analysis	522		1	117258	06/05/17 16:45	TPB	TAL BUR

Client Sample ID: MW-17-87_053017

Lab Sample ID: 200-38747-2

Date Collected: 05/30/17 15:35

Matrix: Water

Date Received: 05/31/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535A			117240	06/02/17 18:30	BDL	TAL BUR
Total/NA	Analysis	522		1	117258	06/05/17 17:32	TPB	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17 *
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-17 *
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-17
Wisconsin	State Program	5	999518190	08-31-17 *

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Lansing Plant 2

TestAmerica Job ID: 200-38747-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-38747-1	MW-12-05R_053017	Water	05/30/17 14:15	05/31/17 10:20
200-38747-2	MW-17-87_053017	Water	05/30/17 15:35	05/31/17 10:20

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

200-38747 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Austin Westhuis	Lab PM: Pohl, Denise	COC No: 240-42928-18685.1
Client Contact: Alex Villhauer	Phone: 616-780-3277	E-Mail: denise.pohl@testamericainc.com	Page: Page 1 of 1
Company: ARCADIS U.S., Inc.		Analysis Requested	Job #:
Address: 101 South Washington Square Suite 400	Due Date Requested:		Preservation Codes:
City: Lansing	TAT Requested (days): 10-day hold		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: MI, 48933			
Phone: 616-780-3277	PO #: Purchase Order not required		Other:
Email: alex.villhauer@arcadis.com	WO #: Project #: B0064607.2016.00001		
Project Name: Racer Lansing - method 522	Project #: 24017406		
Site: RACER Lansing Plant 2	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - Method 522-1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-12-05R_053017	5/30/17	1415	G	Water	N	N	X		
MW-17-87_053017	5/30/17	1535	G	Water	N	N	X		
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	5/30/17 1731	Arcadis	FedEx	5/30/17 1731	FedEx
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				5/31/17 1020	TA Burl
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No | Custody Seal No.: 078170

Cooler Temperature(s) °C and Other Remarks: 1.3°C



ORIGIN ID:BTVA (517) 324-5036
ALEX VILLHAUER
ARCADIS US
101S. WASHINGTON SQUARE
SUITE 400
LANSING, MI 48933
UNITED STATES US

SHIP DATE: 19MAY17
ACTWGT: 5.00 LB MAN
CAD: 000890364/CAFE3011

TO SAMPLE MANAGEMENT
TEST AMERICA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 923-1058
REF: S240-42928
RMA: S240-42928

RMA:

FedEx Express

FedEx
TRK# 0221 7337 0623 5112

WED - 31 MAY 10:30A
PRIORITY OVERNIGHT

NA BTVA

05403
VT-US BTV

#2407633 05/30 546J1/8734/53C1

CC

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 200-38747-1

Login Number: 38747
List Number: 1
Creator: Cota, Fred P

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	078170
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	AW
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Laboratory Report

Report ID: S80811.01(01)
Generated on 04/27/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Patrick Curry, Jesse Wright, Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80811.01-S80811.06
Project: B0064481.2017.00603 / Racer Lansing Plant 6
Collected Date: 04/25/2017
Submitted Date/Time: 04/26/2017 09:45
Sampled by: Austin Westhuis
P.O. #: B0064481.2016.00603

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

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

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

Method Summary

Method	Version
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW6020A	SW 846 Method 6020A Revision 1 February 2007

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80811.01	MW-13-36R_042517	Liquid	04/25/17 10:55
S80811.02	MW-13-36R_042517 MS	Liquid	04/25/17 10:55
S80811.03	MW-13-36R_042517 MSD	Liquid	04/25/17 10:55
S80811.04	MW-12-13_042517	Liquid	04/25/17 12:50
S80811.05	MW-12-12_042517	Liquid	04/25/17 15:40
S80811.06	MW-12-11_042517	Liquid	04/25/17 16:35

Analytical Laboratory Report

Lab Sample ID: S80811.01
Sample Tag: MW-13-36R_042517
Collected Date/Time: 04/25/2017 10:55
Matrix: Liquid
COC Reference: 102752

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	04/27/17 12:30	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	04/27/17 13:47	CCM	7440-38-2	
Chromium	0.005	mg/L	0.005	SW6020A	04/27/17 13:47	CCM	7440-47-3	
Copper	0.014	mg/L	0.005	SW6020A	04/27/17 13:47	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	04/27/17 13:47	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	04/27/17 13:47	CCM	7440-02-0	
Vanadium	0.008	mg/L	0.005	SW6020A	04/27/17 13:47	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80811.02
Sample Tag: MW-13-36R_042517 MS
Collected Date/Time: 04/25/2017 10:55
Matrix: Liquid
COC Reference: 102752

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	04/27/17 12:30	CCM		
Metals								
Arsenic	0.251	mg/L	0.002	SW6020A	04/27/17 13:48	CCM	7440-38-2	
Chromium	0.262	mg/L	0.005	SW6020A	04/27/17 13:48	CCM	7440-47-3	
Copper	0.262	mg/L	0.005	SW6020A	04/27/17 13:48	CCM	7440-50-8	
Lead	0.251	mg/L	0.003	SW6020A	04/27/17 13:48	CCM	7439-92-1	
Nickel	0.253	mg/L	0.005	SW6020A	04/27/17 13:48	CCM	7440-02-0	
Vanadium	0.263	mg/L	0.005	SW6020A	04/27/17 13:48	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80811.03
Sample Tag: MW-13-36R_042517 MSD
Collected Date/Time: 04/25/2017 10:55
Matrix: Liquid
COC Reference: 102752

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	04/27/17 12:30	CCM		
Metals								
Arsenic	0.249	mg/L	0.002	SW6020A	04/27/17 13:49	CCM	7440-38-2	
Chromium	0.260	mg/L	0.005	SW6020A	04/27/17 13:49	CCM	7440-47-3	
Copper	0.256	mg/L	0.005	SW6020A	04/27/17 13:49	CCM	7440-50-8	
Lead	0.255	mg/L	0.003	SW6020A	04/27/17 13:49	CCM	7439-92-1	
Nickel	0.252	mg/L	0.005	SW6020A	04/27/17 13:49	CCM	7440-02-0	
Vanadium	0.261	mg/L	0.005	SW6020A	04/27/17 13:49	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80811.04
Sample Tag: MW-12-13_042517
Collected Date/Time: 04/25/2017 12:50
Matrix: Liquid
COC Reference: 102752

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	04/27/17 12:30	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	04/27/17 13:42	CCM	7440-38-2	
Chromium	0.010	mg/L	0.005	SW6020A	04/27/17 13:42	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	04/27/17 13:42	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	04/27/17 13:42	CCM	7439-92-1	
Nickel	0.071	mg/L	0.005	SW6020A	04/27/17 13:42	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/27/17 13:42	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80811.05
Sample Tag: MW-12-12_042517
Collected Date/Time: 04/25/2017 15:40
Matrix: Liquid
COC Reference: 102752

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	04/27/17 12:30	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	04/27/17 13:45	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	04/27/17 13:45	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	04/27/17 13:45	CCM	7440-50-8	
Lead	0.004	mg/L	0.003	SW6020A	04/27/17 13:45	CCM	7439-92-1	
Nickel	0.010	mg/L	0.005	SW6020A	04/27/17 13:45	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/27/17 13:45	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80811.06
Sample Tag: MW-12-11_042517
Collected Date/Time: 04/25/2017 16:35
Matrix: Liquid
COC Reference: 102752

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	04/27/17 12:30	CCM		
Metals								
Arsenic	0.007	mg/L	0.002	SW6020A	04/27/17 13:46	CCM	7440-38-2	
Chromium	0.011	mg/L	0.005	SW6020A	04/27/17 13:46	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	04/27/17 13:46	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	04/27/17 13:46	CCM	7439-92-1	
Nickel	0.011	mg/L	0.005	SW6020A	04/27/17 13:46	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	04/27/17 13:46	CCM	7440-62-2	

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

102752

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 810-225-1940 | FAX NO.:
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
P.O. NO.: B0064481.2017.00603
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064481.2017.00603/RACER Lansing Plant 6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
X Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Select Metals by TAL Metals Lab 3004	* Select metals: As, Cr, Cu, Pb, Ni, V
50811.01/02/03	4/25/17	1055	MW-13-36R_042517 MS/MSD	L	3			3					X	
.04	4/25/17	1250	MW-12-13_042517	L	1			1					X	
.05	4/25/17	1540	MW-12-12_042517	L	1			1					X	
.06	4/25/17	1635	MW-12-11_042517	L	1			1					X	

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Austin Westhuis / Arcadis (X Sampler)	4/25/17	1720
RECEIVED BY: SIGNATURE/ORGANIZATION	/ PM	4/25/17	1720
RELINQUISHED BY: SIGNATURE/ORGANIZATION	/ PM	4/25	1740
RECEIVED BY: SIGNATURE/ORGANIZATION	PM Storage	4/25	1740

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	4/26/17	9:00
RECEIVED BY: SIGNATURE/ORGANIZATION		4/26/17	9:00

SEAL NO.: | SEAL INTACT YES ☐ NO ☐ | INITIALS:
SEAL NO.: | SEAL INTACT YES ☐ NO ☐ | INITIALS:

NOTES: TEMP. ON ARRIVAL 4/26/17 9:45 4/26/17 9:45

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

Rev. 5.16.12

Analytical Laboratory Report

Report ID: S80813.01(01)
Generated on 05/03/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer, Jesse Wright, Patrick Curry

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80813.01-S80813.08
Project: B0064479.2017 Racer Lansing P2
Collected Date: 04/25/2017
Submitted Date/Time: 04/26/2017 09:45
Sampled by: Jake Pisackiewicz
P.O. #: B0064479.2017.00603

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

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

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

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

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80813.01	MW-16-85_042517	Groundwater	04/25/17 11:20
S80813.02	MW-17-86_042517	Groundwater	04/25/17 13:00
S80813.03	MW-14-60_042517	Groundwater	04/25/17 14:45
S80813.04	MW-14-59_042517	Groundwater	04/25/17 16:55
S80813.05	MW-16-78_042517	Groundwater	04/25/17 13:30
S80813.06	MW-16-74_042517	Groundwater	04/25/17 15:15
S80813.07	MW-16-77_042517	Groundwater	04/25/17 16:50
S80813.08	TB-01_042517	Liquid	04/25/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80813.01
Sample Tag: MW-16-85_042517
Collected Date/Time: 04/25/2017 11:20
Matrix: Groundwater
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	106-93-4	
1,4-Dioxane*	7	ug/L	3	SW8260B - SIM	05/01/17 14:54	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:22	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:22	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:22	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:22	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:22	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	124-48-1	

Lab Sample ID: S80813.01 (continued)
Sample Tag: MW-16-85_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 18:22	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:22	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80813.02
Sample Tag: MW-17-86_042517
Collected Date/Time: 04/25/2017 13:00
Matrix: Groundwater
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	106-93-4	
1,4-Dioxane*	11	ug/L	3	SW8260B - SIM	05/01/17 15:12	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:44	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:44	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:44	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:44	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 18:44	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	124-48-1	

Lab Sample ID: S80813.02 (continued)
Sample Tag: MW-17-86_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 18:44	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 18:44	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80813.03
Sample Tag: MW-14-60_042517
Collected Date/Time: 04/25/2017 14:45
Matrix: Groundwater
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	106-93-4	
1,4-Dioxane*	133	ug/L	3	SW8260B - SIM	05/01/17 15:31	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:05	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:05	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:05	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	74-87-3	
Vinyl chloride	7	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	74-83-9	
Chloroethane	33	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:05	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:05	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	71-43-2	
1,2-Dichloroethane	1	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	124-48-1	

Lab Sample ID: S80813.03 (continued)
Sample Tag: MW-14-60_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 19:05	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:05	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80813.04
Sample Tag: MW-14-59_042517
Collected Date/Time: 04/25/2017 16:55
Matrix: Groundwater
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	106-93-4	
1,4-Dioxane*	103	ug/L	3	SW8260B - SIM	05/01/17 15:49	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:27	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:27	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:27	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	74-83-9	
Chloroethane	2	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-69-4	
1,1-Dichloroethene	28	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	156-60-5	
1,1-Dichloroethane	6	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:27	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:27	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	124-48-1	

Lab Sample ID: S80813.04 (continued)
Sample Tag: MW-14-59_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 19:27	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:27	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80813.05
Sample Tag: MW-16-78_042517
Collected Date/Time: 04/25/2017 13:30
Matrix: Groundwater
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 16:07	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:48	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:48	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:48	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:48	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 19:48	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	124-48-1	

Lab Sample ID: S80813.05 (continued)
Sample Tag: MW-16-78_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 19:48	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 19:48	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80813.06
Sample Tag: MW-16-74_042517
Collected Date/Time: 04/25/2017 15:15
Matrix: Groundwater
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/02/17 14:32	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:10	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:10	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:10	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:10	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:10	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	124-48-1	

Lab Sample ID: S80813.06 (continued)
Sample Tag: MW-16-74_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 20:10	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:10	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80813.07
Sample Tag: MW-16-77_042517
Collected Date/Time: 04/25/2017 16:50
Matrix: Groundwater
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/02/17 14:50	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	76-13-1	
Acetone	10	ug/L	10	SW5030C/8260C	04/27/17 20:31	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:31	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:31	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:31	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 20:31	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	124-48-1	

Lab Sample ID: S80813.07 (continued)
Sample Tag: MW-16-77_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 20:31	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 20:31	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80813.08
Sample Tag: TB-01_042517
Collected Date/Time: 04/25/2017 00:01
Matrix: Liquid
COC Reference: 102748

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	04/28/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 13:45	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/27/17 13:45	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 13:45	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/27/17 13:45	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/27/17 13:45	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	108-90-7	

Lab Sample ID: S80813.08 (continued)
Sample Tag: TB-01_042517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/27/17 13:45	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/27/17 13:45	JML	120-82-1	

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

102748

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 616 780 3277 FAX NO.:
P.O. NO.: B0064479.2017.00603
E-MAIL ADDRESS: Randy.christensen@Arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064479.2017 Racer Lansing P2
SAMPLER(S) PLEASE PRINT/SIGN NAME: Jake Pisarkiewicz

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other NE

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs	1,4 dioxane
80813.01	4-25-17	1120	MW-16-85_042517	GW	3		3						X	X
.02	4-25-17	1300	MW-17-86_042517	GW	3		3						X	X
.03	4-25-17	1445	MW-14-60_042517	GW	3		3						X	X
.04	4-25-17	1655	MW-14-59_042517	GW	3		3						X	X
.05	4-25-17	1330	MW-16-78_042517	GW	3		3						X	X
.06	4-25-17	1515	MW-16-74_042517	GW	3		3						X	X
.07	4-25-17	1650	MW-16-77_042517	GW	3		3						X	X
.08	4/25/17	—	TB-01_042517	L	1		1						X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Jake Pisarkiewicz/~~SAME~~ Sampler	DATE 4-25-17	TIME 1720
RECEIVED BY: SIGNATURE/ORGANIZATION	PM Storage Brett Fissner	DATE 4/25/17	TIME 1720
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 4/25/17	TIME 1740
RECEIVED BY: SIGNATURE/ORGANIZATION	PM storage	DATE 4/25	TIME 1740

RELINQUISHED BY: SIGNATURE/ORGANIZATION	PME Storage	DATE 4/26/17	TIME 9:00
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 4/26/17	TIME 9:00
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 4/26/17 9.45
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	4/26/17 945

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80850.01(01)
Generated on 05/09/2017

Report to

Attention: Alex Villhauer
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.com

Addtional Contacts: Kristen Padron, Randy Christensen

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80850.01-S80850.12
Project: B0064479.2017 Racer Lansing P2
Collected Date: 04/26/2017
Submitted Date/Time: 04/27/2017 10:20
Sampled by: Jake Pisackiewicz
P.O. #: B0064479.2017.00603

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

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

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

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

Sample Summary (12 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80850.01	MW-13-45_042617	Groundwater	04/26/17 10:05
S80850.02	MW-15-72_042617	Groundwater	04/26/17 13:55
S80850.03	Dup-04_042617	Groundwater	04/26/17 00:01
S80850.04	MW-16-84_042617	Groundwater	04/26/17 16:45
S80850.05	TW-14-01_042617	Groundwater	04/26/17 15:50
S80850.06	MW-16-76_042617	Groundwater	04/26/17 11:45
S80850.07	MW-16-75_042617	Groundwater	04/26/17 09:45
S80850.08	MW-14-56_042617	Groundwater	04/26/17 14:30
S80850.09	MW-16-79_042617	Groundwater	04/26/17 16:20
S80850.10	MW-12-05R_042617	Groundwater	04/26/17 13:40
S80850.11	MW-17-87_042617	Groundwater	04/26/17 15:25
S80850.12	TB-02_042617	Liquid	04/26/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80850.01
Sample Tag: MW-13-45_042617
Collected Date/Time: 04/26/2017 10:05
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	56	ug/L	3	SW8260B - SIM	05/01/17 17:19	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80850.02
Sample Tag: MW-15-72_042617
Collected Date/Time: 04/26/2017 13:55
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	106-93-4	
1,4-Dioxane*	240	ug/L	20	SW8260B - SIM	05/05/17 17:07	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:16	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:16	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:16	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:16	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:16	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80850.02 (continued)
Sample Tag: MW-15-72_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 13:16	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:16	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.03
Sample Tag: Dup-04_042617
Collected Date/Time: 04/26/2017 00:01
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	106-93-4	
1,4-Dioxane*	320	ug/L	20	SW8260B - SIM	05/03/17 18:16	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:38	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:38	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:38	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:38	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:38	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80850.03 (continued)
Sample Tag: Dup-04_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 13:38	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:38	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.04
Sample Tag: MW-16-84_042617
Collected Date/Time: 04/26/2017 16:45
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	106-93-4	
1,4-Dioxane*	46	ug/L	3	SW8260B - SIM	05/02/17 15:45	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:59	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:59	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:59	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:59	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 13:59	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	124-48-1	

Lab Sample ID: S80850.04 (continued)
Sample Tag: MW-16-84_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 13:59	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 13:59	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.05
Sample Tag: TW-14-01_042617
Collected Date/Time: 04/26/2017 15:50
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	106-93-4	
1,4-Dioxane*	80	ug/L	3	SW8260B - SIM	05/02/17 16:03	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:21	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:21	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:21	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:21	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:21	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	124-48-1	

Lab Sample ID: S80850.05 (continued)
Sample Tag: TW-14-01_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 14:21	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:21	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.06
Sample Tag: MW-16-76_042617
Collected Date/Time: 04/26/2017 11:45
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/02/17 16:21	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:42	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:42	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:42	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:42	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 14:42	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	124-48-1	

Lab Sample ID: S80850.06 (continued)
Sample Tag: MW-16-76_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 14:42	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 14:42	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.07
Sample Tag: MW-16-75_042617
Collected Date/Time: 04/26/2017 09:45
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/02/17 16:39	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:04	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:04	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:04	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:04	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:04	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	124-48-1	

Lab Sample ID: S80850.07 (continued)
Sample Tag: MW-16-75_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 15:04	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:04	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.08
Sample Tag: MW-14-56_042617
Collected Date/Time: 04/26/2017 14:30
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	10	ug/L	3	SW8260B - SIM	05/01/17 17:37	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80850.09
Sample Tag: MW-16-79_042617
Collected Date/Time: 04/26/2017 16:20
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/02/17 16:57	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:25	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:25	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:25	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:25	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:25	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	124-48-1	

Lab Sample ID: S80850.09 (continued)
Sample Tag: MW-16-79_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 15:25	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:25	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.10
Sample Tag: MW-12-05R_042617
Collected Date/Time: 04/26/2017 13:40
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	76-13-1	
Acetone	10	ug/L	10	SW5030C/8260C	04/28/17 15:46	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:46	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:46	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:46	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 15:46	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	108-90-7	

Lab Sample ID: S80850.10 (continued)
Sample Tag: MW-12-05R_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 15:46	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 15:46	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.11
Sample Tag: MW-17-87_042617
Collected Date/Time: 04/26/2017 15:25
Matrix: Groundwater
COC Reference: 102754

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:08	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:08	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:08	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:08	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:08	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	108-90-7	

Lab Sample ID: S80850.11 (continued)
Sample Tag: MW-17-87_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 16:08	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:08	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80850.12
Sample Tag: TB-02_042617
Collected Date/Time: 04/26/2017 00:01
Matrix: Liquid
COC Reference: 102754

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 12:11	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 12:11	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 12:11	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 12:11	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 12:11	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	108-90-7	

Lab Sample ID: S80850.12 (continued)
Sample Tag: TB-02_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 12:11	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 12:11	JML	120-82-1	

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

102754

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 616-780-3277 FAX NO.:
P.O. NO.: B0064479.2017.00003
E-MAIL ADDRESS: Randy.Christensen@Arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064479.2017 / Racer Lansing PZ
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jake Pisarkiewicz

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	1,4 Dioxane
808850.01	4.26.17	1005	MW-13-45_042617	GW	3		3							X
.02	4.26.17	1355	MW-15-72_042617	GW	3		3						X	X
.03	4.26.17	—	Dup-04	GW	3		3						X	X
.04	4.26.17	1645	MW-16-84_042617	GW	3		3						X	X
.05	4/26	1550	TMW-14-01_042617	GW	3		3						X	X
.06	4/26	1145	MW-16-77_042617	GW	3		3						X	X
.07	4/26	0945	MW-16-75_042617	GW	3		3						X	X
.08	426	1430	MW-14-56_042617	GW	3		3						X	X
.09	4/26	1620	MW-16-79_042617	GW	3		3						X	X
.10	4/26/17	1340	MW-12-05R_042617	GW	3		3						X	
.11	4/26/17	1525	MW-17-87_042617	GW	3		3						X	
.12	4/26/17	—	TB-02_042617	L	1		1						1	

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Jake Pisarkiewicz/PM ~~Sampler~~	4/26/17	1730
RECEIVED BY: SIGNATURE/ORGANIZATION	PM storage	4/26/17	1730
RELINQUISHED BY: SIGNATURE/ORGANIZATION		4/27/17	10:20
RECEIVED BY: SIGNATURE/ORGANIZATION		4/27/17	1020

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	4/27/17	9:47
RECEIVED BY: SIGNATURE/ORGANIZATION		4/27/17	9:47

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

NOTES: TEMP. ON ARRIVAL 5.4

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80851.01(01)
Generated on 05/03/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Patrick Curry, Jesse Wright, Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80851.01-S80851.02
Project: B0064481.2017.00603 / Racer Lansing Plant 6
Collected Date: 04/26/2017
Submitted Date/Time: 04/27/2017 10:20
Sampled by: Kevin Bosma
P.O. #: B0064481.2016.00603

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

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

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

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80851.01	MW-04-05(6)_042617	Groundwater	04/26/17 13:10
S80851.02	MW-03-04_042617	Groundwater	04/26/17 14:20

Analytical Laboratory Report

Lab Sample ID: S80851.01
Sample Tag: MW-04-05(6)_042617
Collected Date/Time: 04/26/2017 13:10
Matrix: Groundwater
COC Reference: 102757

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/02/17 17:15	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:29	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:29	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:29	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:29	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:29	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	124-48-1	

Lab Sample ID: S80851.01 (continued)
Sample Tag: MW-04-05(6)_042617

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 16:29	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:29	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80851.02
Sample Tag: MW-03-04_042617
Collected Date/Time: 04/26/2017 14:20
Matrix: Groundwater
COC Reference: 102757

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	36	ug/L	3	SW8260B - SIM	05/01/17 17:55	JML	123-91-1	

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

102757

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1940 FAX NO.:
P.O. NO.: B0064481.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064481.2017.00603 / RACER Lansing Plant 6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Bosma

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO3	H2SO4	NaOH	MeOH	OTHER	VOCs (TCL) SW8260B	1-4 Dioxane 8260 Bshm
80851.01	4/26/17	1310	MW-04-05(6)_042617	GW	3		3						X	X
.02	4/26/17	1420	MW-03-04_042617	GW	3		3						X	X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis ☐ Sampler DATE: 4/26/17 TIME: 1706
RECEIVED BY: SIGNATURE/ORGANIZATION: PM DATE: 4/26/17 TIME: 1706
RELINQUISHED BY: SIGNATURE/ORGANIZATION: PM Storage DATE: 4/27/17 TIME: 9:47
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 4/27/17 TIME: 9:47

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: 4-26-17 TIME: 1730
RECEIVED BY: SIGNATURE/ORGANIZATION: PM Storage DATE: 4-26-17 TIME: 1730

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

NOTES: TEMP. ON ARRIVAL: 4/27/17 10:20 5.4
4/27/17 10:20

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80879.01(01)
Generated on 05/04/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80879.01-S80879.13
Project: B0064479.2017 Racer Lansing
Collected Date: 04/27/2017
Submitted Date/Time: 04/28/2017 09:50
Sampled by: Jake Pisackiewicz
P.O. #: B0064479.2017

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

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

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

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

Sample Summary (13 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80879.01	P2-SB-20_042717	Groundwater	04/27/17 09:35
S80879.02	P2-MW-04_042717	Groundwater	04/27/17 11:30
S80879.03	MW-14-61_042717	Groundwater	04/27/17 14:30
S80879.04	MW-14-61_042717 MS	Groundwater	04/27/17 14:30
S80879.05	MW-14-61_042717 MSD	Groundwater	04/27/17 14:30
S80879.06	MW-14-58_042717	Groundwater	04/27/17 16:45
S80879.07	TW-14-02_042717	Groundwater	04/27/17 09:40
S80879.08	AS-16-01_042717	Groundwater	04/27/17 11:45
S80879.09	PW-14-01_042717	Groundwater	04/27/17 12:40
S80879.10	AS-16-02_042717	Groundwater	04/27/17 14:40
S80879.11	TW-16-01_042717	Groundwater	04/27/17 16:40
S80879.12	Dup-03-042717	Groundwater	04/27/17 00:01
S80879.13	TB-03_042717	Water	04/27/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80879.01
Sample Tag: P2-SB-20_042717
Collected Date/Time: 04/27/2017 09:35
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/01/17 00:28	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80879.02
Sample Tag: P2-MW-04_042717
Collected Date/Time: 04/27/2017 11:30
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	31	ug/L	3	SW8260B - SIM	05/01/17 00:45	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80879.03
Sample Tag: MW-14-61_042717
Collected Date/Time: 04/27/2017 14:30
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	28	ug/L	3	SW8260B - SIM	04/30/17 22:24	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80879.04
Sample Tag: MW-14-61_042717 MS
Collected Date/Time: 04/27/2017 14:30
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	79	ug/L	3	SW8260B - SIM	04/30/17 20:37	JML	123-91-1	1

1-spiked at 50ug/L

Analytical Laboratory Report

Lab Sample ID: S80879.05
Sample Tag: MW-14-61_042717 MSD
Collected Date/Time: 04/27/2017 14:30
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	87	ug/L	3	SW8260B - SIM	04/30/17 20:54	JML	123-91-1	1

1-spiked at 50ug/L

Analytical Laboratory Report

Lab Sample ID: S80879.06
Sample Tag: MW-14-58_042717
Collected Date/Time: 04/27/2017 16:45
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	106-93-4	
1,4-Dioxane*	71	ug/L	3	SW8260B - SIM	05/02/17 17:32	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:32	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:32	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:32	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:32	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:32	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	124-48-1	

Lab Sample ID: S80879.06 (continued)
Sample Tag: MW-14-58_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 16:32	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:32	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80879.07
Sample Tag: TW-14-02_042717
Collected Date/Time: 04/27/2017 09:40
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	106-93-4	
1,4-Dioxane*	2,450	ug/L	60	SW8260B - SIM	05/03/17 18:34	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:54	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:54	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:54	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:54	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 16:54	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80879.07 (continued)
Sample Tag: TW-14-02_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 16:54	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 16:54	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80879.08
Sample Tag: AS-16-01_042717
Collected Date/Time: 04/27/2017 11:45
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	158	ug/L	3	SW8260B - SIM	05/01/17 01:03	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80879.09
Sample Tag: PW-14-01_042717
Collected Date/Time: 04/27/2017 12:40
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	530	ug/L	30	SW8260B - SIM	05/01/17 19:26	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S80879.10
Sample Tag: AS-16-02_042717
Collected Date/Time: 04/27/2017 14:40
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	200	ug/L	20	SW8260B - SIM	05/01/17 18:31	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S80879.11
Sample Tag: TW-16-01_042717
Collected Date/Time: 04/27/2017 16:40
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	220	ug/L	20	SW8260B - SIM	05/01/17 18:49	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S80879.12
Sample Tag: Dup-03-042717
Collected Date/Time: 04/27/2017 00:01
Matrix: Groundwater
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	106-93-4	
1,4-Dioxane*	2,270	ug/L	60	SW8260B - SIM	05/03/17 18:52	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:19	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:19	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:19	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:19	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:19	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80879.12 (continued)
Sample Tag: Dup-03-042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 17:19	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:19	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80879.13
Sample Tag: TB-03_042717
Collected Date/Time: 04/27/2017 00:01
Matrix: Water
COC Reference: 102753

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:40	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:40	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:40	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:40	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 17:40	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	108-90-7	

Lab Sample ID: S80879.13 (continued)
Sample Tag: TB-03_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 17:40	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 17:40	JML	120-82-1	

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

102753

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, suite 500
CITY: ~~6116-780-3277~~ Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 6116-780-3277 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Randy.Christensen@Arcadis.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B00644479.2017 / Racers - Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jake Pisarkiewicz
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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	1,4 Dioxane								
80879.01	4/27/17	0935	P2-SB-20_042717	GW	3		3							X								
.02	4/27/17	1130	P2-MW-04_042717	GW	3		3							X								
.03/.04/.05	4/27/17	1430	MW-14-61_042717	GW	9		9							X								MS/MSD
.06	4/27/17	1645	MW-14-58_042717	GW	3		3						X	X								
.07	4/27/17	0940	TW-14-02_042717	GW	3		3						X	X								
.08	4/27/17	1145	AS-16-01_042717	GW	3		3							X								
.09	4/27/17	1240	PW-14-01_042717	GW	3		3							X								
.10	4/27/17	1440	AS-16-02_042717	GW	3		3							X								
.11	4/27/17	1640	TW-16-01_042717	GW	3		3							X								
.12	4/27/17	—	Dup-03_042717	GW	3		3						X	X								
.13	4/27/17	—	TB-03_042717	L	1		1						X									

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Jake Pisarkiewicz / PM ~~Sampler~~ DATE: 4-27-17 TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: PM Storage DATE: 4-27-17 TIME: 1730
RELINQUISHED BY: SIGNATURE/ORGANIZATION: PM Storage DATE: 4/28/17 TIME: 10:30
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 4/28/17 TIME: 1030

RELINQUISHED BY: SIGNATURE/ORGANIZATION: PM Storage DATE: 4/28/17 TIME: 9:50
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 4/28/17 TIME: 9:50

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

NOTES: TEMP. ON ARRIVAL:

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

Rev. 5.18.12

Analytical Laboratory Report

Revised Report

Report ID: S80881.01(02)
Generated on 05/04/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80881.01-S80881.08
Project: B0064481.2017.00603 / Racer Lansing Plant 6
Collected Date: 04/27/2017
Submitted Date/Time: 04/28/2017 10:30
Sampled by: Austin Westhuis
P.O. #: B0064481.2016.00603

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

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

Samples .06-.08 likely affected by 1,4 Dioxane carry-over during original run. Samples re-run and re-reported to reflect correct data.

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

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

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80881.01	MWBP-12-UST1-4_042717	Groundwater	04/27/17 10:20
S80881.02	MWBP-12A-UST1-4_042717	Groundwater	04/27/17 12:25
S80881.03	MWBP-11-UST1-4_042717	Groundwater	04/27/17 13:55
S80881.04	MWBP-10-UST5-6_042717	Groundwater	04/27/17 16:00
S80881.05	Dup-09_042717	Groundwater	04/27/17 00:01
S80881.06	MW-03-06_042717	Groundwater	04/27/17 12:20
S80881.07	MW-03-08_042717	Groundwater	04/27/17 15:05
S80881.08	Dup-08_042717	Groundwater	04/27/17 00:01

Lab Sample ID: S80881.01
Sample Tag: MWBP-12-UST1-4_042717
Collected Date/Time: 04/27/2017 10:20
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	76-13-1	
Acetone	Not detected	ug/L	25	SW5030C/8260C	04/28/17 18:01	JML	67-64-1	X
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:01	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:01	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:01	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:01	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	56-23-5	
Benzene	117	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	124-48-1	

X-Elevated reporting limit due to matrix interference

Lab Sample ID: S80881.01 (continued)
Sample Tag: MWBP-12-UST1-4_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 18:01	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:01	JML	120-82-1	

Lab Sample ID: S80881.02
Sample Tag: MWBP-12A-UST1-4_042717
Collected Date/Time: 04/27/2017 12:25
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:24	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:24	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:24	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:24	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:24	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	108-90-7	

Lab Sample ID: S80881.02 (continued)
Sample Tag: MWBP-12A-UST1-4_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 18:24	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:24	JML	120-82-1	

Lab Sample ID: S80881.03
Sample Tag: MWBP-11-UST1-4_042717
Collected Date/Time: 04/27/2017 13:55
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:46	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:46	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:46	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:46	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 18:46	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	108-90-7	

Lab Sample ID: S80881.03 (continued)
Sample Tag: MWBP-11-UST1-4_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 18:46	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 18:46	JML	120-82-1	

Lab Sample ID: S80881.04
Sample Tag: MWBP-10-UST5-6_042717
Collected Date/Time: 04/27/2017 16:00
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:07	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:07	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:07	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:07	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:07	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	108-90-7	

Lab Sample ID: S80881.04 (continued)
Sample Tag: MWBP-10-UST5-6_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 19:07	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:07	JML	120-82-1	

Lab Sample ID: S80881.05
Sample Tag: Dup-09_042717
Collected Date/Time: 04/27/2017 00:01
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:28	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:28	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:28	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:28	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:28	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	108-90-7	

Lab Sample ID: S80881.05 (continued)
Sample Tag: Dup-09_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 19:28	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:28	JML	120-82-1	

Lab Sample ID: S80881.06
Sample Tag: MW-03-06_042717
Collected Date/Time: 04/27/2017 12:20
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	106-93-4	
1,4-Dioxane*	9	ug/L	3	SW8260B - SIM	05/04/17 12:15	JGH	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:50	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:50	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:50	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	74-87-3	
Vinyl chloride	11	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:50	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/28/17 19:50	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	124-48-1	

Lab Sample ID: S80881.06 (continued)
Sample Tag: MW-03-06_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/28/17 19:50	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/28/17 19:50	JML	120-82-1	

Lab Sample ID: S80881.07
Sample Tag: MW-03-08_042717
Collected Date/Time: 04/27/2017 15:05
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 12:33	JGH	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:32	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:32	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:32	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:32	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:32	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	124-48-1	

Lab Sample ID: S80881.07 (continued)
Sample Tag: MW-03-08_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 02:32	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:32	JML	120-82-1	

Lab Sample ID: S80881.08
Sample Tag: Dup-08_042717
Collected Date/Time: 04/27/2017 00:01
Matrix: Groundwater
COC Reference: 102758

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	106-93-4	
1,4-Dioxane*	8	ug/L	3	SW8260B - SIM	05/04/17 13:09	JGH	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:53	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:53	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:53	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	74-87-3	
Vinyl chloride	11	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:53	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 02:53	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	124-48-1	

Lab Sample ID: S80881.08 (continued)
Sample Tag: Dup-08_042717

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 02:53	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 02:53	JML	120-82-1	

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

102758

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 810-225-1940 | FAX NO.:
P.O. NO.: B0064481.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064481.2017.00603/RACER Lansing Plant 6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW8260	1,4-Dioxane 8260B SIMS
80881.01	4/27/17	1020	MWBP-12-UST1-4_042717	GW	3		3						X	
.02	4/27/17	1225	MWBP-12A-UST1-4_042717	GW	3		3						X	
.03	4/27/17	1355	MWBP-11-UST1-4_042717	GW	3		3						X	
.04	4/27/17	1600	MWBP-10-UST 5-6_042717	GW	3		3						X	
.05	4/27/17	——	Dup-09_042717	GW	3		3						X	
.06	4/27/17	1220	MW-03-06_042717	GW	3		3						X	X
.07	4/27/17	1505	MW-03-08_042717	GW	3		3						X	X
108	4/27/17	——	Dup-08_042717	GW	3		3						X	X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis (X Sampler)	DATE 4/27/17	TIME 1315
RECEIVED BY: SIGNATURE/ORGANIZATION	Brett Flessner/PM	DATE 4/27/17	TIME 1415
RELINQUISHED BY: SIGNATURE/ORGANIZATION	B Flessner	DATE 4/27/17	TIME 1830
RECEIVED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 4/27/17	TIME 1730

RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 4/28/17	TIME 9:50
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 4/28/17	TIME 9:50

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS | NOTES: 4/28/17 10:30 | TEMP. ON ARRIVAL
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS | 4/28/17 1030

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80908.01(01)
Generated on 05/03/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80908.01-S80908.05
Project: B0064481.2017.00603 / Racer Lansing Plant 6
Collected Date: 04/28/2017
Submitted Date/Time: 04/28/2017 15:10
Sampled by: Kevin Bosma
P.O. #: B0064481.2017.00603

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

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

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

Method Summary

Method	Version
N/A	Not Applicable
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW6020A	SW 846 Method 6020A Revision 1 February 2007

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80908.01	FB0003_042817	Groundwater	04/28/17 14:30
S80908.02	MW-13-35_042817	Groundwater	04/28/17 10:20
S80908.03	MW-12-16_042817	Groundwater	04/28/17 12:40
S80908.04	MWBP-10-UST5-6_042817	Groundwater	04/28/17 14:15
S80908.05	Trip Blank	Groundwater	04/28/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80908.01
Sample Tag: FB0003_042817
Collected Date/Time: 04/28/2017 14:30
Matrix: Groundwater
COC Reference: 096443

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:05	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:05	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:05	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:05	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:05	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	108-90-7	

Lab Sample ID: S80908.01 (continued)
Sample Tag: FB0003_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 00:05	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:05	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80908.02
Sample Tag: MW-13-35_042817
Collected Date/Time: 04/28/2017 10:20
Matrix: Groundwater
COC Reference: 096443

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/03/17 11:01	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:01	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/03/17 11:01	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/03/17 11:01	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/03/17 11:01	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:01	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80908.03
Sample Tag: MW-12-16_042817
Collected Date/Time: 04/28/2017 12:40
Matrix: Groundwater
COC Reference: 096443

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
Metals								
Arsenic	0.017	mg/L	0.002	SW6020A	05/03/17 11:02	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:02	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/03/17 11:02	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/03/17 11:02	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/03/17 11:02	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:02	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80908.04
Sample Tag: MWBP-10-UST5-6_042817
Collected Date/Time: 04/28/2017 14:15
Matrix: Groundwater
COC Reference: 096443

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	HNO3	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
Metals								
Arsenic, Dissolved	0.014	mg/L	0.002	SW6020A	05/03/17 11:04	CCM	7440-38-2	
Arsenic	0.038	mg/L	0.002	SW6020A	05/03/17 11:03	CCM	7440-38-2	
Chromium, Dissolved	Not detected	mg/L	0.005	SW6020A	05/03/17 11:04	CCM	7440-47-3	
Chromium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:03	CCM	7440-47-3	
Copper, Dissolved	Not detected	mg/L	0.005	SW6020A	05/03/17 11:04	CCM	7440-50-8	
Copper	Not detected	mg/L	0.005	SW6020A	05/03/17 11:03	CCM	7440-50-8	
Lead, Dissolved	Not detected	mg/L	0.003	SW6020A	05/03/17 11:04	CCM	7439-92-1	
Lead	Not detected	mg/L	0.003	SW6020A	05/03/17 11:03	CCM	7439-92-1	
Nickel, Dissolved	Not detected	mg/L	0.005	SW6020A	05/03/17 11:04	CCM	7440-02-0	
Nickel	Not detected	mg/L	0.005	SW6020A	05/03/17 11:03	CCM	7440-02-0	
Vanadium, Dissolved	Not detected	mg/L	0.005	SW6020A	05/03/17 11:04	CCM	7440-62-2	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:03	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80908.05
Sample Tag: Trip Blank
Collected Date/Time: 04/28/2017 00:01
Matrix: Groundwater
COC Reference: 096443

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:25	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:25	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:25	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:25	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:25	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	108-90-7	

Lab Sample ID: S80908.05 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 00:25	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:25	JML	120-82-1	

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

096443

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1940 FAX NO.:
P.O. NO.: B0064481.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064481.2017.00603/RACER Lansing Plant 6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Bosma /

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York X Other MI

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Select Metals by TAL Metals 6020A	TCL VOCs SW 8260	Special Instructions
80908.01	4/28/17	1430	FB0003_042817	DW	3		3							X	*Select Metals:
102	4/28/17	1020	MW-13-35_042817	GW	1		1						X		As, Cr, Cu, Pb, Ni, V
103	4/28/17	1240	MW-12-16_042817	GW	1		1						X		
104	4/28/17	1415	MWBP-10-UST56_042817	GW	2			2					X		MWBP-10-UST56_042817 field filtered dissolved and unfiltered total collected.
105	4/28/17	—	Trip Blank	DW	1									X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE	TIME
Kevin Bosma / Arcadis		4/28/17	1240
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Arcadis		4/28/17	1246
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Arcadis		4/28/17	1440
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		4/28/17	1440

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
	4/28/17	1810
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
	4/28/17	1510

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.9

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80909.01(01)
Generated on 05/09/2017

Report to

Attention: Alex Villhauer
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.com

Addtional Contacts: Kristen Padron, Randy Christensen

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80909.01-S80909.10
Project: B0064479.2017 / Racer Lansing Plant 2
Collected Date: 04/28/2017
Submitted Date/Time: 04/28/2017 15:10
Sampled by: Jake Pisackiewicz
P.O. #: B0064479.2017.00603

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

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

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

Method Summary

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

Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80909.01	MW-14-62_042817	Groundwater	04/28/17 09:25
S80909.02	Dup-01	Groundwater	04/28/17 00:01
S80909.03	FB0002_042817	Liquid	04/28/17 09:45
S80909.04	MW-16-81_042817	Groundwater	04/28/17 11:35
S80909.05	Dup-02	Groundwater	04/28/17 00:01
S80909.06	EB0002_042817	Liquid	04/28/17 12:00
S80909.07	MW-14-57_042817	Groundwater	04/28/17 13:30
S80909.08	MW-14-55_042817	Groundwater	04/28/17 12:55
S80909.09	FB0001_042817	Liquid	04/28/17 13:30
S80909.10	Trip Blank	Liquid	04/28/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80909.01
Sample Tag: MW-14-62_042817
Collected Date/Time: 04/28/2017 09:25
Matrix: Groundwater
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	106-93-4	
1,4-Dioxane*	47	ug/L	3	SW8260B - SIM	05/03/17 13:18	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:16	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:16	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:16	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	74-83-9	
Chloroethane	5	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	156-60-5	
1,1-Dichloroethane	52	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:16	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:16	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	124-48-1	

Lab Sample ID: S80909.01 (continued)
Sample Tag: MW-14-62_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 04:16	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:16	JML	120-82-1	

Lab Sample ID: S80909.02
Sample Tag: Dup-01
Collected Date/Time: 04/28/2017 00:01
Matrix: Groundwater
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	106-93-4	
1,4-Dioxane*	46	ug/L	3	SW8260B - SIM	05/03/17 13:36	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:36	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:36	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:36	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	74-87-3	
Vinyl chloride	1	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	156-60-5	
1,1-Dichloroethane	47	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:36	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:36	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	124-48-1	

Lab Sample ID: S80909.02 (continued)
Sample Tag: Dup-01

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 04:36	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:36	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.03
Sample Tag: FB0002_042817
Collected Date/Time: 04/28/2017 09:45
Matrix: Liquid
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:46	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:46	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:46	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:46	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 00:46	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	108-90-7	

Lab Sample ID: S80909.03 (continued)
Sample Tag: FB0002_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 00:46	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 00:46	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.04
Sample Tag: MW-16-81_042817
Collected Date/Time: 04/28/2017 11:35
Matrix: Groundwater
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	106-93-4	
1,4-Dioxane*	630	ug/L	30	SW8260B - SIM	05/04/17 18:16	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:56	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:56	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:56	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:56	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 04:56	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80909.04 (continued)
Sample Tag: MW-16-81_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 04:56	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 04:56	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.05
Sample Tag: Dup-02
Collected Date/Time: 04/28/2017 00:01
Matrix: Groundwater
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	106-93-4	
1,4-Dioxane*	540	ug/L	30	SW8260B - SIM	05/04/17 18:34	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:17	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:17	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:17	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:17	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:17	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80909.05 (continued)
Sample Tag: Dup-02

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 05:17	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:17	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.06
Sample Tag: EB0002_042817
Collected Date/Time: 04/28/2017 12:00
Matrix: Liquid
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/03/17 10:58	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/03/17 10:58	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/03/17 10:58	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/03/17 10:58	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/03/17 10:58	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/03/17 10:58	CCM	7440-62-2	
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:07	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:07	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:07	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:07	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:07	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	79-01-6	

Lab Sample ID: S80909.06 (continued)
Sample Tag: EB0002_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 01:07	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:07	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.07
Sample Tag: MW-14-57_042817
Collected Date/Time: 04/28/2017 13:30
Matrix: Groundwater
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/05/17 14:42	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:37	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:37	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:37	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	156-60-5	
1,1-Dichloroethane	1	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:37	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 05:37	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	124-48-1	

Lab Sample ID: S80909.07 (continued)
Sample Tag: MW-14-57_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 05:37	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 05:37	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.08
Sample Tag: MW-14-55_042817
Collected Date/Time: 04/28/2017 12:55
Matrix: Groundwater
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:01	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:01	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:01	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:01	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:01	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	79-00-5	
Tetrachloroethene	1	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	108-90-7	

Lab Sample ID: S80909.08 (continued)
Sample Tag: MW-14-55_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 12:01	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:01	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.09
Sample Tag: FB0001_042817
Collected Date/Time: 04/28/2017 13:30
Matrix: Liquid
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:27	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:27	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:27	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:27	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:27	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	108-90-7	

Lab Sample ID: S80909.09 (continued)
Sample Tag: FB0001_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 01:27	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:27	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80909.10
Sample Tag: Trip Blank
Collected Date/Time: 04/28/2017 00:01
Matrix: Liquid
COC Reference: 096444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:50	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:50	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:50	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:50	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/29/17 01:50	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	108-90-7	

Lab Sample ID: S80909.10 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/29/17 01:50	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/29/17 01:50	JML	120-82-1	

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

096444

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, suite 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 616 780 3277 | FAX NO.:
P.O. NO.: B00644479.2017.00603
E-MAIL ADDRESS: Randy.Christensen@Arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B00644479.2017 / Racer Lansing Plant 2
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jake Pisarkiewicz

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO3	H2SO4	NaOH	MeOH	OTHER	TCL VOC's SW8260C	1,4 Dioxane SW8260C	Select Metals by ICP/MS 6020A
80909.01	4-28-17	0925	MW-14-62_042817	GW	3		3						X	X	
.02	4-28-17	—	Dup-01	GW	3		3						X	X	
.03	4-28-17	0945	FB0002_042817	L	3		3						X		
.04	4-28-17	1135	MW-16-81_042817	GW	3		3						X	X	
.05	4-28-17	—	Dup-02	GW	3		3						X	X	
.06	4-28-17	1200	EB0002_042817	L	3		3						X	[illegible]	X
.07	4-28-17	1330	MW-14-57_042817	GW	3		3						X	X	
.08	4-28-17	1255	MW-14-55_042817	GW	3		3						X		
.09	4-28-17	1330	FB0001_042817	L	3		3						X		
.10	4/28/17	—	Trip Blank	L	1		1						X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Jake Pisarkiewicz ← Sampler — DATE: 4-28-17 — TIME: 1415
RECEIVED BY: SIGNATURE/ORGANIZATION: Arcadis — DATE: 4/28/17 — TIME: 1415

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis — DATE: 4/28/17 — TIME: 1440
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] — DATE: 4/28/17 — TIME: 1440

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] — DATE: 4/28/17 — TIME: 1510
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] — DATE: 4/28/17 — TIME: 1510

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

NOTES: TEMP. ON ARRIVAL: 4.0

* Please CC Alex.Villhauer@arcadis.com *

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80910.01(01)
Generated on 05/05/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80910.01-S80910.05
Project: B0064480.2017.00603 / Racer Lansing Plant 3
Collected Date: 04/28/2017
Submitted Date/Time: 04/28/2017 15:10
Sampled by: Austin Westhuis
P.O. #: B0064480.2016.00603

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

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

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

Method Summary

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

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80910.01	MW-12-21_042817	Groundwater	04/28/17 11:05
S80910.02	MW-13-22_042817	Groundwater	04/28/17 13:15
S80910.03	FB0004_042817	Groundwater	04/28/17 13:00
S80910.04	EB0004_042817	Groundwater	04/28/17 13:40
S80910.05	Trip Blank	Water	04/28/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80910.01
Sample Tag: MW-12-21_042817
Collected Date/Time: 04/28/2017 11:05
Matrix: Groundwater
COC Reference: 096442

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	106-93-4	
1,4-Dioxane*	360	ug/L	20	SW8260B - SIM	05/04/17 17:58	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 10:59	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/01/17 10:59	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 10:59	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 10:59	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 10:59	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80910.01 (continued)
Sample Tag: MW-12-21_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/01/17 10:59	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 10:59	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80910.02
Sample Tag: MW-13-22_042817
Collected Date/Time: 04/28/2017 13:15
Matrix: Groundwater
COC Reference: 096442

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	106-93-4	
1,4-Dioxane*	154	ug/L	3	SW8260B - SIM	05/03/17 16:28	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 01:09	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/01/17 01:09	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 01:09	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 01:09	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 01:09	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	124-48-1	

Lab Sample ID: S80910.02 (continued)
Sample Tag: MW-13-22_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/01/17 01:09	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 01:09	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80910.03
Sample Tag: FB0004_042817
Collected Date/Time: 04/28/2017 13:00
Matrix: Groundwater
COC Reference: 096442

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:14	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:14	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:14	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:14	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:14	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	108-90-7	

Lab Sample ID: S80910.03 (continued)
Sample Tag: FB0004_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/30/17 19:14	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:14	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80910.04
Sample Tag: EB0004_042817
Collected Date/Time: 04/28/2017 13:40
Matrix: Groundwater
COC Reference: 096442

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	None	Yes	4.9	IR
1	125ml Plastic	HNO3	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/03/17 10:59	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/03/17 10:59	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/03/17 10:59	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/03/17 10:59	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/03/17 10:59	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/03/17 10:59	CCM	7440-62-2	
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:35	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:35	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:35	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:35	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:35	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	79-01-6	

Lab Sample ID: S80910.04 (continued)
Sample Tag: EB0004_042817

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/30/17 19:35	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:35	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80910.05
Sample Tag: Trip Blank
Collected Date/Time: 04/28/2017 00:01
Matrix: Water
COC Reference: 096442

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/01/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:56	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:56	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:56	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:56	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	04/30/17 19:56	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	108-90-7	

Lab Sample ID: S80910.05 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	04/30/17 19:56	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	04/30/17 19:56	JML	120-82-1	

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

096442

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1940 FAX NO.:
P.O. NO.: B0064480.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064480.2017.00603/RACER Lansing Plant 3
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York X Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs TCL SW8260	1,4-Dioxane 8260B SIMS	Select Metals by TAL Metals 6020A
80910.01	4/28/17	1105	MW-12-21_042817	GW	3		3						X	X	
.02	4/28/17	1315	MW-13-22_042817	GW	3		3						X	X	
.03	4/28/17	1300	FB0004_042817	DW	3		3						X		
.04	4/28/17	1340	EB0004_042817	DW	3		3						X		X
.05	4/28/17	—	Trip Blank	L	1		1						X		

* Select Metals: As, Cr, Cu, Pb, Ni, V

RELINQUISHED BY: SIGNATURE/ORGANIZATION	[signature] / Arcadis X Sampler	DATE 4/28/17	TIME 1440
RECEIVED BY: SIGNATURE/ORGANIZATION	[signature]	DATE 4/28/17	TIME 1440
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	[signature]	DATE 4/28/17	TIME 1510
RECEIVED BY: SIGNATURE/ORGANIZATION	[signature]	DATE 4/28/17	TIME 1510

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

NOTES: TEMP. ON ARRIVAL: 4.9

* Please CC Alex.Villhauer@arcadis.com *

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80917.01(01)
Generated on 05/04/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80917.01-S80917.04
Project: B0064480.2017.00603 / Racer Lansing Plant 3
Collected Date: 05/01/2017
Submitted Date/Time: 05/01/2017 13:40
Sampled by: Austin Westhuis
P.O. #: B0064480.2017.00603

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

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

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

Method Summary

Method	Version
N/A	Not Applicable
SM3500-Cr B	Standard Method 3500 Cr B 20th Edition
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW6020A	SW 846 Method 6020A Revision 1 February 2007
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80917.01	CH-14-RO_050117	Groundwater	05/01/17 10:30
S80917.02	MW-91-2_050117	Groundwater	05/01/17 12:00
S80917.03	Trip Blank	Water	05/01/17 00:01
S80917.04	MW-13-40_050117	Groundwater	05/01/17 11:35

Analytical Laboratory Report

Lab Sample ID: S80917.01
Sample Tag: CH-14-RO_050117
Collected Date/Time: 05/01/2017 10:30
Matrix: Groundwater
COC Reference: 095731

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.4	IR
1	125ml Plastic	HNO3	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
Inorganics								
Chromium VI	12.6	mg/L	0.25	SM3500-Cr B	05/01/17 14:20	JKB	18540-29-9	
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/03/17 11:05	CCM	7440-38-2	
Chromium	12.6	mg/L	0.005	SW6020A	05/03/17 11:05	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/03/17 11:05	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/03/17 11:05	CCM	7439-92-1	
Nickel	0.020	mg/L	0.005	SW6020A	05/03/17 11:05	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:05	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S80917.02
Sample Tag: MW-91-2_050117
Collected Date/Time: 05/01/2017 12:00
Matrix: Groundwater
COC Reference: 095731

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.4	IR
1	125ml Plastic	HNO3	Yes	5.4	IR
3	40ml Glass	HCL	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/03/17 09:30	CCM		
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Inorganics								
Chromium VI	Not detected	mg/L	0.01	SM3500-Cr B	05/01/17 14:30	JKB	18540-29-9	
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/03/17 11:08	CCM	7440-38-2	
Chromium	0.009	mg/L	0.005	SW6020A	05/03/17 11:08	CCM	7440-47-3	
Copper	0.013	mg/L	0.005	SW6020A	05/03/17 11:08	CCM	7440-50-8	
Lead	0.003	mg/L	0.003	SW6020A	05/03/17 11:08	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/03/17 11:08	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/03/17 11:08	CCM	7440-62-2	
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/03/17 16:46	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80917.03
Sample Tag: Trip Blank
Collected Date/Time: 05/01/2017 00:01
Matrix: Water
COC Reference: 095731

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 14:46	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/01/17 14:46	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 14:46	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 14:46	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 14:46	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	108-90-7	

Lab Sample ID: S80917.03 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/01/17 14:46	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 14:46	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80917.04
Sample Tag: MW-13-40_050117
Collected Date/Time: 05/01/2017 11:35
Matrix: Groundwater
COC Reference: 095731

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,4-Dioxane*	4	ug/L	3	SW8260B - SIM	05/03/17 17:04	JML	123-91-1	

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

095731

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1940 FAX NO.:
P.O. NO.: B0064480.2017.00003
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064480.2017.00603/RACER Lansing Plant 3
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York X Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW8260C	1,4-Dioxane 8260B SIM/S	Select TAL Metals 6020A	Hexavalent Chromium	
809701	5/1/17	1030	CH-14-RO_050117	GW	2	1		1							X	X	*Select Metals:
,02	5/1/17	1200	MW-91-2_050117	GW	5	1	3	1						X	X	X	As, Cr, Cu, Pb, Ni, V
,03	5/1/17	—	Trip Blank	GW	1		1						X				
,04	5/1/17	1135	MW-13-40_050117	GW	3		3							X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler / Arcadis	5/1/17	1330
RECEIVED BY: SIGNATURE/ORGANIZATION		5/1/17	13:20
RELINQUISHED BY: SIGNATURE/ORGANIZATION		5/1/17	13.40
RECEIVED BY: SIGNATURE/ORGANIZATION		5/1/17	1340

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

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

NOTES: TEMP. ON ARRIVAL 5.4

* Please CC Alex.Villhauer@arcadis.com *

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80919.01(01)
Generated on 05/04/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80919.01-S80919.02
Project: B0064481.2017.00603 / Racer Lansing Plant 6
Collected Date: 05/01/2017
Submitted Date/Time: 05/01/2017 13:40
Sampled by: Austin Westhuis
P.O. #: B0064481.2017.00603

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

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

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

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

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80919.01	MW-02-03(6)_050117	Groundwater	05/01/17 08:45
S80919.02	Trip Blank	Liquid	05/01/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80919.01
Sample Tag: MW-02-03(6)_050117
Collected Date/Time: 05/01/2017 08:45
Matrix: Groundwater
COC Reference: 095730

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	106-93-4	
1,4-Dioxane*	21	ug/L	3	SW8260B - SIM	05/03/17 17:22	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:27	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:27	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:27	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:27	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:27	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	124-48-1	

Lab Sample ID: S80919.01 (continued)
Sample Tag: MW-02-03(6)_050117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/01/17 15:27	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:27	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80919.02
Sample Tag: Trip Blank
Collected Date/Time: 05/01/2017 00:01
Matrix: Liquid
COC Reference: 095730

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:07	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:07	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:07	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:07	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/01/17 15:07	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	108-90-7	

Lab Sample ID: S80919.02 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/01/17 15:07	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/01/17 15:07	JML	120-82-1	

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

095730

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 810-225-1940 | FAX NO.:
P.O. NO.: B0064481.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com | QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064481.2017.00603/RACER Lansing Plant 6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW 8260D	1,4-Dioxane 8260B SIMS
80919.01	5/1/17	0845	MW-02-03(6)_050117	GW	3		3						X	X
.02	5/1/17	—	Trip Blank	L	1		1						X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis (X Sampler)	5/1/17	1320
RECEIVED BY: SIGNATURE/ORGANIZATION		5/1/17	13:20
RELINQUISHED BY: SIGNATURE/ORGANIZATION		5/1/17	13:40
RECEIVED BY: SIGNATURE/ORGANIZATION		5/1/17	1340

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

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

NOTES: TEMP. ON ARRIVAL 5.4

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

Rev. 5.16.12

Analytical Laboratory Report

Report ID: S80933.01(01)
Generated on 05/05/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80933.01-S80933.10
Project: B0064479.2017 / Racer Lansing P2
Collected Date: 05/01/2017
Submitted Date/Time: 05/02/2017 10:10
Sampled by: Jake Pisackiewicz
P.O. #: B0064479.2017

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

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

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

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

Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80933.01	MW-01(2)_050117	Groundwater	05/01/17 11:25
S80933.02	MW-01(2)_050117 MS	Groundwater	05/01/17 11:25
S80933.03	MW-01(2)_050117 MSD	Groundwater	05/01/17 11:25
S80933.04	MW-14-54_050117	Groundwater	05/01/17 14:10
S80933.05	MW-16-82_050117	Groundwater	05/01/17 15:50
S80933.06	MW-12-18_050117	Groundwater	05/01/17 10:15
S80933.07	MW-12-09_050117	Groundwater	05/01/17 12:00
S80933.08	MW-15-73_050117	Groundwater	05/01/17 15:05
S80933.09	MW-16-80_050117	Groundwater	05/01/17 16:30
S80933.10	Trip Blank	Liquid	05/01/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80933.01
Sample Tag: MW-01(2)_050117
Collected Date/Time: 05/01/2017 11:25
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:21	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:21	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	22	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:21	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:21	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:21	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	108-90-7	

Lab Sample ID: S80933.01 (continued)
Sample Tag: MW-01(2)_050117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/03/17 12:21	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:21	JML	120-82-1	

Lab Sample ID: S80933.02
Sample Tag: MW-01(2)_050117 MS
Collected Date/Time: 05/01/2017 11:25
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	45	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	96-12-8	1
1,2-Dibromoethane	48	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	106-93-4	1
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	76-13-1	1
Acetone	36	ug/L	10	SW5030C/8260C	05/03/17 11:00	JML	67-64-1	1
Carbon disulfide	51	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-15-0	1
Methyl Acetate	46	ug/L	10	SW5030C/8260C	05/03/17 11:00	JML	79-20-9	1
tert-Methyl butyl ether (MTBE)	72	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	1634-04-4	1
2-Butanone (MEK)	44	ug/L	10	SW5030C/8260C	05/03/17 11:00	JML	78-93-3	1
Dichlorodifluoromethane	49	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-71-8	1
Chloromethane	54	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	74-87-3	1
Vinyl chloride	54	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-01-4	1
Bromomethane	54	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	74-83-9	1
Chloroethane	52	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-00-3	1
Trichlorofluoromethane	54	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-69-4	1
1,1-Dichloroethene	53	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-35-4	1
Methylene chloride	53	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-09-2	1
trans-1,2-Dichloroethene	52	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	156-60-5	1
1,1-Dichloroethane	53	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-34-3	1
cis-1,2-Dichloroethene	53	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	156-59-2	1
Chloroform	55	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	67-66-3	1
1,1,1-Trichloroethane	55	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	71-55-6	1
Cyclohexane	46	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	110-82-7	1
4-Methyl-2-pentanone (MIBK)	50	ug/L	10	SW5030C/8260C	05/03/17 11:00	JML	108-10-1	1
2-Hexanone	47	ug/L	10	SW5030C/8260C	05/03/17 11:00	JML	591-78-6	1
Carbon tetrachloride	57	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	56-23-5	1
Benzene	54	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	71-43-2	1
1,2-Dichloroethane	55	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	107-06-2	1
Trichloroethene	56	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	79-01-6	1
1,2-Dichloropropane	55	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	78-87-5	1
Bromodichloromethane	57	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-27-4	1
Methyl cyclohexane	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	108-87-2	1
cis-1,3-Dichloropropene	55	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	10061-01-5	1
Toluene	55	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	108-88-3	1
trans-1,3-Dichloropropene	55	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	10061-02-6	1
1,1,2-Trichloroethane	54	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	79-00-5	1
Tetrachloroethene	52	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	127-18-4	1
Dibromochloromethane	51	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	124-48-1	1

1-spiked at 50ug/mL

Lab Sample ID: S80933.02 (continued)
Sample Tag: MW-01(2)_050117 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	108-90-7	1
1,1,2,2-Tetrachloroethane	47	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	79-34-5	1
Ethylbenzene	51	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	100-41-4	1
p,m-Xylene*	100	ug/L	2	SW5030C/8260C	05/03/17 11:00	JML		1
o-Xylene*	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	95-47-6	1
Styrene	51	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	100-42-5	1
Isopropylbenzene	51	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	98-82-8	1
Bromoform	48	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	75-25-2	1
1,3-Dichlorobenzene	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	541-73-1	1
1,4-Dichlorobenzene	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	106-46-7	1
1,2-Dichlorobenzene	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	95-50-1	1
1,2,4-Trichlorobenzene	50	ug/L	1	SW5030C/8260C	05/03/17 11:00	JML	120-82-1	1

1-spiked at 50ug/mL

Lab Sample ID: S80933.03
Sample Tag: MW-01(2)_050117 MSD
Collected Date/Time: 05/01/2017 11:25
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	42	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	96-12-8	1
1,2-Dibromoethane	47	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	106-93-4	1
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	51	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	76-13-1	1
Acetone	35	ug/L	10	SW5030C/8260C	05/03/17 11:20	JML	67-64-1	1
Carbon disulfide	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-15-0	1
Methyl Acetate	45	ug/L	10	SW5030C/8260C	05/03/17 11:20	JML	79-20-9	1
tert-Methyl butyl ether (MTBE)	72	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	1634-04-4	1
2-Butanone (MEK)	40	ug/L	10	SW5030C/8260C	05/03/17 11:20	JML	78-93-3	1
Dichlorodifluoromethane	50	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-71-8	1
Chloromethane	55	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	74-87-3	1
Vinyl chloride	55	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-01-4	1
Bromomethane	57	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	74-83-9	1
Chloroethane	54	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-00-3	1
Trichlorofluoromethane	56	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-69-4	1
1,1-Dichloroethene	55	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-35-4	1
Methylene chloride	53	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-09-2	1
trans-1,2-Dichloroethene	53	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	156-60-5	1
1,1-Dichloroethane	55	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-34-3	1
cis-1,2-Dichloroethene	54	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	156-59-2	1
Chloroform	56	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	67-66-3	1
1,1,1-Trichloroethane	59	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	71-55-6	1
Cyclohexane	50	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	110-82-7	1
4-Methyl-2-pentanone (MIBK)	45	ug/L	10	SW5030C/8260C	05/03/17 11:20	JML	108-10-1	1
2-Hexanone	41	ug/L	10	SW5030C/8260C	05/03/17 11:20	JML	591-78-6	1
Carbon tetrachloride	55	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	56-23-5	1
Benzene	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	71-43-2	1
1,2-Dichloroethane	51	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	107-06-2	1
Trichloroethene	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	79-01-6	1
1,2-Dichloropropane	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	78-87-5	1
Bromodichloromethane	54	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-27-4	1
Methyl cyclohexane	49	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	108-87-2	1
cis-1,3-Dichloropropene	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	10061-01-5	1
Toluene	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	108-88-3	1
trans-1,3-Dichloropropene	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	10061-02-6	1
1,1,2-Trichloroethane	50	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	79-00-5	1
Tetrachloroethene	50	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	127-18-4	1
Dibromochloromethane	49	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	124-48-1	1

1-spiked at 50ug/mL

Lab Sample ID: S80933.03 (continued)
Sample Tag: MW-01(2)_050117 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	51	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	108-90-7	1
1,1,2,2-Tetrachloroethane	45	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	79-34-5	1
Ethylbenzene	51	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	100-41-4	1
p,m-Xylene*	101	ug/L	2	SW5030C/8260C	05/03/17 11:20	JML		1
o-Xylene*	51	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	95-47-6	1
Styrene	51	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	100-42-5	1
Isopropylbenzene	52	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	98-82-8	1
Bromoform	47	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	75-25-2	1
1,3-Dichlorobenzene	49	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	541-73-1	1
1,4-Dichlorobenzene	48	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	106-46-7	1
1,2-Dichlorobenzene	48	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	95-50-1	1
1,2,4-Trichlorobenzene	48	ug/L	1	SW5030C/8260C	05/03/17 11:20	JML	120-82-1	1

1-spiked at 50ug/mL

Analytical Laboratory Report

Lab Sample ID: S80933.04
Sample Tag: MW-14-54_050117
Collected Date/Time: 05/01/2017 14:10
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	96-12-8	Y
1,2-Dibromoethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	106-93-4	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	76-13-1	Y
Acetone	Not detected	ug/L	100	SW5030C/8260C	05/03/17 15:28	JML	67-64-1	Y
Carbon disulfide	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-15-0	Y
Methyl Acetate	Not detected	ug/L	100	SW5030C/8260C	05/03/17 15:28	JML	79-20-9	Y
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	1634-04-4	Y
2-Butanone (MEK)	Not detected	ug/L	100	SW5030C/8260C	05/03/17 15:28	JML	78-93-3	Y
Dichlorodifluoromethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-71-8	Y
Chloromethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	74-87-3	Y
Vinyl chloride	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-01-4	Y
Bromomethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	74-83-9	Y
Chloroethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-00-3	Y
Trichlorofluoromethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-69-4	Y
1,1-Dichloroethene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-35-4	Y
Methylene chloride	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-09-2	Y
trans-1,2-Dichloroethene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	156-60-5	Y
1,1-Dichloroethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-34-3	Y
cis-1,2-Dichloroethene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	156-59-2	Y
Chloroform	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	67-66-3	Y
1,1,1-Trichloroethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	71-55-6	Y
Cyclohexane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	110-82-7	Y
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	100	SW5030C/8260C	05/03/17 15:28	JML	108-10-1	Y
2-Hexanone	Not detected	ug/L	100	SW5030C/8260C	05/03/17 15:28	JML	591-78-6	Y
Carbon tetrachloride	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	56-23-5	Y
Benzene	770	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	71-43-2	Y
1,2-Dichloroethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	107-06-2	Y
Trichloroethene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	79-01-6	Y
1,2-Dichloropropane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	78-87-5	Y
Bromodichloromethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-27-4	Y
Methyl cyclohexane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	108-87-2	Y
cis-1,3-Dichloropropene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	10061-01-5	Y
Toluene	120	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	79-00-5	Y
Tetrachloroethene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	127-18-4	Y
Dibromochloromethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	124-48-1	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80933.04 (continued)
Sample Tag: MW-14-54_050117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	108-90-7	Y
1,1,2,2-Tetrachloroethane	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	79-34-5	Y
Ethylbenzene	1,380	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	100-41-4	Y
p,m-Xylene*	860	ug/L	20	SW5030C/8260C	05/03/17 15:28	JML		Y
o-Xylene*	60	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	95-47-6	Y
Styrene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	100-42-5	Y
Isopropylbenzene	50	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	98-82-8	Y
Bromoform	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	75-25-2	Y
1,3-Dichlorobenzene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	541-73-1	Y
1,4-Dichlorobenzene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	106-46-7	Y
1,2-Dichlorobenzene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	95-50-1	Y
1,2,4-Trichlorobenzene	Not detected	ug/L	10	SW5030C/8260C	05/03/17 15:28	JML	120-82-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S80933.05
Sample Tag: MW-16-82_050117
Collected Date/Time: 05/01/2017 15:50
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 12:51	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/03/17 14:47	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/03/17 14:47	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/03/17 14:47	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/03/17 14:47	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/03/17 14:47	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	124-48-1	

Lab Sample ID: S80933.05 (continued)
Sample Tag: MW-16-82_050117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/03/17 14:47	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 14:47	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80933.06
Sample Tag: MW-12-18_050117
Collected Date/Time: 05/01/2017 10:15
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:35	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:35	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:35	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	156-60-5	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:35	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:35	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	108-90-7	

Lab Sample ID: S80933.06 (continued)
Sample Tag: MW-12-18_050117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/02/17 15:35	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:35	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80933.07
Sample Tag: MW-12-09_050117
Collected Date/Time: 05/01/2017 12:00
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 13:28	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80933.08
Sample Tag: MW-15-73_050117
Collected Date/Time: 05/01/2017 15:05
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	106-93-4	
1,4-Dioxane*	6	ug/L	3	SW8260B - SIM	05/04/17 13:46	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:56	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:56	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:56	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:56	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 15:56	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	124-48-1	

Lab Sample ID: S80933.08 (continued)
Sample Tag: MW-15-73_050117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/02/17 15:56	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 15:56	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80933.09
Sample Tag: MW-16-80_050117
Collected Date/Time: 05/01/2017 16:30
Matrix: Groundwater
COC Reference: 096445

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	106-93-4	
1,4-Dioxane*	30	ug/L	3	SW8260B - SIM	05/04/17 14:04	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:42	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:42	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:42	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:42	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/03/17 12:42	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	124-48-1	

Lab Sample ID: S80933.09 (continued)
Sample Tag: MW-16-80_050117

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/03/17 12:42	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/03/17 12:42	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80933.10
Sample Tag: Trip Blank
Collected Date/Time: 05/01/2017 00:01
Matrix: Liquid
COC Reference: 096445

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	05/03/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 11:47	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/02/17 11:47	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 11:47	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 11:47	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 11:47	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	108-90-7	

Lab Sample ID: S80933.10 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/02/17 11:47	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 11:47	JML	120-82-1	

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

096445

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 616 780 3277 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Randy.Christensen@Arcadis.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064479.2017 / Race Lansing P2
SAMPLER(S) - PLEASE PRINT/SIGN NAME: John Pisarkiewicz

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)

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

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW8260	1,4 Dioxane via 8260B	Special Instructions
80933.01/.02/.03	5-1-17	1125	MW-01(2)_050117	GW	9		9						X		MS/MSD
.04	5-1-17	1410	MW-14-54_050117	GW	3		3						X		
.05	5-1-17	1550	MW-16-82_050117	GW	3		3						X	X	
.06	5/1/17	1015	MW-12-18_050117	GW	3		3						X		
.07	5/1/17	1200	MW-12-09_050117	GW	3		3							X	
.08	5/1/17	1505	MW-15-73_050117	GW	3		3						X	X	
.09	5/1/17	1630	MW-16-80_050117	GW	3		3						X	X	
.10	5/1/17	—	Trip blank	GW	1		1						X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION	John Pisarkiewicz / PM ★Sampler	DATE 5-1-17	TIME 1645
RECEIVED BY: SIGNATURE/ORGANIZATION	Brett Flessner / PM	DATE 5/1/17	TIME 1645
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Brett Flessner / PM	DATE 5/1/17	TIME 1730
RECEIVED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 5/1/17	TIME 1730

RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 5/2/17	TIME 9:40
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 5/2/17	TIME 9:40

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS NOTES: TEMP ON ARRIVAL 5.0
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS 5/2/17 10:10 5/2/17 1010

★ Please CC Alex.Villhauer@arcadis.com ★

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

Rev. 5.16.12

Analytical Laboratory Report

Report ID: S80934.01(01)
Generated on 05/09/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80934.01-S80934.05
Project: B0064480.2017.00603 / Racer Lansing Plant 3
Collected Date: 05/01/2017
Submitted Date/Time: 05/02/2017 10:10
Sampled by: Unknown
P.O. #: B0064480.2017.00603

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

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

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

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

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80934.01	MW-13-41_050117	Groundwater	05/01/17 16:20
S80934.02	MW-13-38_050117	Groundwater	05/01/17 16:35
S80934.03	MW-13-38_050117 MS	Groundwater	05/01/17 16:35
S80934.04	MW-13-38_050117 MSD	Groundwater	05/01/17 16:35
S80934.05	Trip Blank	Water	05/01/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80934.01
Sample Tag: MW-13-41_050117
Collected Date/Time: 05/01/2017 16:20
Matrix: Groundwater
COC Reference: 095732

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	18	ug/L	3	SW8260B - SIM	05/05/17 15:00	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80934.02
Sample Tag: MW-13-38_050117
Collected Date/Time: 05/01/2017 16:35
Matrix: Groundwater
COC Reference: 095732

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/03/17 12:59	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80934.03
Sample Tag: MW-13-38_050117 MS
Collected Date/Time: 05/01/2017 16:35
Matrix: Groundwater
COC Reference: 095732

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,4-Dioxane*	46	ug/L	3	SW8260B - SIM	05/03/17 11:47	JML	123-91-1	1

1-spiked at 50ug/mL

Analytical Laboratory Report

Lab Sample ID: S80934.04
Sample Tag: MW-13-38_050117 MSD
Collected Date/Time: 05/01/2017 16:35
Matrix: Groundwater
COC Reference: 095732

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/04/17 13:00	KCV		
Organics - Volatiles								
1,4-Dioxane*	57	ug/L	3	SW8260B - SIM	05/03/17 12:05	JML	123-91-1	1

1-spiked at 50ug/mL

Analytical Laboratory Report

Lab Sample ID: S80934.05
Sample Tag: Trip Blank
Collected Date/Time: 05/01/2017 00:01
Matrix: Water
COC Reference: 095732

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/03/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 12:08	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/02/17 12:08	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 12:08	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/02/17 12:08	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/02/17 12:08	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	108-90-7	

Lab Sample ID: S80934.05 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/02/17 12:08	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/02/17 12:08	JML	120-82-1	

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

095732

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225 FAX NO.:
P.O. NO.: B0064480.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064480.2017.00603/RACER Lansing Plant 3
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
X Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW8260	1,4-Dioxane 8260B SIMS	Select TAL Metals 6020A
80934.01	5/1/17	1620	MW-13-41_050117	GW	3	3								X	
.02/.03/.04	5/1/17	1635	MW-13-38_050117 MS/MSD	GW	9	9								X	
105	5/1/17	—	Trip Blank	GW	1	1							X		

Special Instructions: * Select Metals: As, Cr, Cu, Pb, Ni, V

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis X Sampler — DATE: 5/1/17 — TIME: 1700
RECEIVED BY: SIGNATURE/ORGANIZATION: PM Storage — DATE: — TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: PM Storage — DATE: 5/2/17 — TIME: 9:40
RECEIVED BY: SIGNATURE/ORGANIZATION: — DATE: 5/2/17 — TIME: 9:40

RELINQUISHED BY: SIGNATURE/ORGANIZATION: — DATE: 5/2/17 — TIME: 10:10
RECEIVED BY: SIGNATURE/ORGANIZATION: — DATE: 5/2/17 — TIME: 1010

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

NOTES: TEMP. ON ARRIVAL: 4.0

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

Analytical Laboratory Report

Report ID: S80962.01(01)
Generated on 05/09/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80962.01-S80962.17
Project: B0064480.2017.00603 / Racer Lansing Plant 3
Collected Date: 05/02/2017
Submitted Date/Time: 05/03/2017 10:40
Sampled by: Austin Westhuis
P.O. #: B0064480.2017.00603

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

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

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

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

Sample Summary (17 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80962.01	MW-15-71_050217	Groundwater	05/02/17 10:30
S80962.02	MW-15-71_050217 MS	Groundwater	05/02/17 10:30
S80962.03	MW-15-71_050217 MSD	Groundwater	05/02/17 10:30
S80962.04	MW-13-24_050217	Groundwater	05/02/17 13:00
S80962.05	MW-14-65_050217	Groundwater	05/02/17 14:55
S80962.06	UNK-11_050217	Groundwater	05/02/17 16:15
S80962.07	MW-02-02(3)_050217	Groundwater	05/02/17 10:00
S80962.08	MW-13-29_050217	Groundwater	05/02/17 12:30
S80962.09	MW-05(3)_050217	Groundwater	05/02/17 15:00
S80962.10	UNK-10_050217	Groundwater	05/02/17 17:10
S80962.11	Dup-06_050217	Groundwater	05/02/17 00:01
S80962.12	MW-13-46_050217	Groundwater	05/02/17 14:30
S80962.13	MW-13-48_050217	Groundwater	05/02/17 16:05
S80962.14	MW-13-49_050217	Groundwater	05/02/17 15:55
S80962.15	MW-13-34_050217	Groundwater	05/02/17 14:35
S80962.16	Dup-07_050217	Groundwater	05/02/17 00:01
S80962.17	Trip Blank	Liquid	05/02/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80962.01
Sample Tag: MW-15-71_050217
Collected Date/Time: 05/02/2017 10:30
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 11:57	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.02
Sample Tag: MW-15-71_050217 MS
Collected Date/Time: 05/02/2017 10:30
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	35	ug/L	3	SW8260B - SIM	05/04/17 10:45	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.03
Sample Tag: MW-15-71_050217 MSD
Collected Date/Time: 05/02/2017 10:30
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	50	ug/L	3	SW8260B - SIM	05/04/17 11:03	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.04
Sample Tag: MW-13-24_050217
Collected Date/Time: 05/02/2017 13:00
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 14:22	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.05
Sample Tag: MW-14-65_050217
Collected Date/Time: 05/02/2017 14:55
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:43	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:43	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:43	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:43	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 12:43	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	108-90-7	

Lab Sample ID: S80962.05 (continued)
Sample Tag: MW-14-65_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 12:43	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 12:43	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80962.06
Sample Tag: UNK-11_050217
Collected Date/Time: 05/02/2017 16:15
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:04	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:04	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:04	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:04	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:04	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	108-90-7	

Lab Sample ID: S80962.06 (continued)
Sample Tag: UNK-11_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 13:04	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	100-42-5	
Isopropylbenzene	3	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:04	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80962.07
Sample Tag: MW-02-02(3)_050217
Collected Date/Time: 05/02/2017 10:00
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 14:40	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.08
Sample Tag: MW-13-29_050217
Collected Date/Time: 05/02/2017 12:30
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	23	ug/L	3	SW8260B - SIM	05/04/17 14:58	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.09
Sample Tag: MW-05(3)_050217
Collected Date/Time: 05/02/2017 15:00
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:25	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:25	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:25	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:25	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:25	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	108-90-7	

Lab Sample ID: S80962.09 (continued)
Sample Tag: MW-05(3)_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 13:25	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:25	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80962.10
Sample Tag: UNK-10_050217
Collected Date/Time: 05/02/2017 17:10
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:46	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:46	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:46	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:46	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 13:46	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	108-90-7	

Lab Sample ID: S80962.10 (continued)
Sample Tag: UNK-10_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 13:46	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 13:46	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80962.11
Sample Tag: Dup-06_050217
Collected Date/Time: 05/02/2017 00:01
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	26	ug/L	3	SW8260B - SIM	05/04/17 15:16	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.12
Sample Tag: MW-13-46_050217
Collected Date/Time: 05/02/2017 14:30
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 15:34	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.13
Sample Tag: MW-13-48_050217
Collected Date/Time: 05/02/2017 16:05
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	106-93-4	
1,4-Dioxane*	250	ug/L	20	SW8260B - SIM	05/05/17 17:25	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:06	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:06	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:06	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:06	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:06	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80962.13 (continued)
Sample Tag: MW-13-48_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 14:06	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:06	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80962.14
Sample Tag: MW-13-49_050217
Collected Date/Time: 05/02/2017 15:55
Matrix: Groundwater
COC Reference: 095733

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 16:10	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80962.15
Sample Tag: MW-13-34_050217
Collected Date/Time: 05/02/2017 14:35
Matrix: Groundwater
COC Reference: 095734

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	106-93-4	
1,4-Dioxane*	82	ug/L	3	SW8260B - SIM	05/04/17 16:28	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:27	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:27	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:27	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:27	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:27	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	124-48-1	

Lab Sample ID: S80962.15 (continued)
Sample Tag: MW-13-34_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 14:27	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:27	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80962.16
Sample Tag: Dup-07_050217
Collected Date/Time: 05/02/2017 00:01
Matrix: Groundwater
COC Reference: 095734

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	106-93-4	
1,4-Dioxane*	200	ug/L	20	SW8260B - SIM	05/05/17 17:43	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:47	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:47	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:47	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:47	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 14:47	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S80962.16 (continued)
Sample Tag: Dup-07_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 14:47	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 14:47	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80962.17
Sample Tag: Trip Blank
Collected Date/Time: 05/02/2017 00:01
Matrix: Liquid
COC Reference: 095734

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:20	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:20	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:20	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:20	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:20	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	108-90-7	

Lab Sample ID: S80962.17 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 11:20	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:20	JML	120-82-1	

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 2

095733

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1940 FAX NO.:
P.O. NO.: B0064480.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064480.2017.00603/RACER Lansing Plant 3
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York X Other MI

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW8260	1,4-Dioxane, 8260B SIMS	Select TAL Metals 6020A: As, Cr, Cu, Pb, Ni, V	Special Instructions
80962.01/.02/.03	5/2/17	1030	MW-15-71_050217 MS/MSD	GW	3/6 aw	3/6 aw								X		MS/MSD
.04	5/2/17	1300	MW-13-24_050217	GW	3	3								X		
.05	5/2/17	1455	MW-14-65_050217	GW	3	3							X			
.06	5/2/17	1615	UNK-11_050217	GW	3	3							X			
.07	5/2/17	1000	MW-02-02(3)_050217	GW	3	3								X		
.08	5/2/17	1230	MW-13-29_050217	GW	3	3								X		
.09	5/2/17	1500	MW-05(3)_050217	GW	3	3							X			
.10	5/2/17	1710	UNK-10_050217	GW	3	3							X			
.11	5/2/17	—	Dup-06_050217	GW	3	3								X		
.12	5/2/17	1430	MW-13-46_050217	GW	3	3								X		
.13	5/2/17	1605	MW-13-48_050217	GW	3	3							X	X		
.14	5/2/17	1555	MW-13-49_050217	GW	3	3								X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis X Sampler	5/2/17	1715
RECEIVED BY: SIGNATURE/ORGANIZATION	PM	5/2/17	1715
RELINQUISHED BY: SIGNATURE/ORGANIZATION		5/2	1730
RECEIVED BY: SIGNATURE/ORGANIZATION	PM storage	5/2	1730

RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	5/3/17	10:15
RECEIVED BY: SIGNATURE/ORGANIZATION			
SEAL NO.	SEAL INTACT YES ☐ NO ☐ INITIALS	NOTES:	TEMP. ON ARRIVAL 5/3/17 10:40 4.5
SEAL NO.	SEAL INTACT YES ☐ NO ☐ INITIALS		5/3/17 1040

★Please CC Alex.Villhauer@arcadis.com★

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

Rev. 5.18.12

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 # 2 OF 2

095734

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1940 FAX NO.:
P.O. NO.: B0064480.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064480.2017.00603/RACER Lansing Plant 3
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
X Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW8260D	1,4-Dioxane 8260B SIMS	Select TAL Metals 6020A: As, Cr, Cu, Pb, Ni, V
80962.15	5/2/17	1435	MW-13-34_050217	GW	3		3						X	X	
.16	5/2/17	—	Dup-07_050217	GW	3		3						X	X	
.17	5/2/17	—	Trip Blank	GW	1		1						X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis (Sampler)	DATE 5/2/17	TIME 1715
RECEIVED BY: SIGNATURE/ORGANIZATION	PM	DATE 5/2/17	TIME 1715
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 5/2/17	TIME 1730
RECEIVED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 5/2/17	TIME 1730

RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 5/3/17	TIME 10:15
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

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

NOTES: TEMP. ON ARRIVAL 4.5
5/3/17 10:40
5/3/17 1040

★Please CC Alex.Villhauer@arcadis.com★

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S80963.01(01)
Generated on 05/09/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S80963.01-S80963.05
Project: B0064479.2017 Racer Lansing P2
Collected Date: 05/02/2017
Submitted Date/Time: 05/03/2017 10:40
Sampled by: Jake Pisackiewicz
P.O. #: B0064479.2017.00603

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

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

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

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80963.01	MW-13-43_050217	Groundwater	05/02/17 10:05
S80963.02	PW-14-02_050217	Groundwater	05/02/17 12:10
S80963.03	MW-14-63_050217	Groundwater	05/02/17 09:55
S80963.04	MW-16-83_050217	Groundwater	05/02/17 11:45
S80963.05	Trip Blank	Water	05/02/17 00:01

Analytical Laboratory Report

Lab Sample ID: S80963.01
Sample Tag: MW-13-43_050217
Collected Date/Time: 05/02/2017 10:05
Matrix: Groundwater
COC Reference: 096446

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	240	ug/L	20	SW8260B - SIM	05/05/17 18:01	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S80963.02
Sample Tag: PW-14-02_050217
Collected Date/Time: 05/02/2017 12:10
Matrix: Groundwater
COC Reference: 096446

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	106-93-4	
1,4-Dioxane*	103	ug/L	3	SW8260B - SIM	05/04/17 17:22	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:08	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:08	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:08	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:08	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:08	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	124-48-1	

Lab Sample ID: S80963.02 (continued)
Sample Tag: PW-14-02_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 15:08	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:08	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80963.03
Sample Tag: MW-14-63_050217
Collected Date/Time: 05/02/2017 09:55
Matrix: Groundwater
COC Reference: 096446

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/04/17 17:40	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S80963.04
Sample Tag: MW-16-83_050217
Collected Date/Time: 05/02/2017 11:45
Matrix: Groundwater
COC Reference: 096446

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/05/17 15:18	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:28	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:28	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	1634-04-4	
2-Butanone (MEK)	14	ug/L	10	SW5030C/8260C	05/04/17 15:28	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:28	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 15:28	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	124-48-1	

Lab Sample ID: S80963.04 (continued)
Sample Tag: MW-16-83_050217

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 15:28	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 15:28	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S80963.05
Sample Tag: Trip Blank
Collected Date/Time: 05/02/2017 00:01
Matrix: Water
COC Reference: 096446

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:40	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:40	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:40	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:40	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 11:40	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	108-90-7	

Lab Sample ID: S80963.05 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 11:40	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 11:40	JML	120-82-1	

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

096446

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 616 780 3277 FAX NO.:
P.O. NO.: B0064479.2017.006603
E-MAIL ADDRESS: Randy.Christensen@Arcadis.com QUOTE NO.:

PROJECT NO./NAME: B0064479.2017 Racer Lansing A2
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jake Pisarkiewicz

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

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

INVOICE TO

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

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	ANALYSIS: TCL VOCs via SW8260	1,4 Dioxane via 8260B	
80963.01	5-2-17	1005	MW-13-43_050217	GW	3		3						X	X	
.02	5-2-17	1210	[redacted]-AW-14-02_050217	GW	3		3						X	X	
.03	5-2-17	0955	MW-14-63_050217	GW	3		3							X	
.04	5-2-17	1145	MW-16-83_050217	GW	3		3						X	X	
.05	5/2/17	—	Trip Blank	GW	1		1						X		

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

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Jake Pisarkiewicz ✱Sampler	5/2/17	1715
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
PM storage	5/2	1715
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
PM Storage		
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
	5/3/17	10:15

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
	5/3/17	10140
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Chilcote	5/3/17	1040

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

NOTES: TEMP. ON ARRIVAL 4.3

✱ Please CC

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S81010.01(01)
Generated on 05/09/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S81010.01-S81010.18
Project: B0064480.2017.00603 / Racer Lansing Plant 3
Collected Date: 05/03/2017
Submitted Date/Time: 05/04/2017 12:00
Sampled by: Austin Westhuis
P.O. #: B0064480.2017.00603

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

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

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

Method Summary

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

Sample Summary (18 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S81010.01	MW-13-31_050317	Groundwater	05/03/17 09:25
S81010.02	MW-13-32_050317	Groundwater	05/03/17 10:35
S81010.03	Dup-05_050317	Groundwater	05/03/17 00:01
S81010.04	FB0004_050317	Groundwater	05/03/17 10:25
S81010.05	MW-06(3)_050317	Groundwater	05/03/17 09:25
S81010.06	MW-02-04(3)_050317	Groundwater	05/03/17 11:50
S81010.07	MW-23_050317	Groundwater	05/03/17 13:35
S81010.08	EB0003_050317	Groundwater	05/03/17 13:45
S81010.09	FB0003_050317	Groundwater	05/03/17 13:55
S81010.10	FB0002_050317	Liquid	05/03/17 09:00
S81010.11	MW-13-25_050317	Groundwater	05/03/17 09:50
S81010.12	PW-14-03_050317	Groundwater	05/03/17 11:35
S81010.13	MW-22_050317	Groundwater	05/03/17 14:15
S81010.14	MW-19_050317	Groundwater	05/03/17 12:25
S81010.15	FB0001_050317	Liquid	05/03/17 14:00
S81010.16	EB0001_050317	Liquid	05/03/17 14:10
S81010.17	MW-13-23_050317	Groundwater	05/03/17 10:15
S81010.18	Trip Blank	Water	05/03/17 00:01

Analytical Laboratory Report

Lab Sample ID: S81010.01
Sample Tag: MW-13-31_050317
Collected Date/Time: 05/03/2017 09:25
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/05/17 10:15	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/05/17 12:11	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:11	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/05/17 12:11	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/05/17 12:11	CCM	7439-92-1	
Nickel	0.013	mg/L	0.005	SW6020A	05/05/17 12:11	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:11	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S81010.02
Sample Tag: MW-13-32_050317
Collected Date/Time: 05/03/2017 10:35
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/05/17 10:15	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/05/17 12:22	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:22	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/05/17 12:22	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/05/17 12:22	CCM	7439-92-1	
Nickel	0.542	mg/L	0.005	SW6020A	05/05/17 12:22	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:22	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S81010.03
Sample Tag: Dup-05_050317
Collected Date/Time: 05/03/2017 00:01
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/05/17 10:15	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/05/17 12:25	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:25	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/05/17 12:25	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/05/17 12:25	CCM	7439-92-1	
Nickel	0.551	mg/L	0.005	SW6020A	05/05/17 12:25	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:25	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S81010.04
Sample Tag: FB0004_050317
Collected Date/Time: 05/03/2017 10:25
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:32	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:32	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:32	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:32	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:32	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	108-90-7	

Lab Sample ID: S81010.04 (continued)
Sample Tag: FB0004_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 17:32	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:32	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.05
Sample Tag: MW-06(3)_050317
Collected Date/Time: 05/03/2017 09:25
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:53	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:53	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:53	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	156-60-5	
1,1-Dichloroethane	2	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	67-66-3	
1,1,1-Trichloroethane	20	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:53	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 17:53	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	108-90-7	

Lab Sample ID: S81010.05 (continued)
Sample Tag: MW-06(3)_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 17:53	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 17:53	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.06
Sample Tag: MW-02-04(3)_050317
Collected Date/Time: 05/03/2017 11:50
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/05/17 15:36	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S81010.07
Sample Tag: MW-23_050317
Collected Date/Time: 05/03/2017 13:35
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/05/17 10:15	CCM		
Metals								
Arsenic	0.009	mg/L	0.002	SW6020A	05/05/17 12:28	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:28	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/05/17 12:28	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/05/17 12:28	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/05/17 12:28	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:28	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S81010.08
Sample Tag: EB0003_050317
Collected Date/Time: 05/03/2017 13:45
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/05/17 10:15	CCM		
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/05/17 12:06	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:06	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/05/17 12:06	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/05/17 12:06	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/05/17 12:06	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:06	CCM	7440-62-2	
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:13	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:13	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:13	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:13	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:13	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	79-01-6	

Lab Sample ID: S81010.08 (continued)
Sample Tag: EB0003_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 18:13	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:13	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.09
Sample Tag: FB0003_050317
Collected Date/Time: 05/03/2017 13:55
Matrix: Groundwater
COC Reference: 095735

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:34	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:34	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:34	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:34	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:34	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	108-90-7	

Lab Sample ID: S81010.09 (continued)
Sample Tag: FB0003_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 18:34	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:34	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.10
Sample Tag: FB0002_050317
Collected Date/Time: 05/03/2017 09:00
Matrix: Liquid
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/05/17 13:30	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:55	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:55	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:55	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:55	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/04/17 18:55	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	108-90-7	

Lab Sample ID: S81010.10 (continued)
Sample Tag: FB0002_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/04/17 18:55	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/04/17 18:55	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.11
Sample Tag: MW-13-25_050317
Collected Date/Time: 05/03/2017 09:50
Matrix: Groundwater
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	17	ug/L	3	SW8260B - SIM	05/05/17 15:54	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S81010.12
Sample Tag: PW-14-03_050317
Collected Date/Time: 05/03/2017 11:35
Matrix: Groundwater
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	106-93-4	
1,4-Dioxane*	140	ug/L	30	SW8260B - SIM	05/08/17 12:23	JML	123-91-1	Y
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 22:36	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/05/17 22:36	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 22:36	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 22:36	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 22:36	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	127-18-4	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S81010.12 (continued)
Sample Tag: PW-14-03_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/05/17 22:36	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 22:36	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.13
Sample Tag: MW-22_050317
Collected Date/Time: 05/03/2017 14:15
Matrix: Groundwater
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/05/17 10:15	CCM		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/05/17 12:32	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:32	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/05/17 12:32	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/05/17 12:32	CCM	7439-92-1	
Nickel	0.008	mg/L	0.005	SW6020A	05/05/17 12:32	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:32	CCM	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S81010.14
Sample Tag: MW-19_050317
Collected Date/Time: 05/03/2017 12:25
Matrix: Groundwater
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/09/17 13:28	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S81010.15
Sample Tag: FB0001_050317
Collected Date/Time: 05/03/2017 14:00
Matrix: Liquid
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/05/17 14:24	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 11:57	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/05/17 11:57	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 11:57	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 11:57	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 11:57	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	124-48-1	

Lab Sample ID: S81010.15 (continued)
Sample Tag: FB0001_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/05/17 11:57	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 11:57	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.16
Sample Tag: EB0001_050317
Collected Date/Time: 05/03/2017 14:10
Matrix: Liquid
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/05/17 10:15	CCM		
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	05/05/17 12:08	CCM	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:08	CCM	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	05/05/17 12:08	CCM	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	05/05/17 12:08	CCM	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	05/05/17 12:08	CCM	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	05/05/17 12:08	CCM	7440-62-2	
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:17	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:17	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:17	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:17	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:17	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	79-01-6	

Lab Sample ID: S81010.16 (continued)
Sample Tag: EB0001_050317

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/05/17 12:17	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:17	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81010.17
Sample Tag: MW-13-23_050317
Collected Date/Time: 05/03/2017 10:15
Matrix: Groundwater
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	05/09/17 13:46	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S81010.18
Sample Tag: Trip Blank
Collected Date/Time: 05/03/2017 00:01
Matrix: Water
COC Reference: 102303

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	05/08/17 13:30	KCV		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:42	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:42	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:42	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:42	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	05/05/17 12:42	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	108-90-7	

Lab Sample ID: S81010.18 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	05/05/17 12:42	JML		
o-Xylene*	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	05/05/17 12:42	JML	120-82-1	

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 2

095735

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1940 FAX NO.:
P.O. NO.: B00644480.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com
QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B00644480.2017.00603/RACER Lansing Plant 3
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/Austin Westhuis

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York X Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW8260	1,4-Dioxane 8260B SIM	Select TAL Metals 6020A: As, Cr, Cu, Pb, Ni, V
810.01	5/3/17	0925	MW-13-31_050317	GW	1			1							X
.02	5/3/17	1035	MW-13-32_050317	GW	1			1							X
.03	5/3/17	—	Dup-05_050317	GW	1			1							X
.04	5/3/17	1025	FB0004_050317	GW	3		3						X		
	~~5/3/17~~	~~1000~~	~~MW-02-02(3)_050317~~	GW	3		3						X		KB
	~~5/3/17~~	~~1230~~	~~MW-13-29_050317~~	GW											KB
.05	5/3/17	925	MW-06(3)_050317	GW	3		3						X		
.06	5/3/17	1150	MW-02-04(3)_050317	GW	3		3							X	
.07	5/3/17	1335	MW-23_050317	GW	1			1							X
.08	5/3/17	1345	EB0003_050317	GW	4		3	1					X		X
.09	5/3/17	1355	FB0003_050317	GW	3		3						X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Austin Westhuis/Arcadis X Sampler DATE: 5/3/17 TIME: 1
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5.4.17 TIME: 1100
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5.4.17 TIME: 1200
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/4/17 TIME: 1200

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

NOTES: TEMP. ON ARRIVAL: 4.3

★Please CC Alex.Villhauer@arcadis.com★

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

Rev. 5.18.12

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 # 2 OF 2

102303

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 6016 780 3277 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Randy.christensen@arcadis.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B006448.0017 Racer Lansing P3
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jake Pisarkiewicz
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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs by SW8260	1,4 Dioxane by 8260B	Select Metals *
810101	5-3-17	0900	FB0002_050317	L	3		3						X		
11	5-3-17	0950	MW-13-25_050317	GW	3		3							X	
12	5-3-17	1135	MW-14-03_050317	GW	3		3						X	X	
13	5-3-17	1415	MW-22_050317	GW	1			1							X
14	5-3-17	1225	MW-19_050317	GW	3		3							X	
15	5-3-17	1400	FB0001_050317	L	3		3						X	X	
16	5-3-17	1410	EB0001_050317	L	3		3						X	~~X~~	X
17	5-3-17	1015	MW-13-23_050317	GW	3		3							X	
18	~~5/3/17~~	—	Trip Blank	GW	1		1						X		

* select metals: As, Cr, Cu, Pb, Ni, V by 6020A

Don't run 1,4-D on EB0001_050317

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Jake Pisarkiewicz PM ~~Sampler~~	DATE 5-3-17	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	MX	DATE 5.4.17	TIME 1100
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	MX	DATE 5.4.17	TIME 120
RECEIVED BY: SIGNATURE/ORGANIZATION	Sam Smith	DATE 5/4/17	TIME 1200
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 4.3
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S81515.01(01)
Generated on 06/13/2017

Report to

Attention: Randy Christensen
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S81515.01
Project: B0064479.2017.00603 / Racer Lansing Plant 2
Collected Date: 05/30/2017
Submitted Date/Time: 05/31/2017 11:40
Sampled by: Austin Westhuis
P.O. #: B0064479.2017.00603

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

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

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

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S81515.01	MW-17-86_053017	Groundwater	05/30/17 12:10

Analytical Laboratory Report

Lab Sample ID: S81515.01
Sample Tag: MW-17-86_053017
Collected Date/Time: 05/30/2017 12:10
Matrix: Groundwater
COC Reference: 102574

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	06/13/17 11:10	JML		
Organics - Volatiles								
1,4-Dioxane*	12	ug/L	3	SW8260B - SIM	06/12/17 21:17	JML	123-91-1	

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

102574

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Randy Christensen
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 248-994-2240 | FAX NO.: 248-994-2241 | P.O. NO.: B006479.2017.00603
E-MAIL ADDRESS: Randy.Christensen@arcadis.com | QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B006479.2017.00603 / RACER Lansing Plant 2
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane via 8260D-SIM
81515.01	5/30/17	1210	MW-17-86_053017	GW	3		3						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] / Arcadis ☒ Sampler — DATE: 5/31/17 — TIME: 1140
RECEIVED BY: SIGNATURE/ORGANIZATION: M Chilcote — DATE: 5/31/17 — TIME: 1140

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

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

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

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

NOTES: TEMP. ON ARRIVAL 5.7

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S81942.01(01)
Generated on 06/29/2017

Report to

Attention: Randy Christensen
Arcadis
101 S. Washington Square
Suite 400
Lansing, MI 48933

Phone: 810-225-1940 FAX: 248-994-2241
Email: randy.christensen@arcadis.com

Addtional Contacts: Kristen Padron, Alex Villhauer

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S81942.01-S81942.02
Project: B0064481.2017.00603 / Racer Lansing Plant 6
Collected Date: 06/20/2017
Submitted Date/Time: 06/20/2017 13:55
Sampled by: Austin Westhuis
P.O. #: B0064481.2016.00603

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

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

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

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

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S81942.01	MW-03-05(062017)	Groundwater	06/20/17 12:45
S81942.02	Trip Blank	Water	06/20/17 00:01

Analytical Laboratory Report

Lab Sample ID: S81942.01
Sample Tag: MW-03-05(062017)
Collected Date/Time: 06/20/2017 12:45
Matrix: Groundwater
COC Reference: 103652

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	06/22/17 12:00	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	106-93-4	
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	06/29/17 11:04	JML	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	06/21/17 15:38	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	06/21/17 15:38	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	06/21/17 15:38	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	06/21/17 15:38	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	06/21/17 15:38	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	124-48-1	

Lab Sample ID: S81942.01 (continued)
Sample Tag: MW-03-05(062017)

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	06/21/17 15:38	JML		
o-Xylene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 15:38	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S81942.02
Sample Tag: Trip Blank
Collected Date/Time: 06/20/2017 00:01
Matrix: Water
COC Reference: 103652

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
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	06/22/17 12:00	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	06/21/17 14:55	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	06/21/17 14:55	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	06/21/17 14:55	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	06/21/17 14:55	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	06/21/17 14:55	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	108-90-7	

Lab Sample ID: S81942.02 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	06/21/17 14:55	JML		
o-Xylene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	06/21/17 14:55	JML	120-82-1	

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

103652

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Alex Villhauer
COMPANY: Arcadis
ADDRESS: 101 S. Washington Square, Ste. 400
CITY: Lansing STATE: MI ZIP CODE: 48933
PHONE NO.: 616-780-3277 FAX NO.: —
P.O. NO.: B0064481.2017.00600
E-MAIL ADDRESS: Alex.Villhauer@arcadis.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064481.2017.00603/RACER Lansing Plant 6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs + 1,4-Dioxane	VOCs
81942.01	6/20/17	1245	mw-03-05(062017)	GW	3		3						X	
.02	6/20/17	—	Trip Blank	GW	1		1							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	Arcadis ☒ Sampler	6/20/17	1355
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		6/20/17	1355
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

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

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

NOTES: TEMP. ON ARRIVAL 4.8

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

Rev. 5.18.12

Third Quarter



Analytical Laboratory Report

Report ID: S83442.01(01)
Generated on 09/12/2017

Report to

Attention: Alex Villhauer
Arcadis
101 S. Washington Square
Suite 315
Lansing, MI 48933

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.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 Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S83442.01-S83442.06
Project: B0064479.2013.00603 / Racer Lansing
Collected Date: 08/30/2017 - 08/31/2017
Submitted Date/Time: 09/01/2017 12:30
Sampled by: Dale Arnett
P.O. #: B0064479.2013.00603

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.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

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

Method Summary

Method	Version
N/A	Not Applicable
SM5310C	Standard Method 5310C 20th Edition
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S83442.01	PW-14-01_083017	Groundwater	08/30/17 16:40
S83442.02	TW-14-01_083017	Groundwater	08/30/17 18:00
S83442.03	TW-14-02_083017	Groundwater	08/30/17 19:15
S83442.04	TW-16-01_083017	Groundwater	08/30/17 21:10
S83442.05	AS-16-01_083117	Groundwater	08/31/17 17:40
S83442.06	AS-16-02_083117	Groundwater	08/31/17 19:35

Analytical Laboratory Report

Lab Sample ID: S83442.01
Sample Tag: PW-14-01_083017
Collected Date/Time: 08/30/2017 16:40
Matrix: Groundwater
COC Reference: 106098

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.6	IR
2	40ml Glass	H2SO4	Yes	5.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Inorganics								
TOC	7.1	mg/L	1	SM5310C	09/06/17 13:27	JKB		
Organics - Volatiles								
1,4-Dioxane*	490	ug/L	30	SW8260B - SIM	09/12/17 15:31	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S83442.02
Sample Tag: TW-14-01_083017
Collected Date/Time: 08/30/2017 18:00
Matrix: Groundwater
COC Reference: 106098

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.6	IR
2	40ml Glass	H2SO4	Yes	5.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Inorganics								
TOC	3.8	mg/L	1	SM5310C	09/06/17 14:15	JKB		
Organics - Volatiles								
1,4-Dioxane*	86	ug/L	3	SW8260B - SIM	09/12/17 12:21	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S83442.03
Sample Tag: TW-14-02_083017
Collected Date/Time: 08/30/2017 19:15
Matrix: Groundwater
COC Reference: 106098

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.6	IR
2	40ml Glass	H2SO4	Yes	5.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Inorganics								
TOC	5.2	mg/L	1	SM5310C	09/06/17 14:39	JKB		
Organics - Volatiles								
1,4-Dioxane*	2,300	ug/L	200	SW8260B - SIM	09/12/17 16:27	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S83442.04
Sample Tag: TW-16-01_083017
Collected Date/Time: 08/30/2017 21:10
Matrix: Groundwater
COC Reference: 106098

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.6	IR
2	40ml Glass	H2SO4	Yes	5.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Inorganics								
TOC	6.2	mg/L	1	SM5310C	09/06/17 15:03	JKB		
Organics - Volatiles								
1,4-Dioxane*	260	ug/L	20	SW8260B - SIM	09/12/17 14:54	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S83442.05
Sample Tag: AS-16-01_083117
Collected Date/Time: 08/31/2017 17:40
Matrix: Groundwater
COC Reference: 106098

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.6	IR
2	40ml Glass	H2SO4	Yes	5.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Inorganics								
TOC	10.5	mg/L	1	SM5310C	09/06/17 15:27	JKB		
Organics - Volatiles								
1,4-Dioxane*	280	ug/L	20	SW8260B - SIM	09/12/17 15:13	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S83442.06
Sample Tag: AS-16-02_083117
Collected Date/Time: 08/31/2017 19:35
Matrix: Groundwater
COC Reference: 106098

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.6	IR
2	40ml Glass	H2SO4	Yes	5.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Inorganics								
TOC	7.7	mg/L	1	SM5310C	09/06/17 15:52	JKB		
Organics - Volatiles								
1,4-Dioxane*	59	ug/L	3	SW8260B - SIM	09/12/17 12:39	JML	123-91-1	

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

106098

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Alex Willhaver
COMPANY: ARCADIS
ADDRESS: 101 S. Washington Sq.
CITY: Lansing STATE: MI ZIP CODE: 48933
PHONE NO.: 517-327-0111 FAX NO.: 517-337-0417 P.O. NO.:
E-MAIL ADDRESS: Alex.Willhaver@arcadis-us.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064479-2013.00603 / Racer Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Dale Arnett / D—

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1-4, Dioxane	TOC
83442.01	8/30/17	1640	PW-14-01_083017	GW	5		3		2				X	X
.02		1800	TW-14-01_083017										X	X
.03		1915	TW-14-02_083017										X	X
.04		2110	TW-16-01_083017										X	X
.05	8/31/17	1740	AS-16-01_083117										X	X
.06	8/31/17	1935	AS-16-02_083117										X	X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Dale M. Arnett / ARCADIS (Sampler) DATE: 8/31/17 TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: Pantra Ball DATE: 9/1/17 TIME: 12:30

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

NOTES: TEMP. ON ARRIVAL: 5.6
Sample kept on wet ice

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S83552.01(01)
Generated on 09/13/2017

Report to

Attention: Alex Villhauer
Arcadis
101 S. Washington Square
Suite 315
Lansing, MI 48933

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.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 Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S83552.01-S83552.06
Project: B0064479.2013.00603 / Racer Lansing
Collected Date: 09/07/2017
Submitted Date/Time: 09/08/2017 12:10
Sampled by: Dale Arnett
P.O. #: B0064479.2013.00603

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

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.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

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

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S83552.01	MW-16-84_090717	Groundwater	09/07/17 17:50
S83552.02	MW-16-84_090717 MS	Groundwater	09/07/17 17:50
S83552.03	MW-16-84_090717 MSD	Groundwater	09/07/17 17:50
S83552.04	MW-16-82_090717	Groundwater	09/07/17 19:15
S83552.05	MW-16-81_090717	Groundwater	09/07/17 20:50
S83552.06	Dup-1_090717	Groundwater	09/07/17 00:01

Analytical Laboratory Report

Lab Sample ID: S83552.01
Sample Tag: MW-16-84_090717
Collected Date/Time: 09/07/2017 17:50
Matrix: Groundwater
COC Reference: 109793

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Organics - Volatiles								
1,4-Dioxane*	52	ug/L	3	SW8260B - SIM	09/11/17 15:32	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S83552.02
Sample Tag: MW-16-84_090717 MS
Collected Date/Time: 09/07/2017 17:50
Matrix: Groundwater
COC Reference: 109793

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Organics - Volatiles								
1,4-Dioxane*	100	ug/L	3	SW8260B - SIM	09/11/17 14:00	JML	123-91-1	1

1-spiked at 50ug/L

Analytical Laboratory Report

Lab Sample ID: S83552.03
Sample Tag: MW-16-84_090717 MSD
Collected Date/Time: 09/07/2017 17:50
Matrix: Groundwater
COC Reference: 109793

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Organics - Volatiles								
1,4-Dioxane*	93	ug/L	3	SW8260B - SIM	09/11/17 14:18	JML	123-91-1	1

1-spiked at 50ug/L

Analytical Laboratory Report

Lab Sample ID: S83552.04
Sample Tag: MW-16-82_090717
Collected Date/Time: 09/07/2017 19:15
Matrix: Groundwater
COC Reference: 109793

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Organics - Volatiles								
1,4-Dioxane*	6	ug/L	3	SW8260B - SIM	09/12/17 13:35	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S83552.05
Sample Tag: MW-16-81_090717
Collected Date/Time: 09/07/2017 20:50
Matrix: Groundwater
COC Reference: 109793

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Organics - Volatiles								
1,4-Dioxane*	520	ug/L	30	SW8260B - SIM	09/12/17 15:50	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S83552.06
Sample Tag: Dup-1_090717
Collected Date/Time: 09/07/2017 00:01
Matrix: Groundwater
COC Reference: 109793

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.6	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	09/12/17 10:50	KCV		
Organics - Volatiles								
1,4-Dioxane*	530	ug/L	30	SW8260B - SIM	09/12/17 16:08	JML	123-91-1	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

109793

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Alex Willhaver
COMPANY: ARCADIS
ADDRESS: 101 S. Washington Sq.
CITY: Lansing STATE: MI ZIP CODE: 48933
PHONE NO.: 517-327-0111 FAX NO.: 517-337-0417 P.O. NO.:
E-MAIL ADDRESS: Alex.Willhaver@arcadis-us.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B00 6479.2017.00603 / Racer Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Dale Arwer / D

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

1-4, 1,4-Dioxane SIMS

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1-4, 1,4-Dioxane SIMS	Special Instructions
83552.01/.02/.03	9/7/17	1750	MW-16-84_090717	GW	9		X						X	MS/MSD
.04	9/7/17	1915	MW-16-82_090717		3		X						X	
.05	9/7/17	2050	MW-16-81_090717		3		X						X	
.06	9/7/17	—	Dup-1_090717		3		X						X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Dale McArwer / Arcadis	☐ Sampler	DATE 9/8/17 TIME 1210
RECEIVED BY: SIGNATURE/ORGANIZATION	M Chilcote		DATE 9/8/17 TIME 1210
RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

NOTES: Samples kept on wet ice TEMP. ON ARRIVAL 4.6

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

Rev. 5.18.12

Fourth Quarter



Analytical Laboratory Report

Report ID: S85995.01(01)
Generated on 12/11/2017

Report to

Attention: Alex Villhauer
Arcadis
300 South Washington Square
Suite 315
Lansing, MI 48933

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.com

Addtional Contacts: Kristen Padron, Randy Christensen

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S85995.01-S85995.06
Project: B0064480.2017.00603 / RACER Lansing Plant 3
Collected Date: 12/05/2017
Submitted Date/Time: 12/06/2017 15:02
Sampled by: Austin Westhuis
P.O. #: B0064480.2017.00603

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

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.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

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

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S85995.01	MW-12-21_120517	Groundwater	12/05/17 11:35
S85995.02	MW-13-25_120517	Groundwater	12/05/17 13:45
S85995.03	MW-91-5_120517	Groundwater	12/05/17 15:00
S85995.04	MW-13-38_120517	Groundwater	12/05/17 16:25
S85995.05	Dup-06_120517	Groundwater	12/05/17 00:01
S85995.06	Trip Blank	Liquid	12/05/17 00:01

Analytical Laboratory Report

Lab Sample ID: S85995.01
Sample Tag: MW-12-21_120517
Collected Date/Time: 12/05/2017 11:35
Matrix: Groundwater
COC Reference: 105396

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	200	ug/L	20	SW8260B - SIM	12/07/17 18:40	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S85995.02
Sample Tag: MW-13-25_120517
Collected Date/Time: 12/05/2017 13:45
Matrix: Groundwater
COC Reference: 105396

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	12	ug/L	3	SW8260B - SIM	12/07/17 13:46	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S85995.03
Sample Tag: MW-91-5_120517
Collected Date/Time: 12/05/2017 15:00
Matrix: Groundwater
COC Reference: 105396

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 14:06	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S85995.04
Sample Tag: MW-13-38_120517
Collected Date/Time: 12/05/2017 16:25
Matrix: Groundwater
COC Reference: 105396

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 14:28	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S85995.05
Sample Tag: Dup-06_120517
Collected Date/Time: 12/05/2017 00:01
Matrix: Groundwater
COC Reference: 105396

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 20:25	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S85995.06
Sample Tag: Trip Blank
Collected Date/Time: 12/05/2017 00:01
Matrix: Liquid
COC Reference: 105396

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 13:03	JML	123-91-1	

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

105396

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Alex Villhauer
COMPANY: Arcadis
ADDRESS: 300 South Washington Square, Suite 315
CITY: Lansing STATE: MI ZIP CODE: 48933
PHONE NO.: 517-324-5036 FAX NO.: P.O. NO.: B0064480.2017.00603
E-MAIL ADDRESS: Alex.Villhauer@arcadis.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064480.2017.00603/RACER Lansing Plant 3
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane 8260B SIM	select Metals 6020A
859915.01	12/5/17	1135	MW-12-21_120517	GW	3		X						X	
.02	12/5/17	1345	MW-13-25_120517	GW	3		X						X	
.03	12/5/17	1500	MW-91-5_120517	GW	3		X						X	
.04	12/5/17	1625	MW-13-38_120517	GW	3		X						X	
.05	12/5/17	—	Dup-06_120517	GW	3		X						X	
.06														

Special Instructions: Select Metals include: As, Cr, Cu, Pb, Ni, and V

Relinquished 12/6/17 15:02
Rec. 12/6/17 1502

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis (*Sampler)	DATE 12/5/17	TIME 1706
RECEIVED BY: SIGNATURE/ORGANIZATION	Brett Fiessner	DATE 12/5	TIME 1706
RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 12/6/17	TIME 14:21
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/6/17	TIME 14:21

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Brett Fiessner	DATE 12/5/17	TIME 1730
RECEIVED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 12/5/17	TIME 1730

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

NOTES: TEMP. ON ARRIVAL 4.2

12/6/17 15:02
12/6/17 15:02
12/6/17 1502

*Please also send Report to: Kristen.Padron@arcadis.com

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S85998.01(01)
Generated on 12/15/2017

Report to

Attention: Alex Villhauer
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.com

Addtional Contacts: Kristen Padron, Randy Christensen

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S85998.01-S85998.08
Project: B0064481.2017.00603 / Racer Lansing Plant 6
Collected Date: 12/05/2017
Submitted Date/Time: 12/06/2017 15:02
Sampled by: Dale Arnett
P.O. #: B0064481.2017.00603

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

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.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

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

Method Summary

Method	Version
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW6020A	SW 846 Method 6020A Revision 1 February 2007

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S85998.01	MW-13-35_120517	Groundwater	12/05/17 11:10
S85998.02	MW-12-16_120517	Groundwater	12/05/17 11:55
S85998.03	MW-12-11_120517	Groundwater	12/05/17 12:45
S85998.04	MW-12-13_120517	Groundwater	12/05/17 15:15
S85998.05	MW-13-36R_120517	Groundwater	12/05/17 16:15
S85998.06	MW-13-36R_120517 MS	Groundwater	12/05/17 16:15
S85998.07	MW-13-36R_120517 MSD	Groundwater	12/05/17 16:15
S85998.08	Dup-07_120517	Groundwater	12/05/17 00:01

Analytical Laboratory Report

Lab Sample ID: S85998.01
Sample Tag: MW-13-35_120517
Collected Date/Time: 12/05/2017 11:10
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	Not detected	mg/L	0.002	SW6020A	12/14/17 11:40	JRH	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:40	JRH	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	12/14/17 11:40	JRH	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	12/14/17 11:40	JRH	7439-92-1	
Nickel	Not detected	mg/L	0.005	SW6020A	12/14/17 11:40	JRH	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:40	JRH	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S85998.02
Sample Tag: MW-12-16_120517
Collected Date/Time: 12/05/2017 11:55
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	0.051	mg/L	0.002	SW6020A	12/14/17 11:42	JRH	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:42	JRH	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	12/14/17 11:42	JRH	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	12/14/17 11:42	JRH	7439-92-1	
Nickel	0.010	mg/L	0.005	SW6020A	12/14/17 11:42	JRH	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:42	JRH	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S85998.03
Sample Tag: MW-12-11_120517
Collected Date/Time: 12/05/2017 12:45
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	0.062	mg/L	0.002	SW6020A	12/14/17 11:44	JRH	7440-38-2	
Chromium	0.006	mg/L	0.005	SW6020A	12/14/17 11:44	JRH	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	12/14/17 11:44	JRH	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	12/14/17 11:44	JRH	7439-92-1	
Nickel	0.044	mg/L	0.005	SW6020A	12/14/17 11:44	JRH	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:44	JRH	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S85998.04
Sample Tag: MW-12-13_120517
Collected Date/Time: 12/05/2017 15:15
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	0.004	mg/L	0.002	SW6020A	12/14/17 11:46	JRH	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:46	JRH	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	12/14/17 11:46	JRH	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	12/14/17 11:46	JRH	7439-92-1	
Nickel	0.026	mg/L	0.005	SW6020A	12/14/17 11:46	JRH	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:46	JRH	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S85998.05
Sample Tag: MW-13-36R_120517
Collected Date/Time: 12/05/2017 16:15
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	0.003	mg/L	0.002	SW6020A	12/14/17 11:49	JRH	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:49	JRH	7440-47-3	
Copper	0.014	mg/L	0.005	SW6020A	12/14/17 11:49	JRH	7440-50-8	
Lead	0.006	mg/L	0.003	SW6020A	12/14/17 11:49	JRH	7439-92-1	
Nickel	0.014	mg/L	0.005	SW6020A	12/14/17 11:49	JRH	7440-02-0	
Vanadium	0.027	mg/L	0.005	SW6020A	12/14/17 11:49	JRH	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S85998.06
Sample Tag: MW-13-36R_120517 MS
Collected Date/Time: 12/05/2017 16:15
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	0.426	mg/L	0.002	SW6020A	12/14/17 11:51	JRH	7440-38-2	
Chromium	0.406	mg/L	0.005	SW6020A	12/14/17 11:51	JRH	7440-47-3	
Copper	0.422	mg/L	0.005	SW6020A	12/14/17 11:51	JRH	7440-50-8	
Lead	0.402	mg/L	0.003	SW6020A	12/14/17 11:51	JRH	7439-92-1	
Nickel	0.414	mg/L	0.005	SW6020A	12/14/17 11:51	JRH	7440-02-0	
Vanadium	0.440	mg/L	0.005	SW6020A	12/14/17 11:51	JRH	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S85998.07
Sample Tag: MW-13-36R_120517 MSD
Collected Date/Time: 12/05/2017 16:15
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	0.429	mg/L	0.002	SW6020A	12/14/17 11:57	JRH	7440-38-2	
Chromium	0.408	mg/L	0.005	SW6020A	12/14/17 11:57	JRH	7440-47-3	
Copper	0.420	mg/L	0.005	SW6020A	12/14/17 11:57	JRH	7440-50-8	
Lead	0.403	mg/L	0.003	SW6020A	12/14/17 11:57	JRH	7439-92-1	
Nickel	0.420	mg/L	0.005	SW6020A	12/14/17 11:57	JRH	7440-02-0	
Vanadium	0.445	mg/L	0.005	SW6020A	12/14/17 11:57	JRH	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S85998.08
Sample Tag: Dup-07_120517
Collected Date/Time: 12/05/2017 00:01
Matrix: Groundwater
COC Reference: 105353

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	12/14/17 09:30	JRH		
Metals								
Arsenic	0.004	mg/L	0.002	SW6020A	12/14/17 11:48	JRH	7440-38-2	
Chromium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:48	JRH	7440-47-3	
Copper	Not detected	mg/L	0.005	SW6020A	12/14/17 11:48	JRH	7440-50-8	
Lead	Not detected	mg/L	0.003	SW6020A	12/14/17 11:48	JRH	7439-92-1	
Nickel	0.027	mg/L	0.005	SW6020A	12/14/17 11:48	JRH	7440-02-0	
Vanadium	Not detected	mg/L	0.005	SW6020A	12/14/17 11:48	JRH	7440-62-2	

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 _____

105353

CHAIN OF CUSTODY RECORD Plant 6

REPORT TO

CONTACT NAME: Alex Villhauer
COMPANY: Arcadis
ADDRESS: 300 South Washington Square, Suite 315
CITY: Lansing STATE: MI ZIP CODE: 48933
PHONE NO.: 517-324-5036 FAX NO.: _____
P.O. NO.: B0064481.2017.00603
E-MAIL ADDRESS: Alex.Villhauer@arcadis.com
QUOTE NO.: _____

INVOICE TO

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

PROJECT NO./NAME: B0064481.2017.00603/RACER Lansing Plant 6
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Dale Arnett / Dale Arnett

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other _____

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Select Metals 6020A	Special Instructions
85998.01	12/5/17	1110	MW-13-35_120517	GW	1			1					X	Select Metals include:
.02		1155	MW-12-16_120517	GW	1			1					X	As, Cr, Cu, Pb, Ni, and V
.03		1245	MW-12-11_120517	GW	1			1					X	
.04		1515	MW-12-13_120517	GW	1			1					X	
.05/.06/.07		1615	MW-13-36R_120517	GW	2			2					X	MS/MSD
.08		—	Dup-07_120517	GW	1			1					1	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Dale A. / ARCADIS ☑ Sampler	DATE 12/5/17	TIME 1720
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/5	TIME 1705
RELINQUISHED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 12/6/17	TIME 14:21
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/6/17	TIME 14:21

RELINQUISHED BY: SIGNATURE/ORGANIZATION	/ PM ENV	DATE 12/5	TIME 1735
RECEIVED BY: SIGNATURE/ORGANIZATION	PM Storage	DATE 12/5	TIME 1730
SEAL NO.	JAT 12/6/17 PM	SEAL INTACT YES ☑ NO ☐	INITIALS
SEAL NO.		SEAL INTACT YES ☐ NO ☐	INITIALS

NOTES: 12/6/17 15:02 TEMP. ON ARRIVAL 4.2
Rec'd By TM Calcote 12/6/17 1502

* Please also send report to: Kristen.Padron@arcadis.com

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S86001.01(01)
Generated on 12/12/2017

Report to

Attention: Alex Villhauer
Arcadis
300 South Washington Square
Suite 315
Lansing, MI 48933

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.com

Addtional Contacts: Kristen Padron, Randy Christensen

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S86001.01-S86001.11
Project: B0064479.2017.00603 / RACER Lansing Plant 2
Collected Date: 12/05/2017
Submitted Date/Time: 12/06/2017 15:02
Sampled by: Hikade/Flessner
P.O. #: B0064479.2017.00603

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

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.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

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

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

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S86001.01	MW-12-02_120517	Groundwater	12/05/17 10:45
S86001.02	MW-14-63_120517	Groundwater	12/05/17 12:40
S86001.03	MW-16-80_120517	Groundwater	12/05/17 14:15
S86001.04	MW-15-73_120517	Groundwater	12/05/17 16:16
S86001.05	Trip Blank	Water	12/05/17 00:01
S86001.06	MW-16-79_120517	Groundwater	12/05/17 10:40
S86001.07	MW-16-78_120517	Groundwater	12/05/17 12:00
S86001.08	MW-16-76_120517	Groundwater	12/05/17 14:00
S86001.09	MW-16-76_120517 MS	Groundwater	12/05/17 14:00
S86001.10	MW-16-76_120517 MSD	Groundwater	12/05/17 14:00
S86001.11	MW-12-18_120517	Groundwater	12/05/17 16:20

Analytical Laboratory Report

Lab Sample ID: S86001.01
Sample Tag: MW-12-02_120517
Collected Date/Time: 12/05/2017 10:45
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 14:49	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86001.02
Sample Tag: MW-14-63_120517
Collected Date/Time: 12/05/2017 12:40
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 15:10	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86001.03
Sample Tag: MW-16-80_120517
Collected Date/Time: 12/05/2017 14:15
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	27	ug/L	3	SW8260B - SIM	12/07/17 15:31	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86001.04
Sample Tag: MW-15-73_120517
Collected Date/Time: 12/05/2017 16:16
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	7	ug/L	3	SW8260B - SIM	12/07/17 15:52	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86001.05
Sample Tag: Trip Blank
Collected Date/Time: 12/05/2017 00:01
Matrix: Water
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	12/11/17 13:14	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	12/11/17 13:14	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	12/11/17 13:14	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	12/11/17 13:14	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	12/11/17 13:14	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	108-90-7	

Lab Sample ID: S86001.05 (continued)

Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/11/17 13:14	JML		
o-Xylene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/11/17 13:14	JML	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S86001.06
Sample Tag: MW-16-79_120517
Collected Date/Time: 12/05/2017 10:40
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 16:13	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86001.07
Sample Tag: MW-16-78_120517
Collected Date/Time: 12/05/2017 12:00
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 16:34	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86001.08
Sample Tag: MW-16-76_120517
Collected Date/Time: 12/05/2017 14:00
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/11/17 14:20	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86001.09
Sample Tag: MW-16-76_120517 MS
Collected Date/Time: 12/05/2017 14:00
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	49	ug/L	3	SW8260B - SIM	12/11/17 12:39	JML	123-91-1	1

1-spiked at 50ug/L

Analytical Laboratory Report

Lab Sample ID: S86001.10
Sample Tag: MW-16-76_120517 MSD
Collected Date/Time: 12/05/2017 14:00
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	53	ug/L	3	SW8260B - SIM	12/11/17 12:59	JML	123-91-1	1

1-spiked at 50ug/L

Analytical Laboratory Report

Lab Sample ID: S86001.11
Sample Tag: MW-12-18_120517
Collected Date/Time: 12/05/2017 16:20
Matrix: Groundwater
COC Reference: 105386

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	106-93-4	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	76-13-1	
Acetone	Not detected	ug/L	10	SW5030C/8260C	12/07/17 14:42	JML	67-64-1	
Carbon disulfide	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-15-0	
Methyl Acetate	Not detected	ug/L	10	SW5030C/8260C	12/07/17 14:42	JML	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	SW5030C/8260C	12/07/17 14:42	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-71-8	
Chloromethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-01-4	
Bromomethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	74-83-9	
Chloroethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-35-4	
Methylene chloride	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	156-60-5	
1,1-Dichloroethane	1	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	156-59-2	
Chloroform	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	71-55-6	
Cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	SW5030C/8260C	12/07/17 14:42	JML	108-10-1	
2-Hexanone	Not detected	ug/L	10	SW5030C/8260C	12/07/17 14:42	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	56-23-5	
Benzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	10061-01-5	
Toluene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	124-48-1	
Chlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	108-90-7	

Lab Sample ID: S86001.11 (continued)
Sample Tag: MW-12-18_120517

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	79-34-5	
Ethylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	100-41-4	
p,m-Xylene*	Not detected	ug/L	2	SW5030C/8260C	12/07/17 14:42	JML		
o-Xylene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	95-47-6	
Styrene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	98-82-8	
Bromoform	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	SW5030C/8260C	12/07/17 14:42	JML	120-82-1	

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 _____

105386

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: ALEX VILLHAVER
COMPANY: ~~RAPEN~~ ARCADIS
ADDRESS: 300 SOUTH WASHINGTON SQ, SUITE 315
CITY: LANSING STATE: MI ZIP CODE: 48933
PHONE NO.: 517-324-5036 FAX NO.: P.O. NO.: B0064479.2017.00603
E-MAIL ADDRESS: ALEX.VILLHAVER@ARCADIS.COM QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064479.2017.00603 / RACEL PLANT 2
SAMPLER(S) - PLEASE PRINT/SIGN NAME: ROBERT HIKADE / RHA (PM ENV) BRETT FLESNER (PM ENV)
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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	~~TCL VOCs SW 8260~~	1,4-Dioxane (8260 SIMS)								
86001.01	12/5	1045	MW-12-02_12052017	GW	3		3							X								
.02		1240	MW-14-63_12052017	GW	3		3							X								
.03		1415	MW-16-80_12052017	GW	3		3							X								
.04	*	1616	MW-15-73_12052017	GW	3		3							X								
.05		—	TRIP BLANK	W	1		1						X									
.06		1040	MW-16-79_12052017	GW	3		3							X								
.07		1200	MW-16-78_12052017	GW	3		3							X								
.08/.09/.10		1400	MW-16-76_12052017	GW	9		9							X								MS/MSD
.11	↓	1620	MW-12-13_12052017	GW	3		3							X								

RELINQUISHED BY: SIGNATURE/ORGANIZATION: RHA	☒ Sampler	DATE: 12/5	TIME: 0730	
RECEIVED BY: SIGNATURE/ORGANIZATION: PM STORAGE		DATE: 12/5	TIME: 0730	
RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE: 12/6/17	TIME: 15:02	
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE: 12/6/17	TIME: 1502	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: PM Storage		DATE: 12/6/17	TIME: 14:21
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE: 12/6/17	TIME: 14:21
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL: 4.4
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S86021.01(01)
Generated on 12/13/2017

Report to

Attention: Alex Villhauer
Arcadis
300 South Washington Square
Suite 315
Lansing, MI 48933

Phone: 616-780-3277 FAX: 248-994-2241
Email: alex.villhauer@arcadis.com

Addtional Contacts: Kristen Padron, Randy Christensen

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S86021.01-S86021.16
Project: B0064479.2017.00608 / RACER Plant 2
Collected Date: 12/06/2017
Submitted Date/Time: 12/07/2017 09:51
Sampled by: Hikade/Flessner
P.O. #: B0064479.2017.00608

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

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.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

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

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (16 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S86021.01	MW-13-43_120617	Groundwater	12/06/17 09:25
S86021.02	MW-12-01_120617	Groundwater	12/06/17 09:45
S86021.03	MW-12-01_120617 MS	Groundwater	12/06/17 09:45
S86021.04	MW-12-01_120617 MSD	Groundwater	12/06/17 09:45
S86021.05	MW-14-56_120617	Groundwater	12/06/17 10:40
S86021.06	MW-13-44_120617	Groundwater	12/06/17 11:05
S86021.07	MW-14-58_120617	Groundwater	12/06/17 11:55
S86021.08	MW-13-45_120617	Groundwater	12/06/17 12:25
S86021.09	MW-16-83_120617	Groundwater	12/06/17 14:00
S86021.10	MW-16-85_120617	Groundwater	12/06/17 14:15
S86021.11	MW-17-87_120617	Groundwater	12/06/17 15:10
S86021.12	MW-17-86_120617	Groundwater	12/06/17 15:50
S86021.13	Dup-01_120617	Groundwater	12/06/17 00:01
S86021.14	Dup-03_120617	Groundwater	12/06/17 00:01
S86021.15	MW-12-05R_120617	Groundwater	12/06/17 16:00
S86021.16	Trip Blank	Liquid	12/06/17 00:01

Analytical Laboratory Report

Lab Sample ID: S86021.01
Sample Tag: MW-13-43_120617
Collected Date/Time: 12/06/2017 09:25
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	260	ug/L	20	SW8260B - SIM	12/07/17 19:01	JML	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S86021.02
Sample Tag: MW-12-01_120617
Collected Date/Time: 12/06/2017 09:45
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/12/17 13:14	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.03
Sample Tag: MW-12-01_120617 MS
Collected Date/Time: 12/06/2017 09:45
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	44	ug/L	3	SW8260B - SIM	12/12/17 11:33	JML	123-91-1	1

1-spiked at 50ug/l

Analytical Laboratory Report

Lab Sample ID: S86021.04
Sample Tag: MW-12-01_120617 MSD
Collected Date/Time: 12/06/2017 09:45
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	44	ug/L	3	SW8260B - SIM	12/12/17 11:52	JML	123-91-1	1

1-spiked at 50ug/l

Analytical Laboratory Report

Lab Sample ID: S86021.05
Sample Tag: MW-14-56_120617
Collected Date/Time: 12/06/2017 10:40
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	9	ug/L	3	SW8260B - SIM	12/07/17 16:55	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.06
Sample Tag: MW-13-44_120617
Collected Date/Time: 12/06/2017 11:05
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	4	ug/L	3	SW8260B - SIM	12/07/17 17:16	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.07
Sample Tag: MW-14-58_120617
Collected Date/Time: 12/06/2017 11:55
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	30	ug/L	3	SW8260B - SIM	12/07/17 19:22	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.08
Sample Tag: MW-13-45_120617
Collected Date/Time: 12/06/2017 12:25
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	54	ug/L	3	SW8260B - SIM	12/07/17 19:43	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.09
Sample Tag: MW-16-83_120617
Collected Date/Time: 12/06/2017 14:00
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 17:37	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.10
Sample Tag: MW-16-85_120617
Collected Date/Time: 12/06/2017 14:15
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	4	ug/L	3	SW8260B - SIM	12/07/17 17:58	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.11
Sample Tag: MW-17-87_120617
Collected Date/Time: 12/06/2017 15:10
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/07/17 20:45	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.12
Sample Tag: MW-17-86_120617
Collected Date/Time: 12/06/2017 15:50
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	29	ug/L	3	SW8260B - SIM	12/07/17 18:19	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.13
Sample Tag: Dup-01_120617
Collected Date/Time: 12/06/2017 00:01
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	29	ug/L	3	SW8260B - SIM	12/07/17 21:06	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.14
Sample Tag: Dup-03_120617
Collected Date/Time: 12/06/2017 00:01
Matrix: Groundwater
COC Reference: 105387

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/11/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	4	ug/L	3	SW8260B - SIM	12/07/17 21:28	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.15
Sample Tag: MW-12-05R_120617
Collected Date/Time: 12/06/2017 16:00
Matrix: Groundwater
COC Reference: 105388

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	3	ug/L	3	SW8260B - SIM	12/11/17 14:42	JML	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S86021.16
Sample Tag: Trip Blank
Collected Date/Time: 12/06/2017 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
pH check for VOCs*	<2	STD Units		N/A	12/12/17 11:00	JML		
Organics - Volatiles								
1,4-Dioxane*	Not detected	ug/L	3	SW8260B - SIM	12/11/17 14:00	JML	123-91-1	

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 2

105387

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: ALEX VILLHAVER
COMPANY: ARCADIS
ADDRESS: 300 S. ~~WASHINGTON~~ WASHINGTON SQ, SUITE 315
CITY: LANSING STATE: MI ZIP CODE: 48933
PHONE NO.: 517-324-5036 FAX NO.: P.O. NO.: B00644479.2017.00603
E-MAIL ADDRESS: ALEX.VILLHAVER@ARCADIS.COM QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B00644479.2017.00603/RACER PLANT 2
SAMPLER(S) - PLEASE PRINT/SIGN NAME: ROBERT HIKADE/BRETT FIEGNER/RHH

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	TCL VOCs SW 8260	1,4 Dioxane 8260 SIMS	Special Instructions	
86021.01	12/6	0925	MW-13-43_12062017	GW	3		3						X			RHV
.02/.03/.04		0945	MW-12-01-12062017	GW	9		9						X		MS/MSD	BF
.05		1040	MW-14-56-12062017	GW	3		3						X			BF
.06		1105	MW-13-44_12062017	GW	3		3						X			RHV
.07		1155	MW-14-58-12062017	GW	3		3						X			BF
.08		1225	MW-13-45_12062017	GW	3		3						X			RHV
.09		1400	MW-16-83_12062017	GW	3		3						X			BF
.10		1415	MW-16-85_12062017	GW	3		3						X			RHV
.11		1510	MW-17-87_12062017	GW	3		3						X			BF
.12		1550	MW-17-86_12062017	GW	3		3						X			RHV
.13		—	DUP-01_12062017	GW	3		3						X			
.14	↓	—	DUP-03_12062017	GW	3		3						X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION: RHA ☒ Sampler DATE: 12/6 TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: FM Storage DATE: 12/7/17 TIME: 9:15
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 12/7/17 TIME: 9:15

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: 12/7/17 TIME: 9:51
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 12/7/17 TIME: 0951

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

NOTES: TEMP. ON ARRIVAL: 4.3

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

Rev. 5.18.12

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 # 2 OF 2

105388

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: ALEX VILLHAVER
COMPANY: ARCADIS
ADDRESS: 300 S. WASHINGTON SQ., SUITE 315
CITY: LANSING STATE: MI ZIP CODE: 48933
PHONE NO.: 517.324.5036 FAX NO.:
E-MAIL ADDRESS: ALEX.VILLHAVER@ARCADIS.COM
P.O. NO.: B0064479.2017.00608 QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: B0064479.2017.00608/BAKER PLANT 2
SAMPLER(S) - PLEASE PRINT/SIGN NAME: ROBERT/BRETT FIEGNER/RMA

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	8260 SIMS 1,4-Dioxane
860215	12/6	1600	MW-12-05R 12062017 -	GW	3		3						X
.16													

RELINQUISHED BY: SIGNATURE/ORGANIZATION: RMA	☒ Sampler	DATE: 12/6	TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: PM STORAGE		DATE:	TIME:
RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE: 12/7/17	TIME: 0951
RECEIVED BY: SIGNATURE/ORGANIZATION: Chilcote		DATE: 12/7/17	TIME: 0951

RELINQUISHED BY: SIGNATURE/ORGANIZATION: RM Storage		DATE: 12/7/17	TIME: 9:15
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE: 12/7/17	TIME: 9:15
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL: 4.3
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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

Rev. 5.18.12

APPENDIX D

Low Flow Logs

(On attached CD)

In-Situ Inc.

Troll 9000 | Low-Flow System
3/6/2017 | ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Billy J Cobern	Pump Model/Type	GeoPro Bladder
Company Name	ARCADIS	Tubing Type	LDPE
Project Name	Racer Plant#2	Tubing Diameter	0.17 [in]
Site Name	Lansing	Tubing Length	85 [ft]
		Pump placement from TOC	75 [ft]

Well Information:		**Pumping information:**	
Well ID	MW-16-81	Final pumping rate	100 [mL/min]
Well diameter	2 [in]	Flowcell volume	496.39 [mL]
Well total depth	77.35 [ft]	Calculated Sample Rate	298 [sec]
Depth to top of screen	67 [ft]	Sample rate	300 [sec]
Screen length	120 [in]	Stabilized drawdown	0 [in]
Depth to Water	69.78 [ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-10
Last 5 Readings	11:20:11	14.24	7.01	3670.73	115.55	0.95	-90.08
	11:25:13	14.23	7.01	3684.72	134.19	0.95	-89.44
	11:30:14	14.26	7.00	3673.93	114.21	0.93	-89.01
	11:35:16	14.27	7.00	3676.38	111.10	0.92	-88.37
	11:40:18	14.28	7.00	3665.25	115.01	0.90	-87.98
Variance in last 3 readings	11:30:14	0.03	-0.01	-10.79	-19.99	-0.02	0.43
	11:35:16	0.00	0.00	2.45	-3.11	-0.01	0.64
	11:40:18	0.01	0.00	-11.13	3.91	-0.02	0.39

Notes:

PID: 0.0 ppm
Time: 11:05
Pump time: 40 minutes
Purge: .8 gallon
SDTW: n/a
FDTW: 70.48
Parameters: 1,4 Dioxane

Stick up well, locked, didn't meet maximum drawdown requirement, drawdown didn't stabilize, DUP-01

In-Situ Inc.

Troll 9000 | Low-Flow System
3/6/2017 | ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Billy J Cobern	Pump Model/Type	GeoPro Bladder
Company Name	ARCADIS	Tubing Type	LDPE
Project Name	Racer Plant#2	Tubing Diameter	0.17 [in]
Site Name	Lansing	Tubing Length	85 [ft]
		Pump placement from TOC	75 [ft]

Well Information:		**Pumping information:**	
Well ID	MW-16-82	Final pumping rate	100 [mL/min]
Well diameter	2 [in]	Flowcell volume	496.39 [mL]
Well total depth	77.2 [ft]	Calculated Sample Rate	298 [sec]
Depth to top of screen	67 [ft]	Sample rate	300 [sec]
Screen length	120 [in]	Stabilized drawdown	0 [in]
Depth to Water	70.41 [ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-10
Last 5 Readings	12:30:19	13.97	7.24	1317.26	11.99	1.15	-80.82
	12:35:20	13.98	7.24	1317.41	12.00	1.12	-79.93
	12:40:22	13.98	7.24	1329.29	10.91	1.09	-85.49
	12:45:23	13.97	7.23	1320.13	11.69	1.11	-83.52
	12:50:24	13.98	7.23	1318.14	11.62	1.11	-81.64
Variance in last 3 readings	12:40:22	0.00	0.00	11.87	-1.10	-0.03	-5.56
	12:45:23	-0.01	0.00	-9.16	0.79	0.03	1.97
	12:50:24	0.01	0.00	-1.99	-0.08	-0.01	1.88

Notes:

PID: 0.0 ppm
Time: 12:50
Pump time: 25 minutes
Purge: .5 gallon
SDTW: n/a
FDTW: 71.17
Parameters: 1,4 Dioxane

Stick up well, locked, didn't meet maximum drawdown requirement, drawdown didn't stabilize

In-Situ Inc.

Troll 9000 | Low-Flow System
3/6/2017 | ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Billy J Cobern	Pump Model/Type	GeoPro Bladder
Company Name	ARCADIS	Tubing Type	LDPE
Project Name	Racer Plant#2	Tubing Diameter	0.17 [in]
Site Name	Lansing	Tubing Length	89 [ft]
		Pump placement from TOC	79 [ft]

Well Information:		**Pumping information:**	
Well ID	MW-16-84	Final pumping rate	100 [mL/min]
Well diameter	2 [in]	Flowcell volume	514.25 [mL]
Well total depth	81.15 [ft]	Calculated Sample Rate	309 [sec]
Depth to top of screen	71 [ft]	Sample rate	300 [sec]
Screen length	120 [in]	Stabilized drawdown	0 [in]
Depth to Water	74.49 [ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-10
Last 5 Readings	13:55:06	14.16	7.17	1582.79	50.68	1.51	-73.57
	14:00:08	14.23	7.16	1584.88	41.76	1.45	-75.88
	14:05:09	14.26	7.16	1595.73	34.39	1.40	-76.30
	14:10:11	14.27	7.16	1607.96	31.13	1.40	-77.79
	14:15:13	14.27	7.16	1598.85	31.74	1.40	-78.31
Variance in last 3 readings	14:05:09	0.02	0.00	10.85	-7.37	-0.06	-0.42
	14:10:11	0.02	0.00	12.23	-3.25	0.00	-1.49
	14:15:13	0.00	0.00	-9.11	0.61	0.00	-0.51

Notes:

PID: 0.0 ppm
Time: 14:50
Pump time: 40 minutes
Purge: .8 gallon
SDTW: n/a
FDTW: 75.68
Parameters: 1,4 Dioxane

Stick up well, locked, didn't meet maximum drawdown requirement, drawdown didn't stabilize, MSMSD

ARCADIS

Water Sampling Log

22.50
4270

Project: Roger Landry | Project No.: B0064481.2017.00603 | Page: 1 of ___

Site Location: Landry | Date: 4/26/17

Site/Well No.: MW-09-05(6) | Replicate No.: — | Code No.: —

Weather: ~70° ; Sunny | Sampling Time: Begin 1310 End 1315

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	—
Depth to Water (ft bmp)	9.70
Water-Level Elevation (ft)	
Water Column in Well (ft)	
Casing Diameter/Type	2"
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	~5
Sample Pump Intake Setting (ft bmp)	~25 ft
Purge Time	begin 1255 end 1305
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	12.3
SpC (mS/cm)	7.720
CND (mS/cm)	
Dissolved Oxygen (%)	5.0
Dissolved Oxygen (mg/L)	0.51
pH (s.u.)	7.02
ORP (mV)	-43.3
Turbidity (NTU)	14.9
Color	Clear
Odor	none
Appearance	Clear
Sampling Method	low-flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs & 1-4 Dioxane	40-ml Vial	3	HCl

Sampling Personnel: Kevin Bozin

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-04-05(6) PROJ #: B0064481.2017.00603

DATE : 4/26/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1135	12.4	7.543		55.7	5.89	6.96	-35.0	~200	371	12.33
1140	12.3	7.531		46.5	4.65	6.99	-42.1	~200	181	12.90
1145	12.3	7.567		35.6	3.71	7.00	-43.2	~200	115	13.44
1150	12.3	7.590		28.4	2.99	7.01	-43.3	~200	70.4	13.83
1155	12.4	7.635		25.3	2.63	7.02	-42.8	~200	52.7	13.99
1200	12.4	7.693		23.7	2.41	7.02	-42.6	~200	44.3	14.08
1205	12.5	7.699		19.2	2.00	7.02	-42.4	~200	31.5	14.10
1210	12.4	7.709		15.9	1.66	7.02	-42.3	~200	28.2	14.25
1215	12.6	7.738		13.6	1.40	7.02	-42.2	~200	27.8	14.37
1220	12.4	7.740		12.0	1.23	7.02	-41.9	~200	24.3	14.28
1225	12.5	7.761		10.0	1.03	7.02	-42.1	~200	18.5	14.32
1230	12.5	7.735		8.7	0.91	7.02	-42.1	~200	19.4	14.42
1235	12.6	7.742		7.6	0.80	7.02	-42.1	~200	17.7	14.42
1240	12.2	7.730		7.0	0.72	7.02	-42.2	~200	15.1	14.84
1245	12.2	7.663		6.2	0.65	7.02	-42.0	~200	18.9	15.04
1250	12.2	7.676		6.0	0.61	7.02	-41.7	~200	15.9	15.24
1255	12.4	7.711		5.0	0.53	7.02	-42.3	~200	14.6	15.41
1300	12.3	7.700		5.0	0.52	7.02	-42.7	~200	13.8	15.49
1305	12.3	7.720		5.0	0.51	7.02	-43.3	~200	14.9	15.58
15										
Total Depth of Well:										
Depth To Water Before Purging:			9.70							
Depth To Water After Purging:			15.58							

ARCADIS

Water Sampling Log

Project: Racer Landing | Project No.: B0064481.2017.0003 | Page: 2 of ___

Site Location: Landing | Date: 4/26/17

Site/Well No.: MW-03-04 | Replicate No.: — | Code No.: —

Weather: ~60°-overcast | Sampling Time: Begin 1420 End 1425

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	42.70
Depth to Water (ft bmp)	22.30
Water-Level Elevation (ft)	—
Water Column in Well (ft)	20.40
Casing Diameter/Type	2"
Gallons in Well	3.264
Gallons Pumped/Bailed Prior to Sampling	~4
Sample Pump Intake Setting (ft bmp)	~35 ft
Purge Time	begin 1335 end 1415
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	13.6
SpC (mS/cm)	1.880
CND (mS/cm)	
Dissolved Oxygen (%)	2.0
Dissolved Oxygen (mg/L)	0.23
pH (s.u.)	7.13
ORP (mV)	-66.8
Turbidity (NTU)	8.46
Color	clear
Odor	none
Appearance	clear
Sampling Method	low-flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1-4 Dioxane	40ml Vom	3	HCl

Sampling Personnel: Ken Bar

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE 2 OF ___

WELL : MW-03-04 PROJ #: B006448.2017.00603

DATE : 4/26/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1335	14.2	1.888		10.0	1.01	7.18	-50.0	~200	643	22.75
1340	13.8	1.844		6.6	0.68	7.13	-58.8	~200	464	22.96
1345	13.7	1.772		9.0	0.94	7.13	-57.0	~200	377	23.04
1350	13.6	1.795		6.4	0.66	7.13	-57.9	~200	133	23.11
1355	13.6	1.834		4.0	0.41	7.13	-60.6	~200	38.0	23.20
1400	13.7	1.853		3.1	0.32	7.13	-63.3	~200	45.5	23.20
1405	13.6	1.871		2.4	0.24	7.13	-65.2	~200	12.1	23.26
1410	13.6	1.874		2.0	0.22	7.13	-66.68	~200	11.9	23.32
1415	13.6	1.880		2.0	0.23	7.13	-66.8	~200	8.46	23.24
Total Depth of Well:										
Depth To Water Before Purging: 22.30										
Depth To Water After Purging: 23.24										

ARCADIS

Water Sampling Log

Project: Racer - Lansing | Project No. B0064481.2017.00003 | Page 3 of —

Site Location: Lansing | Date: 4/26/17

Site/Well No.: MW-03-03(A) | Replicate No.: — | Code No.: —

Weather: ~60° j~~a~~ast | Sampling Time: Begin 845 End 850

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	44.66
Depth to Water (ft bmp)	~~44.66~~ 30.48
Water-Level Elevation (ft)	—
Water Column in Well (ft)	~~30.48~~ 14.18
Casing Diameter/Type	2"
Gallons in Well	2.269
Gallons Pumped/Bailed Prior to Sampling	~2.5 ~~gal~~
Sample Pump Intake Setting (ft bmp)	~30 ft
Purge Time	begin ~~1440~~ end —
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	19.1
SpC (mS/cm)	8.872
CND (mS/cm)	—
Dissolved Oxygen (%)	107.7
Dissolved Oxygen (mg/L)	9.02
pH (s.u.)	6.66
ORP (mV)	37.3
Turbidity (NTU)	~~####~~
Color	dark brown
Odor	none
Appearance	Murky
Sampling Method	low-flow
Remarks	lost pump in well. Recovered pump & sampled on ~~4/26/17~~ 5/1/17

Constituents Sampled	Container Description	Number	Preservative
VOCs; 1-4 Dioxane	40ml Voa	3	HCl

Sampling Personnel: [signature]

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-03-03(6) PROJ #: B0064481.2017.00603

DATE : 4/26/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1440	15.8	8.932		10.2	0.86	9.35	54.7	~200	132	31.2
1445	15.8	8.968		6.0	0.57	9.72	36.5	~200		
1450	—	Pump	Stuck							
										31.74
1/27/17	~~1540~~	~~13.8~~								
1540	13.8	8807		3.7	0.36	6.91	-39.7	~200	####	33.93
1545	13.7	8.815		3.3	0.34	6.91	-44.8	~200	####	35.09
1550	13.8	8.801		5.1	0.51	6.90	-46.8	~200	####	35.15
1555	13.8	8801		4.9	0.49	6.89	-46.9	~200	####	35.58
1600	13.8	8.805		5.5	0.55	6.87	-44.8	~200	938	36.28
1605	13.7	8.808		5.2	0.52	6.85	-43.5	~200	####	37.04
1610	13.7	8.809		3.9	0.39	6.84	-43.3	~200	####	38.05
1615	13.7	8.812		4.1	0.43	6.84	-44.0	~200	####	39.22
1620	13.7	8.810		4.1	0.42	6.84	-45.4	~200	####	40.18
1625	13.7	8.805		3.6	0.36	6.84	-46.7	~200	####	—
—	well	went	dry							
—	returned on		5/1/17							
840	19.1	8.672		107.7	9.02	6.66	37.3	~200	####	30.33
Total Depth of Well:			44.66							
Depth To Water Before Purging:			30.48							
Depth To Water After Purging:			—							

ARCADIS

Water Sampling Log

Project: Keeer-Lansdy | Project No.: B0084481.2017.00003 | Page: 4 of ____

Site Location: Ft Lansdy | Date: 4/27/16

Site/Well No.: MW-08-06 | Replicate No.: Dup-08 | Code No.: ____

Weather: ~60°-overcast | Sampling Time: Begin 1220 End 1225

Evacuation Data

Measuring Point	-
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	41.36
Depth to Water (ft bmp)	36.14
Water-Level Elevation (ft)	-
Water Column in Well (ft)	5.22
Casing Diameter/Type	2"
Gallons in Well	0.8352
Gallons Pumped/Bailed Prior to Sampling	~2.5
Sample Pump Intake Setting (ft bmp)	~~40~~ ~40 ft
Purge Time	begin 1135 end 1215
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	14.3
SpC (mS/cm)	11.574
CND (mS/cm)	
Dissolved Oxygen (%)	1.7
Dissolved Oxygen (mg/L)	0.17
pH (s.u.)	6.77
ORP (mV)	-39.0
Turbidity (NTU)	10.0
Color	clear
Odor	none
Appearance	clear
Sampling Method	low-flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs & 1-4 Dioxane	40ml Voa	3	HCl

Sampling Personnel: Kevin R

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE 4 OF ___

WELL : MW-03-06 PROJ #: B0064481.2017.00605

DATE : 4/27/16 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1135	14.4	11.631		15.2	1.44	6.78	-28.8	~100	378	36.44
1140	14.3	11.591		5.6	0.55	6.77	-32.4	~100	185	36.62
1145	14.2	11.600		3.0	0.31	6.77	-33.2	~100	93.1	36.82
1150	14.1	11.594		2.3	0.23	6.77	-34.0	~100	49.0	36.96
1155	14.1	11.582		2.0	0.20	6.77	-36.1	~100	28.1	37.11
1200	14.1	11.582		2.1	0.20	6.77	-37.3	~100	17.5	37.23
1205	14.4	11.569		1.8	0.18	6.77	-38.3	~100	11.5	37.38
1210	14.3	11.572		1.7	0.17	6.77	-39.2	~100	10.3	37.44
1215	14.3	11.574		1.8	0.17	6.77	-39.0	~100	10.0	37.56
Total Depth of Well:			41.36							
Depth To Water Before Purging:			36.14							
Depth To Water After Purging:			37.56							

ARCADIS

Water Sampling Log

Project: Roser-Lansing | Project No.: B0068481.2017.0003 | Page: 5 of ___

Site Location: Lansing | Date: 4/27/17

Site/Well No.: MW-88-08 | Replicate No.: — | Code No.: —

Weather: ~60°; overcast | Sampling Time: Begin 1505 End 1510

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	44.96
Depth to Water (ft bmp)	33.04
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.92
Casing Diameter/Type	2"
Gallons in Well	1.907 2
Gallons Pumped/Bailed Prior to Sampling	~7.5
Sample Pump Intake Setting (ft bmp)	~42 A
Purge Time	begin 1300 end 1500
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	13.0
SpC (mS/cm)	2.152
CND (mS/cm)	
Dissolved Oxygen (%)	1.3
Dissolved Oxygen (mg/L)	0.13
pH (s.u.)	7.21
ORP (mV)	~81
Turbidity (NTU)	~~9~~ 9.7
Color	clear
Odor	none
Appearance	clear
Sampling Method	Low flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs & 1-4 Dioxane	40 ml Vial	3	HCL

Sampling Personnel: Kevin Bu

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE 5 OF ___

WELL : MW-03-08 PROJ #: B006481.2017.0003

DATE : 4/27/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1300	13.7	2.438		21.8	2.17	7.30	-50.6	~200	#####	33.32
1305	13.3	2.387		6.3	0.66	7.14	-58.8	~200	#####	33.57
1310	13.3	2.324		8.9	0.90	7.15	-58.3	~200	#####	33.97
1315	13.3	2.388		7.5	0.77	7.16	-59.2	~200	69.5	34.06
1320	13.3	2.445		5.6	0.57	7.15	-61.4	~200	30.0	34.23
1325	13.2	2.468		3.7	0.38	7.15	-64.5	~200	15.0	34.33
1330	13.2	2.463		3.6	0.38	7.16	-67.8	~200	65.7	34.48
1335	13.3	2.446		2.6	0.27	7.16	-70.7	~200	39.5	34.58
1340	13.3	2.432		2.4	0.25	7.17	-72.4	~200	30.2	34.58
1345	13.4	2.412		2.2	0.23	7.17	-73.6	~200	26.5	34.58
1350	13.3	2.388		2.1	0.21	7.17	-74.2	~200	22.5	34.58
1355	13.3	2.391		1.9	0.20	7.18	-75.4	~200	19.2	34.58
1400	13.3	2.322		1.7	0.17	7.19	-76.4	~200	15.5	34.68
1405	13.3	2.296		1.6	0.16	7.19	-77.5	~200	13.6	34.70
1410	13.3	2.279		1.6	0.16	7.20	-78.3	~200	16.7	34.74
1415	13.2	2.253		1.6	0.16	7.20	-78.3	~200	62.4	34.82
1420	13.2	2.233		1.4	0.14	7.20	-79.5	~200	134	34.91
1425	13.1	2.223		1.4	0.14	7.20	-79.7	~200	145	34.97
1430	13.1	2.204		1.8	0.18	7.21	-79.9	~200	131	34.97
1435	13.0	2.168		1.6	0.17	7.21	-80.3	~200	95.7	34.98
1440	13.0	2.159		1.5	0.15	7.21	-80.5	~200	79.7	34.98
1445	13.0	2.154		1.4	0.14	7.22	-80.8	~200	50.2	34.96
1450	13.0	2151		1.3	0.14	7.22	-81.2	~200	34.8	34.96
1455	13.2	2155		1.3	0.13	7.22	-78.0	~200	27.3	34.51
1500	13.0	2152		1.3	0.13	7.21	-78.1	~200	19.7	34.66
Total Depth of Well:			44.96							
Depth To Water Before Purging:			33.04							
Depth To Water After Purging:			34.66							

ARCADIS

Water Sampling Log

Project: Roser-Lonsdale | Project No.: B0069481.2017.00003 | Page: 6 of ___

Site Location: Lonsdale | Date: 4/28/17

Site/Well No.: MW-18-35 | Replicate No.: — | Code No.: —

Weather: 60°; overcast | Sampling Time: Begin 1020 End 1025

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	29.50
Depth to Water (ft bmp)	23.6
Water-Level Elevation (ft)	—
Water Column in Well (ft)	5.9
Casing Diameter/Type	2"
Gallons in Well	0.944
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	~27ft
Purge Time	begin 900 end 1015
Pumping Rate (ml/min)	~150
Evacuation Method	

Field Parameters

Temperature (°C)	13.1
SpC (mS/cm)	1.712
CND (mS/cm)	
Dissolved Oxygen (%)	1.2
Dissolved Oxygen (mg/L)	0.12
pH (s.u.)	6.68
ORP (mV)	-28.9
Turbidity (NTU)	8.82
Color	clear
Odor	none
Appearance	clear
Sampling Method	low-flow
Remarks	Peristaltic Pump used

Constituents Sampled	Container Description	Number	Preservative
As, Cr, Co, Pb, Ni, V	125 ml Plastic	1	HNO_3

Sampling Personnel: Kevin B

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-35 PROJ #: B006448.2017.00003

DATE : 4/28/17 LOC: _____

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
900	12.8	2.000		3.1	0.33	6.89	-37.6	~150	17.1	23.80
905	12.7	1.985		2.9	0.30	6.91	-59.0	~150	66.7	23.81
910	12.8	1.985		5.9	0.63	6.93	-63.2	~150	53.3	23.81
915	12.8	1.980		4.2	0.45	6.93	-62.9	~150	33.3	23.82
920	12.8	1.974		3.0	0.30	6.93	-59.8	~150	24.8	23.88
925	12.8	1.977		2.2	0.24	6.93	-56.0	~150	19.2	23.83
930	12.7	1.964		2.2	0.23	6.93	-51.6	~150	12.3	23.82
935	12.7	1.953		2.2	0.24	6.93	-46.3	~150	13.8	23.83
940	12.9	1.944		2.3	0.24	6.93	-42.2	~150	12.5	23.81
945	12.8	1.931		2.1	0.23	6.92	-38.3	~150	11.4	23.82
950	13.0	1.926		2.0	0.22	6.92	-33.9	~150	12.1	23.83
955	12.8	1.905		1.9	0.18	6.91	-29.9	~150	12.4	23.82
1000	12.9	1.874		1.8	0.18	6.90	-25.7	~150	11.1	23.82
~~1005~~ 1005	13.0	1.844		1.3	0.12	6.89	-24.0	~150	9.52	23.81
1010	13.0	1.820		1.2	0.13	6.89	-23.8	~150	~~10~~ 8.46	23.81
1015	13.1	1.792		1.2	0.12	6.88	-28.9	~150	8.82	23.81
Total Depth of Well:			29.50							
Depth To Water Before Purging:			23.6							
Depth To Water After Purging:			23.81							

ARCADIS

Water Sampling Log

Project: Races - Lansing | Project No.: B006484.2017.00003 | Page: 7 of ___

Site Location: Lansing | Date: 4/28/17

Site/Well No.: MW-12-16 | Replicate No.: — | Code No.: —

Weather: 60° - Partly Sunny | Sampling Time: Begin 1240 End 1245

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	32.18
Depth to Water (ft bmp)	23.04
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.14
Casing Diameter/Type	2"
Gallons in Well	1.462
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	[redacted]
Purge Time	begin 1040 end 1235
Pumping Rate (ml/min)	~150
Evacuation Method	—

Field Parameters

Temperature (°C)	13.2
SpC (mS/cm)	1.951
CND (mS/cm)	
Dissolved Oxygen (%)	3.6
Dissolved Oxygen (mg/L)	0.36
pH (s.u.)	6.86
ORP (mV)	-19.9
Turbidity (NTU)	4.57
Color	Clear
Odor	none
Appearance	Clear
Sampling Method	low flow
Remarks	Peristaltic Pump used

Constituents Sampled	Container Description	Number	Preservative
As, Ca, Co, Pb, Ni, V	125 ml Plastic	1	HNO_3

12
6/16
9.4

Sampling Personnel: Kevin Bu

Well Casing Volumes

Gal./Ft.					
0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-16 PROJ #: B006448.2017.00003

DATE : 4/28/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1040	12.6	2.506		3.0	0.32	6.76	22.3	~150	98.5	23.04
1045	12.4	2.496		4.3	0.46	6.77	14.7	~150	169	23.04
1050	12.5	2.484		2.7	0.30	6.77	11.5	~150	177	23.06
1055	12.5	2.476		2.4	0.24	6.78	9.9	~150	90.7	23.06
1100	12.5	2.444		2.6	0.28	6.78	8.6	~150	96.3	23.06
1105	12.7	2.417		2.6	0.28	6.79	6.0	~150	123	23.06
1110	12.6	2.361		2.9	0.30	6.80	3.9	~150	115	23.06
1115	12.8	2.309		3.3	0.34	6.82	1.1	~150	101	23.06
1120	12.8	2.288		3.4	0.34	6.83	-1.5	~150	51.9	23.06
1125	12.7	2.212		3.2	0.33	6.84	-5.2	~150	42.6	23.06
1130	12.8	2.155		3.2	0.33	6.84	-8.7	~150	45.8	23.06
1135	13.1	2.096		3.2	0.33	6.85	-12.8	~150	244	23.06
1140	13.3	2129		18.6	1.9	6.96	-22.0	~150	299	23.06
1145	12.8	2.150		5.9	0.62	6.85	-13.0	~150	168	23.06
1150	12.9	2.124		4.1	0.44	6.86	-13.3	~150	92.8	23.06
1155	12.7	2.033		4.7	0.51	6.88	-13.9	~150	67.9	23.06
1200	12.9	1.999		5.1	0.54	6.89	-14.0	~150	45.5	23.06
1205	13.0	1.970		5.1	0.53	6.89	-13.8	~150	35.8	23.06
1210	13.0	1.960		4.8	0.49	6.88	-14.7	~150	21.8	23.06
1215	13.1	1.959		4.3	0.45	6.87	-15.9	~150	17.9	23.06
1220	13.2	1.960		4.0	0.41	6.87	-17.7	~150	14.3	23.06
1225	13.1	1.962		3.7	0.39	6.87	-18.7	~150	12.2	23.06
1230	13.2	1.961		3.7	0.38	6.87	-19.8	~150	7.32	23.06
1235	13.2	1.951		3.6	0.36	6.86	-19.9	~150	4.57	23.06
Total Depth of Well:			32.18							
Depth To Water Before Purging:			23.04							
Depth To Water After Purging:			23.06							

ARCADIS

Water Sampling Log

Project: Koers - Lansky | Project No. B0064802017.00003 | Page 8 of —

Site Location: Lansky | Date: 5/1/17

Site/Well No.: MW-13-40 | Replicate No.: — | Code No.: —

Weather: 60° - Rainy | Sampling Time: Begin 1135 End 1140

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	79.25
Depth to Water (ft bmp)	63.34
Water-Level Elevation (ft)	—
Water Column in Well (ft)	15.91
Casing Diameter/Type	2"
Gallons in Well	2.54
Gallons Pumped/Bailed Prior to Sampling	~5
Sample Pump Intake Setting (ft bmp)	75 ft
Purge Time	begin 935 end 1130
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	13.6
SpC (mS/cm)	7.487
CND (mS/cm)	
Dissolved Oxygen (%)	2.4
Dissolved Oxygen (mg/L)	0.24
pH (s.u.)	6.86
ORP (mV)	-108.5
Turbidity (NTU)	185
Color	cloudy
Odor	none
Appearance	murky
Sampling Method	low-flow
Remarks	well did not stabilize sampled after 2 hours

Constituents Sampled	Container Description	Number	Preservative
1-4 Dioxane	40ml Vial	3	HCl

Sampling Personnel: Kevin Bos

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-40 PROJ #: B0064480.2017.00603

DATE : 5/1/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
935	13.7	7.544		4.7	0.48	6.87	-48.0	~200	~~####~~	65.02
940	14.4	1.348		8.2	0.80	7.00	-37.8	~200	~~####~~	64.09
945	13.6	7.583		6.2	0.63	6.86	-45.3	~200	~~####~~	65.72
950	13.6	7.560		13.4	1.36	6.85	-47.6	~200	~~####~~	66.38
955	13.6	7.557		9.7	0.98	6.86	-51.0	~200	511	66.87
1000	13.6	7.553		7.9	0.81	6.86	-50.3	~200	314	67.37
1005	13.6	7.590		6.4	0.64	6.86	-55.4	~200	240	67.86
1010	13.6	7.601		6.2	0.62	6.86	-57.8	~200	287	68.22
1015	13.6	7.566		6.1	0.61	6.85	-56.5	~200	374	68.64
1020	13.6	7.562		5.7	0.58	6.85	-57.3	~200	559	69.22
1025	13.7	7.539		6.9	0.70	6.86	-57.0	~200	795	69.62
1030	13.7	7.438		9.0	0.94	6.87	-59.2	~200	747	69.71
1035	13.6	7.508		6.5	0.67	6.87	-61.1	~200	700	69.70
1040	13.7	7.570		4.9	0.57	6.86	-70.7	~200	533	69.63
1045	13.7	7.612		4.1	0.43	6.86	-81.8	~200	489	69.63
1050	13.6	7.637		3.6	0.37	6.86	-89.6	~200	341	68.66
1055	13.6	7.629		3.3	0.32	6.85	-93.7	~200	269	68.57
1100	13.5	7.625		3.0	0.30	6.85	-98.3	~200	347	68.53
1105	13.7	7.586		3.1	0.31	6.85	-104.7	~200	280	68.52
1110	13.6	7.587		2.8	0.29	6.85	-111.2	~200	261	68.53
1115	13.7	7.530		2.6	0.26	6.86	-115.1	~200	212	68.53
1120	13.6	7.502		2.5	0.25	6.86	-103.7	~200	194	68.50
1125	13.7	7.482		2.4	0.25	6.86	-102.0	~200	173	68.58
1130	13.6	7.487		2.4	0.24	6.86	-108.5	~200	185	68.62
Total Depth of Well:			79.25							
Depth To Water Before Purging:			63.34							
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: Boeer-Lansing | Project No.: B0044802017.00003 | Page: 10 of ___

Site Location: Lansing | Date: 5/1/17

Site/Well No.: MW-13-38 | Replicate No.: MS-MSD | Code No.: —

Weather: 60°-overcast | Sampling Time: Begin 1635 End 1640

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	131.30
Depth to Water (ft bmp)	72.95
Water-Level Elevation (ft)	—
Water Column in Well (ft)	58.38
Casing Diameter/Type	~~2"~~ 6"
Gallons in Well	~~9.34~~ 55.81
Gallons Pumped/Bailed Prior to Sampling	~5
Sample Pump Intake Setting (ft bmp)	~120 ft
Purge Time	begin ~~1500~~ end ___
Pumping Rate (ml/min)	~200
Evacuation Method	—

Field Parameters

Temperature (°C)	13.3
SpC (mS/cm)	1.91
CND (mS/cm)	—
Dissolved Oxygen (%)	1.0
Dissolved Oxygen (mg/L)	0.11
pH (s.u.)	8.39
ORP (mV)	~~-20~~.0
Turbidity (NTU)	~~17~~ 12.6
Color	clear
Odor	none
Appearance	clear
Sampling Method	low flow
Remarks	MS-MSD

Constituents Sampled	Container Description	Number	Preservative
1-4 Dioxane	40ml vial	9	HCl

Sampling Personnel: [signature]

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	~~2"~~ = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-38 PROJ #: B0064450.201700603

DATE : 6/0 - Overcast LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1500	14.1	1.91	-	2.6	0.27	8.23	-178.1	~200	21.4	73.26
1505	13.7	1.90	-	2.0	0.20	8.27	-200.0	~200	13.2	73.56
1510	13.7	1.90	-	1.7	0.18	8.30	-200.9	~200	13.8	73.62
1515	13.7	1.90	-	1.6	0.17	8.34	-197.4	~200	13.7	73.56
1520	13.6	1.90	-	1.6	0.15	8.34	~207.8	~200	14.3	73.56
1525	13.6	1.89	-	1.4	0.16	8.36	~205.0	~200	15.4	73.56
1530	13.5	1.89	-	1.4	0.14	8.36	~206.4	~200	15.3	73.56
1535	13.6	1.89	-	1.4	0.15	8.36	~205.1	~200	15.2	73.56
1540	13.7	1.90	-	1.4	0.14	8.37	~207.3	~200	16.2	73.56
1545	13.5	1.90	-	1.2	0.13	8.38	~208.9	~200	29.4	73.62
1550	13.4	1.90	-	1.2	0.12	8.38	~232.2	~200	18.2	73.62
1555	13.4	1.90	-	1.3	0.13	8.38	~232.4	~200	15.5	73.62
1600	13.3	1.90	-	1.2	0.11	8.39	~225.7	~200	14.2	73.62
1605	13.5	1.89	-	1.2	0.12	8.39	~227.0	~200	14.7	73.62
1610	13.4	1.90	-	1.1	0.16	8.39	-239.6	~200	16.0	73.64
1615	13.3	1.90	-	1.1	0.12	8.39	~230.7	~200	13.8	73.64
1620	13.4	1.89	-	1.0	0.11	8.40	~234.0	~200	13.9	73.64
1625	13.3	1.90	-	1.0	0.11	8.39	~232.0	~200	14.8	73.64
1630	13.3	1.91	-	1.0	0.11	8.39	~230	~200	12.6	73.64
Total Depth of Well:			131.30							
Depth To Water Before Purging:			72.95							
Depth To Water After Purging:			73.64							

ARCADIS

Water Sampling Log

Project: Racer-Lansing | Project No.: B006448.2017.00603 | Page: 11 of ___

Site Location: Lansing | Date: 5/2/17

Site/Well No.: MW-03-02(3) | Replicate No.: — | Code No.: —

Weather: 60; rainy | Sampling Time: Begin 1000 End 1005

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	84.11
Depth to Water (ft bmp)	69.68
Water-Level Elevation (ft)	—
Water Column in Well (ft)	14.43
Casing Diameter/Type	2"
Gallons in Well	2.309
Gallons Pumped/Bailed Prior to Sampling	~2.5
Sample Pump Intake Setting (ft bmp)	~~85~~ ~70*
Purge Time	begin 845 end 955
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	11.9
SpC (mS/cm)	7.58
CND (mS/cm)	-
Dissolved Oxygen (%)	10.5
Dissolved Oxygen (mg/L)	1.10
pH (s.u.)	6.48
ORP (mV)	-3.3
Turbidity (NTU)	64.7
Color	cloudy
Odor	none
Appearance	little murky
Sampling Method	low flow
Remarks	*destruction in well prevents pump from getting lower than 70'. cannot use water meter when pump is in well.

Constituents Sampled	Container Description	Number	Preservative
1-4 Dioxane	40ml Vial	3	HCL

Sampling Personnel: Keith Brown

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-02-02(3) PROJ #: B0064480.2017.00003

DATE : 5/2/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
845	11.7	7.27	–	20.8	2.20	6.41	65.6	~100	~~####~~	–
850	12.0	7.50	–	31.7	3.32	6.45	79.6	~100	####	–
855	12.0	7.56	–	24.1	2.56	6.48	77.5	~100	365	–
900	12.2	7.54	–	18.8	1.95	6.45	75.0	~100	221	–
905	11.8	7.54	–	17.6	1.84	6.50	73.4	~100	300	–
910	12.0	7.59	–	15.5	1.62	6.48	65.8	~100	154	–
915	12.1	7.56	–	13.6	1.42	6.48	10.5	~100	108	–
920	12.2	7.56	–	13.4	1.39	6.48	8.0	~100	113	–
925	12.1	7.58	–	12.6	1.33	6.48	7.4	~100	107	–
930	12.0	7.60	–	11.9	1.28	6.48	5.5	~100	81.2	–
935	12.1	7.57	–	11.5	1.20	6.48	4.8	~100	57.4	–
940	12.1	7.58	–	10.3	1.07	6.48	3.7	~100	45.2	–
945	11.9	7.62	–	9.6	1.00	6.43	-0.4	~100	52.0	–
950	11.9	7.55	–	9.7	1.00	6.59	-1.4	~100	58.0	–
955	11.9	7.58	–	10.5	1.10	6.48	-3.3	~100	64.7	–
Total Depth of Well:			84.11							
Depth To Water Before Purging:			69.68							
Depth To Water After Purging:			–							

ARCADIS

Water Sampling Log

Project: Reese - Landy | Project No.: B0048020170003 | Page: 12 of ___

Site Location: Lansing | Date: ___

Site/Well No.: MW 513-29 | Replicate No.: Dup-06 | Code No.: -

Weather: 60° - overcast | Sampling Time: Begin 1230 End 1235

Evacuation Data

Measuring Point	-
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	76.30
Depth to Water (ft bmp)	69.57
Water-Level Elevation (ft)	-
Water Column in Well (ft)	6.73
Casing Diameter/Type	2"
Gallons in Well	~1.08
Gallons Pumped/Bailed Prior to Sampling	~7
Sample Pump Intake Setting (ft bmp)	~75 ft
Purge Time	begin 1050 end 1225
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	13.4
SpC (mS/cm)	2.67
CND (mS/cm)	-
Dissolved Oxygen (%)	1.6
Dissolved Oxygen (mg/L)	0.17
pH (s.u.)	6.51
ORP (mV)	-38.5
Turbidity (NTU)	9.24
Color	clear
Odor	none
Appearance	clear
Sampling Method	low-flow
Remarks	duplicate

Constituents Sampled	Container Description	Number	Preservative
1-4 Dioxane	40ml Vial	6	HCL

Sampling Personnel: Kevin Box

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-29 PROJ #: B0064480.2017.00003

DATE : 5/2/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1050	13.2	2.63	-	9.8	1.01	6.51	-35.8	~200	554	69.57
1055	13.2	2.64	-	9.6	1.00	6.49	-33.0	~200	303	69.57
1100	13.2	2.68	-	7.6	0.76	6.50	-39.8	~200	171	69.66
1105	13.3	2.68	-	6.1	0.63	6.49	-37.2	~200	115	69.57
1110	13.2	2.67	-	5.1	0.52	6.49	-38.1	~200	112	69.57
1115	13.3	2.33	-	4.7	0.49	6.50	-46.0	~200	95.0	69.57
1120	13.3	2.67	-	4.2	0.45	6.49	-42.7	~200	66.2	65.52
1125	13.2	2.67	-	3.6	0.38	6.50	-39.1	~200	70.2	65.63
1130	13.2	2.67	-	3.1	0.32	6.50	-37.4	~200	450	65.63
1135	13.3	2.67	-	2.7	0.28	6.50	-36.5	~200	49.4	65.6
1140	13.3	2.67	-	2.5	0.26	6.50	-35.8	~200	41.0	65.69
1145	13.3	2.67	-	2.3	0.25	6.50	-35.9	~200	27.5	65.68
1150	13.3	2.67	-	2.1	0.23	6.50	-36.0	~200	25.3	65.63
1155	13.3	2.67	-	2.1	0.22	6.50	-36.2	~200	20.1	65.63
1200	13.3	2.67	-	2.0	0.20	6.50	-35.9	~200	14.4	65.68
1205	13.3	2.68	-	2.0	0.20	6.50	-36.1	~200	17.5	65.63
1210	13.3	2.67	-	1.8	0.19	6.51	-36.7	~200	12.0	65.63
1215	13.3	2.67	-	1.8	0.19	6.51	-37.1	~200	11.5	65.71
1220	13.4	2.67	-	1.7	0.18	6.51	-38.1	~200	10.5	65.63
1225	13.4	2.67	-	1.6	0.17	6.51	-38.5	~200	9.24	65.63
Total Depth of Well:			76.30							
Depth To Water Before Purging:			69.57							
Depth To Water After Purging:			65.63							

ARCADIS

Water Sampling Log

Project: Rover - Lorsbeg | Project No: B0084480.2017.00003 | Page: 12 of ___

Site Location: Lorsbeg | Date: 5/2/17

Site/Well No.: MW-05(3) | Replicate No.: — | Code No.: —

Weather: 70°; overcast | Sampling Time: Begin ~~1400~~ 1500 End ~~1405~~ 1505

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	15.21
Depth to Water (ft bmp)	3.97
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.24
Casing Diameter/Type	~~2"~~ 4"
Gallons in Well	7.306
Gallons Pumped/Bailed Prior to Sampling	~~none~~ ~5
Sample Pump Intake Setting (ft bmp)	~14.5 ft
Purge Time	begin 1520 end 1535
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	11.0
SpC (mS/cm)	1.88
CND (mS/cm)	~~2~~
Dissolved Oxygen (%)	22.9
Dissolved Oxygen (mg/L)	2.42
pH (s.u.)	7.24
ORP (mV)	143
Turbidity (NTU)	51.0
Color	cloudy
Odor	none
Appearance	little murky
Sampling Method	low-flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs	40ml Voa	3	HCL

Sampling Personnel: Keith Boorn

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	~~2" = 0.16~~	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-05(3) PROJ #: B0064480.2017.00603

DATE : 5/2/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
~~1320~~	10.8	1.82	-	19.1	2.07	7.46	-19.0	~200	~~####~~	3.97
~~1325~~	10.7	1.81	-	20.6	2.27	7.19	-22.8	~200	799	4.68
1330	10.9	1.80	-	20.6	2.27	7.20	-30.6	~200	680	5.04
1335	10.8	1.80	-	20.8	2.28	7.21	-32.4	~200	319	5.20
1340	10.9	1.80	-	22.0	2.42	7.22	-36.3	~200	216	5.40
1345	10.8	1.80	-	21.9	2.42	7.22	-36.5	~200	142	5.51
1350	10.8	1.80	-	22.6	2.50	7.23	-34.1	~200	99.8	5.61
1355	10.8	1.79	-	23.1	2.56	7.23	-28.6	~200	89.3	5.71
1400	10.8	1.79	-	23.1	2.55	7.23	-26.2	~200	56.3	5.71
1405	10.9	1.78	-	24.0	2.67	7.24	-16.7	~200	51.2	5.76
1410	10.8	1.77	-	23.9	2.65	7.24	-12.1	~200	43.2	5.76
1415	10.8	1.77	-	24.5	2.68	7.24	-5.1	~200	41.0	5.81
1420	10.9	1.76	-	25.2	2.75	7.24	-0.7	~200	39.1	5.83
1425	10.9	1.74	-	26.0	2.85	7.24	2.1	~200	40.9	5.91
1430	10.9	1.72	-	26.2	2.86	7.25	5.6	~200	44.4	6.01
1435	10.9	1.69	-	27.5	2.99	7.25	7.6	~200	52.6	~~6.21~~ 6.21
1440	10.9	1.66	-	28.3	3.12	7.26	10.6	~200	55.1	6.43
1445	10.9	1.62	-	28.6	3.12	7.26	12.8	~200	50.6	6.51
1450	10.9	1.59	-	28.8	2.84	7.25	14.1	~200	53.0	6.61
1455	11.0	1.58	-	22.9	2.42	7.24	14.3	~200	51.0	6.71
Total Depth of Well:			15.21							
Depth To Water Before Purging:			3.97							
Depth To Water After Purging:			6.71							

ARCADIS

Water Sampling Log

Project: Raeer-Lansdale | Project No. [illegible] | Page 14 of ___

Site Location: Lansdale | Date: 5/2/17

Site/Well No.: UNK-10 | Replicate No.: — | Code No.: —

Weather: 60s, overcast | Sampling Time: Begin 1710 | End 1715

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	15.33
Depth to Water (ft bmp)	2.33
Water-Level Elevation (ft)	—
Water Column in Well (ft)	13
Casing Diameter/Type	6"
Gallons in Well	19.11
Gallons Pumped/Bailed Prior to Sampling	~6
Sample Pump Intake Setting (ft bmp)	~15'
Purge Time	begin 1550 end 1705
Pumping Rate (ml/min)	~250
Evacuation Method	

Field Parameters

Temperature (°C)	10.9
SpC (mS/cm)	0.448
CND (mS/cm)	—
Dissolved Oxygen (%)	18.7
Dissolved Oxygen (mg/L)	2.09
pH (s.u.)	7.25
ORP (mV)	-53.8
Turbidity (NTU)	9.7
Color	clear
Odor	none
Appearance	clear
Sampling Method	low-flow
Remarks	*well did not stabalize

Constituents Sampled	Container Description	Number	Preservative
VOCs	40ml Voa	3	HCl

Sampling Personnel: Kevin B

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : UNK-10 PROJ #: B0064480.2017.0003

DATE : 5/2/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1550	10.9	0.71	-	1.4	0.15	7.38	-107.5	~200	#####	241
1555	10.6	0.71	-	1.0	0.13	7.29	-120.5	~250	352	3.18
1600	10.6	0.71	-	1.2	0.13	7.35	-126.2	~250	137	3.87
1605	10.6	0.71	-	1.4	0.16	7.37	-127.4	~250	73.9	4.32
1610	10.6	0.71	-	1.6	0.18	7.39	-128.4	~250	60.2	4.55
1615	10.6	0.70	-	2.0	0.22	7.38	-128.0	~250	53.7	4.87
1620	10.6	0.70	-	3.3	0.35	7.38	-124.8	~250	33.3	5.06
1625	10.6	0.687	-	3.6	0.39	7.37	-122.1	~250	27.7	5.24
1630	10.6	0.673	-	3.8	0.42	7.37	-117.3	~250	23.0	5.61
1635	10.6	0.646	-	4.2	0.45	7.35	-111.6	~250	30.5	5.68
1640	10.7	0.619	-	5.5	0.62	7.34	-104.1	~250	17.7	5.68
1645	10.7	0.574	-	7.6	0.85	7.32	-93.7	~250	17.9	5.68
1650	10.8	0.539	-	9.8	0.96	7.30	-83.4	~250	24.8	5.68
1655	10.8	0.501	-	13.3	1.47	7.28	-73.1	~250	15.7	5.68
1700	10.9	0.468	-	16.2	1.82	7.26	-63.6	~250	14.1	5.68
1705	10.9	0.448	-	18.7	2.09	7.25	-53.8	~250	9.7	5.68
Total Depth of Well:			15.33							
Depth To Water Before Purging:			2.33							
Depth To Water After Purging:			5.68							

ARCADIS

Water Sampling Log

Project: Roer-Lansy | Project No.: 6004480.2017.00003 | Page: 15 of ___

Site Location: Lansy | Date: 5/3/17

Site/Well No.: MW-06(3) | Replicate No.: – | Code No.: –

Weather: 60° - Sunny | Sampling Time: Begin 925 End 930

Evacuation Data

Measuring Point	–
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	11.52
Depth to Water (ft bmp)	2.55
Water-Level Elevation (ft)	–
Water Column in Well (ft)	8.97
Casing Diameter/Type	6"
Gallons in Well	13.19
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	~11'
Purge Time	begin 835 end 920
Pumping Rate (ml/min)	~150
Evacuation Method	

Field Parameters

Temperature (°C)	11.2
SpC (mS/cm)	0.467
CND (mS/cm)	0.344
Dissolved Oxygen (%)	3.9
Dissolved Oxygen (mg/L)	0.41
pH (s.u.)	7.39
ORP (mV)	-36.6
Turbidity (NTU)	8.10
Color	clear
Odor	none
Appearance	clear
Sampling Method	low-flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs	40ml Vial	3	HCl

Sampling Personnel: [signature]

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-06(J) PROJ #: B064480.2017.00603

DATE : 5/3/16 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
835	11.0	0.480	0352	25.1	2.67	6.97	71.0	150	308	279
840	11.0	0.476	0349	7.1	0.78	7.09	33.9	150	183	2.83
845	11.0	0.472	0.346	5.3	0.58	7.07	-11.5	150	112	2.85
850	11.0	0.470	0.344	4.5	0.52	7.34	-25.5	150	69.0	2.89
855	11.0	0.469	0.344	4.3	0.48	7.37	-45.1	150	49.6	2.92
900	11.1	0.468	0.344	4.2	0.47	7.37	-42.5	150	36.7	2.95
905	11.1	0.468	0.344	4.1	0.45	7.38	-42.4	150	24.2	2.96
910	11.2	0.467	0.344	3.9	0.43	7.39	-36.6	150	17.8	2.96
915	11.2	0.467	0.344	3.9	0.42	7.38	-36.5	150	11.6	2.96
920	11.2	0.467	0.344	3.9	0.41	7.39	-36.6	150	8.10	2.96
Total Depth of Well:			11.52							
Depth To Water Before Purging:			2.55							
Depth To Water After Purging:			2.96							

ARCADIS

Water Sampling Log

Project: Roers-Lansley | Project No. B0044820170003 | Page 15 of ___

Site Location: Lansing | Date: 5/3/17

Site/Well No.: MW-08-04 | Replicate No.: — | Code No.: —

Weather: 60°; Sunny | Sampling Time: Begin 1150 End 1155

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	~~88.34~~ 88.17
Depth to Water (ft bmp)	63.57
Water-Level Elevation (ft)	—
Water Column in Well (ft)	24.6
Casing Diameter/Type	2"
Gallons in Well	3.936
Gallons Pumped/Bailed Prior to Sampling	~3
Sample Pump Intake Setting (ft bmp)	~88'
Purge Time	begin 950 end ___
Pumping Rate (ml/min)	~200
Evacuation Method	___

Field Parameters

Temperature (°C)	13.1
SpC (mS/cm)	2.19
CND (mS/cm)	1.69
Dissolved Oxygen (%)	11.0
Dissolved Oxygen (mg/L)	1.15
pH (s.u.)	6.93
ORP (mV)	-35.8
Turbidity (NTU)	118
Color	cloudy
Odor	none
Appearance	little Murky
Sampling Method	___
Remarks	*well did not stabalize

Constituents Sampled	Container Description	Number	Preservative
1-4 Dioxane	40 ml Vial	3	HCl

Sampling Personnel: ___

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-02-04(3) PROJ #: 60644.2017.00603

DATE : 5/3/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
950	13.0	4.37	3.37	14.4	1.50	6.84	-51.8	~200	####	64.89
955	13.0	4.43	3.41	8.1	0.89	6.87	-50.0	~200	####	64.97
1000	13.0	4.35	3.36	15.4	1.59	6.88	-62.7	~200	####	65.32
1005	12.8	0.042	0.031	~~9.8~~ 9.7	10.08	7.02	-47.6	~200	666	65.18
1010	12.7	4.26	3.27	16.4	1.71	6.98	-46.2	~200	549	65.22
1015	13.0	4.19	3.23	11.7	1.20	6.93	-48.1	~200	341	65.20
1020	13.0	4.12	3.17	12.6	1.32	6.94	-47.3	~200	286	65.20
A 1025										
A 1030										
1035	12.9	3.87	2.98	18.2	1.88	6.95	-37.0	~200	411	65.02
1040	12.8	~~3.88~~ 0.029	0.023	51.1	5.47	7.13	-32.1	~200	336	64.97
1045	12.8	0.028	0.024	81.5	8.62	7.01	-27.6	~200	258	65.10
1050	12.9	0.031	0.025	20.2	2.12	7.05	-21.6	~200	189	65.08
1055	12.7	0.115	0.024	20.3	2.16	7.07	-20.6	~200	173	64.98
1100	12.9	0.034	0.025	62.3	6.64	7.05	-24.0	~200	182	64.98
1105	12.8	3.78	2.90	17.4	1.77	6.97	-27.5	~200	117	64.87
1110	12.2	2.85	2.67	30.4	3.09	7.05	-19.2	~200	105	64.97
1115	12.7	3.84	2.94	17.0	1.77	6.94	-24.7	~200	490	65.04
1120	13.1	0.035	0.026	26.7	2.87	7.07	-24.6	~200	317	65.02
1125	12.9	0.030	0.023	44.4	4.01	7.08	-28.6	~200	229	65.09
1130	13.0	3.99	3.08	~~12.2~~ 12.6	1.29	6.94	-36.0	~200	140	65.43
1135	13.0	~~3.87~~	3.08	15.4	1.61	7.03	-34.8	~200	166	65.05
1140	13.1	4.46	3.12	69.5	7.46	7.03	-26.9	~200	157	65.2
1145	13.1	2.19	1.69	11.0	1.15	6.93	-35.8	~200	118	65.4
A Had to step away from pump to meet equipment curator										
Total Depth of Well:			~~64.31~~	68.17						
Depth To Water Before Purging:			~~63.57~~	63.57						
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: Racer - Lansing | Project No. 86064480.2017.0003 | Page 16 of ___

Site Location: Lansing | Date: 5/3/17

Site/Well No.: MW-23 | Replicate No.: — | Code No.: —

Weather: 70°; Sunny | Sampling Time: Begin 1335 End 1340

Evacuation Data

Measuring Point	—
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	61.35
Depth to Water (ft bmp)	52.42
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.93
Casing Diameter/Type	2"
Gallons in Well	~1.43
Gallons Pumped/Bailed Prior to Sampling	~5
Sample Pump Intake Setting (ft bmp)	~60'
Purge Time	begin 1225 end 1330
Pumping Rate (ml/min)	~200
Evacuation Method	

Field Parameters

Temperature (°C)	13.1
SpC (mS/cm)	1.48
CND (mS/cm)	1.14
Dissolved Oxygen (%)	2.3
Dissolved Oxygen (mg/L)	0.24
pH (s.u.)	7.07
ORP (mV)	-95.6
Turbidity (NTU)	8.96
Color	clear
Odor	none
Appearance	clear
Sampling Method	low-flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Metals: ~~Cd~~ As, Co, Cu, Pb, Ni, V	125 ml Plastic	1	HNO_3

Sampling Personnel: [signature]

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-23 PROJ #: B0064480.2017.00603

DATE : 5/3/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1225	13.1	1.51	1.16	5.9	0.63	7.06	-80.1	~200	221	52.71
1230	13.0	45.62 1.48	1.14	5.4	0.57	7.04	-82.7	~200	114	52.78
1235	13.0	1.49	1.15	5.1	0.53	7.03	-85.8	~200	56.4	52.71
1240	13.0	1.47	1.14	6.2	0.65	7.10	-83.4	~200	56.6	52.71
1245	13.1	1.46	1.13	6.3	0.67	7.09	-87.5	~200	47.3	52.73
1250	13.0	1.45	1.12	5.2	0.55	7.04	-89.9	~200	40.0	52.81
1255	13.0	1.46	1.13	4.6	0.48	7.04	-90.3	~200	30.3	52.85
1300	13.0	1.47	1.13	4.2	0.44	7.05	-89.6	~200	25.9	52.85
1305	13.2	1.47	1.14	3.8	0.39	7.06	-90.6	~200	22.6	52.87
1310	13.0	1.47	1.14	3.3	0.35	7.05	-91.9	~200	19.4	52.82
1315	13.0	1.47	1.14	3.1	0.33	7.05	-92.5	~200	14.6	52.85
1320	13.0	1.48	1.14	2.3	0.23	7.05	-93.5	~200	13.6	52.89
1325	13.1	1.48	1.14	2.3	0.23	7.05	-92.5	~200	9.26	52.87
1330	13.1	1.48	1.14	2.3	0.24	7.07	-95.6	~200	8.96	52.89
Total Depth of Well:			61.35							
Depth To Water Before Purging:			52.42							
Depth To Water After Purging:			52.89							

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B0064481.2017.00603 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/25/17

Site/Well No. MW-13-36R Replicate No. NA Code No. NA

Weather Sunny, ≈70°F Sampling Time: Begin 1055 End 1100

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	12.78
Depth to Water (ft bmp)	5.04
Water-Level Elevation (ft)	—
Water Column in Well (ft)	7.74
Casing Diameter/Type	2" / PVC
Gallons in Well	1.24
Gallons Pumped/Bailed Prior to Sampling	≈1.00
Sample Pump Intake Setting (ft bmp)	≈10.28
Purge Time	begin 1015 end 1100
Pumping Rate (ml/min)	100
Evacuation Method	Peristaltic

Field Parameters

Temperature (°C)	9.9
SpC (mS/cm)	1.65
CND (mS/cm)	~~10.6~~ aw NA
Dissolved Oxygen (%)	~~1.22~~ aw 10.6
Dissolved Oxygen (mg/L)	~~12.11~~ aw 1.22
pH (s.u.)	12.11
ORP (mV)	81.2
Turbidity (NTU)	0.50
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	MS/MSD collected

Constituents Sampled	Container Description	Number	Preservative
Select Metals	125 ml poly	3	HNO_3

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-36R PROJ #: B0064481.2017.00603

DATE : 4/25/17 LOC: Plant 6 RACER Lansing

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1020	9.7	1.46	—	6.1	0.72	11.97	143.4	100	2.08	5.04
1025	10.0	1.53	—	7.4	0.82	12.01	128.9	100	1.56	5.04
1030	9.5	1.57	—	9.5	1.07	12.05	108.1	100	1.14	5.04
1035	9.8	1.59	—	9.4	1.09	12.07	99.6	100	0.96	5.04
1040	9.8	1.63	—	10.5	1.19	12.10	87.7	100	0.88	5.04
1045	9.9	1.65	—	10.6	1.21	12.10	83.2	100	0.72	5.04
1050	9.9	1.65	—	10.6	1.22	12.11	81.2	100	0.50	5.04
1055	Collected MW-13-36R_042517									

Total Depth of Well:	12.78
Depth To Water Before Purging:	5.04
Depth To Water After Purging:	5.04

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B0064481.2017.00603 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/25/17

Site/Well No. MW-12-13 Replicate No. NA Code No. NA

Weather Cloudy, ~70°F Sampling Time: Begin 1250 End 1255

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	25.41
Depth to Water (ft bmp)	9.30
Water-Level Elevation (ft)	—
Water Column in Well (ft)	16.11
Casing Diameter/Type	2" / PVC
Gallons in Well	2.58
Gallons Pumped/Bailed Prior to Sampling	~ 1.50
Sample Pump Intake Setting (ft bmp)	~ 22.91
Purge Time	begin 1150 end 1255
Pumping Rate (ml/min)	100
Evacuation Method	Peristaltic

Field Parameters

Temperature (°C)	11.1
SpC (mS/cm)	1.24
CND (mS/cm)	—
Dissolved Oxygen (%)	2.2
Dissolved Oxygen (mg/L)	0.26
pH (s.u.)	7.34
ORP (mV)	-31.0
Turbidity (NTU)	7.20
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Select Metals	125 ml poly	1	HNO_3

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-13 PROJ #: B006448I.2017.00603

DATE : 4/25/17 LOC: Plant 6 RACER Lansing

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1155	11.0	1.43	——	7.1	0.78	7.96	148.5	100	42.4	10.40
1200	10.9	1.43	——	6.7	0.62	7.70	137.0	100	26.7	10.80
1205	11.1	1.39	——	4.3	0.47	7.59	83.5	100	18.3	11.11
1210	11.5	1.35	——	3.5	0.38	7.47	37.7	100	12.1	11.15
1215	11.1	1.35	——	3.4	0.37	7.45	19.2	100	10.8	11.19
1220	11.0	1.32	——	2.9	0.31	7.40	2.1	100	9.41	11.25
1225	11.2	1.30	——	2.7	0.30	7.39	-7.4	100	7.27	11.31
1230	11.2	1.28	——	2.5	0.27	7.36	-18.4	100	6.50	11.33
1235	11.2	1.26	——	2.4	0.26	7.35	-23.1	100	6.89	11.34
1240	11.1	1.25	——	2.3	0.26	7.34	-26.6	100	7.11	11.35
1245	11.1	1.24	——	2.2	0.26	7.34	-31.0	100	7.20	11.39
1250	Collected MW-12-13-042517									

Total Depth of Well:	25.41
Depth To Water Before Purging:	9.30
Depth To Water After Purging:	11.39

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B0064481.2017.00003 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/25/17

Site/Well No. MW-12-12 Replicate No. NA Code No. NA

Weather Sunny, ≈70°F Sampling Time: Begin 1540 End 1545

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	17.21
Depth to Water (ft bmp)	6.20
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.01
Casing Diameter/Type	2"/pvc
Gallons in Well	1.76
Gallons Pumped/Bailed Prior to Sampling	≈1.00
Sample Pump Intake Setting (ft bmp)	≈14.71
Purge Time	begin 1445 end 1545
Pumping Rate (ml/min)	100
Evacuation Method	Peristaltic

Field Parameters

Temperature (°C)	11.4
SpC (mS/cm)	0.92
CND (mS/cm)	—
Dissolved Oxygen (%)	2.3
Dissolved Oxygen (mg/L)	0.26
pH (s.u.)	7.40
ORP (mV)	85.0
Turbidity (NTU)	8.41
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Select Metals	125 ml poly	1	HNO_3

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-12 PROJ #: B0064481.2017.00603

DATE : 4/25/17 LOC: Plant 6 RACER Lansing

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1450	11.3	0.82	—	3.5	0.38	7.42	57.3	100	23.7	8.29
1455	11.4	0.76	—	2.4	0.27	7.33	65.2	100	21.6	9.05
1500	11.3	0.80	—	2.2	0.23	7.32	70.0	100	23.9	9.80
1505	11.2	0.77	—	2.1	0.23	7.40	72.9	100	20.1	10.76
1510	11.6	0.83	—	2.2	0.24	7.38	76.8	100	32.6	11.36
1515	11.8	0.87	—	2.3	0.24	7.38	79.3	100	41.7	11.74
1520	11.6	0.91	—	2.4	0.26	7.40	82.1	100	16.4	11.81
1525	11.6	0.91	—	2.4	0.26	7.41	83.6	100	9.80	11.89
1530	11.4	0.92	—	2.4	0.27	7.40	84.0	100	8.61	11.92
1535	11.4	0.92	—	2.3	0.26	7.40	85.0	100	8.41	11.96
1540	Collected MW-12-12_042517									
Total Depth of Well:		17.21								
Depth To Water Before Purging:			6.20							
Depth To Water After Purging:			11.96							

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B00641481.2017.00003 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/25/17

Site/Well No. MW-12-11 Replicate No. NA Code No. NA

Weather Sunny, ~70°F Sampling Time: Begin 1635 End 1640

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	16.79
Depth to Water (ft bmp)	2.00
Water-Level Elevation (ft)	—
Water Column in Well (ft)	14.79
Casing Diameter/Type	2"/PVC
Gallons in Well	2.37
Gallons Pumped/Bailed Prior to Sampling	~0.50
Sample Pump Intake Setting (ft bmp)	~12.29
Purge Time	begin 1605 end 1640
Pumping Rate (ml/min)	100
Evacuation Method	Peristaltic

Field Parameters

Temperature (°C)	11.3
SpC (mS/cm)	0.79
CND (mS/cm)	—
Dissolved Oxygen (%)	2.7
Dissolved Oxygen (mg/L)	0.28
pH (s.u.)	7.13
ORP (mV)	-94.1
Turbidity (NTU)	1.80
Color	Clear
Odor	None
Appearance	~~Low flow~~ aw clear
Sampling Method	Low flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Select Metals	125 ml poly	1	HNO3

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-11 PROJ #: B0064481.2017.00603

DATE : 4/25/17 LOC: Plant 6 RACER Lansing

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1610	11.5	0.76	—	6.1	0.66	7.12	-56.8	100	98.9	2.81
1615	11.3	0.77	—	3.1	0.31	7.12	-83.6	100	4.61	3.00
1620	11.2	0.79	—	2.8	0.29	7.12	-90.3	100	2.14	3.08
1625	11.1	0.79	—	2.7	0.29	7.13	-92.4	100	1.96	3.11
1630	11.3	0.79	—	2.7	0.28	7.13	-94.1	100	1.80	3.13
1635	Collected MW-12-11-042517									
Total Depth of Well:		16.79								
Depth To Water Before Purging:		2.06								
Depth To Water After Purging:		3.13								

ARCADIS

Water Sampling Log

Project RACER Lansing Project No. B0064480.2017.00603 Page 1 of 2

Site Location Plant 3 Date 4/26/17

Site/Well No. MW-12-04 Replicate No. NA Code No. NA

Weather Cloudy, scattered showers, ~80°F Sampling Time: Begin 1135 End 1140

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	99.96
Depth to Water (ft bmp)	50.20
Water-Level Elevation (ft)	—
Water Column in Well (ft)	49.76
Casing Diameter/Type	4" / Steel
Gallons in Well	32.34
Gallons Pumped/Bailed Prior to Sampling	≈ 1.00
Sample Pump Intake Setting (ft bmp)	≈ 94.96
Purge Time	begin 1050 end 1140
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	13.3
SpC (mS/cm)	1.63
CND (mS/cm)	1.29
Dissolved Oxygen (%)	8.0
Dissolved Oxygen (mg/L)	0.81
pH (s.u.)	6.90
ORP (mV)	-48.6
Turbidity (NTU)	3.97
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane via low level USEPA Method 522	250 ml amber	2	HCl

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-04 PROJ #: B0064480.2017.00603

DATE : 4/26/17 LOC: Plant 3 RACER Lansing

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1055	14.6	1.56	1.25	18.7	1.94	6.84	-39.7	100	23.6	50.20
1100	12.0	1.67	1.25	11.2	1.17	6.86	-45.6	100	21.2	50.20
1105	13.3	1.60	1.25	9.3	0.97	6.86	-46.1	100	18.4	50.20
1110	14.2	1.59	1.27	7.4	0.75	6.90	-49.1	100	16.6	50.20
1115	14.6	1.60	1.28	7.4	0.74	6.90	-49.7	100	11.1	50.20
1120	13.6	1.64	1.29	7.7	0.79	6.90	-49.2	100	9.81	50.20
1125	13.9	1.63	1.29	7.9	0.80	6.90	-48.9	100	9.14	5.20
1130	13.3	1.63	1.29	8.0	0.81	6.90	-48.6	100	8.97	5.20
1135	Collected MW-12-04_042617									
Total Depth of Well:		99.96								
Depth To Water Before Purging:			50.20							
Depth To Water After Purging:			50.20							

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 2 Project No. B0064479.2017.00003 Page 1 of 2

Site Location RACER Lansing Plant 2 Date 4/26/17

Site/Well No. MW-12-05R Replicate No. NA Code No. NA

Weather Cloudy, windy, ~80°F Sampling Time: Begin 1340 End 1350

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	112.35
Depth to Water (ft bmp)	76.56
Water-Level Elevation (ft)	—
Water Column in Well (ft)	35.79
Casing Diameter/Type	4" / steel
Gallons in Well	≈ 23.26
Gallons Pumped/Bailed Prior to Sampling	= 1.00
Sample Pump Intake Setting (ft bmp)	≈107.35
Purge Time	begin 1255 end 1350
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	16.2
SpC (mS/cm)	1.46
CND (mS/cm)	1.22
Dissolved Oxygen (%)	3.5
Dissolved Oxygen (mg/L)	0.35
pH (s.u.)	8.08
ORP (mV)	-542.2
Turbidity (NTU)	7.79
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs	40 ml voa	3	HCl
1,4-Dioxane via low-level USEPA Method 522	250 ml amber	2	HCl

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-05R PROJ #: B0064479.2017.00603

DATE : 4/26/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1300	20.8	1.13	1.03	47.9	4.26	9.94	-124.1	100	37.4	76.56
1305	17.7	1.50	1.28	36.0	3.39	8.42	-252.1	100	26.8	76.56
1310	17.8	1.48	1.27	10.9	1.03	7.89	-488.0	100	17.3	76.56
1315	16.4	1.47	1.28	4.2	0.41	7.95	-538.5	100	14.5	76.56
1320	16.3	1.47	1.23	4.0	0.40	7.95	-531.1	100	13.2	76.56
1325	16.4	1.46	1.22	3.9	0.39	7.98	-545.0	100	9.60	76.56
1330	16.6	1.47	1.22	3.5	0.35	8.07	-539.1	100	8.88	76.56
1335	16.2	1.46	1.22	3.5	0.35	8.08	-542.2	100	7.79	76.56
1340	Collected MW-12-05R_042617									
Total Depth of Well:		112.35								
Depth To Water Before Purging:			76.56							
Depth To Water After Purging:			76.56							

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 2

Site Location: RACER Lansing Plant 2 | Date: 4/26/17

Site/Well No.: MW-17-87 | Replicate No.: NA | Code No.: NA

Weather: Sunny, windy, ≈80°F | Sampling Time: Begin 1525 End 1535

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	113.85
Depth to Water (ft bmp)	74.71
Water-Level Elevation (ft)	—
Water Column in Well (ft)	39.14
Casing Diameter/Type	4"/Steel
Gallons in Well	≈25.44
Gallons Pumped/Bailed Prior to Sampling	≈1.00
Sample Pump Intake Setting (ft bmp)	≈108.85
Purge Time	begin 1445 end —
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	19.0
SpC (mS/cm)	3.50
CND (mS/cm)	3.07
Dissolved Oxygen (%)	7.6
Dissolved Oxygen (mg/L)	0.71
pH (s.u.)	7.08
ORP (mV)	-256.8
Turbidity (NTU)	6.59
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs	40 ml voa	3	HCl
1,4-Dioxane via low-level USEPA Method 522	250 ml amber	2	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-17-87 PROJ #: B0064479.2017.00603

DATE : 4/26/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1450	20.0	3.61	3.26	30.0	2.72	7.02	-97.5	100	23.0	74.71
1455	19.3	3.64	3.24	16.0	1.46	7.03	-112.9	100	16.3	74.71
1500	18.8	3.65	3.21	10.3	0.94	7.06	-141.8	100	12.1	74.71
1505	18.7	3.59	3.15	8.3	0.83	7.07	-191.1	100	10.6	74.71
1510	18.7	3.52	3.10	7.8	0.72	7.07	-247.9	100	9.14	74.71
1515	18.9	3.51	3.08	7.6	0.71	7.07	-251.3	100	8.06	74.71
1520	19.0	3.50	3.07	7.6	0.71	7.08	-256.8	100	6.59	74.71
1525	Collected MW-17-87_042617									
Total Depth of Well:		113.85								
Depth To Water Before Purging:			74.71							
Depth To Water After Purging:			74.71							

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B0064481.2017.00603 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/27/17

Site/Well No. MWBP-12-UST1-4 Replicate No. NA Code No. NA

Weather Cloudy, ≈60°F Sampling Time: Begin 1020 End 1025

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	11.24
Depth to Water (ft bmp)	6.85
Water-Level Elevation (ft)	—
Water Column in Well (ft)	4.39
Casing Diameter/Type	4" / PVC
Gallons in Well	2.85
Gallons Pumped/Bailed Prior to Sampling	≈ 1.00
Sample Pump Intake Setting (ft bmp)	≈8.74
Purge Time	begin 0920 end 1025
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.8
SpC (mS/cm)	1.97
CND (mS/cm)	1.43
Dissolved Oxygen (%)	3.3
Dissolved Oxygen (mg/L)	0.36
pH (s.u.)	7.28
ORP (mV)	-50.2
Turbidity (NTU)	1.01
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs	40 ml voa	3	HCl

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MWBP-12-UST1-4 PROJ #: B0064481.2017.00603

DATE : 4/27/17 LOC: RACER Lansing Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0925	11.4	1.67	1.24	14.6	1.55	7.06	194.9	100	9.64	7.02
0930	10.9	~~2.68~~ 1.76 aw	1.26	5.0	0.55	7.19	86.3	100	5.15	7.02
0935	10.4	1.75	1.27	4.7	0.49	7.22	68.9	100	3.27	7.02
0940	10.7	1.77	1.30	3.6	0.40	7.24	35.1	100	3.01	7.02
0945	10.9	1.86	1.33	3.4	0.37	7.26	4.3	100	2.50	7.02
0950	10.7	1.86	1.35	3.4	0.36	7.26	-9.3	100	2.14	7.02
0955	10.7	1.89	1.38	3.4	0.37	7.26	-29.1	100	2.01	7.02
1000	10.8	1.92	1.40	3.4	0.37	7.27	-37.0	100	1.92	7.02
1005	10.8	1.96	1.42	3.3	0.36	7.28	-46.3	100	1.66	7.02
1010	10.8	1.97	1.43	3.3	0.36	7.28	-49.1	100	1.14	7.02
1015	10.8	1.97	1.43	3.3	0.36	7.28	-50.2	100	1.01	7.02
1020	Collected MWBP-12-UST1-4_042717									
Total Depth of Well:		11.24								
Depth To Water Before Purging:			6.85							
Depth To Water After Purging:			7.02							

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B0064481.2017.00603 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/27/17

Site/Well No. MWBP-12A-UST1-4 Replicate No. NA Code No. NA

Weather Cloudy, ≈ 60°F Sampling Time: Begin 1225 End 1230

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	36.72
Depth to Water (ft bmp)	28.37
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.35
Casing Diameter/Type	2"/pvc
Gallons in Well	1.34
Gallons Pumped/Bailed Prior to Sampling	≈1.00
Sample Pump Intake Setting (ft bmp)	≈34.22
Purge Time	begin 1130 end 1230
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	13.6
SpC (mS/cm)	4.12
CND (mS/cm)	3.20
Dissolved Oxygen (%)	3.0
Dissolved Oxygen (mg/L)	0.30
pH (s.u.)	6.81
ORP (mV)	-44.5
Turbidity (NTU)	1.13
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs	40 ml voa	3	HCl

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MWBP-12A-UST1-4 PROJ #: B0064481.2017.00603

DATE : 4/27/17 LOC: RACER Lansing Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1135	13.5	5.74	3.47	7.9	1.18	6.78	-9.3	100	68.2	28.45
1140	11.2	5.13	3 43	5.3	0.89	6.78	-16.2	100	40.0	28.45
1145	10.9	4.65	3.39	4.3	0.46	6.79	-22.7	100	21.8	28.45
1150	11.6	4.51	3.33	4.1	0.45	6.80	-30.6	100	12.3	28.45
1155	8.0	4.91	3.29	4.3	0.50	6.80	-34.9	100	5.91	28.45
1200	8.2	4.16	3.26	3.0	0.30	6.81	-38.7	100	4.90	28.45
1205	13.6	4.14	3.24	~~3.3~~ 3.1 aw	0.31	6.81	-40.5	100	3.21	28.45
1210	13.6	4.12	3.21	3.0	0.31	6.81	-41.7	100	2.20	28.45
1215	13.6	4.12	3.22	2.9	0.30	6.81	-43.2	100	1.61	28.45
1220	13.6	4.12	3.20	3.0	0.30	6.81	-44.5	100	1.13	28.45
1225	Collected MWBP-12A-UST1-4-042717									
Total Depth of Well:		36.72								
Depth To Water Before Purging:			28.37							
Depth To Water After Purging:			2845							

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B00644481.2013.00603 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/27/17

Site/Well No. MWBP-11-UST1-4 Replicate No. NA Code No. NA

Weather Cloudy, ≈60°F Sampling Time: Begin 1355 End 1400

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	11.22
Depth to Water (ft bmp)	2.60
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.62
Casing Diameter/Type	4"/PVC
Gallons in Well	≈ 5.60
Gallons Pumped/Bailed Prior to Sampling	= 1.00
Sample Pump Intake Setting (ft bmp)	= 8.72
Purge Time	begin 1300 end 1400
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	11.9
SpC (mS/cm)	1.03
CND (mS/cm)	0.77
Dissolved Oxygen (%)	15.4
Dissolved Oxygen (mg/L)	1.68
pH (s.u.)	9.86
ORP (mV)	28.5
Turbidity (NTU)	1.99
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs	40ml voa	3	HCl

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MWBP-11-UST1-4 PROJ #: B0064481.2017.00603

DATE : 4/27/17 LOC: RACER Lansing Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1305	8.3	1.35	0.73	35.9	3.19	10.17	111.4	100	19.6	2.60
1310	9.1	1.06	0.73	33.3	4.12	10.13	111.0	100	10.4	2.60
1315	11.9	0.99	0.74	32.3	5.86	9.89	110.5	100	4.07	2.60
1320	12.0	1.00	0.75	26.9	2.10	9.86	94.3	100	3.71	2.60
1325	12.0	1.01	0.76	19.0	2.03	9.83	86.4	100	3.28	2.60
1330	12.1	1.02	0.77	17.2	1.85	9.86	53.7	100	3.08	2.60
1335	12.1	1.02	0.77	16.2	1.77	9.85	41.2	100	2.81	2.60
1340	12.0	1.02	0.77	15.9	1.72	9.85	30.8	100	2.60	2.60
1345	12.0	1.02	0.77	15.6	1.70	9.85	29.2	100	2.26	2.60
1350	11.9	1.03	0.77	15.4	1.68	9.86	28.5	100	1.99	2.60
1355	Collected MWBP-11-UST1-4_042717									
Total Depth of Well:		11.22								
Depth To Water Before Purging:			2.60							
Depth To Water After Purging:			2.60							

ARCADIS

Water Sampling Log

Project RACER Lansing Plant 6 Project No. B00644481.2017.00603 Page 1 of 2

Site Location RACER Lansing Plant 6 Date 4/27/17

Site/Well No. MWBP-10-UST5-6 Replicate No. NA Code No. NA

Weather Cloudy, ≈60°F Sampling Time: Begin 1600 End 1605

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	36.85
Depth to Water (ft bmp)	30.26
Water-Level Elevation (ft)	—
Water Column in Well (ft)	6.59
Casing Diameter/Type	2"/PVC
Gallons in Well	= 1.05
Gallons Pumped/Bailed Prior to Sampling	= 0.75
Sample Pump Intake Setting (ft bmp)	= 34.35
Purge Time	begin 1525 end 1605
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	7.2
SpC (mS/cm)	4.80
CND (mS/cm)	3.50
Dissolved Oxygen (%)	7.6
Dissolved Oxygen (mg/L)	0.81
pH (s.u.)	6.91
ORP (mV)	-18.6
Turbidity (NTU)	5.01
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low flow
Remarks	Dup-09_042717 collected here

Constituents Sampled	Container Description	Number	Preservative
VOCs	40 ml voa	6	HCl

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MWBP-10-UST5-6 PROJ #: B0064481.2017.006603

DATE : 4/27/17 LOC: RACER Lansing Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1530	8.1	6.09	3.53	16.2	2.14	6.88	-52.4	100	18.6	30.35
1535	7.3	5.79	3.52	13.1	1.55	6.90	-29.6	100	10.2	30.35
1540	7.1	5.50	3.51	9.6	1.13	6.91	-15.3	100	8.41	30.36
1545	7.4	5.00	3.50	8.0	0.88	6.91	-18.1	100	6.40	30.38
1550	7.6	4.91	3.50	7.8	0.83	6.91	-18.4	100	5.06	30.39
1555	7.2	4.80	3.50	7.6	0.81	6.91	-18.6	100	5.01	30.41
1600	Collected MWBP-10-UST5-6_042717									
Total Depth of Well:		36.85								
Depth To Water Before Purging:			30.26							
Depth To Water After Purging:			30.41							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. 80064480.2017.00603 | Page 1 of 2

Site Location: Plant 3 | Date: 4/28/17

Site/Well No.: MW-12-21 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, = 50°F | Sampling Time: Begin 1105 End 1110

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	78.04
Depth to Water (ft bmp)	68.37
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.67
Casing Diameter/Type	2" / PVC
Gallons in Well	1.55
Gallons Pumped/Bailed Prior to Sampling	~~75.54~~ aw = 1.25
Sample Pump Intake Setting (ft bmp)	= 75.54
Purge Time	begin 0945 end 1110
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.9
SpC (mS/cm)	1.72
CND (mS/cm)	1.29
Dissolved Oxygen (%)	6.6
Dissolved Oxygen (mg/L)	0.70
pH (s.u.)	6.84
ORP (mV)	-39.4
Turbidity (NTU)	80.1
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs + 1,4-Dioxane	40ml voa	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-21 PROJ #: B0064480.2017.00603

DATE : 4/28/17 LOC: Plant 3 RACER Lansing

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0950	11.2	1.64	1.21	11.5	1.26	6.76	26.3	100	212	70.01
0955	11.4	1.63	1.20	13.8	1.51	6.82	16.7	100	161	71.80
1000	10.6	1.64	1.18	14.8	1.64	6.85	13.9	100	93.4	72.21
1005	10.6	1.63	1.18	15.2	1.66	6.86	12.4	100	81.1	72.59
1010	10.4	1.64	1.18	14.6	1.63	6.87	7.9	100	131	72.70
1015	10.7	1.66	1.21	12.2	1.33	6.86	-6.0	100	101	72.83
1020	10.7	1.72	1.25	8.8	0.96	6.84	-27.0	106	206	73.01
1025	10.7	1.72	1.25	7.8	0.83	6.83	-33.4	100	200	73.13
1030	11.0	1.71	1.26	6.7	0.73	6.85	-38.6	100	192	73.15
1035	11.0	1.70	1.26	6.7	0.73	6.84	-39.2	100	181	73.16
1040	11.1	1.70	1.26	6.6	0.72	6.84	-39.4	100	193	73.16
1045	11.1	1.71	1.27	6.5	0.70	6.84	-40.0	100	142	73.16
1050	11.1	1.71	1.27	6.6	0.70	6.84	-39.8	100	123	73.16
1055	11.0	1.71	1.28	6.6	0.70	6.84	-39.6	100	96.2	73.17
1100	10.9	1.72	1.29	6.6	0.70	6.84	-39.4	106	80.1	73.17
1105	Collected MW-12-21-042817									
Total Depth of Well:		78.04								
Depth To Water Before Purging:			68.37							
Depth To Water After Purging:			73.17							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B0064480.2017.00003 | Page: 1 of 2

Site Location: Plant 3 | Date: 4/28/17

Site/Well No.: MW-13-22 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, = 50°F | Sampling Time: Begin 1315 End 1320

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	97.32
Depth to Water (ft bmp)	70.90
Water-Level Elevation (ft)	—
Water Column in Well (ft)	26.42
Casing Diameter/Type	2"/pvc
Gallons in Well	=4.23
Gallons Pumped/Bailed Prior to Sampling	=0.50
Sample Pump Intake Setting (ft bmp)	=94.82
Purge Time	begin ~~1200~~ 1240 end 1320
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	14.6
SpC (mS/cm)	1.93
CND (mS/cm)	1.53
Dissolved Oxygen (%)	3.5
Dissolved Oxygen (mg/L)	0.35
pH (s.u.)	6.87
ORP (mV)	-84.6
Turbidity (NTU)	4.11
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs + 1,4-Dioxane	40 ml voa	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-22 PROJ #: B0064480.2017.00603

DATE : 4/28/17 LOC: Plant 3 RACER Lansing

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
~~1205~~										
~~1210~~										
~~1215~~	YSI fails. Stop to troubleshoot									
~~1220~~										
1245	14.4	1.92	1.53	5.9	0.60	6.84	-65.7	100	39.6	7.90
1250	14.5	1.93	1.54	4.5	0.45	6.86	-76.7	100	28.2	7.90
1255	14.7	1.93	1.55	3.8	0.38	6.87	-80.8	100	12.1	7.90
1300	14.6	1.93	1.54	3.6	0.36	6.87	-82.9	100	8.64	7.90
1305	14.1	1.93	1.54	3.5	0.35	6.87	-84.0	100	7.32	7.90
1310	14.6	1.93	1.53	3.5	0.35	6.87	-84.6	100	4.11	7.90
1315	Collected MW-13-22_042817									
Total Depth of Well:		97.32								
Depth To Water Before Purging:			70.90							
Depth To Water After Purging:			70.90							

ARCADIS

Water Sampling Log

Project RACER Lansing | Project No. B004480.2017.00003 | Page 1 of 2

Site Location Plant 3 | Date 5/1/17

Site/Well No. CH-14-RO | Replicate No. NA | Code No. NA

Weather Scattered showers, ~60°F | Sampling Time: Begin 1030 End 1035

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	14.84
Depth to Water (ft bmp)	5.35
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.49
Casing Diameter/Type	2" / PVC
Gallons in Well	= 1.52
Gallons Pumped/Bailed Prior to Sampling	= 0.75
Sample Pump Intake Setting (ft bmp)	= 12.34
Purge Time	begin 0945 end 1035
Pumping Rate (ml/min)	100
Evacuation Method	Peristaltic

Field Parameters

Temperature (°C)	12.6
SpC (mS/cm)	1.02
CND (mS/cm)	0.78
Dissolved Oxygen (%)	2.1
Dissolved Oxygen (mg/L)	0.21
pH (s.u.)	7.18
ORP (mV)	327.1
Turbidity (NTU)	0.26
Color	Clear / yellowish green
Odor	None
Appearance	Yellowish green
Sampling Method	Low Flow
Remarks	Purge water placed in overpack drum

Constituents Sampled	Container Description	Number	Preservative
Select Metals	125ml poly	1	HNO_3
Hexavalent Chromium	125ml poly	1	None

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : CH-14-RO PROJ #: B0064480.2017.00603

DATE : 5/1/17 LOC: RACER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0950	13.1	1.03	0.79	6.5	0.67	7.14	394.7	100	0.85	5.62
0955	13.1	1.03	0.79	5.1	0.64	7.16	386.6	100	0.80	5.63
1000	13.0	1.03	0.79	4.0	0.41	7.17	373.1	100	0.72	5.65
1005	12.7	1.03	0.79	3.1	0.33	7.17	356.8	100	0.50	5.66
1010	12.7	1.02	0.78	2.7	0.28	7.18	344.3	100	0.41	5.67
1015	12.6	1.02	0.78	2.3	0.24	7.18	337.6	100	0.35	5.67
1020	12.6	1.02	0.78	2.1	0.21	7.18	330.9	100	0.30	5.67
1025	12.6	1.02	0.78	2.1	0.21	7.18	327.1	100	0.26	5.67
1030	Collected CH-14-RO_05			0117						
Total Depth of Well:		14.84								
Depth To Water Before Purging:			5.35							
Depth To Water After Purging:			5.67							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. B0064480.2017.00603 | Page 1 of 2

Site Location: Plant 3 | Date: 5/1/17

Site/Well No.: MW-91-2 | Replicate No.: NA | Code No.: NA

Weather: Scattered Showers, ~60°F | Sampling Time: Begin 1200 End 1205

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	81.40
Depth to Water (ft bmp)	60.84
Water-Level Elevation (ft)	—
Water Column in Well (ft)	20.56
Casing Diameter/Type	4" / PVC
Gallons in Well	= 13.36
Gallons Pumped/Bailed Prior to Sampling	= 0.75
Sample Pump Intake Setting (ft bmp)	= 76.40
Purge Time	begin 1110 end 1205
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	16.2
SpC (mS/cm)	0.055
CND (mS/cm)	0.045
Dissolved Oxygen (%)	12.5
Dissolved Oxygen (mg/L)	1.23
pH (s.u.)	5.93
ORP (mV)	287.7
Turbidity (NTU)	2.51
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 ml voa	3	HCl
Select Metals	125 ml poly	1	HNO_3
Hexavalent Chromium	125 ml poly	1	None

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-91-2 PROJ #: B0064480.2017.00603

DATE : 5/1/17 LOC: RACER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1115	14.8	0.055	0.044	15.2	1.51	5.93	299.0	100	14.9	61.09
1120	15.4	0.054	0.045	14.9	1.38	5.93	294.6	100	12.1	61.09
1125	15.5	0.055	0.045	14.6	1.39	5.94	294.0	100	8.43	61.09
1130	15.8	0.055	0.045	14.2	1.39	5.95	293.3	100	6.11	61.09
1135	15.7	0.055	0.045	14.0	1.39	5.94	292.7	100	4.03	61.09
1140	15.9	0.055	0.045	13.6	1.36	5.94	290.9	100	3.60	61.09
1145	15.9	0.055	0.045	13.1	1.31	5.94	289.2	100	2.96	61.09
1150	16.0	0.055	0.045	12.5	1.25	5.93	288.1	100	2.80	61.09
1155	16.2	0.055	0.045	12.5	1.23	5.93	287.7	100	2.51	61.09
1200	Collected MW-91-2_05017									
Total Depth of Well:		81.40								
Depth To Water Before Purging:			60.84							
Depth To Water After Purging:			61.09							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. B0064480.2017.00003 | Page 1 of 2

Site Location: Plant 3 | Date: 5/1/17

Site/Well No.: MW-13-41 | Replicate No.: NA | Code No.: NA

Weather: Scattered showers, ~60°F | Sampling Time: Begin 1620 End 1625

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	81.83
Depth to Water (ft bmp)	64.57
Water-Level Elevation (ft)	—
Water Column in Well (ft)	17.26
Casing Diameter/Type	2" / PVC
Gallons in Well	2.76
Gallons Pumped/Bailed Prior to Sampling	≈2.00
Sample Pump Intake Setting (ft bmp)	≈79.33
Purge Time	begin 1435 end 1625
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	13.6
SpC (mS/cm)	5.69
CND (mS/cm)	4.46
Dissolved Oxygen (%)	2.2
Dissolved Oxygen (mg/L)	0.22
pH (s.u.)	7.19
ORP (mV)	-105.7
Turbidity (NTU)	98.6
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40ml voa	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-41 PROJ #: B0064480.2017.00603

DATE : 5/1/17 LOC: RACER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1440	14.7	5.12	4.12	39.1	3.89	7.23	146.6	100	14.9	64.59
1445	14.5	~~5.83~~	4.19	20.3	2.02	7.17	7.7	100	65.6	64.60
1450	14.4	5.31	4.27	12.1	1.10	7.16	-40.1	100	99.3	64.60
1455	14.4	5.42	4.32	9.2	0.92	7.15	-56.1	100	112	64.60
1500	14.4	5.44	4.34	7.2	0.77	7.15	-65.7	100	223	64.60
1505	14.2	5.52	4.39	5.5	0.55	7.14	-71.1	100	265	64.60
1510	14.1	5.62	4.48	3.7	0.37	7.15	-96.3	100	298	64.60
1515	14.1	5.63	4.47	3.3	0.33	7.15	-93.0	100	271	64.60
1520	14.1	~~4.47~~ 5.65	4.47	3.2	0.32	7.15	-91.1	100	260	64.60
1525	14.1	5.66	4.48	3.0	0.30	7.16	-94.1	100	250	64.60
1530	14.2	5.66	4.49	2.8	0.28	7.16	-96.2	100	235	64.60
1535	14.0	5.67	4.48	2.6	0.26	7.17	-98.3	100	220	64.60
1540	14.0	5.67	4.48	2.6	0.26	7.17	-98.7	100	217	64.60
1545	13.8	5.68	4.47	2.4	0.24	7.17	-101.3	100	188	64.60
1550	13.7	5.68	4.47	2.3	0.23	7.18	-102.2	100	166	64.60
1555	13.7	5.68	4.47	2.3	0.23	7.18	-103.8	100	150	64.60
1600	13.7	5.65	4.48	2.3	0.23	7.19	-104.5	100	136	64.60
1605	13.7	5.66	4.47	2.3	0.23	7.19	-105.0	100	125	64.60
1610	13.6	5.67	4.47	2.2	0.22	7.19	-105.1	100	115	64.60
1615	13.6	5.69	4.46	2.2	0.22	7.19	-105.7	100	98.6	64.60
1620	Collected	MW-13-41_050117								
Total Depth of Well:		81.83								
Depth To Water Before Purging:			64.57							
Depth To Water After Purging:			64.60							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. B0064480.2017.00603 | Page 1 of 2

Site Location: Plant 3 | Date: 5/2/17

Site/Well No.: MW-15-71 | Replicate No.: NA | Code No.: NA

Weather: Windy, = 40°F | Sampling Time: Begin 1030 End 1040

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	119.45
Depth to Water (ft bmp)	68.56
Water-Level Elevation (ft)	—
Water Column in Well (ft)	50.89
Casing Diameter/Type	2" / PVC
Gallons in Well	8.14
Gallons Pumped/Bailed Prior to Sampling	= 2.00
Sample Pump Intake Setting (ft bmp)	= 116.95
Purge Time	begin 0850 end 1040
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.2
SpC (mS/cm)	1.56
CND (mS/cm)	1.13
Dissolved Oxygen (%)	4.0
Dissolved Oxygen (mg/L)	0.45
pH (s.u.)	7.10
ORP (mV)	-79.2
Turbidity (NTU)	9.55
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	MS/MSD collected here

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIM	40 ml VOA	aw 3 9	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-15-71 PROJ #: B0064480.2017.00603

DATE : 5/2/17 LOC: RACER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0855	10.5	1.52	1.10	46.6	4.99	6.98	12.6	100	489	68.60
0900	9.5	1.56	1.10	9.7	1.15	7.09	-60.4	100	360	68.60
0905	9.6	1.56	1.10	6.9	0.78	7.09	-68.0	100	251	68.60
0910	9.9	1.56	1.11	6.1	0.69	7.10	-71.7	100	221	68.60
0915	10.2	1.55	1.11	5.7	0.64	7.11	-73.4	100	208	68.60
0920	10.2	1.55	1.12	5.1	0.57	7.10	-75.0	100	191	68.60
0925	10.1	1.56	1.12	5.0	0.55	7.09	-74.8	100	183	68.60
0930	10.1	1.56	1.12	4.8	0.53	7.09	-74.5	100	173	68.60
0935	10.1	1.56	1.12	4.8	0.53	7.08	-74.0	100	150	68.60
0940	10.2	1.56	1.12	4.7	0.52	7.08	-73.8	100	141	68.60
0945	10.2	1.56	1.12	4.6	0.50	7.09	-73.2	100	132	68.60
0950	10.1	1.57	1.13	4.5	0.50	7.10	-73.1	100	120	68.60
0955	10.0	1.57	1.13	4.5	0.50	7.10	-73.0	100	116	68.60
1000	9.9	1.57	1.13	4.4	0.49	7.10	-72.5	100	112	68.60
1005	10.1	1.57	1.13	4.4	0.49	7.10	-76.4	100	76.3	68.60
1010	10.5	1.56	1.13	4.2	0.47	7.10	-78.5	100	50.1	68.60
1015	10.4	1.56	1.13	4.1	0.46	7.10	-78.9	100	38.5	68.60
1020	10.2	1.56	1.13	4.0	0.45	7.10	-79.1	100	20.6	68.60
1025	10.2	1.56	1.13	4.0	0.45	7.10	-79.2	100	9.55	68.60
1030	Collected	MW-15-71_050217								
Total Depth of Well:		119.45								
Depth To Water Before Purging:		68.56								
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. B0064480.2017.00003 | Page 1 of 2

Site Location: Plant 3 | Date: 5/2/17

Site/Well No.: MW-13-24 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, rain, = 40 °F | Sampling Time: Begin ~~1300~~ aw 1300 | End ~~1405~~ 1305 aw

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	77.33
Depth to Water (ft bmp)	67.30
Water-Level Elevation (ft)	—
Water Column in Well (ft)	10.03
Casing Diameter/Type	2" / PVC
Gallons in Well	1.60
Gallons Pumped/Bailed Prior to Sampling	= 1.00
Sample Pump Intake Setting (ft bmp)	= 74.83 aw
Purge Time	begin 1210 end ~~1305~~ 1305
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.1
SpC (mS/cm)	1.53
CND (mS/cm)	1.14
Dissolved Oxygen (%)	9.9
Dissolved Oxygen (mg/L)	0.98
pH (s.u.)	6.84
ORP (mV)	-42.0
Turbidity (NTU)	0.59
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMS	40 ml Voa	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-24 PROJ #: B0064480.2017.00603

DATE : 5/2/17 LOC: RACER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1215	10.4	1.31	0.96	22.0	2.56	6.97	-36.3	100	5.25	67.75
1220	10.1	2.14	1.06	28.3	3.70	6.88	-37.5	100	1.93	67.90
1225	10.1	1.95	1.05	22.0	2.51	6.88	-37.6	100	1.40	67.91
1230	10.5	1.73	1.04	21.2	2.51	6.89	-37.8	100	1.14	67.93
1235	10.7	1.66	1.05	16.4	1.75	6.88	-37.9	100	1.02	67.94
1240	10.2	1.53	1.08	11.1	1.29	6.85	-38.2	100	0.90	67.94
1245	10.2	1.51	1.10	10.2	1.03	6.84	-39.9	100	0.82	67.94
1250	10.6	1.52	1.13	10.0	0.98	6.84	-41.6	100	0.64	67.94
1255	10.1	1.53	1.14	9.9	0.98	6.84	-42.0	100	0.59	67.94
~~1300~~	Collected MW-13-24_050217									
1300										
Total Depth of Well:		77.33								
Depth To Water Before Purging:			67.30							
Depth To Water After Purging:			67.94							

ARCADIS

Water Sampling Log

Project RACER Lansing Project No. B0064480.2017.0003 Page 1 of 2

Site Location Plant 3 Date 5/2/17

Site/Well No. MW-14-65 Replicate No. NA Code No. NA

Weather cloudy, =40°F Sampling Time: Begin 1455 End 1500

Evacuation Data

Measuring Point	Toc
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	13.20
Depth to Water (ft bmp)	5.58
Water-Level Elevation (ft)	—
Water Column in Well (ft)	7.62
Casing Diameter/Type	2"/pvc
Gallons in Well	1.22
Gallons Pumped/Bailed Prior to Sampling	=1.00
Sample Pump Intake Setting (ft bmp)	=10.70
Purge Time	begin 1415 end 1500
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	7.8
SpC (mS/cm)	0.95
CND (mS/cm)	0.61
Dissolved Oxygen (%)	29.6
Dissolved Oxygen (mg/L)	2.90
pH (s.u.)	7.25
ORP (mV)	167.8
Turbidity (NTU)	6.39
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	
Remarks	

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs SW8260	40ml voa	3	HCl

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-65 PROJ #: B0064480.2017.00603

DATE : 5/2/17 LOC:

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1420	8.6	0.89	0.61	15.2	1.67	7.25	160.3	100	3.97	6.72
1425	7.2	0.92	0.61	21.8	2.64	7.24	155.8	100	4.80	7.04
1430	7.3	0.89	0.61	21.6	2.53	7.23	155.9	100	5.51	7.39
1435	7.6	0.91	0.61	22.5	2.67	7.24	158.5	100	6.30	7.72
1440	7.6	0.95	0.61	30.1	2.93	7.25	163.9	100	6.79	8.05
1445	7.5	0.95	0.61	30.8	2.98	7.25	165.0	100	6.04	8.10
1450	7.8	0.95	0.61	29.6	2.90	7.25	167.8	100	6.39	8.12
1455	Collected MW-14-65_050217									
Total Depth of Well:		13.20								
Depth To Water Before Purging:			5.58							
Depth To Water After Purging:			8.12							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. B0064480.2017.00603 | Page 1 of 2

Site Location: Plant 3 | Date: 5/2/17

Site/Well No.: UNK-11 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, = 40°F | Sampling Time: Begin 1615 End 1620

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	11.82
Depth to Water (ft bmp)	4.05
Water-Level Elevation (ft)	—
Water Column in Well (ft)	7.77
Casing Diameter/Type	2" / PVC
Gallons in Well	1.24
Gallons Pumped/Bailed Prior to Sampling	=1.00
Sample Pump Intake Setting (ft bmp)	=9.32
Purge Time	begin 1530 end 1620
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.6
SpC (mS/cm)	0.75
CND (mS/cm)	0.54
Dissolved Oxygen (%)	2.7
Dissolved Oxygen (mg/L)	0.27
pH (s.u.)	7.20
ORP (mV)	-101.1
Turbidity (NTU)	5.40
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs SW8260	40 ml voa	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : UNK-11 PROJ #: B0064480.2017.00603

DATE : 5/2/17 LOC: RALER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1535	10.5	0.76	0.55	4.5	0.51	7.23	-89.4	100	10.5	5.10
1540	10.7	0.75	0.55	3.3	0.37	7.23	-97.2	100	9.83	6.15
1545	10.8	0.75	0.55	2.7	0.30	7.23	-101.6	100	9.30	6.70
1550	10.8	0.75	0.55	2.3	0.26	7.21	-103.7	100	8.64	7.74
1555	10.8	0.75	0.55	2.4	0.27	7.21	-104.6	100	7.61	7.95
1600	10.8	0.75	0.55	2.4	0.26	7.21	-104.0	100	7.44	8.20
1605	10.6	0.75	0.54	2.6	0.27	7.20	-102.1	100	7.00	8.21
1610	10.6	0.75	0.54	2.7	0.27	7.20	-101.1	100	5.40	8.21
1615	Collected UNK-11_050217									
Total Depth of Well:		11.82								
Depth To Water Before Purging:			4.05							
Depth To Water After Purging:			8.21							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. B0064480.2017.00003 | Page 1 of 2

Site Location: plant 3 | Date: 5/3/17

Site/Well No.: MW-13-31 | Replicate No.: NA | Code No.: NA

Weather: Sunny, ≈ 50°F | Sampling Time: Begin 0925 End 0930

Evacuation Data

Measuring Point	Toc
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	12.80
Depth to Water (ft bmp)	7.52
Water-Level Elevation (ft)	—
Water Column in Well (ft)	5.28
Casing Diameter/Type	2" / PVC
Gallons in Well	≈ 0.85
Gallons Pumped/Bailed Prior to Sampling	≈ 0.75
Sample Pump Intake Setting (ft bmp)	≈ 10.30
Purge Time	begin 0850 end 0930
Pumping Rate (ml/min)	100
Evacuation Method	Peristaltic pump

Field Parameters

Temperature (°C)	12.6
SpC (mS/cm)	3.72
CND (mS/cm)	3.32
Dissolved Oxygen (%)	9.4
Dissolved Oxygen (mg/L)	0.94
pH (s.u.)	7.02
ORP (mV)	196.5
Turbidity (NTU)	0.42
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Select Metals	125 ml poly	1	HNO_3

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-31 PROJ #: B00644480.2017.00603

DATE : 5/3/17 LOC: RACER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV aw	Flow Rate mL/min	Turbidity NTU	DTW
0855	12.6	3.58	3.12	29.8	2.83	7.01	~~218.1~~	100	3.97	7.52
0900	12.3	3.65	3.24	13.1	1.36	7.02	205.1	100	2.08	7.52
0905	12.1	3.70	3.30	11.1	1.13	7.02	201.9	100	1.51	7.52
0910	12.2	3.71	3.31	9.9	0.99	7.02	198.2	100	0.89	7.52
0915	12.5	3.71	3.32	9.6	0.96	7.02	197.0	100	0.61	7.52
0920	12.6	3.72	3.32	9.4	0.94	7.02	196.5	100	0.42	7.52
0925	Collected MW-13-31_050317									
Total Depth of Well:		12.80								
Depth To Water Before Purging:			7.52							
Depth To Water After Purging:			7.52							

ARCADIS

Water Sampling Log

Project RACER Lansing | Project No. B0064480.2017.00003 | Page 1 of 2

Site Location Plant 3 | Date 5/3/17

Site/Well No. MW-13-32 | Replicate No. NA | Code No. NA

Weather Sunny, ≈50°F | Sampling Time: Begin 1035 End 1040

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	12.64
Depth to Water (ft bmp)	6.20
Water-Level Elevation (ft)	—
Water Column in Well (ft)	6.44
Casing Diameter/Type	2"/PVC
Gallons in Well	=1.03
Gallons Pumped/Bailed Prior to Sampling	=0.75
Sample Pump Intake Setting (ft bmp)	=10.14
Purge Time	begin 1000 end
Pumping Rate (ml/min)	100
Evacuation Method	Peristaltic Pump

Field Parameters

Temperature (°C)	9.8
SpC (mS/cm)	3.34
CND (mS/cm)	3.05
Dissolved Oxygen (%)	2.6
Dissolved Oxygen (mg/L)	0.27
pH (s.u.)	6.95
ORP (mV)	161.0
Turbidity (NTU)	4.61
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	
Remarks	Dup-05 collected here

Constituents Sampled	Container Description	Number	Preservative
Select Metals	125ml poly	2	HNO_3

Sampling Personnel A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-32 PROJ #: B0064480.2017.00603

DATE : 5/3/17 LOC: RACER Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1005	10.6	3.23	2.96	12.6	1.30	6.87	218.3	100	16.1	6.20
1010	10.1	3.30	3.01	6.4	0.65	6.91	192.2	100	11.3	6.20
1015	10.3	3.33	3.04	4.1	0.42	6.93	163.2	100	7.60	6.20
1020	10.3	3.34	3.05	3.0	0.30	6.94	158.9	100	6.41	6.20
1025	10.1	3.34	3.05	2.8	0.28	6.95	160.6	100	5.02	6.20
1030	9.8	3.34	3.05	2.6	0.27	6.95	161.0	100	4.61	6.20
1035	Collected MW-13-32_050317									
Total Depth of Well:		12.64								
Depth To Water Before Purging:			6.20							
Depth To Water After Purging:			6.20							

ARCADIS

Water-Level Measurement Form

Project No.: B0064481.2017.00603
Site Location: Lansing, MI
Instrument Model: WLM
Field Personnel: A. Westhuis
Date: 4/24/17
Instrument Serial No.: 711 (Geotech Rental)

Plant 6 perched Well Number	Time	W.L. Measurements TD (feet)	DTW (feet)	DTP (feet)	Comments Well Locked	Lock Condition	PID Well Headspace (ppm) ~~Other Comments~~
P6-MW-01	1326	31.23	28.96	—	Yes	Good	0.0ppm
P6-SB-07	1401	23.62	5.45	—	Yes	Good	0.0ppm
P6-SB-21	1407	11.12	2.64	—	Yes	Good	0.0ppm
SME-MW-02	1137	37.28	33.26	—	No	NA	0.0ppm
MW-14-66	1230	22.22	5.27	—	Yes	Good	0.0ppm
MW-14-67	1303	20.84	4.73	—	Yes	Good	0.0ppm
MW-14-68	1259	44.08	Dry	—	Yes	Good	0.0ppm
MW-14-69	1253	48.99	Dry	—	Yes	Good	0.0ppm
MW-14-70	1235	23.12	9.60	—	Yes	Good	0.0ppm
Weathered Bedrock							
MW-13-52	1503	81.45	70.43	—	Yes	Good	0.0ppm
MW-13-53	1307	85.45	77.02	—	Yes	Good	0.0ppm
Bedrock							
MW-04-01(6)	1105	87.97	75.65	—	Yes	Good	0.0ppm
MW-04-04R	1212	111.08	81.43	—	YES	Good	0.0ppm
MW-04-06R	0958	78.02	71.01	—	Yes	Good	0.0ppm
MW-12-03	1013	82.31	68.80	—	Yes	Good	0.0ppm
MW-13-50	1459	109.87	82.04	—	Yes	Good	0.0ppm
MW-13-51	1451	89.79	73.99	—	Yes	Good	0.0ppm (Plant 2 well)
P2-MW-02	1548	40.22	37.01	—	No	NA	0.0ppm (Plant 2 well)
MW-13-46	1609	74.63	65.89	—	Yes	Good	0.0ppm (Plant 3 well)
MW-91-6	1613	95.78	63.11	—	No	NA	0.0ppm (Plant 3 well)
MW-13-34	1618	79.93	67.09	—	Yes	Good	0.0ppm (Plant 3 well)
MW-13-47	1621	114.18	66.84	—	Yes	Good	0.0ppm (Plant 3 well)
MW-13-48	1626	73.06	61.43	—	Yes	Good	0.0ppm (Plant 3 well)
MW-13-49	1631	81.65	67.25	—	Yes	Good	0.0ppm (Plant 3 well)
MW-91-5	1646	126.33	65.19	—	No	NA	0.0ppm (Plant 3 well)
MW-12-04	0911	99.96	50.46	—	No	NA	0.0ppm (Plant 3 well)

plant 3

W.L. Water Level
TD Total Depth
DTW Depth To Water
DTP Depth To Product

Gauged 4/25/17

ARCADIS

Water-Level Measurement Form

Project No.:	B0064481.2017.00603	Field Personnel:	A. Westhuis
Site Location:	Lansing, MI	Date:	4/24/17
Instrument Model	WLM	Instrument Serial No.:	711 (Geotech Rental)

Plant 6 Perched Well Number	Time	TD (feet)	DTW (feet)	DTP (feet)	Comments: Well Locked	Lock Condition	PID Well Headspace (ppm) ~~Other Comments~~
MW-02-03(6)	1155	44.62	30.72	—	No	NA	0.0ppm
MW-03-04	1036	42.69	22.12	—	No	NA	0.0ppm
MW-03-06	1200	40.57	36.20	—	Yes	Good	0.0ppm
MW-03-08	1145	44.93	33.38	—	No	NA	0.0ppm
MW-04-05(6)	1023	29.63	9.52	—	No	NA	0.0ppm
MW-12-11	1422	16.79	2.06	—	No	NA	0.0ppm
MW-12-12	0941	17.21	6.28	—	No	NA	~~Could not locate~~ located 4/25/17 0.0ppm
MW-12-13	1255	25.41	9.80	—	Yes	Good	0.0ppm
MW-12-16	1433	32.18	22.99	—	No	NA	0.0ppm
MW-13-35	1437	29.50	23.74	—	No	NA	0.0ppm
MW-13-36R	1311	12.78	4.89	—	Yes	Good	0.0ppm
MWBP-10-UST5-6	1555	36.85	30.73	—	No	NA	0.0ppm
MWBP-11-UST1-4	1346	11.22	2.65	—	No	NA	0.0ppm
MWBP-12A-UST1-4	1343	36.72	29.29	—	No	NA	0.0ppm
MWBP-12-UST1-4	1346	11.24	7.90	—	No	NA	0.0ppm
P6-SB-18	1227	12.15	4.46	—	Yes	Good	0.0ppm
P6-SB-35	1307	11.97	3.96	—	Yes	Good	0.0ppm
P6-SB-37	1305	13.93	4.43	—	Yes	Good	0.0ppm
MW-02-01(6)	1049	40.08	27.55	—	No	NA	0.0ppm
MW-02-02(6)	1118	43.39	29.93	—	No	NA	0.0ppm
MW-03-02	1033	39.35	21.98	—	Yes	Good	0.0ppm
MW-03-05							~~Could not locate~~
MW-03-07	1108	40.50	26.16	—	No	NA	0.0ppm
MW-12-10R	1010	17.97	10.29	—	Yes	Good	0.0ppm
MW-12-14	1320	32.05	23.94	—	Yes	Good	0.0ppm
MW-12-15	1430	22.66	19.66	—	No	NA	0.0ppm
MWBP-12-UST5-6	1600	38.50	32.28	—	No	NA	0.0ppm
MWBP-13A-UST1-4	1349	37.99	32.41	—	No	NA	0.0ppm
P6-MW-01	1326	31.23	28.96	—	Yes	Good	0.0ppm
continued							

W.L. Water Level
TD Total Depth
DTW Depth To Water
DTP Depth To Product

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-22 PROJ #: BD0644BD.2017.00603

DATE : 5-3-17 LOC: Racer Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1335	14.6	2.92	-	7.1	0.70	6.92	-9.9	100	19.3	53.45
1340	14.2	2.83	-	7.3	0.75	6.93	-5.6	100	18.6	53.45
1345	15.0	2.81	-	7.1	0.73	6.91	-9.2	100	18.1	53.45
1350	15.5	2.58	-	6.5	0.66	6.91	-16.9	100	10.2	53.45
1355	15.6	2.66	-	7.1	0.73	6.91	-20.3	100	9.74	53.45
1400	15.0	2.78	-	7.0	0.71	6.91	-26.3	100	9.21	53.45
1405	15.3	2.76	-	6.4	0.68	6.92	-28.3	100	8.79	53.45
1410	15.2	2.77	-	6.7	0.69	6.91	-29.9	100	8.31	53.45
Total Depth of Well:		63.95								
Depth To Water Before Purging:		52.97								
Depth To Water After Purging:		53.45								

ARCADIS

Water Sampling Log

Project: Roces Landing | Project No. B00644BD.2017 | Page 1 of 2

Site Location: Plant 3 | Date: 5-3-17

Site/Well No.: MW-22 | Replicate No.: | Code No.:

Weather: sunny, warm | Sampling Time: Begin 1320 End 1410

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	63.95
Depth to Water (ft bmp)	52.97
Water-Level Elevation (ft)	–
Water Column in Well (ft)	10.98
Casing Diameter/Type	2" PVC
Gallons in Well	1.76
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	60'
Purge Time	begin 1320 end 1410
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.2
SpC (mS/cm)	2.77
CND (mS/cm)	–
Dissolved Oxygen (%)	6.7
Dissolved Oxygen (mg/L)	0.69
pH (s.u.)	6.91
ORP (mV)	-29.9
Turbidity (NTU)	8.31
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Metals	1-250ml Poly	1	HNO3

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : PW-14-03 PROJ #: B0064480.2017.00603

DATE : 5-3-17 LOC: Racer Lansing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1050	13.8	3.67	—	50.1	5.11	6.52	-56.1	100	17.5	73.60
1055	14.2	3.68	—	49.3	5.02	6.52	-49.8	100	9.28	73.60
1100	14.7	3.69	-	35.6	3.54	6.51	-49.2	100	8.21	73.60
1105	15.0	3.69	-	29.2	2.90	6.50	-49.0	100	7.75	73.60
1110	14.7	3.69	-	18.5	1.83	6.49	-47.4	100	3.78	73.60
1115	14.6	3.69	-	14.9	1.52	6.49	-49.4	100	4.47	73.60
1120	14.5	3.69	-	11.5	1.16	6.49	-50.3	100	3.06	73.60
1125	14.3	3.69	—	10.9	1.10	6.49	-50.6	100	3.41	73.60
1130	14.3	3.70	—	10.5	1.08	6.49	-51.3	100	3.76	73.60
Total Depth of Well:		107								
Depth To Water Before Purging:			73.56							
Depth To Water After Purging:			73.60							

ARCADIS

Water Sampling Log

Project: Racer Landing | Project No. B0064480.2017 | Page 1 of 2

Site Location: Plant 3 | Date: 5.3.17

Site/Well No.: PW-14-03 | Replicate No.: | Code No.:

Weather: Warm, sunny | Sampling Time: Begin 1040 End 1130

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	102.00
Depth to Water (ft bmp)	73.56
Water-Level Elevation (ft)	–
Water Column in Well (ft)	28.44
Casing Diameter/Type	6" PVC
Gallons in Well	41.80
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	85'
Purge Time	begin 1040 end 1130
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	14.3
SpC (mS/cm)	3.70
CND (mS/cm)	—
Dissolved Oxygen (%)	10.5
Dissolved Oxygen (mg/L)	1.04
pH (s.u.)	10.49
ORP (mV)	-51.3
Turbidity (NTU)	3.76
Color	Clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC, 1,4 Dioxane	40 ml Vial	3	HCL

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-25 PROJ #: B0064480.2017.00003

DATE : 5-3-17 LOC: Razor Landing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0915	12.2	2.60	-	11.8	1.24	6.70	-52.0	100	118	69.85
0920	17.3	2.65	-	8.4	0.90	6.70	-52.3	100	148	69.85
0925	11.9	2.64	-	9.4	0.99	6.71	-50.9	100	115	69.85
0930	11.6	2.60	-	10.2	1.09	6.71	-49.2	100	111	69.85
0935	11.9	2.58	-	10.3	1.10	6.70	-48.7	100	96.5	69.85
0940	12.2	2.58	-	9.8	1.06	6.70	-48.5	100	103	69.85
0945	12.4	2.56	-	9.6	1.04	6.70	-47.8	100	97.9	69.85
Total Depth of Well:		75.04								
Depth To Water Before Purging:			69.60							
Depth To Water After Purging:			69.85							

ARCADIS

Water Sampling Log

Project: Reed Landing | Project No.: B00644802017 | Page: 1 of 2

Site Location: Plant 3 | Date: 5-3-17

Site/Well No.: MW-13-25 | Replicate No.: B | Code No.: ____

Weather: warm, sunny | Sampling Time: Begin 0900 End 945

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	75.04
Depth to Water (ft bmp)	69.60
Water-Level Elevation (ft)	–
Water Column in Well (ft)	5.44
Casing Diameter/Type	2" PVC
Gallons in Well	0.87
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	73'
Purge Time	begin 0900 end 945
Pumping Rate (ml/min)	~100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.4
SpC (mS/cm)	2.56
CND (mS/cm)	–
Dissolved Oxygen (%)	9.6
Dissolved Oxygen (mg/L)	1.04
pH (s.u.)	6.70
ORP (mV)	-47.8
Turbidity (NTU)	97.9
Color	cloudy
Odor	N
Appearance	cloudy
Sampling Method	Bladder Pump
Remarks	FB0002_050317 collected

Constituents Sampled	Container Description	Number	Preservative
1,4 Dioxane	40 ml vial	3	HCl

Sampling Personnel: Jake Pizarchievicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

Water Sampling Log

Project: Racer | Project No.: B0064479.2017.00603 | Page: 2 of 2

Site Location: Plant 2 | Date: 4-27-17

Site/Well No.: MW-14-61 | Replicate No.: MS/MSD | Code No.:

Weather: Windy - cool | Sampling Time: Begin 1320 End 1425

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	78.30
Depth to Water (ft bmp)	72.06
Water-Level Elevation (ft)	-
Water Column in Well (ft)	6.24
Casing Diameter/Type	2"
Gallons in Well	1
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	75'
Purge Time	begin 1320 end 1425
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.0
SpC (mS/cm)	0.95
CND (mS/cm)	—
Dissolved Oxygen (%)	31.2
Dissolved Oxygen (mg/L)	3.15
pH (s.u.)	7.17
ORP (mV)	-75.0
Turbidity (NTU)	19.6
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	MS/MSD collected

Constituents Sampled	Container Description	Number	Preservative
1,4 Dioxane	40ml vial	3 (x3 MS/MSD)	HCl

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : P2-MW-04 PROJ #: B0064479.2017.00603

DATE : 4-27-17 LOC: & Racer - Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1025	15.4	1.72		126	1.19	7.17	-96.6	100	342	10.70
1030	14.8	1.51		39.6	3.94	7.22	-76.9	100	291	10.70
1035	14.5	1.33		54.8	5.65	7.26	-69.5	100	251	10.70
1040	14.5	1.31		60.0	6.07	7.26	-65.2	100	191	10.70
1045	14.4	1.32		61.4	6.18	7.26	-63.9	100	124	10.70
1050	14.6	1.33		61.0	6.13	7.25	-64.4	100	74.0	10.70
1055	14.7	1.35		62.8	6.31	7.25	-65.9	100	62.3	10.70
1100	14.8	1.36		63.4	6.48	7.24	-66.8	100	50.5	10.70
1105	14.7	1.38		60.2	6.05	7.23	-68.3	100	45.9	10.70
1110	14.7	1.40		63.4	6.40	7.23	-68.5	100	38.7	10.70
1115	14.7	1.42		62.1	6.20	7.23	-68.9	100	33.2	10.70
1120	14.6	1.43		60.1	6.01	7.23	-69.1	100	31.0	10.70
1125	14.6	1.44		59.8	5.98	7.22	-69.5	100	30.8	10.70
Total Depth of Well:		35.70								
Depth To Water Before Purging:			10.02							
Depth To Water After Purging:			10.70							

ARCADIS

Water Sampling Log

Project: Racer | Project No.: B0064479.2017.00603 | Page: 1 of 2

Site Location: Plant 2 | Date: 4-27-17

Site/Well No.: P2-MW-04 | Replicate No.: | Code No.:

Weather: windy, warm | Sampling Time: Begin 1015 End 1125

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	35.70
Depth to Water (ft bmp)	10.02
Water-Level Elevation (ft)	–
Water Column in Well (ft)	25.68
Casing Diameter/Type	2"
Gallons in Well	4.1
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	31'
Purge Time	begin 1015 end 1125
Pumping Rate (ml/min)	100 ml
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	14.6
SpC (mS/cm)	1.44
CND (mS/cm)	–
Dissolved Oxygen (%)	59.8
Dissolved Oxygen (mg/L)	5.98
pH (s.u.)	7.27
ORP (mV)	-69.5
Turbidity (NTU)	30.8
Color	clear
Odor	~
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4 Dioxane	40ml vial	3	HCl

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : P2-SB-20 PROJ #: B0064479.2017.00603

DATE : 4-27-17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
900	11.8	0.35		16.0	1.79	9.58	64.3	100	19.9	10.11
905	14.7	0.34		13.2	1.30	9.66	42.8	100	16.0	10.70
910	15.1	0.32		4.9	0.47	9.82	21.5	100	14.9	10.70
915	15.0	0.31		3.3	0.32	9.85	14.4	100	13.9	10.70
920	14.9	0.31		2.6	0.28	9.86	9.0	100	12.8	10.70
925	14.8	0.31		1.9	0.20	9.87	1.6	100	13.2	10.70
930	14.8	0.31		1.9	0.21	9.87	0.8	100	12.2	10.70
Total Depth of Well:		16.20								
Depth To Water Before Purging:			8.27							
Depth To Water After Purging:			10.70							

ARCADIS

Water Sampling Log

Project: Racer | Project No.: B0064479.2017.00603 | Page: 2 of 2

Site Location: Plant 2 | Date: 4.27.17

Site/Well No.: P2-SB-2D | Replicate No.: | Code No.:

Weather: windy - warm | Sampling Time: Begin 0855 End 0930

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	116.20
Depth to Water (ft bmp)	8.27
Water-Level Elevation (ft)	-
Water Column in Well (ft)	7.93
Casing Diameter/Type	2"
Gallons in Well	1.26
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	14'
Purge Time	begin 0855 end 0930
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	14.8
SpC (mS/cm)	0.31
CND (mS/cm)	—
Dissolved Oxygen (%)	1.9
Dissolved Oxygen (mg/L)	0.21
pH (s.u.)	9.87
ORP (mV)	0.8
Turbidity (NTU)	12.2
Color	Clear
Odor	N
Appearance	Clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4 Dioxane	40ml vial	3	HCl

Sampling Personnel: Jake Pisalkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-84 PROJ #: B0064479.2017.00603

DATE : 4-26-17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1550	25.1	1.34		9.2	0.74	7.08	-103.3	100	835	73.80
1555	24.5	1.35		10.8	0.88	7.09	-103.3	100	520	73.81
1600	24.9	1.33		18.6	1.51	7.09	-93.1	100	320	73.81
1605	25.4	1.32		11.9	0.97	7.09	-95.4	100	251	73.81
1610	26.2	1.30		11.0	0.87	7.09	-98.2	100	201	73.81
1615	26.2	1.30		10.4	0.84	7.09	-96.6	100	174	73.81
1620	26.3	1.28		11.1	0.98	7.09	-94.1	100	149	73.81
1625	26.4	1.27		11.6	1.01	7.09	-92.5	100	137	73.81
1630	26.16	1.26		11.7	0.94	7.09	-91.0	100	121	73.81
1635	26.4	1.25		12.5	1.01	7.09	-90.1	100	117	73.81
1640	26.3	1.24		12.9	1.04	7.09	-89.9	100	114	73.81
~~1645~~										

Total Depth of Well:	92.0	
Depth To Water Before Purging:		73.74
Depth To Water After Purging:		73.81

ARCADIS

Water Sampling Log

Project: Racer | Project No. B0204479.2017.00603 | Page 2 of 2

Site Location: Plant 2 | Date: 4-26-17

Site/Well No.: MW-16-84 | Replicate No.: | Code No.:

Weather: sunny | Sampling Time: Begin 1540 End 1640

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	82.0
Depth to Water (ft bmp)	73.74
Water-Level Elevation (ft)	–
Water Column in Well (ft)	8.26
Casing Diameter/Type	2"
Gallons in Well	1.32
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	79'
Purge Time	begin 1540 end 1640
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	26.3
SpC (mS/cm)	1.24
CND (mS/cm)	–
Dissolved Oxygen (%)	12.9
Dissolved Oxygen (mg/L)	1.04
pH (s.u.)	7.09
ORP (mV)	-89.9
Turbidity (NTU)	114
Color	cloudy
Odor	N
Appearance	cloudy
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs' 1,4 dioxane	40ml vial	3	HCL

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-15-72 PROJ #: B0064479.2017.00603

DATE : 4-26-17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1320	17.5	1.70		4.9	0.47	6.93	-95.9	100	67.0	59.70
1325	17.9	1.72		3.1	0.31	6.93	-97.1	100	40.6	59.70
1330	18.0	1.75		3.4	0.31	6.93	-97.1	100	32.6	59.70
1335	18.1	1.77		3.5	0.29	6.93	-97.3	100	27.7	59.70
1340	18.1	1.79		2.5	0.24	6.94	-97.8	100	21.1	59.70
1345	18.3	1.80		2.6	0.25	6.95	-98.7	100	22.3	59.70
1350	18.0	1.80		2.4	0.23	6.95	-98.5	100	21.1	59.70

ARCADIS

Water Sampling Log

Project: Racer | Project No.: B0106479.2017.00603 | Page: 1 of 2

Site Location: plant 2 | Date: 4-26-17

Site/Well No.: MW-15-72 | Replicate No.: Dup-04 | Code No.:

Weather: windy, sunny | Sampling Time: Begin 1310 End 1350

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	71.30
Depth to Water (ft bmp)	59.67
Water-Level Elevation (ft)	–
Water Column in Well (ft)	11.67
Casing Diameter/Type	2" PVC
Gallons in Well	1.86
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	68'
Purge Time	begin 1310 end
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	18.0
SpC (mS/cm)	1.80
CND (mS/cm)	
Dissolved Oxygen (%)	2.4
Dissolved Oxygen (mg/L)	0.23
pH (s.u.)	6.95
ORP (mV)	-58.5
Turbidity (NTU)	21.1
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	* Dup-04 collected * * collected additional 3 gallon sample for UCLA - sample time - 1500 *

Constituents Sampled	Container Description	Number	Preservative
VOCs, 1,4 Dioxane	40ml vial	3	HCl

Sampling Personnel: John Pisalkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-45 PROJ #: 30064479.2017.00603

DATE : 4-26-17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0920	14.8	1.11		22.0	2.23	7.28	-90.8	100	23.9	69.32
0925	15.6	1.12		26.0	2.82	7.29	-87.1	100	20.9	69.32
0930	15.1	1.11		30.4	3.05	7.29	-80.8	100	19.3	69.32
0935	15.3	1.11		39.3	3.99	7.29	-78.7	100	17.6	69.32
0940	15.0	1.12		38.5	3.90	7.28	-74.6	100	14.7	69.32
0945	15.1	1.12		40.1	4.20	7.28	-72.6	100	13.6	69.32
0950	15.1	1.13		42.4	4.36	7.29	-71.4	100	11.1	69.32
0955	15.1	1.13		40.6	4.09	7.29	-70.9	100	10.9	69.32
1000	15.1	1.13		41.1	4.17	7.30	-70.1	100	10.1	69.32
Total Depth of Well:		79.60								
Depth To Water Before Purging:			69.31							
Depth To Water After Purging:			69.32							

ARCADIS

Water Sampling Log

Project: Racer | Project No. BD064479.2017.00603 | Page 1 of 2

Site Location: plant 2 | Date: 4.26.17

Site/Well No.: MW-13-45 | Replicate No.: | Code No.:

Weather: cool, cloudy | Sampling Time: Begin 910 End 1005

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	79.00
Depth to Water (ft bmp)	69.31
Water-Level Elevation (ft)	-
Water Column in Well (ft)	10.29
Casing Diameter/Type	2"
Gallons in Well	1.65
Gallons Pumped/Bailed Prior to Sampling	~~7600~~ ~1
Sample Pump Intake Setting (ft bmp)	76
Purge Time	begin 910 end 1005
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.1
SpC (mS/cm)	1.13
CND (mS/cm)	
Dissolved Oxygen (%)	41.1
Dissolved Oxygen (mg/L)	4.17
pH (s.u.)	7.30
ORP (mV)	-70.1
Turbidity (NTU)	10.1
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	Collected Additional 3 gallon sample for UCLA

Constituents Sampled	Container Description	Number	Preservative
1,4 dioxane	40ml vial	3	HCL

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-59 PROJ #: B0064479.2017.00603

DATE : 4.25.17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1615	13.7	0.80		1.9	0.22	7.20	-53.0	100	30.8	7.70
1620	13.7	0.80		1.5	0.16	7.19	-54.3	100	26.9	7.80
1625	13.6	0.80		0.9	0.10	7.19	-55.7	100	57.9	7.85
1630	13.7	0.81		0.9	0.10	7.20	-57.7	100	92.4	7.85
1635	13.6	0.81		0.8	0.08	7.19	-57.6	100	78.1	7.86
1640	13.7	0.81		0.7	0.08	7.19	-60.0	100	68.9	7.86
1645	13.7	0.81		0.7	0.07	7.19	-61.1	100	63.3	7.86
1650	13.7	0.82		0.7	0.07	7.20	-60.5	100	60.1	7.86
1655	13.7	0.82		0.7	0.08	7.20	-60.3	100	57.1	7.86
Total Depth of Well:		18.85	-							
Depth To Water Before Purging:			7.16							
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: Raleigh | Project No.: B00164479.2017.00603 | Page: 2 of 2

Site Location: Plant 2 | Date: 4-25-17

Site/Well No.: MW-14-59 | Replicate No.: | Code No.:

Weather: Sunny | Sampling Time: Begin 1610 End 1655

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	18.85
Depth to Water (ft bmp)	7.16
Water-Level Elevation (ft)	–
Water Column in Well (ft)	11.69
Casing Diameter/Type	2"
Gallons in Well	1.87
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	15'
Purge Time	begin 1610 end 1655
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	13.7
SpC (mS/cm)	0.82
CND (mS/cm)	–
Dissolved Oxygen (%)	0.7
Dissolved Oxygen (mg/L)	0.08
pH (s.u.)	7.20
ORP (mV)	-60.3
Turbidity (NTU)	57.3
Color	Clear
Odor	N
Appearance	Clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs, 1,4 dioxane	40ml Vial	3	HCL

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-60 PROJ #: B00644479.2017.00603

DATE : 4-25-17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1425	13.6	1.25		2.1	0.25	7.27	-99.0	100	25.9	12.40
1430	13.4	1.25		1.8	0.19	7.27	-100.9	100	14.1	12.40
1435	13.5	1.25		1.6	0.16	7.28	-99.4	100	12.4	12.40
1440	13.4	1.24		1.3	0.14	7.27	-99.7	100	11.1	12.40
1445	13.4	1.24		1.4	0.15	7.27	-99.9	100	10.9	12.40

ARCADIS

Water Sampling Log

Project: Raleigh | Project No. 30064479.2017.00003 | Page 2 of 2

Site Location: Plant 2 | Date: 4.25.17

Site/Well No.: MW-14-60 | Replicate No.: | Code No.:

Weather: Sunny | Sampling Time: Begin 1415 End 1445

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	23.55
Depth to Water (ft bmp)	12.36
Water-Level Elevation (ft)	–
Water Column in Well (ft)	11.19
Casing Diameter/Type	2"
Gallons in Well	1.79
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	~ 21'
Purge Time	begin 1420 end 1445
Pumping Rate (ml/min)	100ml/min
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	13.4
SpC (mS/cm)	1.24
CND (mS/cm)	–
Dissolved Oxygen (%)	1.4
Dissolved Oxygen (mg/L)	0.15
pH (s.u.)	7.27
ORP (mV)	-99.9
Turbidity (NTU)	10.9
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC's, 1,4 dioxane	40ml vial	3	HCl

Sampling Personnel:

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-17-86 PROJ #: B0064479.2017.00603

DATE : 4-25-17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1235	15.3	1.01		50.2	4.94	7.29	-91.1	100	23.2	71.25
1240	15.5	~~45.6?~~ 1.01		54.9	5.43	7.29	-87.4	100	14.9	71.25
1245	15.1	1.02		53.5	5.28	7.28	-87.1	100	9.80	71.25
1250	15.1	1.02		53.6	5.51	7.26	-86.8	100	8.21	71.25
1255	15.2	1.02		53.2	5.67	7.26	-86.4	100	7.75	71.25

ARCADIS

Water Sampling Log

Project ~~MW-17-86~~ Racer | Project No. BD0164479.2017.00603 | Page 2 of 2

Site Location Plant 2 | Date 4.25.17

Site/Well No. MW-17-86 | Replicate No. | Code No.

Weather Sunny | Sampling Time: Begin 1220 End 1300

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	82.20
Depth to Water (ft bmp)	71.24
Water-Level Elevation (ft)	-
Water Column in Well (ft)	10.96
Casing Diameter/Type	2"
Gallons in Well	1.75
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	~~82~~ 79'
Purge Time	begin 1220 end
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.2
SpC (mS/cm)	1.07
CND (mS/cm)	
Dissolved Oxygen (%)	53.2
Dissolved Oxygen (mg/L)	5.67
pH (s.u.)	7.26
ORP (mV)	-86.4
Turbidity (NTU)	7.75
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC, 1,4 dioxane	40 ml vial	3	HCl

Sampling Personnel Jake Pizalewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE 1 OF 2

WELL : MW-16-85 PROJ #: B0064479.2017.00603

DATE : 4-25-17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1030	15.3	0.91		51.7	5.12	7.56	-68.3	100	44.8	75.91
1035	15.1	~~45.09~~ 0.93		26.7	2.74	7.39	-78.8	100	1167	76.54
1040	15.1	0.95		14.1	1.38	7.32	-85.1	100	174	77.10
1045	15.0	0.96		8.6	0.84	7.30	-90.4	100	160	77.40
1050	15.1	0.95		6.7	0.665	7.29	-93.3	100	185	77.58
1055	15.2	0.94		5.4	0.52	7.28	-95.6	100	2166	77.41
1100	15.6	0.93		5.0	0.49	7.27	-96.0	100	275	77.80
1105	15.8	0.93		5.0	0.50	7.27	-96.9	100	291	78.40
1110	15.9	0.94		4.9	0.48	7.27	-97.4	100	271	78.60
1115	16.0	0.94		4.9	0.46	7.27	-97.7	100	278	78.60
1120	16.0	0.95		4.8	0.47	7.27	-98.1	100	284	78.62
Total Depth of Well:		83.30								
Depth To Water Before Purging:		74.83								
Depth To Water After Purging:		78.62								

ARCADIS

Water Sampling Log

Project: Racer - Plant 2 | Project No. B00164479.2017.00603 | Page 2 of 2

Site Location: Plant 2 | Date: 4.25.17

Site/Well No.: MW-16-85 | Replicate No.: | Code No.:

Weather: Sunny | Sampling Time: Begin 1015 End 1120

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	83.30
Depth to Water (ft bmp)	74.83
Water-Level Elevation (ft)	–
Water Column in Well (ft)	8.47
Casing Diameter/Type	2"
Gallons in Well	1.36
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	~ 79'
Purge Time	begin 1015 end
Pumping Rate (ml/min)	100 ml/min
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	16.0
SpC (mS/cm)	0.95
CND (mS/cm)	–
Dissolved Oxygen (%)	4.8
Dissolved Oxygen (mg/L)	0.47
pH (s.u.)	7.27
ORP (mV)	-98.1
Turbidity (NTU)	284
Color	cloudy
Odor	N
Appearance	cloudy
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC's	40 ml vial	3	HCl
1,4 dioxane	40 ml vial	1	HCl

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

Water Sampling Log

Project: B0064479.2017.00603 | Project No. | Page 1 of

Site Location: P2 | Date: 4/27/17

Site/Well No.: TW-14-02 | Replicate No.: Dup-03 | Code No.

Weather: sunny 69° | Sampling Time: Begin 0855 End 0940

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	74.12
Depth to Water (ft bmp)	62.88
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.24
Casing Diameter/Type	2"
Gallons in Well	1.798
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 0855 end 0940
Pumping Rate (ml/min)	100
Evacuation Method	—

Field Parameters

Temperature (°C)	16.1
SpC (mS/cm)	3.79
CND (mS/cm)	
Dissolved Oxygen (%)	6.2
Dissolved Oxygen (mg/L)	58
pH (s.u.)	6.70
ORP (mV)	-40.0
Turbidity (NTU)	19.7
Color	— Clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC	40 ml VOA	3	HCl
1,4-Dioxane	"	1	1

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

800-316-6056
9214 8839

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : TW-14-02

PROJ #: B0064479 2017.00603

DATE : 04/27/17

LOC: PZ

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0855	16.7	3.56		5.4	.51	6.61	-14.8	100	58.5	63.75
0900	16.8	3.58		4.8	.44	6.63	-20.1	|	74.8	63.73
0905	16.3	3.8		3.7	.34	6.67	-31.0	|	41.2	63.71
0910	17.2	3.76		13.8	1.20	6.67	-35.6	|	39.7	63.95
0915	16.9	3.78		6.1	.56	6.68	-36.1	|	36.9	63.93
0920	16.8	3.77		5.2	.50	6.68	-36.3	|	33.0	63.96
0925	16.7	3.78		5.7	.56	6.69	-39.1	|	26.1	63.95
0930	16.1	3.79		6.4	.60	6.70	-40.2	|	21.0	63.95
0935	16.1	3.79		6.2	.58	6.70	-40.0	|	19.7	63.95
0940	S	A	M	P	L	E				
Total Depth of Well:										
Depth To Water Before Purging:			62.88							
Depth To Water After Purging:			63.95							

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.00603 | Page ___ of ___

Site Location: P2 | Date: ___

Site/Well No.: ~~P2~~ 16-01 | Replicate No.: ___ | Code No.: ___

Weather: Cloudy 69° | Sampling Time: Begin 1115 End 1145

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	75.42
Depth to Water (ft bmp)	61.45
Water-Level Elevation (ft)	—
Water Column in Well (ft)	13.968
Casing Diameter/Type	2"
Gallons in Well	2.235
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1115 end 1145
Pumping Rate (ml/min)	100
Evacuation Method	___

Field Parameters

Temperature (°C)	15.9
SpC (mS/cm)	1.60
CND (mS/cm)	___
Dissolved Oxygen (%)	2.9
Dissolved Oxygen (mg/L)	.26
pH (s.u.)	6.80
ORP (mV)	-46.3
Turbidity (NTU)	21.2
Color	Pale Yellow
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : AS-16-01 PROJ #: B0064479.2017.00603

DATE : 04-27-17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1115	15.9	1.64		4.8	.49	6.86	-55.9	100	8.00	62.41
1120	15.8	1.62		4.8	.48	6.85	-54.2	|	8.21	62.49
1125	15.8	1.61		3.5	.35	6.82	-49.8	|	14.1	63.76
1130	15.8	1.61		3.5	.33	6.81	-48.8	|	17.9	63.98
1135	16.0	1.60		2.9	.26	6.81	-47.4	|	21.0	64.31
1140	15.9	1.60		2.9	.26	6.80	-46.3	|	21.2	64.35
1145	S	A	M	P	L	E				
Total Depth of Well:		75.42								
Depth To Water Before Purging:			61.75							
Depth To Water After Purging:			64.40							

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064979.2017.00603 | Page ___ of ___

Site Location: P2 | Date: 04/27/17

Site/Well No.: PW-14-01 | Replicate No.: — | Code No.: —

Weather: Cloudy 69° | Sampling Time: Begin 1210 End 1240

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	85.65
Depth to Water (ft bmp)	65.85
Water-Level Elevation (ft)	—
Water Column in Well (ft)	—
Casing Diameter/Type	4"
Gallons in Well	12.870
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1210 end 1240
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	18.7
SpC (mS/cm)	1.87
CND (mS/cm)	—
Dissolved Oxygen (%)	3.8
Dissolved Oxygen (mg/L)	.36
pH (s.u.)	6.87
ORP (mV)	-63.0
Turbidity (NTU)	3.40
Color	Clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : PW-14-01 PROJ #: B0064479.2017.00603

DATE : 4/27/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1210	18.2	1.84		15.7	1.45	6.87	-50.5	100	8.18	65.12
1215	18.2	~~45.6?~~ 1.84		11.5	1.07	6.86	-50.6		8.02	65.12
1220	18.1	1.86		5.8	.54	6.86	-53.8		3.92	65.12
1225	18.5	1.86		3.7	.34	6.87	-62.6		3.51	65.27
1230	18.8	1.87		3.8	.36	6.87	-62.6		3.46	65.42
1235	18.7	1.87		3.8	.36	6.87	-63.0		3.40	65.45
1240	S	A	M	P	L	E				

Total Depth of Well:	85.65
Depth To Water Before Purging:	65.12
Depth To Water After Purging:	65.45

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.0063 | Page ___ of ___

Site Location: P2 | Date: 4/27/17

Site/Well No.: AMW-16-02 | Replicate No.: ___ | Code No.: ___

Weather: sunny 69° | Sampling Time: Begin 1405 End 1440

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	76.42
Depth to Water (ft bmp)	64.71
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.71
Casing Diameter/Type	2"
Gallons in Well	1.873
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1405 end 1440
Pumping Rate (ml/min)	100
Evacuation Method	—

Field Parameters

Temperature (°C)	14.3
SpC (mS/cm)	2.13
CND (mS/cm)	—
Dissolved Oxygen (%)	3.2
Dissolved Oxygen (mg/L)	.32
pH (s.u.)	6.94
ORP (mV)	-52.7
Turbidity (NTU)	7.31
Color	clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-dioxane	40ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : AS-16-02 PROJ #: B0064479.2017.00603

DATE : 4/27/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1405	14.7	2.07		3.4	.33	6.93	-45.4	100	17.7	64.6
1410	14.7	45.6?2.11		2.8	.28	6.93	-47.1		10.4	65.25
1415	14.8	2.10		2.7	.27	6.92	-48.3		9.1	65.29
1420	14.3	2.11		2.8	.28	6.93	-52.1		10.5	65.71
1425	14.6	2.11		2.9	.29	6.94	-52.2		8.51	66.25
1430	14.2	2.13		3.3	.33	6.94	-52.9		7.01	66.95
1435	14.3	2.13		3.2	.32	6.94	-52.7		7.31	67.9
1440	S	A	M	D	L	E				
Total Depth of Well:		78.92								
Depth To Water Before Purging:			64.81							
Depth To Water After Purging:			67.0							

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.00003 | Page ___ of ___

Site Location: P2 | Date: 4/27/17

Site/Well No.: TW-16-01 | Replicate No.: — | Code No.: —

Weather: ___ | Sampling Time: Begin 1550 End 1635

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	~~76.42~~ 78.00
Depth to Water (ft bmp)	~~63.81~~ 63.78
Water-Level Elevation (ft)	—
Water Column in Well (ft)	14.220
Casing Diameter/Type	2"
Gallons in Well	2.275
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1550 end 1635
Pumping Rate (ml/min)	100
Evacuation Method	—

Field Parameters

Temperature (°C)	14.4
SpC (mS/cm)	2.49
CND (mS/cm)	
Dissolved Oxygen (%)	4.2
Dissolved Oxygen (mg/L)	.42
pH (s.u.)	6.93
ORP (mV)	-37.9
Turbidity (NTU)	23.4
Color	clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : TV-16-01 PROJ #: B0064479.2017.00603

DATE : 4/27/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1550	14.5	2.39		4.7	.48	6.94	-28.9	100	23.5	65.97
1555	14.6	~~45.6?~~ 2.39		4.1	.41	6.93	-33.6	|	20.1	65.62
1600	14.6	2.39		4.0	.41	6.94	-34.1	|	19.7	65.62
1605	14.4	2.41		4.0	.40	6.93	-36.5	|	19.5	65.71
1610	14.4	2.40		4.0	.40	6.93	-37.1	|	28.7	65.73
1620	14.4	2.42		3.7	.39	6.93	-36.7	|	25.7	66.41
1625	14.4	2.47		4.3	.43	6.93	-37.7	|	22.1	67.6
1630	14.4	2.49		4.2	.42	6.93	-37.9		23.4	67.91
1635	S	A	M	P	L	E				
Total Depth of Well:		78.00								
Depth To Water Before Purging:			63.78							
Depth To Water After Purging:			67.91							

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.00603 | Page: 2 of —

Site Location: Plant 2 | Date: 4/25/17

Site/Well No.: MW-16-78 | Replicate No.: — | Code No.: —

Weather: Sunny 65° | Sampling Time: Begin 1245 End 1330

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	76.2
Depth to Water (ft bmp)	68.51
Water-Level Elevation (ft)	—
Water Column in Well (ft)	7.69
Casing Diameter/Type	2"
Gallons in Well	1.230
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1245 end 1330
Pumping Rate (ml/min)	100
Evacuation Method	Bladder

Field Parameters

Temperature (°C)	15.8
SpC (mS/cm)	1.73
CND (mS/cm)	
Dissolved Oxygen (%)	13.5
Dissolved Oxygen (mg/L)	1.41
pH (s.u.)	6.89
ORP (mV)	-55.6
Turbidity (NTU)	49.3
Color	Clear
Odor	None
Appearance	—
Sampling Method	Bladder
Remarks	~

Constituents Sampled	Container Description	Number	Preservative
VOC	40 mL	3	HCl
1,4-Dioxane	" "	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-78 PROJ #: B0064479.2017.0063

DATE : 4/25/17 LOC: Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1245	15.5	1.74		11.1	1.09	6.85	-60.6	100	213	68.52
1250	15.6	~~45.0~~ 1.73		49.2	4.77	6.89	-56.9	|	189	68.21
1255	16.0	1.73		70.3	6.79	6.91	-55.5	|	118	68.21
1300	16.1	1.73		29.1	2.78	6.89	-52.0	|	91.3	68.21
1305	16.1	1.73		28.1	2.71	6.89	-52.3	|	88.9	68.21
1310	15.9	1.73		38.0	3.92	6.89	-53.0	|	92.6	68.21
1315	15.8	1.73		14.8	1.46	6.88	-55.0	|	57.6	68.21
1320	15.8	1.72		14.4	1.31	6.88	-56.2	|	50.2	68.21
1325	15.8	1.72		14.0	1.06	6.88	-56.7		49.0	68.21
1330	S	A	M	D	L	E				
Total Depth of Well:		76.2								
Depth To Water Before Purging:			68.51							
Depth To Water After Purging:			68.21							

ARCADIS

Water Sampling Log

Project B90 6 4479.2017.00603 Project No. Plant 2 Page 3 of ___

Site Location Racer Plant 2 Date 4/25/17

Site/Well No. MW-16-74 Replicate No. — Code No. —

Weather Sunny 55° Sampling Time: Begin 1435 End 1515

Evacuation Data

Measuring Point TOC

MP Elevation (ft) —

Land Surface Elevation (ft) —

Sounded Well Depth (ft bmp) 73.70

Depth to Water (ft bmp) ~~73.70~~ 68.1

Water-Level Elevation (ft) ~~68.1~~ —

Water Column in Well (ft) 5.6

Casing Diameter/Type 2" [redacted]

Gallons in Well .896

Gallons Pumped/Bailed Prior to Sampling ~1

Sample Pump Intake Setting (ft bmp) —

Purge Time begin 1435 end 1515

Pumping Rate (ml/min) 150

Evacuation Method —

Field Parameters

Temperature (°C) 15.1

SpC (mS/cm) 2.27

CND (mS/cm) ~~2~~

Dissolved Oxygen (%) 2.5

Dissolved Oxygen (mg/L) .24

pH (s.u.) 6.89

ORP (mV) -94.5

Turbidity (NTU) 39.6

Color Clear

Odor —

Appearance —

Sampling Method Bladder

Remarks —

Constituents Sampled	Container Description	Number	Preservative
VOC	40 mL VOA	3	HCl
1,4 dioxane	" "	3	HCl

Sampling Personnel BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16 74 PROJ #: B0064479.2017.00603

DATE : 4/25/17 LOC: Plant 2 Racer

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
~~1445~~	16.3	2.24		11.3	1.09	6.91	-44.2	150	132	68.15
~~1450~~	16.8	2.24		7.7	.75	6.89	-42.1		104	68.24
~~1455~~	15.1	2.25		2.8	.28	6.88	-40.7		49.7	68.25
1500	15.2	2.26		2.7	.28	6.88	-41.3		73.0	68.21
1505	15.3	2.27		2.6	.26	6.89	-44.5		41.8	68.21
1510	15.1	2.27		2.5	.24	6.89	-44.5		39.7	68.23
1515	S	A	M	D	L	E				
Total Depth of Well:		73.1								
Depth To Water Before Purging:			68.1							
Depth To Water After Purging:			68.23							

ARCADIS

Water Sampling Log

Project: RACER P2 | Project No.: B006479.2017.00603 | Page: 4 of

Site Location: Racer Plant 2 | Date: 4/25/17

Site/Well No.: MW-16-77 | Replicate No.: — | Code No.: —

Weather: Sunny 60° | Sampling Time: Begin 1615 End 1650

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	74.3
Depth to Water (ft bmp)	64.1
Water-Level Elevation (ft)	
Water Column in Well (ft)	10.2
Casing Diameter/Type	2"
Gallons in Well	1.632
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1615 end 1650
Pumping Rate (ml/min)	150 ml/min
Evacuation Method	

Field Parameters

Temperature (°C)	17.4
SpC (mS/cm)	1.73
CND (mS/cm)	✓
Dissolved Oxygen (%)	12.5
Dissolved Oxygen (mg/L)	1.20
pH (s.u.)	7.11
ORP (mV)	-62.4
Turbidity (NTU)	23.0
Color	Clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOC	40mL VOA	3	HCl
1,4 Dioxane	40ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-16-77 PROJ #: B006474.2017.00603

DATE : 4/25/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1615	15.1	1.75		8.6	.83	7.11	-71.2	150	35.8	65.65
1620	14.7	1.71		11.8	1.19	7.10	-57.3	150	31.3	66.32
1625	15.3	1.74		8.9	.89	7.11	-68.1	150	45.0	66.65
1630	15.7	1.74		8.7	.86	7.11	-65.0	|	25.6	67.1
1635	15.9	1.73		11.5	.91	7.12	-65.4	|	27.0	67.75
1640	17.0	1.73		12.0	1.05	7.11	-66.7	|	21.1	67.91
1645	17.4	1.77		12.5	1.20	7.11	-62.9	|	20.0	68.0
1650	sampled									
Total Depth of Well:		74.1								
Depth To Water Before Purging:			64.1							
Depth To Water After Purging:			68.45							

ARCADIS

Water Sampling Log

Project B00 64479.2017.00603 Project No. _____ Page 1 of _____

Site Location Plant 2 Date 3/26/17

Site/Well No. MW-16-79 Replicate No. _____ Code No. _____

Weather 65° Sunny Sampling Time: Begin ~~0942~~ 1600 End 1605 Grab sample (see 75:109)

Evacuation Data

Measuring Point TOC

MP Elevation (ft) —

Land Surface Elevation (ft) —

Sounded Well Depth (ft bmp) 76.2

Depth to Water (ft bmp) 69.95

Water-Level Elevation (ft) —

Water Column in Well (ft) 6.25

Casing Diameter/Type 2"

Gallons in Well 1.00

Gallons Pumped/Bailed Prior to Sampling N/

Sample Pump Intake Setting (ft bmp) _____

Purge Time begin 0942 end 1215

Pumping Rate (ml/min) 100

Evacuation Method Bladder

Field Parameters

Temperature (°C) 19.4

SpC (mS/cm) .89

CND (mS/cm) _____

Dissolved Oxygen (%) 10.9

Dissolved Oxygen (mg/L) .94

pH (s.u.) 7.26

ORP (mV) ~~76.0~~ -99.0

Turbidity (NTU) 546

Color Brown

Odor —

Appearance —

Sampling Method Bladder

Remarks —

Constituents Sampled	Container Description	Number	Preservative
VOC	40 mL VOA	3	HCl
1,4 dioxane	40 mL VOA	3	HCl

Sampling Personnel BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-79 PROJ #: B0064479.2017.00603

DATE : 4/25/17 - 4/26/17 LOC: Plant 2 Racer

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0950	15.7	.97		21.1	2.13	6.92	-51.2	100	212	69.95
0955	15.1	~~4.50~~ .98		22.4	2.34	6.95	-60.0	100	188	70.25
1000	15.4	.98		16.5	1.66	6.92	-62.0	|	309	70.51
1005	15.9	.97		11.1	1.07	6.91	-63.8	|	286	70.99
1010	15.8	.97		11.2	1.11	6.91	-63.5	|	251	71.2
1015	16.3	.97		15.2	1.48	7.02	-64.2	|	+++	71.6
1020	16.2	.97		10.5	1.02	7.04	-70.4	↓	841	71.87
1030	16.2	.97		8.9	.97	7.05	-72.1		584	72.20
1035	15.8	.97		7.4	.73	7.07	-75.0		513	72.38
1040	15.9	.97		6.3	.64	7.08	-76.0		533	72.55
1045	15.7	.97							414	
	Pump	hit	bottom and	agitated	silt,	will	Purge for	time		
			to	allow well	to	clear				
		Well	ran	dry	while	Purging	sediment.			
		was	able	to take	sample	of high	Turb.	water		
		near	bottom	of well,	will	return				
1215		sampled	muddy	GW/	will	most	likely	discard		
4/26										
		Per	sampling	plan,	well	went	dry,	allowed	full	
		recharge	and	came	back	next	day	to take	sample	
1605	14.4	.89		10.4	.94	7.26	-94.1		546	

Total Depth of Well:	
Depth To Water Before Purging:	69.95
Depth To Water After Purging:	

ARCADIS

Water Sampling Log

Project: RACER P2 | Project No.: 300 64474.2017.00603 | Page: 8 of ___

Site Location: ___ | Date: 4/26/17

Site/Well No.: ~~MW-14-56~~ TW-14-01 | Replicate No.: — | Code No.: —

Weather: Sunny 78° | Sampling Time: Begin 1530 End ~~1555~~ 1555

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	18.20
Depth to Water (ft bmp)	66.04
Water-Level Elevation (ft)	—
Water Column in Well (ft)	12.16
Casing Diameter/Type	2"
Gallons in Well	1.945
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1530 end 1555
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	19.0
SpC (mS/cm)	3.11
CND (mS/cm)	
Dissolved Oxygen (%)	3.0
Dissolved Oxygen (mg/L)	.26
pH (s.u.)	6.78
ORP (mV)	-53.8
Turbidity (NTU)	2.11
Color	clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOC	40 ml VOA	3	HCl
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL: TW-19-01 PROJ #: B0064479.2017.00603

DATE: 4/26/17 LOC: R2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1530	18.6	2.88		4.9	.46	6.89	-57.3	100	6.13	66.58
1535	18.9	2.88		3.9	.37	6.83	-55.8	|	3.79	66.88
1540	18.4	2.88		3.7	.33	6.83	-56.1	|	3.51	66.92
1545	18.7	3.08		3.2	.32	6.80	-54.2	|	2.36	67.03
1550	19.0	3.11		3.0	.26	6.78	-53.8	|	2.11	67.15
1555	S	A	M	P	L	E		|		
1600								|		
1605								|		
1610										

Total Depth of Well:	78.20	
Depth To Water Before Purging:	~~66.04~~	
Depth To Water After Purging:	67.15	

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.0063 | Page: 2 of ___

Site Location: P2 | Date: ___

Site/Well No.: MW-14-56 | Replicate No.: ___ | Code No.: ___

Weather: Sunny 78° | Sampling Time: Begin 1350 End 1430

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	~
Sounded Well Depth (ft bmp)	79.02
Depth to Water (ft bmp)	71.96
Water-Level Elevation (ft)	~
Water Column in Well (ft)	7.06
Casing Diameter/Type	2"
Gallons in Well	1.129
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1350 end 1430
Pumping Rate (ml/min)	150
Evacuation Method	

Field Parameters

Temperature (°C)	18.2
SpC (mS/cm)	5.86
CND (mS/cm)	
Dissolved Oxygen (%)	7.4
Dissolved Oxygen (mg/L)	.68
pH (s.u.)	6.71
ORP (mV)	-22.4
Turbidity (NTU)	43.8
Color	Clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOC	40 ml VOA	3	HCl
1,4-Dioxane	" "	" "	" "

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-14-56 PROJ #: B0064479.2017.00607

DATE : 04/26/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1350	16.1	5.94		11.5	1.06	6.69	-24.2	190	404	73.72
1355	14.8	5.92		6.45	.60	6.70	-22.9		127	74.5
1400	17.4	5.86		7.7	.93	6.70	-27.1		64.2	74.32
1405	19.0	5.96		8.8	.80	6.70	-27.0		59.1	74.34
1410	18.4	5.91		6.5	.60	6.70	-25.6		50.2	74.02
1415	18.5	5.92		7.0	.64	6.70	-25.5		49.1	74.03
1420	18.2	5.94		7.1	.65	6.70	-25.3		42.9	74.03
1425	18.0	5.89		7.4	.67	6.71	-23.0		43.9	74.03
1430	S	A	M	P	L	E				
Total Depth of Well:										
Depth To Water Before Purging:			71.96							
Depth To Water After Purging:			73.95							

ARCADIS

Water Sampling Log

Project: RACER P2 | Project No.: B0064474.2017.00603 | Page: 6 of ___

Site Location: MP2 | Date: 09/26/17

Site/Well No.: MW-16-76 | Replicate No.: ~ | Code No.: ~

Weather: Cloudy 62° | Sampling Time: Begin 1105 End 1145

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	~
Land Surface Elevation (ft)	~
Sounded Well Depth (ft bmp)	82.15
Depth to Water (ft bmp)	66.159
Water-Level Elevation (ft)	~
Water Column in Well (ft)	~
Casing Diameter/Type	2"
Gallons in Well	2.9896
Gallons Pumped/Bailed Prior to Sampling	1.5
Sample Pump Intake Setting (ft bmp)	~
Purge Time	begin 1105 end 1145
Pumping Rate (ml/min)	150
Evacuation Method	

Field Parameters

Temperature (°C)	13.8
SpC (mS/cm)	2.14
CND (mS/cm)	
Dissolved Oxygen (%)	13.1
Dissolved Oxygen (mg/L)	1.27
pH (s.u.)	7.15
ORP (mV)	-76.8
Turbidity (NTU)	15.4
Color	~
Odor	~
Appearance	~
Sampling Method	Bladder
Remarks	~

Constituents Sampled	Container Description	Number	Preservative
VOC	40 ml VOA	3	HCl
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-16-76

PROJ #: B0064479.2017.00603

DATE : 04/26/17

LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1105	18.3	1.99		102.4	9.32	7.89	18.4	150	224	67.51
1110	14.2	2.03		15.2	1.64	7.18	100.8		69.5	68.61
1115	17.7	2.10		11.8	1.16	7.15	-85.8		44.4	68.65
1120	17.4	2.11		11.5	1.10	7.16	-86.7		40.1	68.71
1125	15.4	2.08		17.4	1.791	7.16	-88.6		36.1	68.72
1130	16.1	2.08		11.5	1.11	7.15	-77.4		35.7	68.78
1135	14.1	2.14		13.0	1.25	7.15	-76.4		B 20.0	68.88
1140	13.8	2.14		13.1	1.27	7.15	-76.8		15.4	68.85
1145	S	A	M	PL	E					

Total Depth of Well:	82.15
Depth To Water Before Purging:	66.59
Depth To Water After Purging:	68.85

ARCADIS

Water Sampling Log

Project: RACER P2 | Project No.: B00649792017.0003 | Page: 5 of ___

Site Location: RACER P2 | Date: 4/26/17

Site/Well No.: MW-16-75 | Replicate No.: — | Code No.: —

Weather: overcast 60° | Sampling Time: Begin 0900 End 0945

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	74.1
Depth to Water (ft bmp)	62.73
Water-Level Elevation (ft)	[redacted]
Water Column in Well (ft)	11.37
Casing Diameter/Type	2"
Gallons in Well	1.8192
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	~~100 ft~~
Purge Time	begin 0900 end 0945
Pumping Rate (ml/min)	100 ml/min
Evacuation Method	

Field Parameters

Temperature (°C)	15.0
SpC (mS/cm)	1.86
CND (mS/cm)	
Dissolved Oxygen (%)	8.8
Dissolved Oxygen (mg/L)	.88
pH (s.u.)	7.01
ORP (mV)	-95.7
Turbidity (NTU)	4.10
Color	Clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOC	40ml VOA	3	HCl
1,4-Dioxane	" "	" "	" "

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-75 PROJ #: B0064479.2017.00603

DATE : 5/26/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0910	14.3	1.84		9.8	1.00	6.89	-85.5	100	15.1	63.69
0915	14.4	1.84		6.6	.68	6.96	-90.9	|	14.1	63.81
0920	15.2	1.83		6.1	.60	6.99	-94.9	|	11.8	63.85
0925	15.3	1.85		7.1	.71	7.01	-97.0	|	12.5	63.91
0930	14.9	1.86		8.8	.88	7.02	-96.6	|	9.74	63.68
0935	15.0	1.86		8.5	.85	7.01	-95.1	|	9.51	63.89
0940	15.0	1.86		8.8	.88	7.01	-95.7	|	9.10	63.72
0945	S	A	M	P	L	E				
Total Depth of Well:		74.1								
Depth To Water Before Purging:			62.73							
Depth To Water After Purging:			63.65							

A.

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.0003 | Page ___ of ___

Site Location: P2 | Date: 4/28/17

Site/Well No.: MW-14-55 | Replicate No.: ___ | Code No.: ___

Weather: sunny 60° | Sampling Time: Begin 1205 End 1255

Evacuation Data

Measuring Point	___
MP Elevation (ft)	___
Land Surface Elevation (ft)	___
Sounded Well Depth (ft bmp)	20.05
Depth to Water (ft bmp)	15.85
Water-Level Elevation (ft)	✓
Water Column in Well (ft)	4.2
Casing Diameter/Type	2"
Gallons in Well	.672
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	✓
Purge Time	begin 1205 end 1255
Pumping Rate (ml/min)	100
Evacuation Method	___

Field Parameters

Temperature (°C)	10.6
SpC (mS/cm)	.675
CND (mS/cm)	___
Dissolved Oxygen (%)	71.1
Dissolved Oxygen (mg/L)	7.91
pH (s.u.)	7.25
ORP (mV)	583
Turbidity (NTU)	40.1
Color	slight yellow
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOC	40ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-14-55 PROJ #: B0064479.2017.00603

DATE : 4/28/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
W 1205	10.2	.665		70.1	7.44	7.31	58.9	100	+++	16.90
1210	10.4	~~45.6?~~ .673		71.4	7.96	7.27	58.4	100	696	17.02
1215	10.4	.675		71.5	7.96	7.26	58.4	|	660	17.01
1220	10.2	.676		70.9	7.95	7.25	58.1	|	391	17.15
1225	11.7	.666		66.4	7.48	7.25	57.4	|	420	16.91
1230	10.5	.679		71.4	7.93	7.25	57.8	|	205	17.0
1235	10.5	.676		70.3	7.8	7.25	57.9	|	167	17.02
1240	10.4	.676		71.3	7.90	7.24	58.2	|	121	17.02
1245	10.6	.675		71.0	7.91	7.25	58.1	|	87	17.02
1250	10.6	.675		71.1	7.91	7.25	58.3	|	40.1	17.02
1255	S	A	M	P	L	E				

ARCADIS

Water Sampling Log

Project ~~IRM~~ RACER | Project No. B0064979.2017.00603 | Page ___ of ___

Site Location P2 | Date 5/11/17

Site/Well No. MW-12-18 | Replicate No. ___ | Code No. ___

Weather sunny 57° | Sampling Time: Begin 940 End 1015

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	34.85
Depth to Water (ft bmp)	23.15
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.70
Casing Diameter/Type	2"
Gallons in Well	1.872
Gallons Pumped/Bailed Prior to Sampling	1-2
Sample Pump Intake Setting (ft bmp)	✓
Purge Time	begin 940 end 1015
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	13.1
SpC (mS/cm)	2.59
CND (mS/cm)	
Dissolved Oxygen (%)	3.5
Dissolved Oxygen (mg/L)	.37
pH (s.u.)	6.90
ORP (mV)	-10.9
Turbidity (NTU)	9.81
Color	clear
Odor	—
Appearance	~
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOCs	40 ml VOA	3	HCl

Sampling Personnel BK

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-12-18 PROJ #: B0064479.2017.00603

DATE : 5/1/17 LOC: PZ

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0940	13.0	2.59		7.7	.76	6.75	64.0	100	32.7	23.15
0945	12.8	~~45.62~~ 2.61		4.6	.51	6.83	35.5	↓	22.3	23.68
0950	13.3	2.58		13.7	1.50	6.87	12.0		24.1	23.82
0955	13.0	2.60		15.6	1.59	6.88	9.0		22.7	23.85
1000	13.1	2.59		3.9	.39	6.90	-8.9		11.3	23.96
1005	13.2	2.59		4.0	.40	6.89	-7.0		10.7	24.02
1010	13.1	2.59		3.5	.37	6.90	-10.1		9.81	24.03
1015	↓	A	M	P	L	E				
~~1020~~										

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.00603 | Page ___ of ___

Site Location: P2 | Date: 4/5/17

Site/Well No.: MW-12-09 | Replicate No.: ___ | Code No.: ___

Weather: Sunny 57° | Sampling Time: Begin 1125 End 1200

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	21.65
Depth to Water (ft bmp)	13.21
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.44
Casing Diameter/Type	2"
Gallons in Well	1.35
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	~
Purge Time	begin 1125 end 1200
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	13.6
SpC (mS/cm)	3.02
CND (mS/cm)	
Dissolved Oxygen (%)	4.4
Dissolved Oxygen (mg/L)	.46
pH (s.u.)	6.79
ORP (mV)	-29.3
Turbidity (NTU)	19.3
Color	Clear
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-12-09 PROJ #: B006447.9.2017.00603

DATE : 05-1-17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1125	13.2	2.85		5.9	.56	6.77	-29.4	100	33.5	13.17
1130	13.3	~~45.67~~ 2.94		3.8	.40	6.77	-29.5	|	25.5	13.17
1135	13.4	2.97		3.9	.41	6.77	-29.3	|	21.0	13.17
1140	13.3	2.98		4.0	.40	6.78	-29.4	|	19.7	13.17
1145	13.3	2.98		4.0	.41	6.78	-29.3	|	23.0	13.17
1150	13.6	3.02		4.1	.43	6.78	-29.3	|	21.0	13.17
1155	13.6	3.02		4.4	.46	6.79	-29.3	|	19.3	13.17
1200	S	A	M	P	L	E		|		
								|		
								|		

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-49 PROJ #: B0064480.2017.00003

DATE : 5.2.17 LOC: Racer Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1525	10.7	1.71	-	35.4	3.84	7.12	-72.4	100	7.15	67.80
1530	9.9	1.67	-	44.8	4.94	7.18	-72.5	100	6.72	67.80
1535	9.8	1.70	-	40.4	4.57	7.19	-71.4	100	5.52	67.80
1540	10.2	1.69	-	41.7	4.64	7.20	-72.0	100	6.02	67.80
1545	10.5	1.69	-	40.1	4.68	7.19	-70.7	100	6.43	67.80
1550	10.6	1.69	-	39.8	4.60	7.19	-70.1	100	6.06	67.80
Total Depth of Well:		81.65								
Depth To Water Before Purging:			67.25							
Depth To Water After Purging:			67.80							

ARCADIS

Water Sampling Log

Project: Race | Project No.: 30064480.2017 | Page: 1 of 2

Site Location: Plant 3 | Date: 5-2-17

Site/Well No.: MW-13-49 | Replicate No.: | Code No.:

Weather: cold, rainy | Sampling Time: Begin 1515 End 1550

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	81.65
Depth to Water (ft bmp)	67.25
Water-Level Elevation (ft)	–
Water Column in Well (ft)	14.4
Casing Diameter/Type	2" PVC
Gallons in Well	2.3
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	77'
Purge Time	begin 1515 end 1550
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.6
SpC (mS/cm)	1.69
CND (mS/cm)	–
Dissolved Oxygen (%)	39.8
Dissolved Oxygen (mg/L)	4.60
pH (s.u.)	7.19
ORP (mV)	-70.1
Turbidity (NTU)	6.06
Color	Clear
Odor	N
Appearance	Clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4 Dioxane	40 ml vial	3	HCL

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-46 PROJ #: B0064480.2017.00003

DATE : 5-2-17 LOC: Racer Landing Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1325	10.9	3.50	-	20.1	2.10	6.68	-32.3	100	63.7	66.18
1330	11.1	~~3.67~~ 3.52	-	11.2	1.20	6.68	-32.0	100	52.8	66.20
1335	11.1	3.51	-	8.7	0.90	6.69	-35.6	100	47.6	66.20
1340	11.5	3.50	-	9.0	0.99	6.69	-39.2	100	70.1	66.20
1345	11.8	3.52	-	9.3	1.03	6.69	-40.8	100	114.1	66.20
1350	11.3	3.50	-	10.1	1.14	6.70	-43.1	100	71.1	66.20
1355	11.2	3.49	-	10.5	1.20	6.70	-45.5	100	56.3	66.20
1400	11.7	3.49	-	11.4	1.21	6.70	-47.0	100	43.1	66.20
1405	11.9	3.49	-	10.9	1.09	6.70	-47.7	100	33.3	66.20
1410	11.4	3.47	-	14.0	1.58	6.70	-47.6	100	53.6	66.20
1415	11.7	3.47	-	13.9	1.49	6.70	-48.0	100	66.3	66.20
1420	11.7	3.46	-	14.5	1.56	6.71	-47.7	100	60.6	66.20
1425	11.7	3.44	-	14.4	1.50	6.71	-47.6	100	59.9	66.20
~~1430~~										
Total Depth of Well:		74.63								
Depth To Water Before Purging:			65.89							
Depth To Water After Purging:			66.20							

ARCADIS

Water Sampling Log

Project: Racer | Project No. B00644801.2017 | Page 1 of 2

Site Location: Plant 3 | Date: 5-2-17

Site/Well No.: MW-13-46 | Replicate No.: | Code No.:

Weather: cold, Rainy | Sampling Time: Begin 1320 End 1425

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	74.63
Depth to Water (ft bmp)	65.89
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.47
Casing Diameter/Type	2" ~~1.5"~~ PVC
Gallons in Well	1.39
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	71'
Purge Time	begin 1320 end 1425
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	11.7
SpC (mS/cm)	3.44
CND (mS/cm)	
Dissolved Oxygen (%)	14.4
Dissolved Oxygen (mg/L)	1.50
pH (s.u.)	6.71
ORP (mV)	-47.6
Turbidity (NTU)	59.9
Color	cloudy
Odor	~
Appearance	cloudy
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4 Dioxane	40ml vial	3	HCl

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : PW-14-02 PROJ #: B00644479.2017.00603

DATE : 5.2.17 LOC: Refer Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1055	8.6	3.17	-	16.3	1.93	7.47	27.9	100	45.8	70.10
1100	10.9	3.19		3.4	0.39	7.44	-5.8	100	39.1	70.10
1105	10.0	3.25		3.9	0.38	7.45	-6.5	100	29.7	70.10
1110	9.5	3.20		5.4	0.55	7.46	-1.1	100	35.6	70.10
1115	8.7	3.18		7.0	0.81	7.46	3.0	100	40.1	70.10
1120	8.2	3.20		13.6	1.10	7.48	6.4	100	39.1	70.10
1125	7.9	3.23		20.0	2.35	7.49	9.2	100	36.8	70.10
1130	8.5	3.20		33.6	3.10	7.52	4.3	100	32.6	70.10
1135	8.8	3.20		43.2	4.76	7.53	-1.6	100	43.8	70.10
1140	9.6	3.18		45.9	5.05	7.53	-7.4	100	41.7	70.10
1145	9.8	3.17		46.6	5.30	7.53	-9.3	100	40.2	70.10
1150	10.0	3.16		49.6	5.48	7.53	-17.4	100	37.6	70.10
1155	10.2	3.20		50.6	5.56	7.53	-28.4	100	35.2	70.10
1200	10.0	3.20		50.2	5.60	7.54	-25.6	100	34.9	70.10
1205	10.1	3.21		50.8	5.65	7.54	-26.9	100	37.6	70.10
Total Depth of Well:		88.10								
Depth To Water Before Purging:			70.05							
Depth To Water After Purging:			70.0							

ARCADIS

Water Sampling Log

Project: Racer Landing | Project No. B0064479.2017 | Page 1 of 2

Site Location: Plant 2 | Date: 5-2-17

Site/Well No.: PW-14-02 | Replicate No.: | Code No.:

Weather: cold, Rainy | Sampling Time: Begin 1035 End 1205

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	88.10
Depth to Water (ft bmp)	70.05
Water-Level Elevation (ft)	–
Water Column in Well (ft)	18.05
Casing Diameter/Type	6" PVC
Gallons in Well	26.53
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	76'
Purge Time	begin 1035 end 1205
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.1
SpC (mS/cm)	3.21
CND (mS/cm)	–
Dissolved Oxygen (%)	50.8
Dissolved Oxygen (mg/L)	5.65
pH (s.u.)	7.54
ORP (mV)	-26.9
Turbidity (NTU)	37.6
Color	cloudy
Odor	N
Appearance	cloudy
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs, 1,4 Dioxane	40 ml vial	3	HCl

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-43 PROJ #: B0064479.2017.00603

DATE : 5-2-17 LOC: Racer Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0850	8.2	2.97	-	18.9	2.20	7.02	-39.6	100	27.9	70.45
0855	8.2	~~49.62~~ 3.03	-	23.9	2.78	7.00	-31.0	100	59.1	70.45
0900	8.5	3.07	-	30.5	3.50	7.00	-27.0	100	43.2	70.45
0905	8.5	2.97	-	19.1	2.28	7.05	-35.1	100	85.6	70.45
0910	8.5	2.96	-	18.1	2.10	7.05	-35.0	100	110	70.45
0915	8.6	2.95	-	17.0	2.01	7.06	-35.3	100	129	70.45
0920	9.0	2.95	-	16.6	1.88	7.04	-30.9	100	107	70.45
0925	8.5	2.96	-	17.6	1.95	7.05	-29.1	100	105	70.45
0930	8.2	2.97	-	18.4	2.10	7.05	-28.6	100	124	70.45
0935	8.1	2.99	-	19.5	2.16	7.06	-25.2	100	138	70.45
0940	7.9	2.98	-	16.3	1.88	7.05	-21.2	100	120	70.45
0945	8.3	2.98	-	16.9	1.90	7.05	-20.6	100	115	70.45
0950	8.5	2.98	-	17.1	1.89	7.05	-17.1	100	129	70.45
0955	8.6	2.98	-	17.2	1.90	7.05	-17.5	100	135	70.45
1000	8.7	2.98	-	17.2	1.91	7.04	-17.1	100	130	70.45
Total Depth of Well:		80.60								
Depth To Water Before Purging:			70.30							
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: Racer Landing | Project No. B0016479.2017 | Page 1 of 2

Site Location: Plant 2 | Date: 5.2.17

Site/Well No.: MW-13-43 | Replicate No.: | Code No.:

Weather: cold, Rainy | Sampling Time: Begin 0830 End 1000

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	80.60
Depth to Water (ft bmp)	70.36
Water-Level Elevation (ft)	-
Water Column in Well (ft)	10.24
Casing Diameter/Type	2" PVC
Gallons in Well	1.64
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	77'
Purge Time	begin 0830 end 1000
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	8.7
SpC (mS/cm)	2.98
CND (mS/cm)	-
Dissolved Oxygen (%)	17.2
Dissolved Oxygen (mg/L)	1.91
pH (s.u.)	7.24
ORP (mV)	-17.1
Turbidity (NTU)	130
Color	cloudy
Odor	N
Appearance	Cloudy
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4 Dioxane	40ml vial	3	HCl

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-82 PROJ #: BDDL04479.2017.00603

DATE : 5-1-17 LOC: Reuel Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1505	16.2	113	–	21.5	2.11	7.16	-115.5	100	12.3	69.80
1510	16.1	1.13	–	11.8	1.18	7.15	-114.2	100	4.72	69.80
1515	15.7	1.13	–	11.0	1.12	7.17	-107.4	100	4.35	69.80
1520	15.9	1.12	–	17.8	1.80	7.18	-101.1	100	5.29	69.80
1525	16.1	1.12	–	20.6	2.01	7.19	-98.9	100	6.09	69.80
1530	16.0	1.12	–	28.1	2.84	7.24	-98.0	100	5.45	69.80
1535	15.9	1.12	–	29.1	2.95	7.25	-97.4	100	5.10	69.80
1540	15.8	1.12	–	30.1	3.10	7.28	-96.1	100	5.21	69.80
1545	15.8	1.12	–	31.1	3.03	7.29	-95.7	100	5.05	69.80
Total Depth of Well:		78.30								
Depth To Water Before Purging:			69.75							
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: Roller | Project No.: B0064979.2017 | Page: 1 of 2

Site Location: Plant 2 | Date: 5-1-17

Site/Well No.: MW-16-82 | Replicate No.: | Code No.:

Weather: cool, cloudy | Sampling Time: Begin 1450 End 1545

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	78.30
Depth to Water (ft bmp)	69.75
Water-Level Elevation (ft)	–
Water Column in Well (ft)	8.55
Casing Diameter/Type	2" PVC
Gallons in Well	1.37
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	75'
Purge Time	begin 1450 end 1545
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.8
SpC (mS/cm)	1.12
CND (mS/cm)	–
Dissolved Oxygen (%)	31.1
Dissolved Oxygen (mg/L)	3.03
pH (s.u.)	7.29
ORP (mV)	-95.7
Turbidity (NTU)	5.05
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC's	40ml vial	3	HCl

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-54 PROJ #: B0064479.2017.00003

DATE : 5-1-17 LOC: Power Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1345	12.8	1.74	—	6.2	0.63	8.28	-210.6	100	6.79	12.75
1350	12.7	~~1.80~~ 1.71	-	1.8	0.22	8.26	-261.8	100	3.26	12.75
1355	12.6	1.68	-	2.0	0.20	8.26	-275.3	100	3.03	12.75
1400	12.6	1.67	-	1.8	0.19	8.26	-282.0	100	2.94	12.75
1405	12.7	1.67	-	1.8	0.19	8.27	-279.1	100	2.26	12.75

ARCADIS

Water Sampling Log

Project: Racer | Project No. B00644479.2017 | Page 1 of 2

Site Location: Plant 2 | Date: 5-1-17

Site/Well No.: MW-14-54 | Replicate No.: | Code No.:

Weather: cloudy, cool | Sampling Time: Begin 1340 End 1405

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	-
Land Surface Elevation (ft)	-
Sounded Well Depth (ft bmp)	19.07
Depth to Water (ft bmp)	12.71
Water-Level Elevation (ft)	-
Water Column in Well (ft)	6.36
Casing Diameter/Type	2" PVC
Gallons in Well	1.02
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	17'
Purge Time	begin 1340 end 1405
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.7
SpC (mS/cm)	1.62
CND (mS/cm)	-
Dissolved Oxygen (%)	1.8
Dissolved Oxygen (mg/L)	0.19
pH (s.u.)	8.27
ORP (mV)	-279.1
Turbidity (NTU)	2.26
Color	clear
Odor	~
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC's	40 ml vial	3	HCl

Sampling Personnel: John Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

Water Sampling Log

Project: Rezi | Project No.: B0064479.2017 | Page: 1 of 2

Site Location: Plant 2 | Date: 5-1-17

Site/Well No.: MW-01(2) | Replicate No.: MS/MSD | Code No.:

Weather: Rainy, Warm | Sampling Time: Begin 1000 End 1125

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	15.95
Depth to Water (ft bmp)	6.49
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.46
Casing Diameter/Type	2" PVC
Gallons in Well	0.95
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	13'
Purge Time	begin 1000 end 1125
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.7
SpC (mS/cm)	5.56
CND (mS/cm)	—
Dissolved Oxygen (%)	3.7
Dissolved Oxygen (mg/L)	0.38
pH (s.u.)	6.79
ORP (mV)	-39.4
Turbidity (NTU)	9.89
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	MS/MSD collected

Constituents Sampled	Container Description	Number	Preservative
VOCs	40ml vial	9	HCL

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-01(2) PROJ #: B0064479.2017.00603

DATE : 5-1-17 LOC: Racci Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1015	12.8	4.43	-	33.7	3.52	6.79	-17.0	100	11.7	7.42
1020	14.4	4.60	-	29.1	2.90	6.79	10.1	100	9.26	8.50
1025	15.4	4.77	-	25.1	2.45	6.78	33.7	100	7.03	8.28
1030	16.4	5.35		11.2	1.05	6.76	-34.7	100	35.9	
1035			Pump slipped down well casing							
			reset pump							
1035										
1040	14.1	4.47	-	42.6	4.32	6.85	-18.4	100	23.3	8.20
1045	14.1	4.75	-	37.3	3.70	6.83	-19.0	100	14.1	8.20
1050	14.3	5.03	-	25.9	2.60	6.82	-23.5	100	13.3	8.25
1055	14.3	5.34	-	12.8	1.28	6.80	-29.7	100	14.3	8.30
1100	14.10	5.31	-	11.2	1.10	6.80	-30.6	100	13.9	8.30
1105	15.2	5.40		8.5	0.80	6.79	-35.2	100	12.1	8.30
1110	15.5	5.50		5.3	0.52	6.79	-36.2	100	11.9	8.31
1115	15.6	5.53		4.0	0.40	6.79	-38.3	100	10.4	8.31
1120	15.6	5.55		3.8	0.38	6.79	-39.1	100	9.91	8.31
1125	15.7	5.56		3.7	0.38	6.79	-39.4	100	9.89	8.31
Total Depth of Well:		15.95								
Depth To Water Before Purging:			6.49							
Depth To Water After Purging:			8.31							

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-57 PROJ #: B0064479.2017.00603

DATE : 4-28-17 LOC: River Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1300	12.5	0.86		21.0	2.23	7.35	41.6	100	38.9	12.90
1305	12.8	0.85		25.1	2.79	7.36	41.3	100	22.9	12.90
1310	12.9	0.83		27.6	2.87	7.38	41.6	100	19.7	12.85
1315	12.4	0.84		32.4	3.40	7.38	42.9	100	14.7	12.85
1320	12.6	0.83		31.1	3.31	7.39	45.1	100	14.4	12.85
1325	12.7	0.83		30.8	3.28	7.39	45.9	100	13.9	12.85

ARCADIS

Water Sampling Log

Project: Razor | Project No.: B0016479.2017 | Page: 1 of 2

Site Location: Plant 2 | Date: 4-28-17

Site/Well No.: MW-14-57 | Replicate No.: | Code No.:

Weather: Sunny, Warm | Sampling Time: Begin 1255 End 1325

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	21.40
Depth to Water (ft bmp)	12.57
Water-Level Elevation (ft)	–
Water Column in Well (ft)	8.83
Casing Diameter/Type	2" PVC
Gallons in Well	1.41
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	19'
Purge Time	begin 1255 end 1325
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.7
SpC (mS/cm)	0.83
CND (mS/cm)	–
Dissolved Oxygen (%)	30.8
Dissolved Oxygen (mg/L)	3.28
pH (s.u.)	7.38
ORP (mV)	45.9
Turbidity (NTU)	13.9
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC's, 1,4 Dioxane	40ml vial	3	HCL

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-81 PROJ #: B0064479.2017.00603

DATE : 4.28.17 LOC: Racer Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1030	14.6	3.26		9.5	0.93	6.99	-95.3	100	72.0	69.80
1035	14.7	3.24		29.0	2.88	6.96	-87.9	100	57.3	69.80
1040	15.3	3.26		20.9	2.06	6.95	-81.8	100	44.1	69.80
1045	15.5	3.28		11.2	1.11	6.95	-83.4	100	36.0	69.80
1050	15.7	3.28		11.1	1.07	6.95	-83.4	100	38.2	69.80
1055	15.5	3.27		15.1	1.50	6.94	-80.6	100	59.1	69.80
1100	14.8	3.26		7.3	0.70	6.93	-78.7	100	74.6	69.80
1105	14.7	3.25		3.0	0.29	6.93	-79.9	100	87.6	69.80
1110	14.9	3.23		2.1	0.21	6.93	-80.5	100	79.6	69.80
1115	15.2	3.26		2.6	0.25	6.93	-81.8	100	69.5	69.80
1120	15.4	3.25		2.5	0.26	6.92	-82.8	100	61.6	69.80
1125	15.6	3.25		2.9	0.28	6.92	-83.3	100	58.6	69.80
1130	15.9	3.24		2.7	0.26	6.92	-83.4	100	60.3	69.80
Total Depth of Well:		78.30								
Depth To Water Before Purging:			69.24							
Depth To Water After Purging:			69.80							

ARCADIS

Water Sampling Log

Project: Racer | Project No.: B0064479.2017 | Page: 1 of 2

Site Location: Plant 2 | Date: 4-28-17

Site/Well No.: MW-16-81 | Replicate No.: Dup-02 | Code No.:

Weather: cool, cloudy | Sampling Time: Begin 1020 End 1130

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	69.24
Depth to Water (ft bmp)	78.30
Water-Level Elevation (ft)	–
Water Column in Well (ft)	9.06
Casing Diameter/Type	2" PVC
Gallons in Well	1.45
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	76'
Purge Time	begin 1020 end 1130
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.9
SpC (mS/cm)	3.24
CND (mS/cm)	–
Dissolved Oxygen (%)	2.7
Dissolved Oxygen (mg/L)	0.26
pH (s.u.)	6.92
ORP (mV)	-83.4
Turbidity (NTU)	60.3
Color	cloudy
Odor	N
Appearance	cloudy
Sampling Method	Bladder Pump
Remarks	Dup-02 collected EBD002-042817 collected

Constituents Sampled	Container Description	Number	Preservative
VOC's, 1,4 Dioxane	40 ml vial	3	HCl

Sampling Personnel: Jake Pisarkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-62 PROJ #: B0064479.2017.00603

DATE : 4.28.17 LOC: Racer Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0900	10.8	0.72		~~2.5~~	0.25	11.88	-227.6	100	48.3	6.35
0905	10.7	0.73		1.5	0.13	11.90	-240.1	100	6.94	6.36
0910	10.7	0.72		1.2	0.11	11.90	-242.2	100	4.60	6.36
0915	10.8	0.71		1.1	0.10	11.89	-243.3	100	2.43	6.36
0920	10.8	0.71		1.0	0.10	11.89	-244.0	100	2.10	6.36

ARCADIS

Water Sampling Log

Project: Racer | Project No.: B0004479.2017 | Page: 2 of 2

Site Location: Plant 2 | Date: 4-28-17

Site/Well No.: MW-14-62 | Replicate No.: Dup-01 | Code No.:

Weather: | Sampling Time: Begin 2850 End 0920

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	19.63
Depth to Water (ft bmp)	5.80
Water-Level Elevation (ft)	–
Water Column in Well (ft)	13.83
Casing Diameter/Type	2" PVC
Gallons in Well	2.21
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	17'
Purge Time	begin 0850 end 0920
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.8
SpC (mS/cm)	0.71
CND (mS/cm)	–
Dissolved Oxygen (%)	1.0
Dissolved Oxygen (mg/L)	0.10
pH (s.u.)	11.89
ORP (mV)	-274.0
Turbidity (NTU)	2.10
Color	clear
Odor	~
Appearance	clear
Sampling Method	Bladder Pump
Remarks	Dup-01 collected FB0002_042817 collected

Constituents Sampled	Container Description	Number	Preservative
VOCs, 1,4 Dioxane	40ml vial	3	HCl

Sampling Personnel: Jake Pisarchick

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE 1 OF 2

WELL : MW-14-58 PROJ #: B0064479.2017.00603

DATE : 4.27.17 LOC: Rocks - Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1545	14.1	6.21		1.5	0.16	6.61	-68.4	100	318	13.85
1550	14.2	6.18		1.5	0.15	6.62	-69.6	100	208	13.85
1555	14.1	6.11		1.3	0.13	6.62	-70.1	100	175	13.85
1600	14.0	5.97		1.2	0.12	6.63	-70.8	100	156	13.85
1605	13.9	5.85		1.3	0.13	6.65	-71.9	100	99.1	13.85
1610	13.8	5.66		1.3	0.13	6.67	-72.9	100	84.4	13.85
1615	13.8	5.44		1.1	0.10	6.68	-74.4	100	55.9	13.85
1620	13.7	5.27		1.3	0.12	6.69	-75.0	100	43.7	13.85
1625	13.7	5.17		1.4	0.15	6.71	-74.9	100	25.9	13.85
1630	13.7	5.01		1.5	0.15	6.73	-75.3	100	22.4	13.85
1635	13.7	4.97		1.6	0.16	6.74	-74.9	100	20.9	13.85
1640	13.7	4.95		1.7	0.16	6.74	-75.1	100	20.1	13.85
Total Depth of Well:		29.92								
Depth To Water Before Purging:			13.05							
Depth To Water After Purging:			13.85							

ARCADIS

Water Sampling Log

Project: Racer | Project No.: B0064479.2017 | Page: 2 of 2

Site Location: Plant 2 | Date: 4-27-17

Site/Well No.: MW-14-58 | Replicate No.: | Code No.:

Weather: Windy, cool | Sampling Time: Begin 1530 End 1640

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	29.92
Depth to Water (ft bmp)	13.65
Water-Level Elevation (ft)	~~+0.27~~
Water Column in Well (ft)	16.27
Casing Diameter/Type	2"
Gallons in Well	2.60
Gallons Pumped/Bailed Prior to Sampling	~ 1
Sample Pump Intake Setting (ft bmp)	27'
Purge Time	begin 1530 end 1640
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	13.7
SpC (mS/cm)	4.95
CND (mS/cm)	—
Dissolved Oxygen (%)	1.7
Dissolved Oxygen (mg/L)	0.16
pH (s.u.)	6.74
ORP (mV)	-75.1
Turbidity (NTU)	20.1
Color	clear
Odor	N
Appearance	clear
Sampling Method	Bladder Pump
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC, 1,4 Dioxane	40ml vial	3	HCL

Sampling Personnel: John Pigalkiewicz

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-61 PROJ #: B001044479.2017.00603

DATE : 4-27-17 LOC: Racer Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1320	16.6	0.96		24.2	2.35	7.07	-71.2	100	69.5	72.10
1325	16.4	0.97		26.0	2.50	7.09	-72.0	100	60.1	72.10
1330	16.2	0.97		27.8	2.72	7.10	-72.7	100	55.7	72.10
1335	16.1	0.96		31.9	3.02	7.11	-73.1	100	89.6	72.10
1340	15.6	0.95		51.2	4.89	7.21	-70.8	100	121	72.10
1345	15.9	0.95		39.5	3.92	7.18	-71.3	100	142	72.10
1350	15.6	0.96		36.1	3.56	7.17	-74.3	100	69.5	72.10
1355	15.9	0.95		32.2	3.14	7.17	-75.5	100	58.0	72.10
1400	15.7	0.95		31.7	3.14	7.17	-75.2	100	40.1	72.10
1405	16.0	0.95		33.5	3.28	7.18	-77.0	100	32.5	72.10
1410	15.8	0.95		32.4	3.18	7.17	-76.8	100	26.7	72.10
1415	15.6	0.95		30.5	3.11	7.17	-76.7	100	22.6	72.10
1420	15.1	0.95		31.9	3.18	7.16	-75.9	100	20.1	72.10
1425	15.0	0.95		31.2	3.15	7.17	-75.0	100	19.6	72.10
Total Depth of Well:		78.30								
Depth To Water Before Purging:			72.06							
Depth To Water After Purging:			72.10							

ARCADIS

Water Sampling Log

Project: RACER | Project No. B0064479.2017.00003 | Page ___ of ___

Site Location: P2 | Date: 5/1/17

Site/Well No.: MW-15-73 | Replicate No. ___ | Code No. ___

Weather: Cloudy 57° | Sampling Time: Begin ~~1345~~ 1430 End 1505

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	82.20
Depth to Water (ft bmp)	74.01
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.19
Casing Diameter/Type	2"
Gallons in Well	1.310
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin ~~1345~~ 1430 end 1505
Pumping Rate (ml/min)	100
Evacuation Method	—

Field Parameters

Temperature (°C)	13.6
SpC (mS/cm)	2.85
CND (mS/cm)	
Dissolved Oxygen (%)	4.4
Dissolved Oxygen (mg/L)	.47
pH (s.u.)	6.82
ORP (mV)	-75.4
Turbidity (NTU)	35.7
Color	—
Odor	✓
Appearance	—
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC	40 ml VOA	3	HCl
1,4-Dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.				
0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-15-73 PROJ #: B0064479.2017.00603

DATE : 05/01/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1430	14.3	2.86		9.1	.91	6.80	-69.5	100	325	74.01
1435	14.1	~~45.67~~ 2.86		7.3	.73	6.80	-70.4	|	326	74.25
1440	13.6	2.84		8.9	.89	6.81	-74.9	|	187	74.39
1445	13.8	2.85		7.0	.70	6.82	-75.2	|	117	74.41
1450	13.8	2.85		5.6	.56	6.82	-75.4	|	89.0	74.41
1455	13.6	2.85		4.3	.47	6.82	-75.5	|	51.2	74.41
1500	13.6	2.85		4.4	.47	6.82	-75.4		35.7	74.41
1505	S	A	M	P	L	E				

Total Depth of Well:	82.20	
Depth To Water Before Purging:		74.01
Depth To Water After Purging:		74.41

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B00649792017.0607 | Page ____ of ____

Site Location: PZ | Date: 5/15/17

Site/Well No.: mw-16-80 | Replicate No.: ____ | Code No.: ____

Weather: Sunny 57° | Sampling Time: Begin 1545 End 1630

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	74.20
Depth to Water (ft bmp)	66.08
Water-Level Elevation (ft)	~~[illegible]~~
Water Column in Well (ft)	8.120
Casing Diameter/Type	2"
Gallons in Well	1.299
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1545 end 1630
Pumping Rate (ml/min)	100
Evacuation Method	✓

Field Parameters

Temperature (°C)	12.1
SpC (mS/cm)	2.31
CND (mS/cm)	
Dissolved Oxygen (%)	3.2
Dissolved Oxygen (mg/L)	.34
pH (s.u.)	6.97
ORP (mV)	-89.4
Turbidity (NTU)	61.2
Color	—
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOC	40 ml VOA	3	HCl
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-16-80 PROJ #: B0064479.2017.00603

DATE : 5/1/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1545	12.7	2.36		10.4	1.06	7.07	-80.6	190	421	67.06
1550	12.3	~~45.62~~ 2.31		7.8	.82	7.06	-80.1		301	67.30
1555	12.2	2.26		8.3	.87	7.05	-76.4		175	68.15
1600	12.1	2.27		7.6	.80	7.04	-76.5		106	68.05
1605	12.1	2.27		6.4	.67	7.02	-77.7		86.1	68.05
1610	12.1	2.28		6.3	.67	7.01	-78.2		80.5	68.05
1615	12.1	2.29		5.0	.55	7.00	-82.2		65.1	68.00
1620	12.1	2.31		3.1	.35	6.97	-88.9		64.6	68.00
1625	12.1	2.31		3.2	.34	6.97	-89.4		61.2	68.01
1630	S	A	M	P	L	E				
Total Depth of Well:		74.20								
Depth To Water Before Purging:			66.08							
Depth To Water After Purging:			68.01							

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-14-63 PROJ #: B0064479.2017.00603

DATE : 05/02/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0840	11.7	1.18		2.1	.23	6.86	-66.1	100	+++	69.05
0845	11.5	~~45.6?~~ 1.18		6.2	.67	6.86	-55.21		417	68.95
0850	10.1	1.18		5.1	.56	6.87	-36.3		302	68.95
0855										
0900			Dropped pump, will purge to reduce Turbidity							
0905										
0925	9.7	1.19		2.3	.27	6.89	-52.9		511	68.69
0930	8.3	1.19		2.6	.31	6.89	-53.8		515	68.69
0935	8.0	1.18		3.4	.39	6.89	-51.5		507	68.69
0940	8.0	1.19		3.4	.41	6.84	-51.5		518	68.69
0945	8.0	1.18		3.2	.38	6.89	-51.5		507	68.69
0950	8.4	1.18		3.2	.39	6.89	-51.6		612	68.65
0955	8.7	1.18		3.0	.39	6.89	-52.7		500	68.65
	S	A	M	P	L	E				

Total Depth of Well:	
Depth To Water Before Purging:	69.05
Depth To Water After Purging:	

ARCADIS

Water Sampling Log

Project: RACER | Project No. B0064479.2017.0063 | Page ___ of ___

Site Location: P2 | Date: 05/02/17

Site/Well No.: MW-14-63 | Replicate No. ___ | Code No. ___

Weather: Cloudy 43° | Sampling Time: Begin 0840 End 0955

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	77.6
Depth to Water (ft bmp)	69.05
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.55
Casing Diameter/Type	2"
Gallons in Well	1.368
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 0840 end 0955
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	8.7
SpC (mS/cm)	1.18
CND (mS/cm)	
Dissolved Oxygen (%)	3.0
Dissolved Oxygen (mg/L)	.34
pH (s.u.)	6.89
ORP (mV)	-52.7
Turbidity (NTU)	500
Color	Brown:SY
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-16-83

PROJ #: 60064479.2017.00603

DATE : 05/02/17

LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1105	10.6	2.54		10.7	1.22	6.93	-65.2	100	[illegible]	75.81
1110	10.3	45.6? 2.53		11.7	1.29	6.95	-65.7		[illegible]	75.85
1115	10.3	2.53		10.3	1.20	6.95	-65.8		211	75.85
1120	10.3	2.53		10.3	1.19	6.95	-68.1		205	75.85
1125	10.4	2.53		10.5	1.20	6.95	-68.0		[illegible]	75.85
1140	10.6	2.54		10.7	1.23	6.96	-66.7		[illegible]	75.85
1145	[illegible]	A	M	P	L	E				

Total Depth of Well:	79.5
Depth To Water Before Purging:	73.6
Depth To Water After Purging:	75.85

ARCADIS

Water Sampling Log

Project: RASER | Project No. B0064479.2017.00003 | Page ___ of ___

Site Location: P2 | Date: 05/02/17

Site/Well No.: MW-16-83 | Replicate No. ___ | Code No. ___

Weather: Drizzle 43° | Sampling Time: Begin 1105 End 1140

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	___
Land Surface Elevation (ft)	___
Sounded Well Depth (ft bmp)	79.5
Depth to Water (ft bmp)	73.6
Water-Level Elevation (ft)	—
Water Column in Well (ft)	5.9
Casing Diameter/Type	2"
Gallons in Well	.944
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	___
Purge Time	begin 1105 end 1140
Pumping Rate (ml/min)	___
Evacuation Method	___

Field Parameters

Temperature (°C)	10.6
SpC (mS/cm)	2.54
CND (mS/cm)	___
Dissolved Oxygen (%)	10.7
Dissolved Oxygen (mg/L)	1.23
pH (s.u.)	6.96
ORP (mV)	-66.7
Turbidity (NTU)	150
Color	Light Grey
Odor	—
Appearance	Small amount of silt was constant during Purge
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
VOC	40 ml VOA	3	HCl
1,4-Dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-13-34 PROJ #: B0064479.2017.00603

DATE : 05/02/17 LOC: P3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1400	11.5	1.69		19.6	2.12	7.28	34.5	100	55	67.18
1405	11.4	~~45.6?~~ 1.68		19.2	2.07	7.27	34.6		42	67.34
1410	11.7	1.68		15.1	1.6	7.23	26.9		15.5	67.61
1415	11.6	1.68		15.0	1.59	7.23	26.5		11.7	67.66
1420	11.1	1.68		9.6	1.06	7.19	-16.0		10.9	67.58
1425	11.1	1.69		9.0	1.00	7.19	-32.6		10.5	67.39
1430	10.9	1.72		8.9	1.01	7.19	-31.0		9.81	67.41
1435	S	A	M	P	L	E				

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.00603 | Page ___ of ___

Site Location: P3 | Date: 05/02/17

Site/Well No.: MW-13-34 | Replicate No.: ___ | Code No.: ___

Weather: Cloudy 46° | Sampling Time: Begin 1400 End 1435

Evacuation Data

Measuring Point	TOS
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	~~66.40~~ 79.00
Depth to Water (ft bmp)	66.40
Water-Level Elevation (ft)	—
Water Column in Well (ft)	12.600
Casing Diameter/Type	2"
Gallons in Well	2.016
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1400 end 1435
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	10.9
SpC (mS/cm)	1.72
CND (mS/cm)	
Dissolved Oxygen (%)	8.9
Dissolved Oxygen (mg/L)	1.01
pH (s.u.)	7.19
ORP (mV)	-31.0
Turbidity (NTU)	[redacted] 10
Color	—
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC	40ml VOA	3	HCl
1,4-dioxane	40ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-13-48 PROJ #: B0064479.2017.00607

DATE : 05/02/17 LOC: PJ

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1530	11.1	2.30		3.0	.30	6.75	-62.3	100	50.7	61.95
1535	11.0	~~45.6?~~ 2.31		2.8	.31	6.76	-62.7		31.0	61.44
1540	11.1	2.32		3.3	.37	6.76	-63.0		28.9	61.45
1545	11.0	2.35		2.7	.26	6.76	-64.2		21.0	61.45
1550	11.0	2.35		2.8	.27	6.76	-64.9		19.1	61.45
1555	11.1	2.35		2.6	.26	6.76	-64.9		15.5	61.45
1600	11.7	2.36		2.6	.26	6.76	-64.9		13.0	61.45
1605	11.5	2.37		2.5	.25	6.76	-65.1		11.1	61.45
	S	A	M	P	L	E				

Total Depth of Well:	79.00
Depth To Water Before Purging:	61.47
Depth To Water After Purging:	61.45

ARCADIS

Water Sampling Log

Project: RACER | Project No. B0064479.2017.0060 | Page ____ of ____

Site Location: P3 | Date: 05/02/17

Site/Well No.: MW-17-48 | Replicate No.: DUP-07 | Code No. ____

Weather: Cloudy 46° | Sampling Time: Begin 1530 End 1605

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	~
Land Surface Elevation (ft)	~
Sounded Well Depth (ft bmp)	70.00
Depth to Water (ft bmp)	61.47
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.530
Casing Diameter/Type	2"
Gallons in Well	1.364
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1530 end 1605
Pumping Rate (ml/min)	
Evacuation Method	

Field Parameters

Temperature (°C)	
SpC (mS/cm)	
CND (mS/cm)	
Dissolved Oxygen (%)	
Dissolved Oxygen (mg/L)	
pH (s.u.)	
ORP (mV)	
Turbidity (NTU)	
Color	
Odor	
Appearance	
Sampling Method	
Remarks	

Constituents Sampled	Container Description	Number	Preservative

Sampling Personnel: ____

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-13-23 PROJ #: B0064479.2017.00623

DATE : 05/03/17 LOC: P3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0925	10.4	1.59		21.1	2.38	6.76	55.5	100	+++	72.85
0930	10.3	~~45.0?~~ 1.60		20.8	2.33	6.76	55.1		+++	73.05
0935	9.7	1.60		20.6	2.34	6.77	53.5		+++	73.16
0940	9.9	1.60		20.4	2.26	6.76	53.0		+++	73.19
0945	11.5	1.61		14.3	1.53	6.76	48.9		339	73.7
0950	12.0	1.61		14.1	1.47	6.76	48.7		328	74.03
0955	11.7	1.60		12.0	1.33	6.76	48.9		316	74.11
1000	10.1	1.61		10.8	1.20	6.73	49.1		310	74.08
1005	10.6	1.61		10.5	1.15	6.73	49.5		319	74.15
1010	9.9	1.61		10.8	1.21	6.77	50.5		307	74.19
1015	S	A	M	P	L	E				

Total Depth of Well:	74.90	
Depth To Water Before Purging:		72.03
Depth To Water After Purging:		74.26

ARCADIS

Water Sampling Log

Project: RACER | Project No. B0064479.20170003 | Page ___ of ___

Site Location: P3 | Date: 05/03/17

Site/Well No.: MW-13-823 | Replicate No.: ✓ | Code No.: ✓

Weather: Sunny 41° | Sampling Time: Begin 0925 End 1015

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	~
Land Surface Elevation (ft)	✓
Sounded Well Depth (ft bmp)	74.00
Depth to Water (ft bmp)	72.03
Water-Level Elevation (ft)	—
Water Column in Well (ft)	1.170
Casing Diameter/Type	2"
Gallons in Well	.315
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	✓
Purge Time	begin 0925 end 1015
Pumping Rate (ml/min)	100
Evacuation Method	✓

Field Parameters

Temperature (°C)	9.9
SpC (mS/cm)	1.61
CND (mS/cm)	
Dissolved Oxygen (%)	10.8
Dissolved Oxygen (mg/L)	1.21
pH (s.u.)	6.77
ORP (mV)	50.5
Turbidity (NTU)	307
Color	~Tan
Odor	~
Appearance	~
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-d. dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-019 PROJ #: B0064479.2017.00603

DATE : 5/3/17 LOC: P3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1135	14.1	~~.182~~		72.1	7.57	7.97	22.3	100	+++	55.33
1140	14.0	~~45.6?~~ .182		70.1	7.16	7.94	27.4		+++	55.39
1145	14.1	~~.182~~		65.5	6.75	7.82	28.5		933	55.29
1150	14.0	.182		64.7	6.62	7.83	28.7		915	55.30
1155	14.0	.194		61.6	6.28	7.73	28.4		671	55.45
1200	14.1	.190		62.9	6.40	7.78	28.4		605	55.41
1205	14.0	.185		61.8	6.37	7.77	28.6		725	55.35
1210	14.0	.220		59.4	6.18	7.72	32.2		691	55.35
1215	14.0	.225		58.0	6.01	7.70	33.2		455	55.35
1220	14.1	.235		54.2	5.68	7.69	34.7		423	55.35
1225	S	A	m	P	L	E				

Total Depth of Well:	65'
Depth To Water Before Purging:	55.33
Depth To Water After Purging:	55.35

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479201790003 | Page ___ of ___

Site Location: P3 | Date: 05/03/17

Site/Well No.: MW-19 | Replicate No.: — | Code No.: —

Weather: Sunny 41° | Sampling Time: Begin 1135 | End ___

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	65.00
Depth to Water (ft bmp)	55.33
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.670
Casing Diameter/Type	2"
Gallons in Well	1.547
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1135 end ___
Pumping Rate (ml/min)	100
Evacuation Method	—

Field Parameters

Temperature (°C)	14.1
SpC (mS/cm)	.235
CND (mS/cm)	~~3.4~~
Dissolved Oxygen (%)	54.2
Dissolved Oxygen (mg/L)	5.68
pH (s.u.)	7.69
ORP (mV)	34.7
Turbidity (NTU)	423
Color	tan
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-dioxane	40 ml VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No. B0064481.2017.00600 | Page 1 of 2

Site Location: Plant 6 | Date: 6/20/17

Site/Well No.: MW-03-05 | Replicate No.: NA | Code No.: NA

Weather: Sunny, ~70°F | Sampling Time: Begin 1245 End 1248

Evacuation Data

Measuring Point	Toc
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	48.19
Depth to Water (ft bmp)	24.60
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	23.59
Casing Diameter/Type	2"/PVC
Gallons in Well	3.77
Gallons Pumped/Bailed Prior to Sampling	~1.50
Sample Pump Intake Setting (ft bmp)	~45.69
Purge Time	begin 1110 end 1248
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	17.71
SpC (mS/cm)	3.740
CND (mS/cm)	3.220
Dissolved Oxygen (%)	62.1
Dissolved Oxygen (mg/L)	5.95
pH (s.u.)	7.40
ORP (mV)	90.3
Turbidity (NTU)	149
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 ml voa	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-03-05 PROJ #: B0064481.2017.00600

DATE : 6/20/17 LOC: RACER Lansing Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1115	17.09	3.752	3.184	25.5	2.44	7.32	100.1	100	AR	25.12
1120	16.50	3.739	3.134	33.1	3.20	7.32	95.2	100	AR	25.53
1125	16.63	3.741	3.141	41.5	4.00	7.39	90.9	100	AR	25.91
1130	17.76	3.780	3.222	47.9	4.49	7.42	89.3	100	AR	26.17
1135	18.49	3.741	3.277	54.0	4.99	7.46	87.5	100	AR	26.36
1140	18.10	3.756	3.260	59.4	5.55	7.46	88.1	100	799	26.55
1145	17.79	3.746	3.227	60.5	5.71	7.44	89.0	100	632	26.69
1150	17.89	3.745	3.235	60.9	5.76	7.43	89.3	100	508	26.76
1155	18.01	3.745	3.245	61.9	5.80	7.43	89.5	100	349	26.83
1200	17.96	3.741	3.241	61.9	5.81	7.43	90.0	100	302	26.99
1205	17.91	3.737	3.236	62.0	5.82	7.42	90.3	100	256	27.03
1210	17.90	3.733	3.230	62.1	5.83	7.42	90.7	100	197	27.11
1215	17.71	3.741	3.271	62.7	5.82	7.43	90.1	100	181	27.16
1220	17.60	3.752	3.324	63.3	5.81	7.44	89.4	100	169	27.19
1225	17.89	3.746	3.254	63.6	5.90	7.42	90.3	100	151	27.21
1230	17.52	3.741	3.212	63.8	5.99	7.41	90.7	100	145	27.24
1235	17.80	3.732	3.200	64.0	6.00	7.40	90.9	100	141	27.27
1240	17.71	3.740	3.220	62.1	5.95	7.40	90.3	100	149	27.29
1245	Sample Collected									
Total Depth of Well:		48.19								
Depth To Water Before Purging:			24.60							
Depth To Water After Purging:			27.29							

- AR = Above Range

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B0064479.2017 | Page: 1 of 2

Site Location: Lansing Plant 2 | Date: 5/30/17

Site/Well No.: MW-12-05R | Replicate No.: NA | Code No.: NA

Weather: Partly Cloudy, ~70°F | Sampling Time: Begin 1415 End 1420

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	112.22
Depth to Water (ft bmp)	76.52
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	35.70
Casing Diameter/Type	4"/Steel
Gallons in Well	23.21
Gallons Pumped/Bailed Prior to Sampling	~1.25
Sample Pump Intake Setting (ft bmp)	~106.22
Purge Time	begin 1320 end 1420
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	19.04
SpC (mS/cm)	1.057
CND (mS/cm)	0.940
Dissolved Oxygen (%)	2.2
Dissolved Oxygen (mg/L)	0.23
pH (s.u.)	10.18
ORP (mV)	29.6
Turbidity (NTU)	581
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Low level 1,4-Dioxane via EPA Method 522	250ml amber	2	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-05R PROJ #: B0064479.2017.00603

DATE : 5/30/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1325	20.07	0.578	0.524	108.5	9.83	9.19	79.0	100	21.2	76.71
1330	18.41	1.071	0.936	47.4	4.43	10.22	73.5	100	12.6	76.71
1335	18.74	1.056	0.930	11.6	1.07	10.19	66.9	100	9.56	76.71
1340	18.85	1.058	0.935	7.1	0.71	10.25	54.3	100	8.21	76.71
1345	19.06	1.060	0.940	4.3	0.39	10.32	45.7	100	7.74	76.71
1350	18.91	1.057	0.936	3.1	0.31	10.22	42.1	100	7.13	76.71
1355	18.89	1.055	0.932	2.6	0.24	10.19	37.1	100	6.78	76.71
1400	18.99	1.054	0.933	2.3	0.22	10.22	33.1	100	6.49	76.71
1405	18.96	1.055	0.936	2.3	0.23	10.16	31.1	100	6.09	76.71
1410	19.04	1.057	0.940	2.2	0.23	10.18	29.6	100	5.81	76.71
1415	Sample	Collected								
Total Depth of Well:		112.22								
Depth To Water Before Purging:			76.52							
Depth To Water After Purging:			76.71							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B0064479.2017 | Page: 1 of 2

Site Location: Lansing Plant 2 | Date: 5/30/17

Site/Well No.: MW-17-87 | Replicate No.: NA | Code No.: NA

Weather: Partly Cloudy, ~70°F | Sampling Time: Begin 1535 End 1540

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	113.83
Depth to Water (ft bmp)	74.50
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	39.33
Casing Diameter/Type	4" / Steel
Gallons in Well	25.56
Gallons Pumped/Bailed Prior to Sampling	= 0.75
Sample Pump Intake Setting (ft bmp)	= 108.83
Purge Time	begin 1455 end 1540
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	16.70
SpC (mS/cm)	3.059
CND (mS/cm)	2.591
Dissolved Oxygen (%)	-1.8
Dissolved Oxygen (mg/L)	-0.13
pH (s.u.)	8.52
ORP (mV)	-202.3
Turbidity (NTU)	9.60
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Low level 1,4-Dioxane via EPA Method 522	250 ml amber	2	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-17-87 PROJ #: B004479.2017.00603

DATE : 5/30/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1500	16.24	3.038	2.528	3.0	0.28	8.30	-178.4	100	30.8	74.80
1505	16.30	3.052	2.543	1.2	0.12	8.36	-193.3	100	26.3	74.84
1510	16.37	3.059	2.553	-0.6	-0.06	8.42	-210.0	100	23.1	74.87
1515	16.78	3.042	2.564	-0.5	-0.05	8.46	-214.0	100	22.5	74.90
1520	16.83	3.041	2.605	-1.5	-0.10	8.50	-194.9	100	14.3	74.93
1525	16.76	3.056	2.605	-1.7	-0.12	8.51	-200.1	100	11.3	74.96
1530	16.70	3.059	2.591	-1.8	-0.13	8.52	-202.3	100	9.60	74.96
1535	Sample	Collected								
Total Depth of Well:		113.83								
Depth To Water Before Purging:			74.50							
Depth To Water After Purging:			74.96							

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 1

Site Location: Lansing, MI | Date: 8/30/17

Site/Well No.: PW-14-01 | Replicate No.: — | Code No.: —

Weather: 70's partly Cloudy | Sampling Time: Begin 1640 End 1650

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	81.83
Depth to Water (ft bmp)	65.22
Water-Level Elevation (ft)	—
Water Column in Well (ft)	16.61
Casing Diameter/Type	4" PVC
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	1.5
Sample Pump Intake Setting (ft bmp)	79.00
Purge Time	begin 1635 end 1650
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	22.6
SpC (mS/cm)	1.88
CND (mS/cm)	1.80
Dissolved Oxygen (%)	2.0
Dissolved Oxygen (mg/L)	0.18
pH (s.u.)	6.80
ORP (mV)	-133.9
Turbidity (NTU)	1.28
Color	None
Odor	None
Appearance	clear
Sampling Method	Low flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40ml VOA	3	HCl
TOL	40ml VOA	2	H_2SO_4

Sampling Personnel: DMR

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : PW-14-01 PROJ #: B0064479.2017.00603

DATE : 8/30/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1600	15.7	2.06	1.69	21.2	2.05	6.79	-119.7	225	11.0	65.49
1605	16.1	2.02	1.67	2.9	0.28	6.78	-122.0	225	6.21	65.69
1610	16.0	1.97	1.63	2.2	0.22	6.78	-125.4	225	3.35	65.89
1615	16.0	1.94	1.60	1.8	0.18	6.80	-128.8	225	2.62	66.05
1620	16.0	1.87	1.58	1.4	0.13	6.80	-132.2	225	1.56	66.20
1625	19.2	1.87	1.88	~~16~~ 1.5	0.14	6.80	-133.6	100	1.65	66.24
1630	21.2	1.88	1.74	1.7	0.16	6.80	-134.4	100	1.97	66.24
1635	22.4	1.87	1.78	2.0	0.18	6.80	-132.2	100	1.74	66.24
1640	22.6	1.88	1.80	2.0	0.18	6.80	-133.9	100	1.28	66.24
Total Depth of Well:			81.83							
Depth To Water Before Purging:			65.22							
Depth To Water After Purging:			66.24							

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 1

Site Location: Lansing, MI | Date: 8/30/17

Site/Well No.: ~~AB~~ TW-14-01 | Replicate No.: — | Code No.: —

Weather: 70's partly cloudy | Sampling Time: Begin 1800 End 1805

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	78.16
Depth to Water (ft bmp)	65.08
Water-Level Elevation (ft)	—
Water Column in Well (ft)	13.08
Casing Diameter/Type	2" PVC
Gallons in Well	2.09
Gallons Pumped/Bailed Prior to Sampling	2.5
Sample Pump Intake Setting (ft bmp)	2.5
Purge Time	begin 1700 end 1805
Pumping Rate (ml/min)	125
Evacuation Method	Bladder pump

Field Parameters

Temperature (°C)	15.4
SpC (mS/cm)	3.10
CND (mS/cm)	2.53
Dissolved Oxygen (%)	9.7
Dissolved Oxygen (mg/L)	0.07
pH (s.u.)	6.69
ORP (mV)	-100.2
Turbidity (NTU)	6.37
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	3-40ml VOA	3	HCl
TOL	2-40ml VOA	2	H_2SO_4

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : TW-14-01 PROJ #: B0064479.2017.00603

DATE : 8/30/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1705	15.4	3.01	2.45	10.0	1.00	6.70	-108.8	225	172	66.66
1710	15.5	2.99	2.45	10.8	1.07	6.71	-104.9	225	61.9	67.00
1715	15.8	2.97	2.45	10.5	1.03	6.71	-100.8	225	22.4	67.40
1720	15.1	3.07	2.49	5.0	0.50	6.69	-97.7	225	35.2	67.70
1725	15.1	3.09	2.51	3.1	0.30	6.69	-98.4	225	12.1	68.00
1730	16.3	3.08	2.55	2.5	0.24	6.69	-98.8	125	7.40	67.95
1735	15.9	3.09	2.55	2.0	0.19	6.69	-98.4	125	5.26	67.95
1740	16.1	3.10	2.56	1.5	0.15	6.68	-99.0	125	6.15	67.95
1745	15.8	3.11	2.56	1.1	0.11	6.68	-100.2	125	6.71	67.95
1750	15.7	3.10	2.55	0.8	0.08	6.68	-101.5	125	4.85	67.95
1755	15.5	3.10	2.54	0.8	0.08	6.69	-102.1	125	5.40	67.95
1800	15.4	3.10	2.53	0.7	0.07	6.69	-102.2	125	6.37	67.95
Total Depth of Well:		78.16								
Depth To Water Before Purging:			65.08							
Depth To Water After Purging:			67.95							

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 1

Site Location: Lansing, MI | Date: 8/30/17

Site/Well No.: TW-17-03 | Replicate No.: — | Code No.: —

Weather: 70's Clear | Sampling Time: Begin 1915 End 1920

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	74.15
Depth to Water (ft bmp)	63.24
Water-Level Elevation (ft)	—
Water Column in Well (ft)	10.91
Casing Diameter/Type	2" PVC
Gallons in Well	1.75
Gallons Pumped/Bailed Prior to Sampling	@ 3.75
Sample Pump Intake Setting (ft bmp)	71.50
Purge Time	begin 1815 end 1920
Pumping Rate (ml/min)	210
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.3
SpC (mS/cm)	4.09
CND (mS/cm)	3.33
Dissolved Oxygen (%)	14.9
Dissolved Oxygen (mg/L)	1.68
pH (s.u.)	6.67
ORP (mV)	-65.6
Turbidity (NTU)	8.03
Color	clear
Odor	none
Appearance	clear
Sampling Method	Low flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40 ml VOA	3	HCl
TOC	40 ml VOA	2	H_2SO_4

Sampling Personnel: DMS

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : TW-14-02 PROJ #: B0064479.2017.00603

DATE : 8/30/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW	
1820	16.0	~~25.2~~ 4.04	3.37	~~29.3~~	2.17	6.64	-81.4	225	71000	63.85	
1825	15.6	3.95	3.82	16.7	1.65	6.67	-84.3	225	176	64.45	
1830	15.6	4.00	3.86	13.9	1.38	6.67	-86.3	225	51.2	64.60	
1835	15.3	4.05	3.31	~~8.3~~ 9.4	1.03	6.67	-86.4	225	39.6	64.70	
1840	~~4.10~~	~~3.50~~				6.73					Pump stopped
1845	16.1	4.11	3.51	20.2	1.86	6.70	-50.5	210	466	64.70	
1850	15.6	4.07	3.35	35.0	3.43	6.67	-52.7	210	199	64.70	
1855	15.5	4.10	3.35	28.4	2.80	6.67	-53.5	210	69.0	64.70	
1900	15.3	4.10	3.34	24.9	2.46	6.67	-57.1	210	30.0	64.70	
1905	15.3	4.10	3.34	21.1	2.09	6.67	-60.2	210	19.5	64.70	
1910	15.2	4.10	3.33	17.5	1.73	6.67	-63.3	210	13.7	64.70	
1915	15.3	4.09	3.33	14.9	1.48	6.67	-65.6	210	8.03	64.70	
Total Depth of Well:		74.15									
Depth To Water Before Purging:			63.84								
Depth To Water After Purging:			64.70								

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 1

Site Location: Lansing, MI | Date: 8/30/17

Site/Well No.: TW-16-01 | Replicate No.: — | Code No.: —

Weather: 70's Clear | Sampling Time: Begin 2110 End 2115

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	77.91
Depth to Water (ft bmp)	62.73
Water-Level Elevation (ft)	~~15.18~~
Water Column in Well (ft)	15.18
Casing Diameter/Type	2" PVC
Gallons in Well	2.43
Gallons Pumped/Bailed Prior to Sampling	4.5
Sample Pump Intake Setting (ft bmp)	75.0
Purge Time	begin 1930 end 2115
Pumping Rate (ml/min)	125-250
Evacuation Method	P. Pump

Field Parameters

Temperature (°C)	15.0
SpC (mS/cm)	2.59
CND (mS/cm)	2.10
Dissolved Oxygen (%)	2.2
Dissolved Oxygen (mg/L)	0.21
pH (s.u.)	6.87
ORP (mV)	-83.2
Turbidity (NTU)	145
Color	None
Odor	None
Appearance	Turbid
Sampling Method	Low Flow
Remarks	Trouble w/ Bladder Pump Pumping Correctly

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40ml VOA	3	HCl
TOC	40ml VOA	2	H_2SO_4

Sampling Personnel: OMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : TW-16-01 PROJ #: B0064479.2017.00603

DATE : 8/30/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1935	15.6	2.00	1.64	2.7	0.27	6.98	-94.2	225	63.6	64.25
1940	15.8	2.00	1.65	1.6	0.16	6.96	-102.3	225	27.2	65.25
1945	15.7	2.02	1.66	1.3	0.13	6.94	-107.8	225	67.7	66.10
1950	15.4	2.07	1.68	0.9	0.09	6.93	-109.4	225	92.0	66.60
1955	Dumb	Not	working	Correctly	-	-	-	-	-	-
2000	17.5	2.15	1.88	55.5	5.08	6.96	-72.5	225	116	67.15
2005	-	-	-	-	-	-	-	225	-	-
2010	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-
2020	15.5	2.61	2.14	8.0	0.79	6.91	-58.6	250	>1000	68.10
2025	15.1	2.41	1.96	3.3	0.33	6.91	-66.7	250	>1000	68.60
2030	14.9	2.36	1.91	2.7	0.27	6.91	-72.2	250	441	69.40
2035	14.9	2.38	1.92	2.6	0.26	6.90	-74.8	250	265	6970.00
2040	14.8	2.39	1.93	2.8	0.28	6.91	-77.5	250	197	70.60
2045	14.8	2.44	1.96	3.2	0.32	6.90	-78.9	250	147	71.00
2050	15.1	2.45	1.98	3.3	0.33	6.89	-79.7	125	123	71.15
2055	15.1	2.59	2.10	2.8	0.28	6.88	-80.8	125	145	71.15
2100	15.1	2.59	2.10	2.5	0.25	6.89	-81.8	125	129	71.15
2105	15.0	2.62	2.12	2.3	0.23	6.89	-82.6	125	118	71.55
2110	15.0	2.59	2.10	2.2	0.22	6.89	-83.2	125	145	71.55
Total Depth of Well:		77.91								
Depth To Water Before Purging:			62.73							
Depth To Water After Purging:			71.55							

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 1

Site Location: Lansing, MI | Date: 8/31/17

Site/Well No.: AS-16-01 | Replicate No.: — | Code No.: —

Weather: 70's partly cloudy | Sampling Time: Begin 1740 End 1745

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	75.35
Depth to Water (ft bmp)	61.85
Water-Level Elevation (ft)	—
Water Column in Well (ft)	13.50
Casing Diameter/Type	2" PVC
Gallons in Well	2.16
Gallons Pumped/Bailed Prior to Sampling	3.5
Sample Pump Intake Setting (ft bmp)	74.50
Purge Time	begin 1630 end 1745
Pumping Rate (ml/min)	150-200
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.1
SpC (mS/cm)	1.70
CND (mS/cm)	1.38
Dissolved Oxygen (%)	72.2
Dissolved Oxygen (mg/L)	7.22
pH (s.u.)	6.87
ORP (mV)	-181.4
Turbidity (NTU)	38.3
Color	None
Odor	None
Appearance	Small Black Specks / Turbid
Sampling Method	Low flow
Remarks	- Possible Air Bypassing O-Rings

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	(VOA) 40ml VOA	3	HCl
TOC	40ml VOA	2	H_2SO_4

Sampling Personnel: DM

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : AS-16-01 PROJ #: B0064479.2017.00603

DATE : 8/31/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1635	16.5	0.99	0.83	9.1	0.87	6.89	-71.5	175	23.1	63.05
1640	15.9	0.98	0.81	5.5	0.54	6.87	-74.6	175	13.0	63.85
1645	15.7	1.05	0.86	5.3	0.53	6.86	-82.4	175	15.2	64.70
1650	15.5	1.28	1.05	3.4	0.34	6.81	-96.0	175	15.6	65.60
1655	15.6	1.28	1.05	3.3	0.32	6.82	-105.9	175	24.0	66.40
1700	15.6	1.26	1.03	2.9	0.29	6.82	-113.5	175	26.0	67.20
1705	14.8	1.40	1.12	2.1	0.21	6.81	-124.9	280	22.1	68.05
1710	14.8	1.34	1.12	1.8	0.18	6.82	-132.2	280	24.8	69.35
1715	14.8	1.47	1.18	1.3	0.13	6.81	-141.5	280	22.8	70.30
1720	15.2	1.58	1.29	82.9	8.27	6.97	-154.6	varied	45.7	70.85
1725	15.2	1.62	1.31	78.4	7.82	6.90	-160.0	150	123	70.85
1730	15.2	1.66	1.34	67.6	6.71	6.86	-170.4	150	71.1	70.85
1735	15.1	1.67	1.36	69.6	6.96	6.86	-179.9	150	40.8	70.85
1740	15.1	1.70	1.38	72.2	7.22	6.87	-181.4	150	38.3	70.85
Total Depth of Well:		75.35								
Depth To Water Before Purging:			61.85							
Depth To Water After Purging:			70.85							

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 1

Site Location: Lansing, MI | Date: 8/31/17

Site/Well No.: ~~AS-16-02~~ AS-16-02 | Replicate No.: — | Code No.: —

Weather: 70's partly cloudy | Sampling Time: Begin 1935 End 1940

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	76.18
Depth to Water (ft bmp)	63.83
Water-Level Elevation (ft)	—
Water Column in Well (ft)	12.35
Casing Diameter/Type	2" PVC
Gallons in Well	1.98
Gallons Pumped/Bailed Prior to Sampling	3.5
Sample Pump Intake Setting (ft bmp)	~~78.0~~ 76.00
Purge Time	begin ~~1805~~ 1805 end 1914
Pumping Rate (ml/min)	175 - 250
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.9
SpC (mS/cm)	1.74 @ three tubes
CND (mS/cm)	1.44 well ran Dry
Dissolved Oxygen (%)	10.8
Dissolved Oxygen (mg/L)	1.06
pH (s.u.)	6.94
ORP (mV)	-66.9
Turbidity (NTU)	460
Color	None
Odor	None
Appearance	turbid
Sampling Method	Low flow
Remarks	Problem w/ pump initially well ran dry @ 1914 Sampled @ 1935

Constituents Sampled	Container Description	Number	Preservative
1-1, Dioxane	40ml VOA	3	HCL
TOL	40ml VOA	2	H_2SO_4

Sampling Personnel: MA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : AS-16-02 PROJ #: B0064479.2017.00603

DATE : 8/31/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW 67.45
1820	15.2	1.25	1.01	42.1	4.22	6.91	-57.9	250	474	~~67.45~~
1825	15.0	1.24	1.00	41.0	4.11	6.90	-52.2	250	235	68.90
1830	15.0	1.24	1.01	39.1	3.94	6.89	-46.2	250	182	70.40
1835	15.3	1.27	1.03	43.7	4.36	6.91	-39.5	250	179	71.60
1840	15.3	1.31	1.07	33.6	3.37	6.88	-37.3	250	123	72.30
1845	14.7	1.53	1.23	14.6	1.48	6.89	-35.8	250	>1000	72.95
1850	15.0	1.74	1.41	11.1	1.12	6.86	-58.6	240	380	73.50
1855	14.8	1.76	1.42	5.9	0.59	6.88	-71.8	240	119	74.10
1900	14.7	1.92	1.55	2.5	0.25	6.95	-67.9	240	>1000	74.55
1905	15.2	1.77	1.44	4.8	0.48	6.93	-70.6	200	509	74.60
1910	15.9	1.74	1.44	10.8	1.06	6.94	-66.9	175	460	—
1914	Well	Run	Dry							
Total Depth of Well:		76.18								
Depth To Water Before Purging:			63.83							
Depth To Water After Purging:			76.13							

Top of Pump

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 1

Site Location: Lansing, MI | Date: 9/7/17

Site/Well No.: MW-16-91 | Replicate No.: Dup-1 | Code No.: Dup-1

Weather: 59 Rain | Sampling Time: Begin 2050 End 2100

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	77.33
Depth to Water (ft bmp)	68.84
Water-Level Elevation (ft)	~~8.49~~
Water Column in Well (ft)	8.49
Casing Diameter/Type	2" PVC
Gallons in Well	1.36
Gallons Pumped/Bailed Prior to Sampling	2
Sample Pump Intake Setting (ft bmp)	75.00
Purge Time	begin 1935 end 2106
Pumping Rate (ml/min)	700
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.1
SpC (mS/cm)	3.02
CND (mS/cm)	2.45
Dissolved Oxygen (%)	93.6
Dissolved Oxygen (mg/L)	9.32
pH (s.u.)	7.54
ORP (mV)	-122.3
Turbidity (NTU)	174
Color	Tan
Odor	Tan
Appearance	Turbid
Sampling Method	Low flow
Remarks	* Dup-1 taken * — Pump air bypassing O-Rings

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxan	40 ml vial	6	HCl

Sampling Personnel: DMT

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-81 PROJ #: B0064479.2017.00603

DATE : 9/7/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1940	15.8	3.01	2.48	92.3	9.02	7.61	-139.8	100	>1000	—
1945	15.7	3.88	2.40	84.9	8.36	7.54	-121.1	100	>1000	69.25
1950	15.7	3.02	2.47	87.8	8.70	7.62	-137.9	100	>1000	69.50
1955	15.5	3.01	2.43	92.2	9.11	7.64	-136.4	100	>1000	69.65
2000	15.6	2.94	2.40	96.5	9.55	7.76	-142.4	100	822	69.75
2005	15.7	3.01	2.48	84.5	8.33	7.47	-108.4	100	640	69.75
2010	15.6	3.02	2.48	88.0	8.77	7.46	-109.9	100	822	69.75
2015	15.7	3.03	2.48	89.8	8.89	7.45	-106.9	100	772	69.75
2020	15.7	3.03	2.49	94.6	9.36	7.50	-111.1	100	735	69.75
2025	15.5	3.03	2.48	89.7	8.93	7.57	-122.0	100	624	69.75
2030	15.5	3.00	2.47	93.1	9.20	7.55	-119.9	100	652	69.75
2035	15.4	3.02	2.47	92.9	9.24	7.57	-120.6	100	483	69.75
2040	15.2	3.02	2.46	93.0	9.25	7.53	-117.6	100	329	69.75
2045	15.2	3.02	2.46	92.8	9.25	7.53	-117.3	100	251	69.75
2050	15.1	3.02	2.45	93.6	9.32	7.54	-122.3	100	174	69.75
Total Depth of Well:		77.33								
Depth To Water Before Purging:			68.84							
Depth To Water After Purging:			69.75							

ARCADIS

Water Sampling Log

Project: RACER Lansing Plant 2 | Project No.: B0064479.2017.00603 | Page: 1 of 21

Site Location: Lansing, MI | Date: 9/7/17

Site/Well No.: MW-16-84 | Replicate No.: MS/MSD | Code No.: MS/MSD

Weather: 52°F Light Rain | Sampling Time: Begin 1740-1750 End 1750-1800

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	81.15
Depth to Water (ft bmp)	72.45
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.70
Casing Diameter/Type	2" PVC
Gallons in Well	1.39
Gallons Pumped/Bailed Prior to Sampling	2.5
Sample Pump Intake Setting (ft bmp)	79.50
Purge Time	begin 1605 end 1750 1800
Pumping Rate (ml/min)	125
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.2
SpC (mS/cm)	1.29
CND (mS/cm)	1.04
Dissolved Oxygen (%)	98.0
Dissolved Oxygen (mg/L)	9.88
pH (s.u.)	7.28
ORP (mV)	-66.5
Turbidity (NTU)	114
Color	None
Odor	None
Appearance	Turbid
Sampling Method	Low flow
Remarks	~~MS/MSD Taken~~ -Air possibly Bypassing O-Ring-

Constituents Sampled	Container Description	Number	Preservative
1-4 Dioxane	40ml VOA	9	HCl

Sampling Personnel: RMF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-84 PROJ #: B0064479.2017.00603

DATE : 9/7/17 LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1615	15.5	1.24	1.01	97.4	9.69	7.23	49.2	210	>1000.	73.15
1620	15.2	1.20	0.98	84.0	8.39	7.00	8.4	125	>1000	73.40
1625	15.8	1.19	0.98	54.8	5.70	7.14	-16.6	125	980	73.40
1630	15.7	1.24	1.02	60.2	5.97	7.14	-36.9	125	972	73.40
1635	15.4	1.21	0.98	95.2	9.53	7.45	-8.4	125	398	73.40
1640	15.4	1.22	1.00	74.7	7.43	7.19	-52.3	125	203	73.40
1645	15.4	1.26	1.02	104.4	10.46	7.23	-65.3	125	153	73.40
1650	15.3	1.24	1.01	106.6	10.68	7.22	-58.0	125	135	73.40
1655	15.3	1.23	1.00	87.5	8.68	7.33	-56.1	125	633	73.40
1700	15.1	1.22	0.99	94.8	9.57	7.31	-46.6	125	>1000	73.40
1705	15.1	1.23	0.99	95.9	~~92.5~~	7.30	-45.1	125	>1000	73.40
1710	15.4	1.23	1.02	92.6	9.07	7.26	-38.8	125	>1000	73.40
1715	15.8	1.24	1.03	97.1	9.53	7.27	-52.7	125	720	73.40
1720	15.8	1.26	1.04	77.7	7.68	7.36	-61.9	125	596	73.40
1725	15.6	1.26	1.03	78.9	7.76	7.24	~~59.2~~	125	450	73.40
1730	15.4	1.27	1.04	90.6	9.03	7.21	-53.7	125	360	73.40
1735	15.2	1.26	1.03	97.5	9.75	7.23	-52.2	125	318	73.40
1740	15.2	1.27	1.03	97.3	9.71	7.25	-55.8	125	246	73.40
1745	15.1	1.29	1.04	98.5	98.9	7.27	-62.4	125	163	73.40
1750	15.2	1.29	1.04	98.0	9.88	7.28	-66.5	125	114	73.40
Total Depth of Well:		81.15								
Depth To Water Before Purging:			72.45							
Depth To Water After Purging:			73.40							

ARCADIS

Water Sampling Log

Project	RACER Lansing Plant 2	Project No.	B0064479.2017.00603	Page	1 of 1
Site Location	Lansing, MI			Date	9/7/17
Site/Well No.	MW-16-82	Replicate No.	—	Code No.	—
Weather	50s Rain	Sampling Time: Begin	1915	End	1920

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	77.16
Depth to Water (ft bmp)	69.17
Water-Level Elevation (ft)	—
Water Column in Well (ft)	@ 7.99
Casing Diameter/Type	2" PVC
Gallons in Well	1.27
Gallons Pumped/Bailed Prior to Sampling	2
Sample Pump Intake Setting (ft bmp)	75.00
Purge Time	begin 1815 end 1920
Pumping Rate (ml/min)	110
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	15.2
SpC (mS/cm)	1.05
CND (mS/cm)	0.85
Dissolved Oxygen (%)	92.1
Dissolved Oxygen (mg/L)	9.71
pH (s.u.)	7.45
ORP (mV)	-117.7
Turbidity (NTU)	39.7
Color	None
Odor	None
Appearance	Turbid
Sampling Method	Low flow
Remarks	—
	- Air Bypass, O-Rings -

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40ml VOA	3	HCl

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-82 PROJ #: B0064479.2017.00603

DATE : LOC: RACER Lansing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1820	15.9	1.05	0.87	83.2	8.20	7.37	-93.4	110	905	
1825	15.4	1.05	0.86	91.9	9.21	7.40	-110.1	110	882	70.00
1830	15.2	1.05	0.85	92.1	9.20	7.46	-113.7	110	703	70.25
1835	15.3	1.04	0.85	89.8	8.91	7.44	-111.3	110	385	70.45
1840	15.4	1.05	0.86	86.8	8.67	7.45	-113.7	110	306	70.60
1845	15.6	1.05	0.86	94.6	9.37	7.26	-84.0	110	209	70.65
1850	15.3	1.03	0.84	94.7	9.45	7.47	-113.7	110	135	70.69
1855	15.3	1.04	0.85	90.8	9.07	7.44	-112.5	110	106	70.70
1900	15.3	1.04	0.85	92.2	9.21	7.43	-112.8	110	81.2	70.70
1905	15.2	1.04	0.85	94.2	9.43	7.44	-114.7	110	57.5	70.70
1910	15.2	1.04	0.85	94.4	9.46	7.44	-115.8	110	56.8	70.70
1915	15.2	1.05	0.85	97.1	9.71	7.45	-117.7	110	34.7	70.70
Total Depth of Well:		77.16								
Depth To Water Before Purging:			69.17							
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project	RACER Lansing	Project No.	B006447.2017.00501 (was 00003) aw 12/7/17	Page	1 of 2
Site Location	Plant 2			Date	12/7/17
Site/Well No.	MW-16-77	Replicate No.	NA	Code No.	NA
Weather	Cloudy, ~25°F	Sampling Time:	Begin 1010	End	1013

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	74.50
Depth to Water (ft bmp)	63.54
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	10.96
Casing Diameter/Type	2"/PVC
Gallons in Well	~1.75
Gallons Pumped/Bailed Prior to Sampling	~ 1.00
Sample Pump Intake Setting (ft bmp)	~72.00
Purge Time	begin 0925 end 1013
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	6.6
SpC (mS/cm)	1.68
CND (mS/cm)	1.06
Dissolved Oxygen (%)	24.9
Dissolved Oxygen (mg/L)	3.31
pH (s.u.)	7.34
ORP (mV)	418.1
Turbidity (NTU)	2.70
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMS	40ml voa	3	HCl
Propane AM20GAX	40 ml voa	3	TSP

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-77

PROJ #: B006447.2017.00501 aw 12/7/17 ~~00603~~

DATE : 12/7/17

LOC: RACER Lansing - Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0930	8.0	1.70	1.15	32.4	3.78	7.24	442.4	100	19.9	66.20
0935	7.1	1.70	1.12	28.5	3.35	7.30	436.7	100	11.3	66.22
0940	6.7	1.68	1.10	28.2	3.43	7.32	429.0	100	6.41	66.23
0945	6.6	1.68	1.08	27.3	3.41	7.33	425.6	100	4.32	66.23
0950	6.5	1.66	1.06	27.0	3.40	7.33	423.6	100	3.61	66.23
0955	6.5	1.68	1.06	26.1	3.40	7.34	421.2	100	3.14	66.26
1000	6.6	1.68	1.06	25.9	3.38	7.34	419.2	100	2.88	66.29
1005	6.6	1.68	1.06	24.9	3.31	7.34	418.1	100	2.70	66.29
1010	Sample Collected									
Total Depth of Well: 74.50										
Depth To Water Before Purging: 63.54										
Depth To Water After Purging: 66.29										

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B006447.2017.~~00603~~ 00501 | Page 1 of 2

Site Location: Plant 2 | Date: 12/7/17

Site/Well No.: MW-16-75 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, ≈25°F | Sampling Time: Begin 1150 End 1153

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	74.85
Depth to Water (ft bmp)	62.69
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	12.16
Casing Diameter/Type	2" / pvc
Gallons in Well	=1.95
Gallons Pumped/Bailed Prior to Sampling	=1.3
Sample Pump Intake Setting (ft bmp)	=72.35
Purge Time	begin 1055 end 1153
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.5
SpC (mS/cm)	1.87
CND (mS/cm)	1.36
Dissolved Oxygen (%)	2.1
Dissolved Oxygen (mg/L)	0.22
pH (s.u.)	7.16
ORP (mV)	122.6
Turbidity (NTU)	9.41
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIM	40 ml voa	3	HCl
Propane AM20GAX	40 ml voa.	3	TSP

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-75

PROJ #: B006447.2017.~~00603~~ 00501 aw 12/7/17

DATE : 12/7/17

LOC: RACER Lansing - Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1100	10.4	1.86	1.34	4.2	0.50	7.18	254.1	100	76.9	63.33
1105	10.6	1.84	1.34	5.1	0.59	7.18	242.1	100	69.8	64.41
1110	10.9	1.84	1.34	3.8	0.42	7.17	221.3	100	52.3	64.82
1115	11.0	1.84	1.35	3.5	0.40	7.17	203.0	100	38.1	64.86
1120	10.6	1.86	1.35	2.6	0.29	7.17	176.3	100	29.2	64.88
1125	11.0	1.86	1.37	2.1	0.22	7.17	139.9	100	22.1	64.89
1130	10.9	1.87	1.37	2.0	0.22	7.17	130.6	100	17.3	64.89
1135	11.0	1.88	1.37	2.2	0.23	7.16	126.6	100	12.2	64.89
1140	11.0	1.88	1.37	2.2	0.23	7.16	124.4	100	11.0	64.89
1145	10.5	1.87	1.36	2.1	0.22	7.16	122.6	100	9.41	64.89
1150	Sample Collected									

Total Depth of Well: 74.85

Depth To Water Before Purging: 62.69

Depth To Water After Purging: 64.89

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B006447.2017.00603 (0050) aw 12/7/17 | Page 1 of 2

Site Location: Plant 2 | Date: 12/7/17

Site/Well No.: MW-16-74 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, ≈25°F | Sampling Time: Begin 1400 End 1403

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	73.70
Depth to Water (ft bmp)	67.85
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	5.85
Casing Diameter/Type	2" / PVC
Gallons in Well	0.94
Gallons Pumped/Bailed Prior to Sampling	≈1.00
Sample Pump Intake Setting (ft bmp)	≈71.20
Purge Time	begin 1320 end 1403
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	9.6
SpC (mS/cm)	2.21
CND (mS/cm)	1.56
Dissolved Oxygen (%)	5.9
Dissolved Oxygen (mg/L)	0.64
pH (s.u.)	7.06
ORP (mV)	57.9
Turbidity (NTU)	7.60
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMS	40 ml voa	3	HCl
Propane AM20GAX	40 ml voa	3	TSP

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-74

PROJ #: B006447.2017.~~00603~~ 00501 aw 12/7/17

DATE : 12/7/17

LOC: RACER Lansing - Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1325	9.2	2.18	1.52	13.2	1.54	7.08	105.1	100	20.9	67.90
1330	9.5	2.20	1.55	10.4	1.00	7.07	95.0	100	14.1	67.90
1335	9.8	2.21	1.57	8.5	0.84	7.06	83.9	100	10.3	67.90
1340	10.1	2.21	1.58	6.1	0.67	7.06	74.3	100	9.37	67.90
1345	9.4	2.21	1.55	6.2	0.67	7.06	60.1	100	8.84	67.90
1350	9.6	2.21	1.55	6.0	0.66	7.06	58.8	100	8.12	67.90
1355	9.6	2.21	1.56	5.9	0.64	7.06	57.9	100	7.60	67.90
1400	Sample	Collected								

Total Depth of Well:	73.70
Depth To Water Before Purging:	67.85
Depth To Water After Purging:	67.90

ARCADIS

Water Sampling Log

Project Race Lansing, RSA Plant 2 Project No. 30064479.2017.00501 Page 1 of 2

Site Location Lansing, MI Date 12/6/17

Site/Well No. AS-16-01 Replicate No. — Code No. —

Weather 30s partly cloudy Sampling Time: Begin 1145 End 1155

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	75.35
Depth to Water (ft bmp)	59.52
Water-Level Elevation (ft)	—
Water Column in Well (ft)	15.83
Casing Diameter/Type	~~2.63 in~~
Gallons in Well	2.63
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	73.00
Purge Time	begin 1045 end 1155
Pumping Rate (ml/min)	100-160
Evacuation Method	Bladder pump

Field Parameters

Temperature (°C)	12.0
SpC (mS/cm)	2.77
CND (mS/cm)	2.09
Dissolved Oxygen (%)	38.7
Dissolved Oxygen (mg/L)	4.10
pH (s.u.)	6.70
ORP (mV)	-108.4
Turbidity (NTU)	33.6
Color	None
Odor	Present - Not NAPL - unsure of what it is
Appearance	Cloudy
Sampling Method	Low flow
Remarks	Cheather w/ A. Willhaver
	Before Sample due to high turbidity

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40ml VOA	3	HCl
TOC	40ml VOA	2	H_2SO_4
Dioxane	40ml VOA	3	Na_3PO_4

Sampling Personnel DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : AS-16-01 PROJ #: B0064479.2017.00501

DATE : 12/6/17 LOC: Race Lansing, Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1050	12.0	2.21	1.66	39.9	4.28	6.84	-126.3	160	128	59.95
1055	12.4	2.12	1.61	64.2	7.19	7.01	-110.0	160	39.5	60.50
1100	12.4	2.09	1.59	78.8	8.48	7.13	-101.3	160	31.3	61.35
1105	12.6	2.13	1.62	80.1	8.69	7.14	-97.2	160	30.1	62.10
1110	12.5	2.23	1.70	73.8	7.74	7.05	-98.1	160	29.4	62.90
1115	12.6	2.44	1.86	59.8	6.31	6.88	-109.2	160	41.5	62.55
1120	11.9	2.51	1.89	54.2	5.72	6.84	-106.5	100	41.7	62.70
1125	11.9	2.62	1.96	47.1	5.07	6.78	-99.2	100	44.1	62.70
1130	11.9	2.65	1.99	43.3	4.64	6.77	-101.0	100	39.4	62.70
1135	12.0	2.68	2.03	40.8	4.37	6.75	-101.4	100	35.8	62.70
1140	12.0	2.75	2.08	39.0	4.14	6.72	-106.4	100	33.5	62.70
1145	12.0	2.77	2.09	38.7	4.10	6.70	-108.4	100	33.6	62.70
Total Depth of Well:		75.35								
Depth To Water Before Purging:			59.52							
Depth To Water After Purging:			62.70							

ARCADIS

Water Sampling Log

Project: Racer Landfill Plant 2 | Project No. B0064479.2017.00501 | Page 1 of 2

Site Location: Racer, Lansing | Date: 12/6/17

Site/Well No.: AS-16-02 | Replicate No.: — | Code No.: —

Weather: 30's partly cloudy | Sampling Time: Begin 1315 End 1325

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	79.65
Depth to Water (ft bmp)	59.80
Water-Level Elevation (ft)	—
Water Column in Well (ft)	19.85
Casing Diameter/Type	2" PVC
Gallons in Well	3.18
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	77.00
Purge Time	begin 1215 end 1305
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	9.6
SpC (mS/cm)	1.12
CND (mS/cm)	0.79
Dissolved Oxygen (%)	51.5
Dissolved Oxygen (mg/L)	5.85
pH (s.u.)	5.93
ORP (mV)	-112.7
Turbidity (NTU)	68.4
Color	None
Odor	None
Appearance	Cloudy
Sampling Method	Low flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40ml VOA	3	HCl
TOC	40ml VOA	2	H_2SO_4
Propane	40ml VOA	3	NaH_2PO_4

Sampling Personnel: DMa

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : AS-16-02 PROJ #: B00644 79.0017.00501

DATE : 12/6/17 LOC: Racer Crossing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1220	12.1	0.88	0.66	43.6	4.72	5.62	-107.4	160	918	60.90
1225	12.1	0.85	0.64	54.0	5.79	5.55	-104.1	160	442	61.85
1230	12.2	0.84	0.63	64.1	6.83	5.52	-100.4	160	263	62.70
1235	12.3	0.86	0.65	70.2	7.47	5.62	-96.6	160	164	63.50
1240	11.9	0.88	0.66	71.9	7.66	5.73	-95.0	160	144	64.00
1245	11.9	0.91	0.68	72.1	7.73	5.87	-94.7	160	112	64.60
1250	9.8	0.94	0.65	69.7	8.01	5.91	-96.2	100	95.8	64.65
1255	9.7	0.93	0.67	66.5	7.47	5.92	-96.1	100	96.7	64.65
1300	10.1	1.04	0.75	58.5	6.59	5.95	-101.6	100	75.5	64.65
1305	9.9	1.07	0.76	54.8	6.30	5.96	-105.5	100	72.2	64.65
1310	9.7	1.10	0.77	52.2	5.95	5.94	-110.1	100	70.4	64.65
1315	9.6	1.12	0.79	51.5	5.85	5.93	-112.7	100	68.4	64.65
Total Depth of Well:		79.65								
Depth To Water Before Purging:			59.80							
Depth To Water After Purging:			64.65							

ARCADIS

Water Sampling Log

Project: Racer Lansing Plant 2 | Project No. B0064479.2017.00501 | Page 1 of 2

Site Location: Lansing, MI | Date: 12/6/17

Site/Well No.: TW-16-01 | Replicate No.: — | Code No.: —

Weather: 30's partly Cloudy | Sampling Time: Begin 1445 End 1455

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	77.90
Depth to Water (ft bmp)	59.50
Water-Level Elevation (ft)	—
Water Column in Well (ft)	18.40
Casing Diameter/Type	2" PVC
Gallons in Well	1.94
Gallons Pumped/Bailed Prior to Sampling	2
Sample Pump Intake Setting (ft bmp)	75.25
Purge Time	begin 1345 end 1455
Pumping Rate (ml/min)	125
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.1
SpC (mS/cm)	2.74
CND (mS/cm)	2.07
Dissolved Oxygen (%)	12.4
Dissolved Oxygen (mg/L)	1.30
pH (s.u.)	6.41
ORP (mV)	-114.4
Turbidity (NTU)	40.5
Color	Nom
Odor	Diesel - Not NAPL
Appearance	Cloudy
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	@ 40ml VOA	3	HCl
T.O.C.	40ml VOA	2	H_2SO_4
Propane	40ml VOA	3	Na_3PO_4

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : TW-16-01 PROJ #: B00644 79. 2017. 00501

DATE : 12/6/17 LOC: Racer Landfill, Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1350	12.1	2.24	1.69	7.7	0.82	6.49	-129.1	160	54.9	~~1850~~ 62.70
1355	12.3	1.98	1.50	12.5	1.32	6.59	-120.3	160	137	61.80
1400	12.5	1.97	1.50	15.5	1.64	6.60	-117.6	160	86.4	62.45
1405	12.5	2.05	1.56	18.2	1.93	6.57	-115.2	160	66.3	63.05
1410	12.6	2.17	1.67	19.4	2.04	6.54	-111.2	160	54.2	63.50
1415	12.5	2.26	1.73	19.0	2.02	6.50	-112.1	160	51.4	63.90
1420	12.4	2.36	1.74	18.7	2.00	6.47	-110.4	160	46.3	64.15
1425	12.1	2.42	1.83	17.7	1.90	6.46	-117.3	125	51.3	64.05
1430	12.3	2.56	1.95	16.0	1.59	6.42	-110.9	125	42.0	64.05
1435	12.3	2.68	2.03	13.4	1.43	6.41	-114.6	125	45.7	64.05
1440	12.1	2.71	2.05	12.8	1.35	6.41	-114.7	125	46.2	64.05
1445	12.1	2.74	2.07	12.4	1.30	6.41	-114.4	125	40.5	64.05
Total Depth of Well:		77.90								
Depth To Water Before Purging:			~~58~~ 59.50							
Depth To Water After Purging:			64.05							

ARCADIS

Water Sampling Log

Project: River Lansing Plant 2 | Project No.: B0064479.2017.0054 | Page: 1 of 2

Site Location: Lansing, MI | Date: 12/5/17

Site/Well No.: TW-14-D | Replicate No.: — | Code No.: —

Weather: 20's partly cloudy | Sampling Time: Begin 1110 End 1120

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	78.05
Depth to Water (ft bmp)	64.21
Water-Level Elevation (ft)	—
Water Column in Well (ft)	14.84
Casing Diameter/Type	2" PVC
Gallons in Well	2.57
Gallons Pumped/Bailed Prior to Sampling	1.75
Sample Pump Intake Setting (ft bmp)	75.50
Purge Time	begin 1030 end 1120
Pumping Rate (ml/min)	110
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	9.5
SpC (mS/cm)	1.70
CND (mS/cm)	1.20
Dissolved Oxygen (%)	9.4
Dissolved Oxygen (mg/L)	1.07
pH (s.u.)	5.90
ORP (mV)	-70.0
Turbidity (NTU)	38.8
Color	None
Odor	Diesel - MY LNAPL
Appearance	Cloudy
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40ml VOA	3	HCl
T.O.C.	40ml VOA	2	HNO_3
Propane	40ml VOA	3	Na_2PO_4

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : TW-14-01 PROJ #: B00644 79.2017. 00501

DATE : 12/7/17 LOC: Racer Complex, Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1025	10.9	2.01	1.47	13.1	1.44	5.83	-60.0	160	7000	64.70
1030	11.6	1.92	1.43	5.8	0.62	5.82	-66.9	160	665	65.35
1035	11.8	1.87	1.40	4.4	0.48	5.82	-70.7	160	195	65.60
1040	11.4	1.70	1.26	5.7	0.63	5.88	-70.9	160	96.7	65.90
1045	11.1	1.62	1.19	7.7	0.84	5.90	-70.0	160	78.8	66.10
1050	9.6	1.60	1.10	7.9	0.90	5.92	-69.5	~~160~~ 110	69.5	66.00
1055	9.3	1.69	1.19	8.8	1.00	5.88	-68.8	110	47.6	66.00
1100	9.4	1.73	1.21	9.1	1.04	5.88	-69.7	110	45.6	66.00
1105	9.2	1.72	1.20	9.1	1.04	5.89	-70.2	110	39.4	66.00
1110	9.5	1.70	1.20	9.4	1.07	5.90	-70.0	110	38.8	66.00
Total Depth of Well:		78.05								
Depth To Water Before Purging:			64.21							
Depth To Water After Purging:			66.00							

ARCADIS

Water Sampling Log

Project: Ruan Lansing Plant 2 | Project No. B0064479.2017.00501 | Page 1 of 2

Site Location: Lansing MI | Date: 12/7/17

Site/Well No.: TW-14-02 | Replicate No.: Dup-04 | Code No.: Dup-04

Weather: 20's overcast | Sampling Time: Begin 1225 End 1235

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	74.10
Depth to Water (ft bmp)	62.50
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.60
Casing Diameter/Type	2" PVC
Gallons in Well	0.81
Gallons Pumped/Bailed Prior to Sampling	2.5
Sample Pump Intake Setting (ft bmp)	71.50
Purge Time	begin 1140 end 1235
Pumping Rate (ml/min)	180
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	11.9
SpC (mS/cm)	3.79
CND (mS/cm)	2.87
Dissolved Oxygen (%)	1.3
Dissolved Oxygen (mg/L)	0.14
pH (s.u.)	~~6.3~~ 6.83
ORP (mV)	-63.7
Turbidity (NTU)	9.40
Color	None
Odor	Pigsty - Not LNAPL
Appearance	Clear
Sampling Method	Low flow
Remarks	* Dup-04 Taken *

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxan	40ml VOA	6	HCl
T.O.C.	40ml VOA	2	H_2SO_4
Propan	40ml VOA	3	Na_3PO_4

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : ~~MW-1~~ TW-14-02 PROJ #: B00 644 79. 2017. 00501

DATE : 12/7/17 LOC: Racer Landing Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1145	11.7	3.53	2.65	4.6	0.48	6.62	-62.5	200	277	62.00
1150	12.0	3.66	2.76	3.1	0.33	6.63	-61.9	200	314	63.20
1155	12.5	3.77	2.85	2.0	0.21	6.63	-62.7	200	382	63.30
1200	12.8	3.77	2.85	1.8	0.19	6.63	-62.3	180	44.5	63.25
1205	12.1	3.78	2.85	1.5	0.16	6.63	-62.2	180	24.7	63.25
1210	11.9	3.80	2.87	1.7	0.18	6.63	-62.4	180	17.6	63.25
1215	11.9	3.83	2.87	1.4	0.15	6.63	-62.6	180	14.6	63.25
1220	11.8	3.81	2.84	1.3	0.14	6.63	-63.3	180	10.4	63.25
1225	11.9	3.79	2.87	1.3	0.14	6.63	-63.7	180	9.40	63.25
Total Depth of Well:		74.10								
Depth To Water Before Purging:			62.50							
Depth To Water After Purging:			63.25							

ARCADIS

Water Sampling Log

Project: Racer Landfill, Plant 2 | Project No. B00544 79. 2017. 00501 | Page 1 of 2

Site Location: Lansing, MI | Date: 12/7/17

Site/Well No.: MW-15-72 | Replicate No.: — | Code No.: —

Weather: 30's overcast | Sampling Time: Begin 1400 End 1405

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	70.54
Depth to Water (ft bmp)	59.27
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.27
Casing Diameter/Type	2" PVC
Gallons in Well	1.30
Gallons Pumped/Bailed Prior to Sampling	3.5
Sample Pump Intake Setting (ft bmp)	78.00
Purge Time	begin 1300 end 1405
Pumping Rate (ml/min)	180
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.3
SpC (mS/cm)	1.72
CND (mS/cm)	1.31
Dissolved Oxygen (%)	16.7
Dissolved Oxygen (mg/L)	1.67
pH (s.u.)	6.95
ORP (mV)	-54.8
Turbidity (NTU)	16.9
Color	None
Odor	None
Appearance	clear
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40ml VOA	3	HCl
Propane	40ml VOA	3	Na_2PO_4

Sampling Personnel: DM

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-15-72 PROJ #: B00644 74.2017.00501

DATE : 12/7/17 LOC: Race, Lansing, Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1305	12.4	1.57	1.20	4.0	0.43	7.02	-63.2	230	36.2	59.80
1310	12.8	1.60	1.22	5.5	0.58	6.99	-63.1	230	10.7	60.20
1315	12.8	1.63	1.25	11.0	1.15	6.96	-63.1	230	51.1	60.40
1320	12.3	1.66	1.26	12.9	1.37	6.96	-61.3	180	30.8	60.40
1325	12.0	1.69	1.27	13.1	1.39	6.96	-58.4	180	20.2	60.40
1330	12.3	1.69	1.29	14.2	1.50	6.95	-57.4	180	17.2	60.40
1335	12.0	1.71	1.29	14.7	1.58	6.95	-56.8	180	16.5	60.40
1340	12.3	1.71	1.30	15.8	1.71	6.95	-56.1	180	14.3	60.40
1345	12.3	1.71	1.30	16.0	1.69	6.95	-56.3	180	13.3	60.40
1350	12.3	1.72	1.30	18.2	1.91	6.95	-55.3	180	14.9	60.40
1355	12.3	1.71	1.30	16.9	1.79	6.95	-54.1	180	14.6	60.40
1400	12.3	1.72	1.31	16.7	1.67	6.95	-54.8	180	16.9	60.40
Total Depth of Well:		70.54								
Depth To Water Before Purging:			59.27							
Depth To Water After Purging:			60.40							

ARCADIS

Water Sampling Log

Project: Racer, Lansing Plant 2 | Project No.: B00644479.2017.00501 | Page: 1 of 2

Site Location: Lansing, MI | Date: 12/6/17 - 12/7/17

Site/Well No.: PW-14-01 | Replicate No.: — | Code No.: —

Weather: 30's overcast | Sampling Time: Begin 1425 End 1435

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	81.80
Depth to Water (ft bmp)	63.66
Water-Level Elevation (ft)	—
Water Column in Well (ft)	18.14
Casing Diameter/Type	4" PVC
Gallons in Well	~~11.79~~ 28.67
Gallons Pumped/Bailed Prior to Sampling	30+
Sample Pump Intake Setting (ft bmp)	79.25
Purge Time	begin 1510 end 1610
Pumping Rate (ml/min)	210
Evacuation Method	Bladder pump

Field Parameters

Temperature (°C)	11.9
SpC (mS/cm)	1.92
CND (mS/cm)	1.44
Dissolved Oxygen (%)	55.1
Dissolved Oxygen (mg/L)	5.89
pH (s.u.)	6.89
ORP (mV)	-107.7
Turbidity (NTU)	3.04
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low flow

@ time when stopped purging

Remarks: Stopped Purging due to water level Not Stabilizing.

Purged dry on 12/7/17 945-1005

Sampled @ 1425

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40ml VOA	3	HCl
T.O.C.	40ml VOA	2	H_2SO_4
Propane	40ml VOA	3	$NaHPO_4$

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : PW-14-01 PROJ #: B00644 79. 2017. 00501

DATE : 12/6/17 LOC: Race Landing, Ft Plant 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1515	11.7	2.00	1.49	12.2	1.30	6.80	-124.1	210	7.37	63.70
1520	11.8	1.96	1.46	24.6	2.65	6.80	-118.9	210	4.53	63.93
1525	11.9	1.94	1.45	31.5	3.36	6.79	-112.0	210	3.91	64.10
1530	11.9	1.92	1.44	38.7	4.12	6.82	-112.9	210	3.69	64.28
1535	12.0	1.92	1.44	44.1	4.74	6.84	-117.1	210	3.21	64.46
1540	11.9	1.92	1.44	47.5	5.10	6.85	-112.6	210	3.04	64.64
1545	12.0	1.91	1.44	50.9	5.49	6.86	-109.0	210	3.28	64.81
1550	12.1	1.89	1.43	51.7	5.53	6.87	-111.8	varied	2.98	64.97
1555	12.0	1.92	1.44	52.0	5.59	6.87	-108.2	210	2.61	65.13
1600	11.9	1.92	1.44	53.5	5.72	6.87	-113.2	210	2.93	65.29
1605	11.9	1.92	1.44	55.1	5.89	6.87	-107.7	varied	3.04	65.43
1610	End	Purge								
Total Depth of Well:		81.80								
Depth To Water Before Purging:			63.66							
Depth To Water After Purging:			65.43							

ARCADIS

Water Sampling Log

Project: RACER LANSING | Project No. B0064479.2017.00603 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/5/17

Site/Well No.: MW-12-02 | Replicate No.: N/A | Code No.: N/A

Weather: CLOUDY/WINDY 40° | Sampling Time: Begin 1041 | End 1046

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	101.22
Depth to Water (ft bmp)	66.80
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	34.42'
Casing Diameter/Type	4" STEEL
Gallons in Well	22.373 gal
Gallons Pumped/Bailed Prior to Sampling	~2.5 gallons
Sample Pump Intake Setting (ft bmp)	90.0'
Purge Time	begin 0920 end 1045
Pumping Rate (ml/min)	150 ml/min
Evacuation Method	BLADDER PUMP

Field Parameters

Temperature (°C)	9.7°C
SpC (mS/cm)	0.622
CND (mS/cm)	0.441
Dissolved Oxygen (%)	0.3%
Dissolved Oxygen (mg/L)	
pH (s.u.)	8.53
ORP (mV)	-295.4
Turbidity (NTU)	13.1
Color	CLEAR
Odor	NONE
Appearance	COLORLESS
Sampling Method	BLADDER PUMP
Remarks	SAMPLED NTU'S SLIGHTLY ABOVE 10 NTU'S, BUT STABLE

Constituents Sampled	Container Description	Number	Preservative	
MW-12-02-12052017	40ml VOA	3	HCl	1,4-DIOXANE
		SAMPLED	1045	NO VOCS

Sampling Personnel: RH

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-02 PROJ #: B006 4479.2017.600603

DATE : 12/5/17 LOC: PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
								START.		66.67
		~~45.6?~~								
0935	10.4	0.621	0.447	~~1.1%~~	0.17	8.38	-278.1	150	17.6	66.68
0940	10.4	0.621	0.447	0.8%	0.12	8.44	-285.4	150	14.6	66.68
0945	10.3	0.620	0.446	0.5%	0.08	8.46	-292.3	150	11.0	66.68
0950	10.2	0.620	0.446	0.6%	0.08	8.47	-295.1	150	10.5	66.68
0955	10.2	0.620	0.445	0.6%	0.07	8.47	-297.2	150	11.1	66.68
1000	10.1	0.620	0.444	0.7%	0.07	8.48	-298.5	150	13.5	66.68
1005	10.2	0.618	0.444	0.3%	0.03	8.48	-290.8	150	13.8	66.68
1010	10.1	0.620	0.441	0.3%	0.04	8.49	-294.9	150	13.8	66.68
1015	10.3	0617	0.444	0.6%	0.01	8.50	-294.1	150	13.9	66.68
1020	10.3	0.620	0.445	0.6	0.07	8.51	-288.8	150	13.1	66.68
1025	10.0	0.621	0.443	0.6	0.03	8.51	-291.3	150	13.8	66.69
1030	10.0	0.620	0.442	0.7	0.03	8.52	-295.1	150	13.1	66.68
1035	10.0	0.618	0.441	0.7	0.05	8.52	-296.2	150	~~13.5~~ 13.5	66.68
1040	9.7	0.622	0.441	0.3	0.03	8.53	-295.4	150	~~13.1~~ 13.1	66.68
1045										
1050										
1055										
1100										
Total Depth of Well:		101.22	1							
Depth To Water Before Purging:			66.67							
Depth To Water After Purging:			66.68							

ARCADIS

Water Sampling Log

Project: RACER - LANSING | Project No. B0064479.2017.00003 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/5/17

Site/Well No.: MW-14-63 | Replicate No.: N/A | Code No.: N/A

Weather: CLEAR 40° | Sampling Time: Begin 1240 | End 1242

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	76.71
Depth to Water (ft bmp)	66.66
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	10.05
Casing Diameter/Type	2" PVC
Gallons in Well	1.608 GAL
Gallons Pumped/Bailed Prior to Sampling	~2.0 gal
Sample Pump Intake Setting (ft bmp)	69.0'
Purge Time	begin 1100 end 1242
Pumping Rate (ml/min)	100 ml/MIN
Evacuation Method	BLADDER PUMP

Field Parameters

Temperature (°C)	8.8
SpC (mS/cm)	1.16
CND (mS/cm)	0.80
Dissolved Oxygen (%)	28.1
Dissolved Oxygen (mg/L)	32.7
pH (s.u.)	7.13
ORP (mV)	-47.4
Turbidity (NTU)	46.5
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER PUMP # 4335
Remarks	TURBIDITY SLOWLY DECLINING; NOT ABLE TO GET BELOW 10 NTUS

Constituents Sampled	Container Description	Number	Preservative	
MW-14-63_12052017	40 ml VOA	3	HCl	1,4 DIOXANE
		SAMPLED 1240		NO WCS
				NO QAQC

Sampling Personnel: _____

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-63 PROJ #: B0064479.2017.00608

DATE : 12/5/17 LOC: PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.89~~								
1105	11.5	1.14	0.85	27.1%	2.91	7.06	-19.8	100 ml/min	N/A	67.00
1110	9.2	1.16	0.81	28.5%	3.26	7.06	-27.0	75 ml/min	59.4	66.84
1115	9.5	1.15	0.81	29.6%	3.36	7.08	-31.3	75	73.1	66.79
1120	9.7	1.15	0.81	29.4	3.34	7.08	-32.8	75	75.2	66.80
1125	9.6	1.15	0.81	27.9	3.11	7.08	-34.7	75	83.9	66.80
1130	9.7	1.15	0.82	27.0	3.09	7.07	-34.8	75	81.4	66.872
1135	9.3	1.16	0.81	26.1	3.00	7.06	-39.3	75	76.5	66.70
1140	10.1	1.14	0.81	21.1	2.37	7.04	-48.7	75	82.3	66.74
1145	9.2	1.17	0.81	22.8	2.55	7.03	-51.2	75	62.7	66.81
1150	9.7	1.16	0.82	23.0	2.60	7.04	-52.4	75	58.3	66.80
1155	9.4	1.16	0.81	26.1	2.99	7.08	-60.9	75	56.9	66.80
1200	10.0	1.14	0.82	26.3	2.94	7.09	-52.1	75	57.2	66.80
1205	10.2	1.15	0.83	27.1	~~3.19~~	7.10	-53.9	75	55.3	66.80
1210	10.3	1.16	0.84	28.7	3.33	7.13	-54.4	75	54.7	66.79
1215	10.0	1.16	0.83	28.6	3.20	7.13	-53.6	75	50.6	66.84
1220	9.3	1.17	0.82	29.3	3.33	7.14	-52.2	75	51.5	66.79
1225	8.4	1.16	0.79	29.2	3.40	7.14	-48.1	75	50.5	66.79
1230	8.5	1.16	0.79	28.8	3.32	7.14	-48.2	75	49.5	66.79
1235	8.8	1.16	0.80	28.1	3.27	7.13	-47.4	75	46.5	66.79
1240										
1245										
Total Depth of Well:		76.71								
Depth To Water Before Purging:			66.66	(12/4)						
Depth To Water After Purging:			~~66.79~~	(12/5)						

ARCADIS

Water Sampling Log

Project: RACER LANDFILL | Project No. 30064479.2017.0068 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/5/17

Site/Well No.: MW-16-80 | Replicate No.: — | Code No.: —

Weather: CLOUDY/WINDY | Sampling Time: Begin 1415 End 1420

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	~~75~~ 73.43
Depth to Water (ft bmp)	64.53 (1414)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	8.90'
Casing Diameter/Type	2" PVC
Gallons in Well	1.424
Gallons Pumped/Bailed Prior to Sampling	1.~~25~~ gal
Sample Pump Intake Setting (ft bmp)	70.0'
Purge Time	begin 1300 end 1420
Pumping Rate (ml/min)	100 ml/MIN
Evacuation Method	BLADDER PUMP #4385

Field Parameters

Temperature (°C)	6.2
SpC (mS/cm)	2.37
CND (mS/cm)	1.52
Dissolved Oxygen (%)	6.9
Dissolved Oxygen (mg/L)	0.82
pH (s.u.)	7.11
ORP (mV)	-54.2
Turbidity (NTU)	9.12
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER PUMP #4385
Remarks	SAMPLED WHEN READING STABILIZED

Constituents Sampled	Container Description	Number	Preservative	
MW-16-80-12052017	40 ml VOA	3	HCl	1,4 DIOXANE ONLY
		SAMPLED @ 1415		

Sampling Personnel: RH

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-80 PROJ #: RAKER LANSING - PLANT 2 B004479.2017.00608

DATE : 12/5/17 LOC: PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.6~~?								~~64.56~~
1310	8.0	2.02	1.36	63.3	7.45	7.22	-58.6	100	51.9	64.56
1315	5.6	2.37	1.50	16.3	2.02	7.16	-37.9	75 ml/min	41.2	64.60
1320	6.0	2.37	1.54	14.1	1.87	7.16	-37.6	50+++	25.8	64.58
1325	6.8	2.38	1.56	13.4	1.62	7.16	-37.5	50+++	18.1	64.56
1330	6.2	2.40	1.54	12.9	1.59	7.16	-38.4	50+++	7.90	64.55
1335	5.5	2.41✓	1.51✓	10.40	1.36	7.15✓	-42.7	50+++	11.8	64.61
1340	5.4	2.41	1.50	9.2	1.19	7.14	-42.9	50+++	14.0	64.55
1345	5.0	2.42	1.50	~~8.80~~ 9.1	1.11	7.14	-44.3	50+++	12.1	64.58
1350	5.5	2.38	1.49	9.6	1.07	7.13	-47.5	50+++	12.0	64.57
1355	5.5	2.41	1.51	6.8	0.91	7.12	-49.3	50+++	13.1	64.53
1400	4.7	2.44	1.49	6.0	0.78	7.12	-49.5	50+++	10.4	64.55
1405	5.9	2.36	1.50	5.8	0.78	7.11	-51.6	50+++	9.53	64.61
1410	6.2	2.37	1.52	6.9	0.82	7.11	-54.2	50+++	9.12	64.58
(1415)										
1420										
1425										
1430										
Total Depth of Well:										
Depth To Water Before Purging:			63.76 (12/5) AFTER SETTLING PUMP,							
Depth To Water After Purging:										

+++ SLOW AS I COULD PUMP TO MAKE WL STABLE

WL WATER LEVEL

ARCADIS

Water Sampling Log

Project: RACER LANSING | Project No. B0084479.2017.00608 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/5/17

Site/Well No.: MW-15-73 | Replicate No.: — | Code No.: —

Weather: CLOUDY 35° | Sampling Time: Begin 1605 End 1610

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	80.20 (12/4)
Depth to Water (ft bmp)	72.03 (12/4)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	8.17
Casing Diameter/Type	2" PVC
Gallons in Well	1.307
Gallons Pumped/Bailed Prior to Sampling	~1.00gal.
Sample Pump Intake Setting (ft bmp)	75'
Purge Time	begin 1510 end 1610
Pumping Rate (ml/min)	100
Evacuation Method	BLADDER Pump #4335

Field Parameters

Temperature (°C)	7.0
SpC (mS/cm)	2.52
CND (mS/cm)	1.65
Dissolved Oxygen (%)	3.0%
Dissolved Oxygen (mg/L)	0.34
pH (s.u.)	6.88
ORP (mV)	-43.3
Turbidity (NTU)	5.79
Color	COLORLESS
Odor	~~NONE~~ SLIGHTLY SULFUR ODOR
Appearance	CLEAR
Sampling Method	BLADDER Pump #4335
Remarks	SAMPLED AFTER READINGS STABILIZED

Constituents Sampled	Container Description	Number	Preservative	
MW-15-73-12052017	40ml VOA	3	HCl	1,4 DIOXANE ONLY NO QA/QC
		SAMPLED AT 1610		

Sampling Personnel: RH

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-15-73 PROJ #: B0064479.2017.00603

DATE : 12/5/17 LOC: RAER LANSING - PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.8?~~								
1515	7.0	2.52	1.65	7.2	0.88	6.90	-41.8	100	29.7	71.92
1520	6.6	2.50	1.62	5.9	0.71	6.90	-41.6	100	24.9	71.96
1525	7.3	2.46	1.62	5.3	0.64	6.90	-42.2	100	21.0	71.96
1530	7.4	2.49	1.65	4.4	0.52	6.89	-42.8	100	17.3	72.02
1535	7.4	2.49	1.65	3.6	0.44	6.88	-43.2	75	17.7	72.00
1540	7.8	2.48	1.67	3.5	0.35	6.88	-44.2	75	17.9	71.96
1545	7.3	2.49	1.65	3.0	0.38	6.88	-44.4	75	20.0	71.98
1550	7.3	2.49	1.65	3.1	0.44	6.88	-43.9	75	10.3	71.98
1555	8.2	2.47	1.68	3.0	0.32	6.88	-44.0	75	8.11	72.00
1600	7.0	2.52	1.65	3.0	0.34	6.88	-43.3	75	5.77	72.00
1605										
1610										
1615										
1620										
1625										
1630										
Total Depth of Well:		80.20								
Depth To Water Before Purging:			71.65	AFTER SETTING PUMP						
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: RACER - LANSING | Project No. B00644479.2017.00603 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/6/17

Site/Well No.: MW-13-43 | Replicate No.: - | Code No.: -

Weather: SUNNY 28° | Sampling Time: Begin 0921 | End 0925

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	79.73
Depth to Water (ft bmp)	69.11 (12/4)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	10.62
Casing Diameter/Type	2" PVC
Gallons in Well	~1.6992 gal
Gallons Pumped/Bailed Prior to Sampling	~1.00 gal
Sample Pump Intake Setting (ft bmp)	~77.0
Purge Time	begin 0810 end 0925
Pumping Rate (ml/min)	~100 ml/min
Evacuation Method	BLADDER PUMP #4385

Field Parameters

Temperature (°C)	8.20
SpC (mS/cm)	2.27
CND (mS/cm)	1.55
Dissolved Oxygen (%)	5.6
Dissolved Oxygen (mg/L)	0.69
pH (s.u.)	6.98
ORP (mV)	123.9
Turbidity (NTU)	0.85
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER PUMP #4385
Remarks	INITIAL DTW DID NOT SEEM ACCURATE RE-SAMPLED DTW. COLLECTED SAMPLE AFTER READINGS STABILIZED

Constituents Sampled	Container Description	Number	Preservative	
MW-13-43-12062017	40 ml VOA	3	HCl	1,4 DIOX. ONLY NO DUP QC
		SAMPLED @ 0925		

Sampling Personnel: RH

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-43 PROJ #: B0064479.2017.00603

DATE : 12/6/17 LOC: RACER PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.6?~~								
0830	4.9	1.24	0.77	~~68.8~~ 68.9	7.85	7.62	242.5	100	20.3	69.15
0835	7.0	1.25	0.82	48.1	6.81	7.73	223.7	100	20.0	69.22
0840	7.3	1.25	0.83	46.9	5.76	7.74	219.9	100	19.4	69.16
0845	7.3	1.29	0.85	41.7	4.96	7.62	215.6	100	13.4	69.24
0850	7.4	1.36	0.91	39.8	4.63	7.52	214.3	100	10.4	69.21
0855	7.6	1.71	~~1.15~~ 1.15	18.5	2.16	7.22	211.5	100	9.54	69.20
0900	7.4	1.86	1.24	9.5	1.14	7.10	199.8	100	8.16	69.18
0905	8.1	1.92	1.30	8.0	0.96	7.05	171.2	100	6.17	69.21
0910	7.7	2.00	1.34	7.2	0.84	7.04	153.4	100	4.66	69.20
0915	7.9	2.11	1.42	5.4	0.~~56~~	6.99	132.4	100	2.73	
0920	8.20	2.27	1.55	5.6	0.69	6.98	123.9	100	0.85	69.20
0925										
0930										
Total Depth of Well:		79.73								
Depth To Water Before Purging:			69.0 AFTER SETTING PUMP.							
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: RACER LANSING | Project No. B0044[illegible].2017.0[illegible]08 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/6/17

Site/Well No.: MW-13-44 | Replicate No.: — | Code No.: —

Weather: SUNNY 30° | Sampling Time: Begin 1103 End 1110

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	119.16
Depth to Water (ft bmp)	76.51 (12/4)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	42.65
Casing Diameter/Type	4" STEEL
Gallons in Well	~27.73 gal
Gallons Pumped/Bailed Prior to Sampling	~1.25 gal
Sample Pump Intake Setting (ft bmp)	105'
Purge Time	begin 0950 end 1110
Pumping Rate (ml/min)	150
Evacuation Method	BLADDER Pump #4335

Field Parameters

Temperature (°C)	7.3
SpC (mS/cm)	1.21
CND (mS/cm)	0.80
Dissolved Oxygen (%)	7.6
Dissolved Oxygen (mg/L)	0.94
pH (s.u.)	9.65
ORP (mV)	135.0
Turbidity (NTU)	18.6
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER Pump #4335
Remarks	SAMPLED, NTU'S ABOVE 10 BUT STABLE, JUDGMENT CALL WASN'T ABLE TO GET BELOW 10 NTU'S IN A REASONABLE AMOUNT OF TIME.

Constituents Sampled	Container Description	Number	Preservative	
MW-13-44-12062017	40 ml VOA	3	HCl	1,4 DIOXANE ONLY
DUP-03-12062017	40 ml VOA	3	HCl	DUP-03
		SAMPLED AT 1105		

Sampling Personnel: RH

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-44 PROJ #: B0064479.2017.00608

DATE : 12/6/17 LOC: RACE PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		45.62								
1000	7.1	1.72	1.12	13.5	1.64	8.89	124.5	150	16.6	76.43
1005	10.1	1.23	1.22	0.33	0.49	9.61	129.3	150	9.18	76.61
1010	9.3	1.22	0.86	3.4	0.38	9.61	131.0	150	10.0	76.70
1015	8.6	1.20	0.82	3.6	0.40	9.62	132.6	150	10.6	76.77
1020	8.3	1.20	0.82	4.0	0.44	9.62	132.9	150	11.7	76.83
1025	8.1	1.26	0.81	4.3	0.47	9.63	133.2	150	12.1	76.80
1030	8.4	1.20	0.82	4.8	0.56	9.64	133.1	150	15.4	76.84
1035	8.4	1.20	0.82	4.9	0.65	9.63	133.3	150	14.5	76.84
1040	8.2	1.20	0.82	5.5	0.65	9.63	133.6	150	16.0	76.85
1045	8.5	1.20 ✓	0.82 ✓	5.6	0.64	9.64	133.3	150	15.4	76.87
1050	7.8	1.21	0.81	5.4	0.68	9.64	134.1	150	16.2	76.90
1055	7.8	1.21	0.81	6.6	0.83	9.64	134.4	150	18.6	76.91
1100	7.3	1.21	0.80	7.6	0.94	9.65	135.0	150	18.1	76.92
(1105)									18.6	
Total Depth of Well:		119.16								
Depth To Water Before Purging:			76.36	BEFORE SETTING PUMP						
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: RACER LANSING | Project No. 3006[illegible].2017.00608 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/6/17

Site/Well No.: MW-13-45 | Replicate No.: - | Code No.: -

Weather: SUNNY 30° | Sampling Time: Begin 1221 End 1226

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	78.23
Depth to Water (ft bmp)	68.17 (12/4)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	10.06
Casing Diameter/Type	2" PVC
Gallons in Well	1.61 gal
Gallons Pumped/Bailed Prior to Sampling	~1.0 gal
Sample Pump Intake Setting (ft bmp)	73.0
Purge Time	begin 1140 end 1216
Pumping Rate (ml/min)	100
Evacuation Method	BLADDER Pump #4385

Field Parameters

Temperature (°C)	9.4
SpC (mS/cm)	1.07
CND (mS/cm)	0.76
Dissolved Oxygen (%)	3.2
Dissolved Oxygen (mg/L)	0.35
pH (s.u.)	7.33
ORP (mV)	-42.9
Turbidity (NTU)	6.69
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER Pump #4385
Remarks	SAMPLED WHEN READINGS STABILIZED.

Constituents Sampled	Container Description	Number	Preservative	
MW-13-45_12062017	40ml VOA	3	HCl	1-TRIP ONLY
		SAM @ 1225		NO QAQC

Sampling Personnel: _____

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-45 PROJ #: 30064479.2017.00608

DATE : 12/6/17 LOC: PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.6~~?								
1150	9.5	1.11	0.78	6.0	0.66	7.47	68.1	100	9.16	68.23
1155	8.3	1.10	0.74	5.4	0.62	7.38	23.3	100	8.13	68.18
1200	8.8	1.06	0.73	5.1	0.73	7.36	-11.3	100	9.40	68.14
1205	8.9	1.06	0.73	4.0	0.59	7.35	-20.8	100	9.10	68.19
1210	9.1	1.06	0.74	4.1	0.47	7.33	-32.5	100	8.37	68.20
1215	9.7	1.06	0.75	4.0	0.45	7.34	-37.9	100	7.12	68.22
1220	9.4	~~1.07~~	0.76	3.2	0.35	7.33	-42.9	100	6.69	68.20
~~1225~~										
1230										
1235										
1240										
~~1245~~										
1250										
Total Depth of Well:		78.23								
Depth To Water Before Purging:		68.10	AFTER SETTING Pump							
Depth To Water After Purging:		68.22								

ARCADIS

Water Sampling Log

Project: RACER LANSING | Project No.: B0064479.2017.00608 | Page 1 of 2

Site Location: PLANT 2 | Date: 12-6-12

Site/Well No.: MW-16-85 | Replicate No.: - | Code No.: -

Weather: SUNNY 30° | Sampling Time: Begin 1411 End 1420

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	81.80
Depth to Water (ft bmp)	72.56 (12/4)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	9.24
Casing Diameter/Type	2" PVC
Gallons in Well	1.4784
Gallons Pumped/Bailed Prior to Sampling	1.00
Sample Pump Intake Setting (ft bmp)	~78'
Purge Time	begin 1300 end 1420
Pumping Rate (ml/min)	100 ml/MIN
Evacuation Method	BLADDER Pump #4385

Field Parameters

Temperature (°C)	4.8
SpC (mS/cm)	0.803
CND (mS/cm)	0.494
Dissolved Oxygen (%)	11.8
Dissolved Oxygen (mg/L)	1.52
pH (s.u.)	7.49
ORP (mV)	6.5
Turbidity (NTU)	13.1
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER Pump 4385
Remarks	SAMPLED WHEN READINGS STABILIZED. SLIGHTLY ABOVE IONICS CONSISTENTLY ABOVE.

Constituents Sampled	Container Description	Number	Preservative	
MW-16-85_12062015	40 ml VOA	3	HCl	1,4 DIOXANE ONLY NO QA/QC
		SAMPLED AT 1415		

Sampling Personnel: _____

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-85 PROJ #: B0064479.2017.00608

DATE : 12/6/17 LOC: PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.6?~~								
1310	7.0	1.43	0.82	11.2	1.31	7.47	-12.3	100 ml/min		72.97
1315	6.0	0.830	0.53	~~6.7~~	0.86	7.47	-9.2	100	10.0	73.15
1320	5.6	0.810	0.51	6.5	0.79	7.47	-7.1	100	10.5	73.25
1325	6.0	0.810	0.51	7.0	0.87	7.47	-5.9	100	11.0	73.42
1330	6.2	0.810	0.52	7.2	0.93	7.47	-4.9	50*	12.3	73.53
1335	5.7	0.810	0.51	7.6	0.96	7.47	-3.6	50*	12.8	73.61
1340	5.5	0.810	0.51	7.8	0.98	7.48	-2.3	50*	12.5	73.76
1345	5.5	0.810	0.51	9.9	1.23	7.48	+0.3	50*	14.5	73.75
1350	5.5	0.810	0.51	10.8	1.39	7.49	1.0	50*	11.1	73.80
1355	4.9	0.810	0.499	10.5	1.31	7.49	3.4	50*	13.8	73.85
1400	4.2	0.820	0.496	10.3	1.44	7.49	4.6	50*	12.7	73.90
1405	4.7	0.803	0.492	11.9	1.49	7.49	5.8	50*	14.3	73.95
1410	4.8	0.803	0.494	11.8	1.52	7.49	6.5	50*	13.1	74.00
(415)										
1420										
Total Depth of Well:		81.80								
Depth To Water Before Purging:		72.56	AFTER SETTING PUMP.							
Depth To Water After Purging:										

* WELL ~~RECOVERY~~ RECHARGING AT A SLOWER RATE

~~76.80~~ 76.80 TOP OF SCREEN.

ARCADIS

Water Sampling Log

Project: RACER - LANGLEY | Project No.: B00 64479.2017.0008 | Page 1 of 2

Site Location: PLANT 2 | Date: 12/6/17

Site/Well No.: MW-17-86 | Replicate No.: - | Code No.: -

Weather: CLOUDY 30° | Sampling Time: Begin 1546 | End 1555

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	81.40
Depth to Water (ft bmp)	69.33 (12/4)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	12.07
Casing Diameter/Type	2" PVC.
Gallons in Well	✓1.93
Gallons Pumped/Bailed Prior to Sampling	1.5 gal
Sample Pump Intake Setting (ft bmp)	78.0
Purge Time	begin 1440 end 1555
Pumping Rate (ml/min)	100 ml
Evacuation Method	BLADDER PUMP #4385

Field Parameters

Temperature (°C)	7.5
SpC (mS/cm)	1.05
CND (mS/cm)	0.70
Dissolved Oxygen (%)	2.0
Dissolved Oxygen (mg/L)	0.23
pH (s.u.)	7.20
ORP (mV)	-43.6
Turbidity (NTU)	0.02
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER PUMP #4385
Remarks	SAMPLED WHEN ORP STABILIZED.

Constituents Sampled	Container Description	Number	Preservative	
MW-17-86_12062017	40mL VOA	3	HCl	1,4 DIOXANE ONLY NO QA/QC
		SAM @ 1550		

Sampling Personnel: _____

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-17-86 PROJ #: 30064479.2017.00608

DATE : 12/6/17 LOC: RALEIGH PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.6?~~								
1455	5.4	0.94	0.59	21.7	2.72	7.40	31.1	100	14.0	69.50
1500	~~6~~6.9	0.95	0.62	9.0	1.03	7.34	25.0	100	6.38	69.51
1505	7.3	0.97	0.64	5.4	0.64	7.32	10.9	100	5.43	69.56
1510	7.9	0.98	0.66	3.9	0.51	7.32	-1.1	100	5.41	69.52
1515	8.3	0.99	0.67	3.5	0.38	7.31	-13.0	100	3.44	69.48
1520	7.5	1.00	0.67	2.8	0.34	7.28	-23.4	100	1.75	69.58
1525	7.3	1.01	0.67	2.5	0.30	7.26	-34.4	100	0.02	69.53
1530	7.1	1.02	0.68	2.7	0.35	7.25	-38.8	100	0.02	69.57
1535	6.8	1.03	0.68	2.6	0.32	7.22	-43.0	100	0.02	69.60
1540	7.3	1.04	0.69	2.4	0.31	7.21	-46.1	100	0.02	69.58
1545	7.5	1.05	0.70	2.0	0.23	7.20	-48.6	100	0.02	69.56
1550										
Total Depth of Well:		81.40								
Depth To Water Before Purging:			69.41	AFTER	SETTING	PUMP				
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project: RALEY LANSING | Project No. B[illegible] | Page 1 of 2

Site Location: PLANT 2 | Date: 12/7/17

Site/Well No.: PW-14-02 | Replicate No.: — | Code No.: —

Weather: CLOUDY 26°F | Sampling Time: Begin 1407 End 1412

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	80.00
Depth to Water (ft bmp)	63.31 (64)
Water-Level Elevation (ft)	[illegible]
Water Column in Well (ft)	16.69
Casing Diameter/Type	4" PVC
Gallons in Well	23.71
Gallons Pumped/Bailed Prior to Sampling	1.5 gal
Sample Pump Intake Setting (ft bmp)	83.0'
Purge Time	begin 1330 end 1412
Pumping Rate (ml/min)	100
Evacuation Method	[illegible]

Field Parameters

Temperature (°C)	6.6
SpC (mS/cm)	2.683
CND (mS/cm)	1.74
Dissolved Oxygen (%)	2.1
Dissolved Oxygen (mg/L)	0.26
pH (s.u.)	7.15
ORP (mV)	-32.7
Turbidity (NTU)	~~[illegible]~~ 3.25
Color	COLORLESS
Odor	SLIGHT SULFUR ODOR
Appearance	CLEAR
Sampling Method	[illegible]
Remarks	SAMPLED WHEN READINGS STABILIZED.

Constituents Sampled	Container Description	Number	Preservative	
PW-14-02_120717	40 ml VOA	3	HCl	1,4 DIOXANE ONLY
DUP-04_120717	40 ml VOA	3 SUMMED 1410	HCl	DUP-04

Sampling Personnel: RH

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : PW-14-02 PROJ #: 30064779.2017.00608

DATE : 12/7/17 LOC: PLANT 2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.6?~~								
1305	6.4	2.67	1.72	21.8	2.61	7.16	72.1	100	20.6	68.95
1310	7.7	2.71	1.81	6.3	0.68	7.17	-19.7	100	14.8	69.03
1315	7.6	2.71	1.31	4.3	0.51	7.16	-45.0	100	13.7	69.09
1320	7.4	2.72	1.81	3.4	0.42	7.16	-66.8	100	12.5	69.16
1325	6.6	2.74	1.78	2.8	0.33	7.17	-73.9	100	9.79	69.21
1330	5.0	2.75	1.70	2.4	0.34	7.17	-76.0	80	12.2	69.24
1335	6.3	2.72	1.69	2.3	0.30	7.17	-77.8	80	13.1	69.26
1340	6.0	2.508	1.71	2.5	0.29	7.17	-79.3	80	14.3	69.29
1345	5.1	2.73	1.69	2.4	0.30	7.17	-79.9	80	11.3	69.32
1350	6.1	2.68	1.72	2.6	0.26	7.15	-61.3	80	10.9	69.34
1355	6.0	2.71	1.73	2.2	0.32	7.16	-82.0	80	11.2	69.36
1400	6.6	2.68	1.74	2.1	0.31	7.16	-82.6	80	10.4	69.40
1405	6.6	2.68	1.74	2.1	0.26	7.15	-82.7	80	8.25	69.42
1410										
1415										
1420										
Total Depth of Well:		85.00								
Depth To Water Before Purging:		68.80								
Depth To Water After Purging:		69.44								

ARCADIS

Water Sampling Log

Project: RACER | Project No. 30647792017.00693 | Page 1 of 2

Site Location: P2 | Date: 12/07/17

Site/Well No.: MW-16-82 | Replicate No.: — | Code No.: —

Weather: Sunny 23° | Sampling Time: Begin 1250 End 1320

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	77.30
Depth to Water (ft bmp)	68.63
Water-Level Elevation (ft)	—
Water Column in Well (ft)	
Casing Diameter/Type	2"
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1250 end 1320
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	4.70
SpC (mS/cm)	1.119
CND (mS/cm)	
Dissolved Oxygen (%)	6.6
Dissolved Oxygen (mg/L)	0.85
pH (s.u.)	6.70
ORP (mV)	-61.0
Turbidity (NTU)	9.03
Color	—
Odor	—
Appearance	clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl
VOC	" "	" "	" "
~~Alk~~	~~—~~	~~—~~	~~—~~

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-82 PROJ #: 0664479.2017.00603

DATE : 12/07/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1250	7.36	1.146		19.0	2.35	6.92	-57.4	100	17.1	69.1
1255	7.53	~~1.123~~ 1.122		9.4	1.12	6.89	-64.2	|	16.5	69.1
1300	7.82	1.111		7.4	0.89	6.90	-64.2	|	13.7	69.2
1305	5.24	1.121		6.6	0.85	6.79	-65.2	|	12.2	69.2
1310	4.94	1.120		6.4	0.83	6.75	-63.2	|	9.42	69.2
1315	4.91	1.118		6.5	0.84	6.71	-61.1	|	9.17	69.2
1320	4.70	1.119		6.6	0.85	6.70	-61.0		9.03	69.2

ARCADIS

Water Sampling Log

Project: RASER | Project No. B0068979.2017.00697 | Page 1 of 2

Site Location: PZ | Date:

Site/Well No.: MW-16-81 | Replicate No.: — | Code No.: —

Weather: Overcast 23° | Sampling Time: Begin 1400 End:

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	77.30
Depth to Water (ft bmp)	67.97
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.33
Casing Diameter/Type	2"
Gallons in Well	1.49
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1400 end 1425
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	8.39
SpC (mS/cm)	3.150
CND (mS/cm)	
Dissolved Oxygen (%)	6.4
Dissolved Oxygen (mg/L)	0.74
pH (s.u.)	6.13
ORP (mV)	-50.5
Turbidity (NTU)	7.93
Color	—
Odor	—
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40mL VOA	3	HCl
VOC	" "	3	" "
Dup-02	" "	6	" "

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-81 PROJ #: B0064479.2017.00003

DATE : 12/07/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
MB 1400	10.52	2.972		11.9	1.28	6.25	-42.1	100	7.15	68.12
1405	9.12	~~45.6~~?		5.8	0.67	6.34	-58.1		7.09	69.5
1410	8.70	3.823		5.8	0.67	6.31	-58.4		8.15	69.2
1415	8.21	3.154		5.8	0.67	6.12	-51.8		9.37	69.2
1420	8.34	3.149		6.1	0.72	6.13	-51.1		8.06	69.15
1425	8.39	3.150		6.4	0.74	6.13	-50.5		7.93	69.13
Total Depth of Well:		77.30								
Depth To Water Before Purging:			67.97							
Depth To Water After Purging:			69.13							

ARCADIS

Water Sampling Log

Project: RACER | Project No. B0069479.2017.0060 | Page 1 of 2

Site Location: P2 | Date: 12/07/17

Site/Well No.: MW-16-84 | Replicate No.: — | Code No.: —

Weather: Sunny 23° | Sampling Time: Begin 1025 End 1100

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	81.10
Depth to Water (ft bmp)	71.90
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.20
Casing Diameter/Type	2"
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1025 end 1100
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	5.05
SpC (mS/cm)	1.262
CND (mS/cm)	
Dissolved Oxygen (%)	11.3
Dissolved Oxygen (mg/L)	1.45
pH (s.u.)	6.19
ORP (mV)	-51.4
Turbidity (NTU)	7.35
Color	—
Odor	—
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl
VOC	" "	3	

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : ~~MW-16-14~~ MW-16-14 PROJ #: B006479.2017.00603

DATE : 12/07/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1025	7.08	1.189		14.1	1.69	6.13	-67.4	~100	11.2	71.95
1030	6.03	~~1.267~~ 1.263		11.4	1.41	6.24	-54.4	|	9.95	72.30
1035	5.90	1.256		11.2	1.40	6.22	-53.9	|	8.63	72.19
1040	5.72	1.259		11.2	1.40	6.21	-53.5	|	8.55	72.10
1045	5.68	1.259		11.0	1.38	6.20	-53.3	|	8.17	72.10
1050	5.56	1.261		11.2	1.40	6.18	-53.0	|	8.08	72.10
1055	5.07	1.262		11.1	1.41	6.19	-51.5	|	8.00	72.10
1100	5.05	1.262		11.3	1.45	6.19	-51.4	|	7.35	72.10

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.00603 | Page: 1 of 2

Site Location: P2 | Date:

Site/Well No.: MW-12-06 | Replicate No.: ✓ | Code No.: ✓

Weather: overcast 27° | Sampling Time: Begin 0845 End 0910

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	103.60
Depth to Water (ft bmp)	73.70
Water-Level Elevation (ft)	—
Water Column in Well (ft)	29.90
Casing Diameter/Type	2"
Gallons in Well	4.784
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 0845 end 0910
Pumping Rate (ml/min)	~150
Evacuation Method	

Field Parameters

Temperature (°C)	9.17
SpC (mS/cm)	0.900
CND (mS/cm)	
Dissolved Oxygen (%)	3.2
Dissolved Oxygen (mg/L)	0.36
pH (s.u.)	6.81
ORP (mV)	-111.3
Turbidity (NTU)	7.95
Color	—
Odor	—
Appearance	clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40mL VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-06 PROJ #: B0064479.2017.00603

DATE : 12/07/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0945	8.86	0.765		55.1	6.80	7.83	405.4	150	9.66	73.70
0950	9.70	0.830 45.67		15.5	1.75	7.80	-115.1	|	8.10	73.80
0955	9.79	0.870		5.30	0.58	7.11	-115.7	|	7.53	73.89
0900	9.76	0.881		4.20	0.48	7.03	-114.0	|	7.17	74.1
0905	9.59	0.897		4.2	0.48	6.94	-107.8	|	6.98	74.2
0910	9.47	0.899		3.5	0.40	6.87	-111.6	|	7.03	74.25
0915	9.24	0.900		3.4	0.37	6.82	-110.9	|	7.11	74.27
0920	9.17	0.900		3.2	0.36	6.81	-112.3	|	7.95	74.30

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0069471.2017.00603 | Page: 1 of 2

Site Location: P2 | Date: 11/06/17

Site/Well No.: MW-12-05R | Replicate No.: — | Code No.: —

Weather: Overcast 28° | Sampling Time: Begin 1535 End 1600

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	112.0
Depth to Water (ft bmp)	74.85
Water-Level Elevation (ft)	
Water Column in Well (ft)	37.15
Casing Diameter/Type	2"
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1535 end 1600
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	5.6
SpC (mS/cm)	1.540
CND (mS/cm)	
Dissolved Oxygen (%)	15.0
Dissolved Oxygen (mg/L)	1.90
pH (s.u.)	11.81
ORP (mV)	133.5
Turbidity (NTU)	6.31
Color	—
Odor	—
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl

Sampling Personnel: BC

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-DSR PROJ #: B0064479.2017.00603

DATE : 12/06/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1535	5.6	1.777		28.0	3.45	11.46	118.3	~150	8.37	74.90
1540	5.53	45.6? 1.336		16.1	2.01	11.76	131.6		8.35	74.95
1545	5.56	1.550		16.0	2.01	11.76	131.7		8.91	75.15
1550	5.59	1.545		15.7	1.97	11.77	132.1		7.15	75.10
1555	5.67	1.547		15.3	1.93	11.82	132.9		6.97	75.20
1600	5.66	1.540		15.0	1.90	11.81	133.5		6.31	75.2

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064971.2017.00003 | Page: 1 of 2

Site Location: P2 | Date:

Site/Well No.: mw-17-87 | Replicate No.: – | Code No.: –

Weather: Sunny 28° | Sampling Time: Begin: | End:

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	115.40
Depth to Water (ft bmp)	72.48
Water-Level Elevation (ft)	–
Water Column in Well (ft)	42.92
Casing Diameter/Type	2"
Gallons in Well	6.87
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1495 end 1510
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	6.51
SpC (mS/cm)	2.936
CND (mS/cm)	
Dissolved Oxygen (%)	21.9
Dissolved Oxygen (mg/L)	2.89
pH (s.u.)	7.22
ORP (mV)	-56.5
Turbidity (NTU)	7.99
Color	–
Odor	–
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCL

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-17-87 PROJ #: B0064479.2017.00603

DATE : 12/06/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1445	5.13	3.212		33	4.15	7.18	-52.4	~100	10.7	72.8
1450	6.34	~~45.6?~~ 3.176		25.6	3.13	7.21	-54.9		9.55	72.9
1455	6.41	2.953		24.7	3.01	7.21	-55.8		8.09	72.9
1500	6.45	2.945		23.5	2.96	7.22	-56.1		7.97	72.9
1505	6.49	2.937		22.0	2.90	7.22	-56.2		7.81	72.9
1510	6.51	2.936		21.9	2.89	7.22	-56.5		7.99	72.9

Total Depth of Well:	115.40	
Depth To Water Before Purging:	72.48	
Depth To Water After Purging:	72.90	

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0364979 20170603 | Page: 1 of 2

Site Location: P2 | Date: 12/06/17

Site/Well No.: MW-16-83 | Replicate No.: ✓ | Code No.: ✓

Weather: Sunny 28° | Sampling Time: Begin 1335 End 1400

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	80.00
Depth to Water (ft bmp)	71.29
Water-Level Elevation (ft)	–
Water Column in Well (ft)	8.71
Casing Diameter/Type	2"
Gallons in Well	1.3
Gallons Pumped/Bailed Prior to Sampling	~1
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1335 end 1400
Pumping Rate (ml/min)	500
Evacuation Method	

Field Parameters

Temperature (°C)	7.54
SpC (mS/cm)	3.593
CND (mS/cm)	
Dissolved Oxygen (%)	24.0
Dissolved Oxygen (mg/L)	2.84
pH (s.u.)	7.15
ORP (mV)	-67.6
Turbidity (NTU)	6.96
Color	–
Odor	✓
Appearance	Clear
Sampling Method	Bladder
Remarks	–

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-83 PROJ #: B0064479.2017.00603

DATE : 12/06/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1330	8.56	3.654		27.1	3.16	7.13	-62.4	~100	8.15	73.15
1335	8.54	~~45.69~~ 3.650		28.5	3.30	7.13	-63.3		8.06	73.20
1340	8.54	3.640		28.5	3.29	7.13	-63.4		7.51	73.21
1345	8.51	3.624		26.2	2.96	7.19	-64.2		7.15	73.21
1350	7.91	3.600		24.4	2.88	7.15	-67.6		7.54	73.45
1355	7.59	3.599		24.2	2.86	7.15	-67.6		8.59	73.55
1400	7.55	3.594		24.1	2.85	7.15	-67.6		6.50	73.60
1405	7.54	3.593		24.0	2.84	7.15	-67.6		6.96	73.65

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0064479.2017.00003 | Page: 1 of 2

Site Location: P2 | Date:

Site/Well No.: MW-14.58 | Replicate No.: | Code No.:

Weather: Sun 28° | Sampling Time: Begin 1130 End 1155

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	–
Land Surface Elevation (ft)	–
Sounded Well Depth (ft bmp)	29.90
Depth to Water (ft bmp)	13.40
Water-Level Elevation (ft)	–
Water Column in Well (ft)	16.50
Casing Diameter/Type	2"
Gallons in Well	2.64
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1130 end 1155
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	9.94
SpC (mS/cm)	4.327
CND (mS/cm)	
Dissolved Oxygen (%)	5.2
Dissolved Oxygen (mg/L)	0.56
pH (s.u.)	6.79
ORP (mV)	-41.5
Turbidity (NTU)	7.13
Color	–
Odor	~
Appearance	clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl
Dup-01	~	~	~

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-14-58 / DUP-01 PROJ #: B0064479.2017.00603

DATE : 12/06/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1130	9.60	4.400		16.6	1.85	6.86	-26.2	~100	15.5	13.55
1135	9.66	~~45.6?~~ 4.314		16.72	1.70	6.85	-27.5	|	10.75	13.79
1140	9.82	4.370		16.65	1.64	6.85	-28.4	|	8.15	13.95
1145	9.86	4.345		5.95	1.21	6.81	-32.5	|	9.50	-14.25
1150	9.92	4.330		5.30	0.60	6.80	-40.9	|	6.55	-14.30
1155	9.95	4.327		5.2	0.56	6.79	-41.5	|	7.30	14.50

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0089479.2017.8063 | Page 1 of 2

Site Location: P2 | Date:

Site/Well No.: MW-14-56 | Replicate No.: — | Code No.: —

Weather: sunny 28° | Sampling Time: Begin 1000 End 1040

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	79.25
Depth to Water (ft bmp)	68.55
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.70
Casing Diameter/Type	2"
Gallons in Well	1.872
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1000 end 1040
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	5.58
SpC (mS/cm)	5.877
CND (mS/cm)	
Dissolved Oxygen (%)	12.5
Dissolved Oxygen (mg/L)	1.53
pH (s.u.)	6.71
ORP (mV)	-24.1
Turbidity (NTU)	21.0
Color	—
Odor	—
Appearance	CLEAR
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-19-56 PROJ #: B0064479.2017.00603

DATE : 12/06/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1000	5.54	5.842		24.7	3.04	6.70	-26.5	~100	[illegible]	68.60
1005	5.57	[illegible]5.845		24.0	3.00	6.70	-26.5		100	68.75
1010	5.50	5.849		22.1	2.67	6.70	-26.8		73	68.96
1015	5.51	5.851		21.1	2.58	6.70	-27.1		65	69.30
1020	5.50	5.882		19.0	1.99	6.70	-26.0		[illegible]2.70	69.39
1025	5.55	5.885		17.5	1.85	6.70	-25.5		[illegible]35.0	69.45
1030	5.69	5.881		12.3	1.53	6.71	-24.5		21.0	69.67
1035	5.856	5.881		12.3	1.53	6.71	-24.3		15[illegible]	69.65
1040	5.858	5.877		12.5	1.53	6.71	-24.1		[illegible]21	69.73

ARCADIS

Water Sampling Log

Project: RACER | Project No. B0064974.2017.00003 | Page 1 of 2

Site Location: P2 | Date:

Site/Well No.: MW-12-01 | Replicate No.: — | Code No.: —

Weather: Sunny 28° | Sampling Time: Begin 0900 End 0945

Evacuation Data

Measuring Point	
MP Elevation (ft)	TOC
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	93.70
Depth to Water (ft bmp)	75.60
Water-Level Elevation (ft)	—
Water Column in Well (ft)	18.10
Casing Diameter/Type	2"
Gallons in Well	2.896
Gallons Pumped/Bailed Prior to Sampling	purged ~3
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 0900 end 0945
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	2.96
SpC (mS/cm)	1.621
CND (mS/cm)	
Dissolved Oxygen (%)	7.4
Dissolved Oxygen (mg/L)	0.99
pH (s.u.)	7.30
ORP (mV)	-30.0
Turbidity (NTU)	8.50
Color	—
Odor	—
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl
MS	" "	3	HCl
MSD	" "	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-01 PROJ #: B0064479.2017.00603

DATE : 12/06/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0900	6.74	1.432		12.3	1.45	7.32	-22.6	~100	29.0	75.70
0905	6.76	~~45.6~~?1.462		11.1	1.38	7.34	-24.3		35.1	75.71
0910	4.34	1.601		7.3	0.96	7.37	-36.8		17.5	75.71
0915	3.05	1.630		8.3	1.10	7.31	-30.7		16.1	75.65
0920	2.78	1.627		8.1	1.08	7.31	-30.6		13.6	75.63
0925	2.76	1.626		7.6	1.00	7.31	-30.4		10.5	75.63
0930	3.00	1.621		7.3	0.99	7.30	-30.1		9.11	75.63
0935	2.96	1.621		7.4	1.00	7.30	-30.0		8.99	75.63
0940	2.96	1.621		7.4	0.99	7.30	-30.0		8.50	75.63
0945	5 min	DICE								

Total Depth of Well:	93.70	
Depth To Water Before Purging:	75.60	
Depth To Water After Purging:	75.63	

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B006447.3.20120003 | Page: 1 of 2

Site Location: P2 | Date: 12/05/17

Site/Well No.: MW-12-18 | Replicate No.: | Code No.:

Weather: Overcast 38° | Sampling Time: Begin 1540 End:

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	34.64
Depth to Water (ft bmp)	23.64
Water-Level Elevation (ft)	
Water Column in Well (ft)	11.00
Casing Diameter/Type	2"
Gallons in Well	1.76
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1543 end 1620
Pumping Rate (ml/min)	100
Evacuation Method	

Field Parameters

Temperature (°C)	7.02
SpC (mS/cm)	2.346
CND (mS/cm)	
Dissolved Oxygen (%)	12.3
Dissolved Oxygen (mg/L)	1.47
pH (s.u.)	6.96
ORP (mV)	-11.0
Turbidity (NTU)	8.17
Color	—
Odor	—
Appearance	clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC	40mL VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-18 PROJ #: B0064479.2017.00603

DATE : 12/5/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1540	8.41	2.271		19.3	2.25	6.97	-11.5	100	23.1	24.20
1545	7.24	2.339		18.4	2.18	6.92	-15.4		17.7	24.65
1550	7.19	2.341		17.7	2.00	6.98	-15.2		12.1	24.66
1555	7.16	2.342		16.0	1.97	6.98	-15.0		13.5	24.66
1600	7.14	2.343		15.8	1.95	6.98	-14.7		11.9	24.66
1605	7.20	2.340		15.9	1.95	6.98	-14.9		8.71	24.67
1610	7.10	2.350		14.2	1.53	6.97	-12.0		8.49	24.67
1615	7.05	2.347		13.0	1.50	6.96	-11.3		9.80	24.67
1620	7.02	2.346		12.3	1.47	6.96	-11.0		8.17	24.66
Total Depth of Well:		34.64								
Depth To Water Before Purging:		23.84								
Depth To Water After Purging:		24.66								

ARCADIS

Water Sampling Log

Project: RACER | Project No.: D0064479.2012.0002 | Page: 1 of 2

Site Location: P2 | Date: 12/5/17

Site/Well No.: MW-16-76 | Replicate No.: | Code No.:

Weather: Cloudy 38° | Sampling Time: Begin 1330 End 1400

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	82.50
Depth to Water (ft bmp)	65.75
Water-Level Elevation (ft)	
Water Column in Well (ft)	16.75
Casing Diameter/Type	2"
Gallons in Well	2.68
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1330 end 1400
Pumping Rate (ml/min)	~50
Evacuation Method	

Field Parameters

Temperature (°C)	7.60
SpC (mS/cm)	2.062
CND (mS/cm)	
Dissolved Oxygen (%)	15.1
Dissolved Oxygen (mg/L)	1.80
pH (s.u.)	6.97
ORP (mV)	-16.1
Turbidity (NTU)	9.50
Color	—
Odor	—
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl
MS	"	3	HCl
MSD	"	3	HCl

Sampling Personnel: BC

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-78 PROJ #: B0064479.2017.00603

DATE : 12/05/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1330	9.06	2.041		10.9	1.24	7.01	-14.9	5.0	15.3	67.05
1335	7.96	2.075		12.7	1.39	7.01	-16.9		10.7	67.80
1340	7.93	2.070		13.9	1.50	7.01	-16.5		9.15	67.85
1345	7.72	2.042		15.0	1.76	6.92	-13.2		8.57	67.97
1350	7.74	2.055		14.7	1.76	6.96	-15.4		9.55	68.11
1355	7.63	2.061		15.0	1.79	6.97	-16.0		10.71	68.20
1400	7.6	2.062		15.1	1.80	6.97	-16.1		9.50	68.15
Total Depth of Well:		82.50								
Depth To Water Before Purging:		65.75								
Depth To Water After Purging:		68.15								

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B006479.2017.0021 | Page: 1 of 2

Site Location: P2 | Date: 12/5

Site/Well No.: MW-16-72 | Replicate No.: | Code No.:

Weather: cloudy 40° | Sampling Time: Begin 1120 End 1200

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	76.75
Depth to Water (ft bmp)	68.774
Water-Level Elevation (ft)	—
Water Column in Well (ft)	8.01
Casing Diameter/Type	2"
Gallons in Well	1.28
Gallons Pumped/Bailed Prior to Sampling	~2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1125 end 1200
Pumping Rate (ml/min)	~50
Evacuation Method	

Field Parameters

Temperature (°C)	8.38
SpC (mS/cm)	1.845
CND (mS/cm)	
Dissolved Oxygen (%)	7.6
Dissolved Oxygen (mg/L)	0.89
pH (s.u.)	6.73
ORP (mV)	-12.6
Turbidity (NTU)	9.97
Color	—
Odor	—
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCL

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-16-78 PROJ #: B0064479.2017.00603

DATE : 12/5 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW	
1125	9.38	1.608		20.0	2.20	6.78	-16.8	~50	101	[illegible]	66.53
1130	8.47	1.793		8.5	0.99	6.74	-16.9		57	[illegible]	66.57
1135	8.33	1.805		7.6	0.88	6.73	-16.5		29	[illegible]	66.57
1140	8.23	1.843		7.6	0.88	6.71	-10.5		15.1	[illegible]	
1145	8.24	1.845		7.6	0.89	6.70	-8.9		14.7	[illegible]	
1150	8.30	1.844		7.7	0.88	6.72	-12.0		17.8	[illegible]	
1155	8.36	1.845		7.7	0.89	6.73	-13.0		11.9	[illegible]	
1200	8.38	1.845		7.6	0.89	6.73	-12.6		9.17	[illegible]	66.57

ARCADIS

Water Sampling Log

Project: RACER | Project No.: B0069479.2012.0063 | Page: 1 of 2

Site Location: P2 | Date: 12/5/12

Site/Well No.: MW-16-79 | Replicate No.: — | Code No.: —

Weather: 41° overcast | Sampling Time: Begin 0925 End ____

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	76.77
Depth to Water (ft bmp)	68.26
Water-Level Elevation (ft)	
Water Column in Well (ft)	8.51'
Casing Diameter/Type	2" PVC
Gallons in Well	1.36
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 0925 end 1040
Pumping Rate (ml/min)	~~1000~~ 50 ml/min
Evacuation Method	

Field Parameters

Temperature (°C)	9.16
SpC (mS/cm)	1.011
CND (mS/cm)	
Dissolved Oxygen (%)	21.9
Dissolved Oxygen (mg/L)	2.54
pH (s.u.)	7.08
ORP (mV)	-8.8
Turbidity (NTU)	106
Color	Grey
Odor	—
Appearance	—
Sampling Method	Bladder
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane	40 mL VOA	3	HCl

Sampling Personnel: BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

PAGE ___ OF ___

WELL : MW-16-71 PROJ #: B064479.2017.00603

DATE : 12/5/17 LOC: P2

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0940	10.81	1.004		17.9	1.95	7.01	16.1	~500	350	66.91
0945	10.12	1.007		16.7	1.88	7.04	1.1	|	290	66.96
0950	9.99	1.009		16.8	1.91	7.05	-1.0	|	150	66.99
0955	9.22	1.002		13.8	2.17	7.06	-6.2	|	190	67.15
1000	9.17	1.002		17.1	2.10	7.06	-6.5	|	105	67.59
1005	9.23	1.005		21.2	2.42	7.08	-5.6	|	110	67.69
1010	9.15	1.005		21.4	2.47	7.08	-5.7	|	115	67.78
1015	9.10	1.005		21.6	2.50	7.09	-5.9	|	121	68.90
1020	9.13	1.006		21.8	2.51	7.09	-6.0	|	130	69.50
1025	9.15	1.006		21.9	2.53	7.09	-6.0	|	107	Conv. 70.19
1030	9.12	1.005		21.9	2.53	7.09	-6.1	|	102	70.95
1035	9.15	1.010		21.9	2.54	7.08	-8.7	|	135	71.5
1040	9.16	1.011		21.9	2.54	7.08	-8.8	|	106	71.79
Total Depth of Well:		76.77								
Depth To Water Before Purging:			68.55							
Depth To Water After Purging:			71.79							

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B00644 .2017.00603 | Page: 1 of 2

Site Location: Plant 3 | Date: 12/5/17

Site/Well No.: MW-17-21 | Replicate No.: NA | Code No.: NA

Weather: cloudy, wind, ~40°F | Sampling Time: Begin 1135 End 1137

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	78.04
Depth to Water (ft bmp)	66.86
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	11.18
Casing Diameter/Type	2" / PVC
Gallons in Well	1.79
Gallons Pumped/Bailed Prior to Sampling	≈1.0
Sample Pump Intake Setting (ft bmp)	≈75.54
Purge Time	begin 1050 end 1137
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.6
SpC (mS/cm)	1.39
CND (mS/cm)	1.07
Dissolved Oxygen (%)	3.9
Dissolved Oxygen (mg/L)	0.41
pH (s.u.)	6.93
ORP (mV)	61.4
Turbidity (NTU)	2.16
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMS	40 ml voa	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-21 PROJ #: B006450.2017.00603

DATE : 12/5/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1055	12.6	1.40	1.07	6.4	0.68	6.90	141.9	100	4.72	67.90
1100	12.4	1.41	1.07	4.1	0.40	6.92	92.9	100	4.12	68.42
1105	12.5	1.41	1.07	4.0	0.41	6.92	81.6	100	3.61	68.69
1110	12.6	1.40	1.07	3.9	0.42	6.92	77.6	100	3.24	68.84
1115	12.7	1.40	1.07	3.9	0.41	6.93	71.3	100	3.06	68.90
1120	12.9	1.39	1.07	3.9	0.41	6.93	65.2	100	2.81	68.91
1125	12.7	1.39	1.07	3.9	0.41	6.93	63.6	100	2.40	68.93
1130	12.6	1.39	1.07	3.9	0.41	6.93	61.4	100	2.16	68.94
1135	Sample Collected									

Total Depth of Well: 78.04

Depth To Water Before Purging: 66.86

Depth To Water After Purging: 68.94

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B00644 .2017.00603 | Page: 1 of 2

Site Location: Plant 3 | Date: 12/5/17

Site/Well No.: MW-13-25 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, windy, ~40 °F | Sampling Time: Begin 1345 End 1347

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	74.98
Depth to Water (ft bmp)	68.64
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	6.34
Casing Diameter/Type	2" / PVC
Gallons in Well	1.01
Gallons Pumped/Bailed Prior to Sampling	≈ 1.0
Sample Pump Intake Setting (ft bmp)	≈ 72.48
Purge Time	begin 1300 end 1347
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.0
SpC (mS/cm)	1.93
CND (mS/cm)	1.46
Dissolved Oxygen (%)	10.2
Dissolved Oxygen (mg/L)	1.08
pH (s.u.)	6.82
ORP (mV)	57.7
Turbidity (NTU)	1.50
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIM	40 ml VOA	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-25 PROJ #: B006480.2017.00603

DATE : 12/5/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1305	11.5	2.21	1.64	6.0	0.60	6.80	117.0	100	9.81	68.68
1310	11.9	2.16	1.62	5.3	0.55	6.81	110.9	100	6.34	68.68
1315	12.2	2.03	1.54	7.2	0.74	6.82	90.8	100	3.13	68.68
1320	12.1	2.00	1.51	8.0	0.87	6.82	81.2	100	2.50	68.68
1325	12.0	1.96	1.47	9.6	0.99	6.82	67.1	100	2.14	68.68
1330	12.1	1.95	1.47	10.0	1.07	6.82	62.0	100	1.81	68.69
1335	12.0	1.92	1.46	10.1	1.08	6.82	59.3	100	1.61	68.69
1340	12.0	1.93	1.46	10.2	1.08	6.82	57.7	100	1.50	68.69
1345	Sample	Collected								
Total Depth of Well: 74.98										
Depth To Water Before Purging: 68.64										
Depth To Water After Purging: 68.69										

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B006480.2017.00603 | Page 1 of 2

Site Location: Plant 3 | Date: 12/5/17

Site/Well No.: MW-91-5 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, windy, =40°F | Sampling Time: Begin 1500 End 1502

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	126.43
Depth to Water (ft bmp)	63.89
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	62.54
Casing Diameter/Type	2"/PVC
Gallons in Well	10.01
Gallons Pumped/Bailed Prior to Sampling	=1.0
Sample Pump Intake Setting (ft bmp)	=123.93
Purge Time	begin 1420 end 1502
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.1
SpC (mS/cm)	1.11
CND (mS/cm)	0.81
Dissolved Oxygen (%)	16.8
Dissolved Oxygen (mg/L)	1.69
pH (s.u.)	7.38
ORP (mV)	-41.1
Turbidity (NTU)	4.29
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIM	40ml VOA	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-91-5 PROJ #: B006480.2017.00603

DATE : 12/5/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1425	10.2	0.675	0.485	26.1	2.90	7.45	25.0	100	16.1	63.91
1430	10.2	0.82	0.59	23.5	2.66	7.44	-10.7	100	10.2	63.91
1435	9.8	0.96	0.68	21.5	2.36	7.40	-30.6	100	8.68	63.91
1440	9.8	0.99	0.71	18.3	2.04	7.39	-35.1	100	6.42	63.91
1445	9.8	1.07	0.76	17.6	1.78	7.38	-39.2	100	5.16	63.91
1450	10.0	1.09	0.79	17.1	1.72	7.38	-40.8	100	4.62	63.91
1455	10.1	1.11	0.81	16.8	1.69	7.38	-41.1	100	4.29	63.92
1500	Sample Collected									

Total Depth of Well:	126.43
Depth To Water Before Purging:	63.89
Depth To Water After Purging:	63.92

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B006400.2017.00603 | Page: 1 of 2

Site Location: Plant 3 | Date: 12/5/17

Site/Well No.: MW-13-38 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, windy, ~40°F | Sampling Time: Begin 1625 End 1636

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	126.32
Depth to Water (ft bmp)	72.66
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	53.66
Casing Diameter/Type	4" / Steel
Gallons in Well	= 34.88
Gallons Pumped/Bailed Prior to Sampling	= 0.75
Sample Pump Intake Setting (ft bmp)	= 121.32
Purge Time	begin 1550 end 1630
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	7.1
SpC (mS/cm)	2.36
CND (mS/cm)	1.55
Dissolved Oxygen (%)	38.3
Dissolved Oxygen (mg/L)	4.49
pH (s.u.)	7.28
ORP (mV)	-76.6
Turbidity (NTU)	9.13
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	Dup-06 collected here

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIM	40 ml VOA	6	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-38 PROJ #: B006480.2017.00603

DATE : 12/5/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1555	7.7	2.08	1.40	67.6	7.92	7.24	-68.1	100	11.5	72.75
1600	7.3	2.31	1.53	52.1	6.24	7.25	-69.0	100	10.2	72.75
1605	7.6	2.34	1.56	45.8	5.41	7.27	-72.1	100	9.86	72.75
1610	7.3	2.35	1.56	40.1	4.85	7.28	-73.8	100	9.66	72.75
1615	7.1	2.36	1.55	38.6	4.61	7.28	-75.2	100	9.31	72.75
1620	7.1	2.36	1.55	38.3	4.49	7.28	-76.6	100	9.13	72.75
1625	Sample	Collected								
Total Depth of Well: 126.32										
Depth To Water Before Purging: 72.66										
Depth To Water After Purging: 72.75										

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B00644 .2017.00603 | Page 1 of 2

Site Location: Plant 3 | Date: 12/6/17

Site/Well No.: MW-13-34 | Replicate No.: NA | Code No.: NA

Weather: Sunny, =30°F | Sampling Time: Begin 1035 End 1037

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	79.93
Depth to Water (ft bmp)	65.30
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	14.63
Casing Diameter/Type	2"/PVC
Gallons in Well	2.34
Gallons Pumped/Bailed Prior to Sampling	=1.5
Sample Pump Intake Setting (ft bmp)	=77.43
Purge Time	begin 0915 end 1037
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.1
SpC (mS/cm)	1.69
CND (mS/cm)	1.20
Dissolved Oxygen (%)	1.7
Dissolved Oxygen (mg/L)	0.22
pH (s.u.)	7.29
ORP (mV)	-5.7
Turbidity (NTU)	4.00
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMS	40ml VOA	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-34 PROJ #: B006448.0.2017.00603

DATE : 12/6/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0920	9.5	1.63	1.15	5.4	0.63	7.34	163.8	100	33.2	65.82
0925	9.7	1.65	1.17	3.7	0.46	7.32	135.5	100	22.1	65.76
0930	9.9	1.66	1.19	3.0	0.34	7.31	105.4	100	16.4	65.71
0935	10.2	1.67	1.20	2.9	0.29	7.30	95.8	100	11.1	65.71
0940	10.3	1.66	1.20	2.1	0.26	7.30	81.7	100	9.08	65.71
0945	10.1	1.68	1.20	2.1	0.26	7.30	65.8	100	8.52	65.71
0950	10.2	1.68	1.21	2.0	0.25	7.30	48.7	100	6.91	65.73
0955	10.3	1.68	1.21	1.9	0.24	7.29	36.1	100	6.12	65.72
1000	10.5	1.68	1.22	1.9	0.23	7.29	23.6	100	5.41	65.72
1005	10.1	1.68	1.22	1.9	0.23	7.29	14.4	100	4.96	65.72
1010	10.1	1.69	1.21	1.9	0.22	7.29	7.3	100	4.60	65.72
1015	10.0	1.69	1.21	1.8	0.22	7.28	-2.4	100	4.44	65.72
1020	10.2	1.69	1.21	1.8	0.22	7.29	-4.3	100	4.21	6572
1025	10.1	1.69	1.21	1.8	0.22	7.29	-5.3	100	4.02	65.72
1030	10.1	1.69	1.20	1.7	0.22	7.29	-5.7	100	4.00	65.72
1035	Sample	Collected								
Total Depth of Well: 79.93										
Depth To Water Before Purging: 65.30										
Depth To Water After Purging: 65.72										

ARCADIS

Water Sampling Log

Project	RACER Lansing	Project No.	B006448.2017.00603	Page	1 of 2
Site Location	Plant 3			Date	12/6/17
Site/Well No.	MW-13-47	Replicate No.	NA	Code No.	NA
Weather	Sunny, ~30°F	Sampling Time:	Begin 1200	End	1202

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	114.18
Depth to Water (ft bmp)	65.07
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	49.11
Casing Diameter/Type	4" / Steel
Gallons in Well	=31.92
Gallons Pumped/Bailed Prior to Sampling	=1.6
Sample Pump Intake Setting (ft bmp)	=109.18
Purge Time	begin 1115 end 1202
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	10.1
SpC (mS/cm)	1.94
CND (mS/cm)	1.39
Dissolved Oxygen (%)	4.0
Dissolved Oxygen (mg/L)	0.45
pH (s.u.)	7.20
ORP (mV)	-110.8
Turbidity (NTU)	3.13
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMs	40 ml VOA	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-47 PROJ #: B006440.2017.00603

DATE : 12/6/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1120	10.2	1.85	1.33	7.6	0.82	7.24	-102.4	100	16.1	65.18
1125	10.1	1.89	1.35	5.5	0.64	7.23	-110.3	100	10.6	65.18
1130	10.3	1.89	1.30	5.0	0.56	7.23	-113.1	100	8.43	65.18
1135	10.7	1.91	1.39	4.9	0.54	7.22	-114.2	100	6.21	65.18
1140	10.4	1.93	1.39	4.5	0.50	7.21	-113.1	100	5.76	65.18
1145	10.1	1.94	1.39	4.1	0.44	7.21	-112.1	100	4.21	65.18
1150	10.1	1.94	1.39	4.1	0.44	7.20	-111.3	100	3.50	65.18
1155	10.1	1.94	1.39	4.0	0.45	7.20	-110.8	100	3.13	65.18
1200	Sample Collected									

Total Depth of Well:	114.18
Depth To Water Before Purging:	65.07
Depth To Water After Purging:	65.18

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B006443.2017.00603 | Page 1 of 2

Site Location: Plant 3 | Date:

Site/Well No.: MW-13-48 | Replicate No.: NA | Code No.: NA

Weather: Sunny, =30°F | Sampling Time: Begin 1310 End 1312

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	73.04
Depth to Water (ft bmp)	60.52
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	12.52
Casing Diameter/Type	2" / PVC
Gallons in Well	= 2.00
Gallons Pumped/Bailed Prior to Sampling	= 0.50
Sample Pump Intake Setting (ft bmp)	=70.54
Purge Time	begin 1240 end 1312
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	12.4
SpC (mS/cm)	2.44
CND (mS/cm)	1.85
Dissolved Oxygen (%)	3.2
Dissolved Oxygen (mg/L)	0.32
pH (s.u.)	6.87
ORP (mV)	-70.4
Turbidity (NTU)	3.02
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMS	40ml VOA	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-48 PROJ #: B0064480.2017.00603

DATE : 12/6/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1245	12.3	2.43	1.84	4.3	0.47	6.88	-69.5	100	6.89	60.53
1250	12.4	2.44	1.85	3.5	0.38	6.88	-70.3	100	4.32	60.53
1255	12.3	2.44	1.85	3.4	0.35	6.87	-70.3	100	3.69	60.53
1300	12.3	2.44	1.85	3.3	0.33	6.87	-70.3	100	3.21	60.53
1305	12.4	2.44	1.85	3.2	0.32	6.87	-70.4	100	3.02	60.53
1310	Sample	Collected								

Total Depth of Well: 73.04

Depth To Water Before Purging: 60.52

Depth To Water After Purging: 60.53

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B00642017.00603 | Page: 1 of 2

Site Location: Plant 3 | Date: 12/6/17

Site/Well No.: MW-13-31 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, ~28°F | Sampling Time: Begin 1445 End 1450

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	12.79
Depth to Water (ft bmp)	8.63
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	4.16
Casing Diameter/Type	2" / pvc
Gallons in Well	0.67
Gallons Pumped/Bailed Prior to Sampling	= 0.50
Sample Pump Intake Setting (ft bmp)	= 10.29
Purge Time	begin 1440 end 1450
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	9.5
SpC (mS/cm)	0.95
CND (mS/cm)	0.67
Dissolved Oxygen (%)	2.0
Dissolved Oxygen (mg/L)	0.27
pH (s.u.)	6.87
ORP (mV)	-13.1
Turbidity (NTU)	6.82
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	MS/MSD collected

Constituents Sampled	Container Description	Number	Preservative
Select Metals 6020A	125 ml poly	2	HNO_3

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-43-31 PROJ #: B006480.2017.00603

DATE : 12/6/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1415	9.3	0.96	0.68	3.8	0.42	6.90	-21.1	100	16.6	8.63
1420	9.3	0.96	0.67	3.3	0.35	6.89	-18.3	100	11.2	8.63
1425	9.4	0.96	0.67	2.8	0.31	6.88	-16.8	100	9.36	8.63
1430	9.4	0.96	0.67	2.4	0.29	6.88	-15.0	100	8.42	8.63
1435	9.6	0.96	0.67	2.1	0.28	6.87	-13.8	100	7.18	8.63
1440	9.5	0.95	0.67	2.0	0.27	6.87	-13.1	100	6.82	8.63
1445	Sample Collected									

Total Depth of Well: 12.79

Depth To Water Before Purging: 8.63

Depth To Water After Purging: 8.63

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B006448.2017.00603 | Page: 1 of 2

Site Location: Plant 3 | Date: 12/6/17

Site/Well No.: MW-13-32 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, ≈28°F | Sampling Time: Begin 1540 End 1542

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	12.63
Depth to Water (ft bmp)	7.27
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	5.36
Casing Diameter/Type	2" / pvc
Gallons in Well	0.86
Gallons Pumped/Bailed Prior to Sampling	≈0.75
Sample Pump Intake Setting (ft bmp)	≈10.13
Purge Time	begin 1510 end 1542
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	9.9
SpC (mS/cm)	1.45
CND (mS/cm)	1.03
Dissolved Oxygen (%)	5.9
Dissolved Oxygen (mg/L)	0.61
pH (s.u.)	6.99
ORP (mV)	1.1
Turbidity (NTU)	1.42
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Select Metals 6020A	125ml poly	1	HNO_3

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-32 PROJ #: B006445.2017.00603

DATE : 12/6/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1515	9.8	1.44	1.02	5.7	0.59	6.97	0.2	100	6.41	7.62
1520	10.0	1.43	1.02	6.0	0.71	6.97	0.6	100	3.41	7.62
1525	10.0	1.44	1.02	5.9	0.64	6.97	0.9	100	2.16	7.62
1530	9.8	1.44	1.02	5.9	0.62	6.97	0.9	100	1.63	7.62
1535	9.9	1.45	1.03	5.9	0.61	6.99	1.1	100	1.42	7.62
1540	Sample Collected									
Total Depth of Well: 12.63										
Depth To Water Before Purging: 7.27										
Depth To Water After Purging: 7.62										

ARCADIS

Water Sampling Log

Project: RACER Lansing | Project No.: B006460.2017.00603 | Page: 1 of 2

Site Location: Plant 3 | Date: 12/7/17

Site/Well No.: MW-13-46 | Replicate No.: NA | Code No.: NA

Weather: Cloudy, light snow, =25°F | Sampling Time: Begin 1600 End 1603

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NA
Land Surface Elevation (ft)	NA
Sounded Well Depth (ft bmp)	74.60
Depth to Water (ft bmp)	64.32
Water-Level Elevation (ft)	NA
Water Column in Well (ft)	10.28
Casing Diameter/Type	2"/pvc
Gallons in Well	1.65
Gallons Pumped/Bailed Prior to Sampling	= 1.00
Sample Pump Intake Setting (ft bmp)	= 72.10
Purge Time	begin 1510 end 1603
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	9.4
SpC (mS/cm)	2.24
CND (mS/cm)	1.57
Dissolved Oxygen (%)	3.4
Dissolved Oxygen (mg/L)	0.37
pH (s.u.)	6.79
ORP (mV)	47.1
Turbidity (NTU)	52.1
Color	Clear
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4-Dioxane 8260B SIMS	40ml VOA	3	HCl

Sampling Personnel: A. Westhuis

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-46 PROJ #: B006446.2017.00603

DATE : 12/7/17 LOC: RACER Lansing - Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1515	9.3	2.25	1.57	9.0	1.03	6.78	86.4	100	64.4	64.62
1520	9.5	2.25	1.58	7.5	0.72	6.78	78.2	100	64.1	64.88
1525	9.6	2.25	1.59	4.0	0.44	6.78	71.0	100	63.5	65.14
1530	9.4	2.26	1.58	3.9	0.43	6.78	64.6	100	49.3	65.17
1535	9.2	2.26	1.58	3.7	0.41	6.78	57.3	100	54.6	65.20
1540	8.9	2.25	1.57	3.6	0.40	6.79	53.2	100	59.6	65.21
1545	8.9	2.25	1.56	3.6	0.39	6.79	51.2	100	62.1	65.22
1550	9.1	2.24	1.56	3.5	0.38	6.79	48.9	100	55.3	65.22
1555	9.4	2.24	1.57	3.4	0.37	6.79	47.1	100	52.1	65.22
1600	Sample Collected									

Total Depth of Well: 74.60

Depth To Water Before Purging: 64.32

Depth To Water After Purging: 65.22

ARCADIS

Water Sampling Log

Project: Racer Landfill, Plant 3 | Project No. B006448.2017.00603 | Page 1 of 2

Site Location: | Date: 12/7/17

Site/Well No.: MW-91-6 | Replicate No.: — | Code No.: —

Weather: 20's Light Snow | Sampling Time: Begin 1605 End 1610

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	95.42
Depth to Water (ft bmp)	61.44
Water-Level Elevation (ft)	—
Water Column in Well (ft)	33.98
Casing Diameter/Type	2" PVC
Gallons in Well	5.43
Gallons Pumped/Bailed Prior to Sampling	1.5
Sample Pump Intake Setting (ft bmp)	93.00
Purge Time	begin 1505 end 1610
Pumping Rate (ml/min)	100
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	9.0
SpC (mS/cm)	1.4
CND (mS/cm)	0.92
Dissolved Oxygen (%)	84.7
Dissolved Oxygen (mg/L)	9.81
pH (s.u.)	8.19
ORP (mV)	-66.1
Turbidity (NTU)	9.78
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
1-4, Dioxane	40 ml VOA	3	HCl

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-91-6 PROJ #: B00644 80, 2017. 00603

DATE : 12/7/17 LOC: Racine Landfill, Plant 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1510	10.1	1.35	0.98	79.9	8.94	7.87	-60.7	100	19.4	61.50
1515	10.1	1.35	0.97	89.7	9.97	8.00	-57.9	100	17.5	61.50
1520	10.4	1.37	0.98	83.2	9.34	8.04	-57.3	100	16.9	61.50
1525	10.0	1.37	0.97	83.6	9.41	8.08	-57.1	100	16.4	61.50
1530	10.0	1.36	0.97	81.4	9.15	8.11	-57.5	100	15.2	61.50
1535	9.7	1.38	0.96	81.3	9.27	8.02	-58.7	100	14.1	61.50
1540	9.6	1.39	0.97	82.6	9.50	7.86	-58.3	100	14.6	61.50
1545	9.2	1.40	0.97	84.1	9.77	7.81	-58.8	100	13.8	61.50
1550	9.0	1.41	0.95	85.5	10.12	7.81	-59.1	100	12.4	61.50
1555	9.1	1.39	0.96	82.0	9.54	7.86	-60.9	100	11.7	61.50
1600	8.8	1.40	0.96	86.1	10.09	8.13	-63.3	100	10.8	61.50
1605	9.0	1.4	0.92	84.7	9.81	8.19	-66.1	100	9.78	61.50
Total Depth of Well:		95.42								
Depth To Water Before Purging:			61.44							
Depth To Water After Purging:			61.50							

ARCADIS

Water Sampling Log

Project: RACER LANSING | Project No.: B00644480.2017.00608 | Page: 1 of 2

Site Location: PLANT 3 | Date: 12/7/17

Site/Well No.: PW-14-03 | Replicate No.: — | Code No.: —

Weather: SNOW 25° | Sampling Time: Begin 1541 End 1550

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	94.27
Depth to Water (ft bmp)	71.99 (@12/4)
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	22.28
Casing Diameter/Type	6" PVC
Gallons in Well	~32.75 gal
Gallons Pumped/Bailed Prior to Sampling	0.75 gal
Sample Pump Intake Setting (ft bmp)	~90.0'
Purge Time	begin 1500 end 1550
Pumping Rate (ml/min)	100
Evacuation Method	BLADDER PUMP #4385

Field Parameters

Temperature (°C)	5.9
SpC (mS/cm)	2.74
CND (mS/cm)	1.74
Dissolved Oxygen (%)	9.5
Dissolved Oxygen (mg/L)	1.20
pH (s.u.)	6.9
ORP (mV)	61.4
Turbidity (NTU)	0.02
Color	COLORLESS
Odor	NONE
Appearance	CLEAR
Sampling Method	BLADDER PUMP #4385
Remarks	SAMPLED WHEN READING STABILIZED

Constituents Sampled	Container Description	Number	Preservative	
PW-14-03_120717	40 ml VOA	3	HCl	SAM @ 1545
DUP-05_120717	40 ml VOA	3	HCl	

Sampling Personnel: RH

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : PW-14-03 PROJ #: B0064480.2017.00608

DATE : 12/7/17 LOC: RALEIGH PLANT 3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
		~~45.6?~~								
1510	9.1	2.66	1.85	14.0	1.53	6.83	95.3	100	0.02	72.15
1515	9.1	2.69	1.87	11.6	1.28	6.92	78.0	100	0.02	72.19
1520	6.6	2.76	1.79	10.5	1.26	6.94	70.1	100	0.02	72.19
1525	6.6	2.73	1.77	9.9	1.18	6.95	67.0	100	0.02	72.20
1530	5.9	2.76	1.75	10.0	1.24	6.95	64.3	100	0.02	72.20
1535	6.4	2.72	~~1.75~~	10.1	1.23	6.96	61.8	100	0.02	72.20
1540	5.9	2.74✓	1.74✓	9.5✓	1.20✓	6.96✓	61.4✓	100✓	0.02✓	72.20
(1545)										

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-28 PROJ #: B0069480.2017.00603

DATE : 12/07/17 LOC: P3

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1530	7.41	2.960		82.7	10.96	5.36	-17.7	100	8.79	70.45
1535	7.76	~~45.6~~ 0.459?		25.1	3.38	7.02	-84.0	|	8.51	70.43
1540	9.85	0.356		2.9	0.33	10.07	-77.7	|	7.19	70.45
1545	9.89	0.356		3.1	0.35	10.08	-78.5	|	7.11	70.45
1550	9.84	0.356		2.5	0.29	10.11	-77.1	|	6.09	70.45
1555								|	6.37	70.45
1600								|	6.82	70.45
Total Depth of Well:		114.73								
Depth To Water Before Purging:			70.40							
Depth To Water After Purging:										

ARCADIS

Water Sampling Log

Project RACER | Project No. B00644820.2017.00003 | Page 1 of 2

Site Location RACER P3 | Date 12/07/17

Site/Well No. AS-MW-13-28 | Replicate No. — | Code No. —

Weather OVERCAST 23° | Sampling Time: Begin 1530 End 1600

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	114.73
Depth to Water (ft bmp)	70.40
Water-Level Elevation (ft)	
Water Column in Well (ft)	44.33
Casing Diameter/Type	2"
Gallons in Well	7.093
Gallons Pumped/Bailed Prior to Sampling	~1.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1530 end 1600
Pumping Rate (ml/min)	~100
Evacuation Method	

Field Parameters

Temperature (°C)	
SpC (mS/cm)	
CND (mS/cm)	
Dissolved Oxygen (%)	
Dissolved Oxygen (mg/L)	
pH (s.u.)	
ORP (mV)	
Turbidity (NTU)	
Color	—
Odor	—
Appearance	Clear
Sampling Method	Bladder
Remarks	

Constituents Sampled	Container Description	Number	Preservative
1,4,D	40mL VOA	3	HCl

Sampling Personnel BF

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

Water Sampling Log

Project: Racer Landing Plant 6 | Project No. B0064481.2017.603 | Page 1 of 2

Site Location: Lansing, MI | Date: 12/5/17

Site/Well No.: MW-13-35 | Replicate No.: — | Code No.: —

Weather: 40's overcast | Sampling Time: Begin 1110 End 1115

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	29.45
Depth to Water (ft bmp)	23.45
Water-Level Elevation (ft)	—
Water Column in Well (ft)	6.00
Casing Diameter/Type	2" PVC
Gallons in Well	0.96
Gallons Pumped/Bailed Prior to Sampling	≥ 1.75
Sample Pump Intake Setting (ft bmp)	27.00
Purge Time	begin 1040 end 1115
Pumping Rate (ml/min)	210
Evacuation Method	P. Pump

Field Parameters

Temperature (°C)	12.7
SpC (mS/cm)	1.58
CND (mS/cm)	1.21
Dissolved Oxygen (%)	3.1
Dissolved Oxygen (mg/L)	0.33
pH (s.u.)	6.64
ORP (mV)	-124.2
Turbidity (NTU)	5.0
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
Metals	125 ml plastic	1	HNO_3

Sampling Personnel: DJM

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-35 ~~1205T~~ PROJ #: B0064481.2017.00603

DATE : 12/5/17 LOC: Lacer Lansing, Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1045	12.5	~~1.78.0~~	~~1.82.84~~	8.0	0.84	6.58	-123.3	210	12.4	23.45
1050	12.8	1.68	1.24	5.3	0.56	6.59	-122.9	210	10.5	23.45
1055	12.8	1.67	1.28	3.7	0.39	6.62	-127.3	210	7.36	23.45
1100	12.7	1.62	1.24	3.2	0.33	6.64	-123.4	210	6.92	23.45
1105	12.5	1.58	1.21	3.0	0.32	6.63	-127.6	210	5.28	23.45
1110	12.7	1.58	1.21	3.1	0.33	6.64	-124.1	210	5.00	23.45

ARCADIS

Water Sampling Log

Project: Race Lansing, Plant 6 | Project No. B00644.81.2017.003 | Page 1 of 2

Site Location: Lansing MI | Date: 12/5/17

Site/Well No.: MW-12-16 | Replicate No.: — | Code No.: —

Weather: 40's partly cloudy | Sampling Time: Begin 1155 End 1300

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	32.16
Depth to Water (ft bmp)	22.70
Water-Level Elevation (ft)	—
Water Column in Well (ft)	~~1.51~~ 9.46
Casing Diameter/Type	2" PVC
Gallons in Well	1.51
Gallons Pumped/Bailed Prior to Sampling	1.75
Sample Pump Intake Setting (ft bmp)	29.75
Purge Time	begin 1125 end 1200
Pumping Rate (ml/min)	190
Evacuation Method	P. Pump

Field Parameters

Temperature (°C)	12.1
SpC (mS/cm)	1.92
CND (mS/cm)	1.45
Dissolved Oxygen (%)	2.3
Dissolved Oxygen (mg/L)	0.24
pH (s.u.)	6.67
ORP (mV)	-126.1
Turbidity (NTU)	2.31
Color	None
Odor	None
Appearance	clear
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
Metals	~~150~~ 125 ml plastic	1	HNO_3

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-16 PROJ #: B00 64481. 2017. 00603

DATE : 12/5/17 LOC: Racer Lansing Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1130	12.1	2.18	1.65	18.5	1.97	6.65	-127.0	190	16.1	22.71
1135	12.0	2.18	1.64	4.7	0.50	6.68	-127.3	190	23.9	22.71
1140	12.3	2.00	1.52	2.5	0.26	6.69	-129.5	190	14.4	22.71
1145	12.2	1.94	1.47	2.2	0.24	6.68	-127.7	190	5.99	22.71
1150	12.2	1.92	1.45	2.2	0.23	6.67	-127.4	190	3.76	22.71
1155	12.1	1.92	1.45	2.3	0.24	6.67	-126.1	190	2.31	22.71
Total Depth of Well:		30.16								
Depth To Water Before Purging:			22.70							
Depth To Water After Purging:			22.71							

ARCADIS

Water Sampling Log

Project: Racer, Lansing, Plant 6 | Project No. B0064481.2017.607 | Page 1 of 2

Site Location: Lansing, MI | Date: 12/5/17

Site/Well No.: MW-17-11 | Replicate No.: — | Code No.: —

Weather: 40's overcast | Sampling Time: Begin 1245 End 1250

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	16.79
Depth to Water (ft bmp)	5.13
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11.66
Casing Diameter/Type	2" PVC
Gallons in Well	1.77
Gallons Pumped/Bailed Prior to Sampling	2
Sample Pump Intake Setting (ft bmp)	14.25
Purge Time	begin 1210 end 1220
Pumping Rate (ml/min)	160
Evacuation Method	P.Pump

Field Parameters

Temperature (°C)	11.7
SpC (mS/cm)	5.88
CND (mS/cm)	4.38
Dissolved Oxygen (%)	2.1
Dissolved Oxygen (mg/L)	0.82
pH (s.u.)	6.54
ORP (mV)	-104.3
Turbidity (NTU)	3.43
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low flow
Remarks	

Constituents Sampled	Container Description	Number	Preservative
Metals	125 ml Plastic	1	HNO_3

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-11 PROJ #: B0064481.2017.00603

DATE : 12/8/17 LOC: Racine Lansing, Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1215	12.1	5.12	3.88	2.5	0.26	6.57	-112.1	200	13.5	6.02
1220	12.2	5.33	4.03	2.0	0.21	6.61	-107.9	200	12.6	6.39
1225	12.2	5.73	4.33	2.2	0.23	6.57	-107.4	200	9.60	6.54
1230	11.9	5.86	4.39	2.0	0.21	6.56	-119.4	160	8.02	6.51
1235	11.6	5.90	4.39	2.0	0.21	6.55	-108.5	160	4.79	6.51
1240	11.7	5.88	4.39	2.2	0.23	6.54	-106.4	160	3.72	6.51
1245	11.7	5.88	4.38	2.1	0.22	6.54	-104.3	160	3.43	6.51

ARCADIS

Water Sampling Log

Project: Racer Landfill, Plant 6 | Project No.: B00644881.2017 | Page: 1 of 2

Site Location: Lansing MI | Date: 12/5/17

Site/Well No.: MW-12-13 | Replicate No.: Dup-07 | Code No.: Dup-07

Weather: 30's overcast | Sampling Time: Begin 1515 End 1520

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	25.40
Depth to Water (ft bmp)	9.94
Water-Level Elevation (ft)	—
Water Column in Well (ft)	15.46
Casing Diameter/Type	2" PVC
Gallons in Well	1.47
Gallons Pumped/Bailed Prior to Sampling	2
Sample Pump Intake Setting (ft bmp)	23.00
Purge Time	begin 1430 end 1520
Pumping Rate (ml/min)	125-190
Evacuation Method	P. Pump

Field Parameters

Temperature (°C)	10.6
SpC (mS/cm)	1.11
CND (mS/cm)	0.80
Dissolved Oxygen (%)	8.8
Dissolved Oxygen (mg/L)	0.98
pH (s.u.)	7.11
ORP (mV)	-73.4
Turbidity (NTU)	3.79
Color	None
Odor	none
Appearance	Clear
Sampling Method	Low flow
Remarks	* Dup-07 taken *

Constituents Sampled	Container Description	Number	Preservative
Metals	125ml Plastic	2	HNO_3

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-13 PROJ #: B006448.2017.00603

DATE : 12/5/17 LOC: Racer Landfill, Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1435	11.3	1.21	0.90	1.7	0.19	7.10	-89.7	190	81.1	11.15
1440	11.5	1.17	0.87	4.8	0.52	7.10	-86.9	190	22.1	11.55
1445	11.4	1.14	0.85	8.8	0.96	7.13	-82.6	190	17.3	11.85
1450	11.4	1.13	0.84	9.2	1.00	7.12	-81.8	190	14.3	12.00
1455	11.0	1.12	0.82	8.2	0.90	7.11	-79.9	125	7.60	11.95
1500	11.0	1.11	0.82	6.7	0.73	7.11	-78.2	125	5.61	11.95
1505	10.7	1.12	0.82	8.7	0.97	7.12	-74.7	125	5.26	11.95
1510	10.5	1.12	0.80	8.9	0.99	7.12	-75.0	125	4.53	11.95
1515	10.6	1.11	0.80	8.8	0.98	7.11	-73.4	125	3.79	11.95

Total Depth of Well:	25.40
Depth To Water Before Purging:	9.94
Depth To Water After Purging:	11.95

ARCADIS

Water Sampling Log

Project: Racer Landing, Plant 6 | Project No. B00644 81.2017.00603 | Page 1 of 2

Site Location: Lansing, MI | Date: 12/5/17

Site/Well No.: MW-13-36R | Replicate No.: MS/MSD | Code No.: MS/MSD

Weather: 30's overcast | Sampling Time: Begin 1615 End 1630

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	12.77
Depth to Water (ft bmp)	6.03
Water-Level Elevation (ft)	—
Water Column in Well (ft)	6.74
Casing Diameter/Type	2" PVC
Gallons in Well	1.08
Gallons Pumped/Bailed Prior to Sampling	3
Sample Pump Intake Setting (ft bmp)	10.25
Purge Time	begin 1525 end 1630
Pumping Rate (ml/min)	240
Evacuation Method	P. Pump

Field Parameters

Temperature (°C)	9.5
SpC (mS/cm)	1.57
CND (mS/cm)	1.11
Dissolved Oxygen (%)	1.2
Dissolved Oxygen (mg/L)	0.13
pH (s.u.)	11.73
ORP (mV)	-25.1
Turbidity (NTU)	1.20
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low flow
Remarks	* MS / MSD taken *

Constituents Sampled	Container Description	Number	Preservative
Metals	125 ml Plastic	2	HNO_3

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-13-36R PROJ #: B0064481.2017.00603

DATE : 12/5/17 LOC: Rock Lunsing Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1530	9.5	1.05	0.74	9.0	1.03	11.59	-46.4	240	34.4	6.12
1535	9.4	1.20	0.85	7.2	0.82	11.62	-40.6	240	21.2	6.12
1540	9.5	1.32	0.93	5.4	0.61	11.63	-35.1	240	8.06	6.12
1545	9.5	1.39	0.98	4.1	0.46	11.65	-33.4	240	6.22	6.12
1550	9.7	1.42	1.00	3.3	0.37	11.66	-31.6	240	5.44	6.12
1555	9.7	1.48	1.05	2.0	0.22	11.68	-28.1	240	5.49	6.12
1600	9.6	1.52	1.08	1.8	0.20	11.70	-27.3	240	3.33	6.12
1605	9.5	1.54	1.08	1.3	0.14	11.71	-26.5	240	3.31	6.12
1610	9.4	1.55	1.10	1.3	0.14	11.72	-25.8	240	2.11	6.12
1615	9.5	1.57	1.11	1.2	0.13	11.73	-25.1	240	1.20	6.12
Total Depth of Well:		12.77								
Depth To Water Before Purging:			6.03							
Depth To Water After Purging:			6.12							

ARCADIS

Water Sampling Log

Project: Racer Lansing Plant 6 | Project No.: B0064481.2017 | Page: 1 of 2

Site Location: Lansing, MI | Date: 12/6/17

Site/Well No.: MWBP-10 - UST5-6 | Replicate No.: — | Code No.: —

Weather: 20s partly cloudy | Sampling Time: Begin 945 End 950

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	36.83
Depth to Water (ft bmp)	30.66
Water-Level Elevation (ft)	—
Water Column in Well (ft)	6.17
Casing Diameter/Type	2" PVC
Gallons in Well	0.99
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	~~36~~ 34.25
Purge Time	begin 855 end 950
Pumping Rate (ml/min)	225
Evacuation Method	Bladder Pump

Field Parameters

Temperature (°C)	13.1
SpC (mS/cm)	4.03
CND (mS/cm)	3.12
Dissolved Oxygen (%)	2.7
Dissolved Oxygen (mg/L)	0.28
pH (s.u.)	6.79
ORP (mV)	-157.0
Turbidity (NTU)	8.96
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	—

Constituents Sampled	Container Description	Number	Preservative
Metals	125 ml Plastic	1	HNO_3

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW BP-10-UST 5-6 PROJ #: B00 64481.2017.00603

DATE : 12/6/17 LOC: Racer Lansing, Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
900	13.0	4.02	3.10	5.5	0.57	6.81	-159.2	275	51.1	30.80
905	13.1	4.10	3.17	4.6	0.48	6.79	-160.7	275	26.9	30.95
910	12.9	4.13	3.15	3.6	0.38	6.79	-158.8	275	29.3	31.05
915	12.8	4.08	3.15	3.2	0.33	6.79	-158.7	225	31.6	31.00
920	13.1	4.07	3.15	3.3	0.34	6.79	-159.4	225	22.6	31.00
925	13.1	4.06	3.13	3.0	0.31	6.79	-156.8	225	17.4	31.00
930	13.1	4.03	3.11	2.8	0.29	6.79	-157.3	225	14.3	31.00
935	13.1	4.04	3.11	3.0	0.31	6.79	-154.7	225	12.1	31.00
940	13.1	4.02	3.10	2.7	0.28	6.79	-157.9	225	10.6	31.00
945	13.1	4.03	3.12	2.7	0.28	6.79	-157.0	225	8.96	31.00
Total Depth of Well:		36.83								
Depth To Water Before Purging:			30.66							
Depth To Water After Purging:			31.00							

ARCADIS

Water Sampling Log

Project: Racer Landfill, Plant 6 | Project No.: B00644 79.0007.603 | Page: 1 of 2

Site Location: Ft Laing, MI | Date: 12/5/17 - 12/6/17

Site/Well No.: MW-12-12 | Replicate No.: — | Code No.: —

Weather: 40s 30's part cloudy | Sampling Time: Begin 1015 End 1025 ~~on 12~~

Evacuation Data

Measuring Point	T.O.C.
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	17.20
Depth to Water (ft bmp)	7.75
Water-Level Elevation (ft)	—
Water Column in Well (ft)	9.45
Casing Diameter/Type	2" PVC
Gallons in Well	1.51
Gallons Pumped/Bailed Prior to Sampling	2.5
Sample Pump Intake Setting (ft bmp)	17.00
Purge Time	begin 1330 end 1422
Pumping Rate (ml/min)	190-260
Evacuation Method	P. Pump

Field Parameters

Temperature (°C)	14.2
SpC (mS/cm)	3.38
CND (mS/cm)	2.68
Dissolved Oxygen (%)	8.0
Dissolved Oxygen (mg/L)	0.82
pH (s.u.)	6.69
ORP (mV)	-83.7
Turbidity (NTU)	682
Color	None
Odor	None
Appearance	Clear
Sampling Method	Low Flow
Remarks	well Ran Dry @ 1422
	Sampled on 12/6/17 @ 1015

@ time when well Ran Dry

Constituents Sampled	Container Description	Number	Preservative
Metals	125 ml plastic	1	HNO_3
Metals (Field Filtered)	125 ml plastic	1	HNO_3

Sampling Personnel: DMA

Well Casing Volumes

Gal./Ft.					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS

YSI/LOW FLOW SAMPLING LOG

WELL : MW-12-12 PROJ #: B006448I.2017.00603

DATE : 10/5/17 LOC: Racer Landing, Plant 6

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
1335	12.0	0.94	0.73	2.8	0.30	7.75	-108.3	190	15.9	9.30
1340	12.8	0.79	0.61	2.7	0.28	7.59	-107.7	190	19.7	10.20
1345	12.7	0.82	0.62	2.7	0.28	7.48	-107.1	190	20.9	11.10
1350	12.9	0.88	0.68	2.2	0.23	7.38	-103.1	190	23.6	12.00
1355	13.2	0.89	0.69	2.1	0.22	7.38	-106.4	190	29.6	12.75
1400	13.0	0.96	0.74	2.4	0.25	7.32	-104.3	190	61.4	13.35
1405	14.3	4.55	3.60	2.0	0.20	6.53	-98.6	260	94.1	14.30
1410	14.1	1.31	1.04	2.6	0.27	7.27	-100.0	260	92.9	15.15
1415	14.1	2.04	1.62	7.3	0.74	6.97	-89.1	260	152	16.05
1420	14.2	3.38	2.68	8.0	0.82	6.69	-83.7	260	682	16.80
1422	well	Run	Dry							
Total Depth of Well:		17.80								
Depth To Water Before Purging:			7.75							
Depth To Water After Purging:			17.20							

APPENDIX E

APC Sampling Results

(On attached CD)

MW-14-63
MW-12-02
<3 ug/L
APC MW-7S
APC MW-7D
<1.0 µg/L
95 µg/L
APC MW-8S
44 µg/L
24 µg/L
APC MW-8D
P2-MW-03
APC MW-9D
910 µg/L
[930 µg/L duplicate]
APC MW-2D
<1.0 µg/L
APC MW-13S
APC MW-13D
200 µg/L
490 µg/L
MW-16-80
27 ug/L
FORMER APC FACILITY
APC MW-4D
APC MW-4S
<1.0 µg/L
39 µg/L
[34 µg/L duplicate]
260 ug/L
MW-13-43
MW-13-44
PW-14-02
230 ug/L
[220 ug/L duplicate]
APC MW-5D
3.9 µg/L
65-70 ft: 33 µg/L*
70-75 ft: 30 µg/L*
APC MW-6D
APC MW-6S
11 µg/L
<1.0 µg/L
MW-13-42
20 ug/L (3/15/2016)
MW-15-73
7 ug/L
SB-P2-ML33
SB-P2-MM43
65-70 ft: 3 µg/L*
70-75 ft: 5 µg/L*
<1.0 µg/L
APC MW-12S
12 µg/L
APC MW-12D
3 µg/L
APC MW-11S
<1.0 µg/L
APC MW-11D
MW-14-58
MW-16-83
<3 ug/L
MW-14-57
MW-12-09
MW-14-56
9 ug/L

0 75 150
SCALE IN FEET

Legend

- VAP BORING LOCATION
- APC PERCHED MONITORING WELL
- PERCHED MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- PERCHED 1,4-DIOXANE IMPACTS DW CRITERIA (7.2 µg/L)
- LOWER 1,4-DIOXANE IMPACTS DW CRITERIA (7.2 µg/L)
- APC PERCHED 1,4-DIOXANE >7.2 µg/L (DASHED WHERE ESTIMATED OR COMINGLED)
- APC POTENTIAL AREA OF WEATHERED BEDROCK IMPACTS >7.2 µg/L (ESTIMATED FROM OFF-SITE VAP BORINGS AND INCONGRUENT IMPACTS TO RACER WEATHERED BEDROCK WELLS)
- PROPERTY BOUNDARY

NOTES:
* - VAP SAMPLE ANALYZED VIA GC-MS METHOD 8260, OTHERWISE DSITMS METHOD 8265.

RACER TRUST
PLANTS 2, 3, and 6
LANSING, MICHIGAN

FORMER ADAMS PLATING COMPANY MONITORING WELL LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-1

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: R. Christensen TM: A. Villhauer TR: PROJECT NUMBER: B0064479.2018 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
Z:\GISProjects_ENV\RACER_Lansing\Docs\2017 Semi-Annual Report\MONITORING WELL SUMMARY_20180501.mxd PLOTTED: 5/2/2018 10:57:29 AM BY: rjmiller

Michigan Department of Environmental Quality Analytical Testing Report

Work Order:	1410055
Report Date:	10/30/2014 12:55
Client:	MDEQ-RRD-LANSING
Attention:	Mary Schafer
Project Name:	ADAMS PLATING COMPANY
Project Number:	LB041499

Sample Number			Target Detection Limit (TDL)	Drinking Water Criteria (DWC)	Groundwater Surface Water Interface Criteria (GSIC)	Groundwater Volatilization to Indoor Air Inhalation Criteria (GVIIC)	Rule 57 Final Acute Value (FAV)	1410055-01	1410055-02	1410055-03	1410055-04	1410055-05	1410055-06	1410055-07
Sample ID								MW08S	MW08D	MW07S	MW07D	MW12S	MW12D	MW04S
Sample Depth														
Date Collected								10/7/2014	10/7/2014	10/7/2014	10/7/2014	10/7/2014	10/7/2014	10/8/2014
Date Received								10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014
Analyte	Units	Method	Organics-Dioxane											
1,4-dioxane	ug/L	8260 Modified	1	85	2,800	NLV	390,000	44	24	<1.0	95	<1.0	12	<1.0

Grey indicates contaminant was detected.
Yellow indicates contaminant exceeds DWC.
Blue indicates contaminant exceeds GSIC.
Green indicates contaminant exceeds both DWC and GSIC.
Orange indicates contaminant exceeds one or more criteria; GVIIC and/or FAV.
“ID” means insufficient data to develop criterion.
“NA” means a criterion or value is not available or, in the case of background, not applicable.
“NLV” means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

Michigan Department of Environmental Quality Analytical Testing Report

Work Order:	1410055
Report Date:	10/30/2014 12:55
Client:	MDEQ-RRD-LANSING
Attention:	Mary Schafer
Project Name:	ADAMS PLATING COMPANY
Project Number:	LB041499

Sample Number			Target Detection Limit (TDL)	Drinking Water Criteria (DWC)	Groundwater Surface Water Interface Criteria (GSIC)	Groundwater Volatilization to Indoor Air Inhalation Criteria (GVIIC)	Rule 57 Final Acute Value (FAV)	1410055-08	1410055-09	1410055-10	1410055-11	1410055-12	1410055-13	1410055-14
Sample ID								MW04D	MW06S	MW13S	MW06D	MW05D	MW11S	MW11D
Sample Depth														
Date Collected								10/8/2014	10/8/2014	10/8/2014	10/8/2014	10/8/2014	10/8/2014	10/8/2014
Date Received								10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014
Analyte	Units	Method	Organics-Dioxane											
1,4-dioxane	ug/L	8260 Modified	1	85	2,800	NLV	390,000	39	<1.0	490	11	3.9	3	<1.0

Grey indicates contaminant was detected.
Yellow indicates contaminant exceeds DWC.
Blue indicates contaminant exceeds GSIC.
Green indicates contaminant exceeds both DWC and GSIC.
Orange indicates contaminant exceeds one or more criteria; GVIIC and/or FAV.
"ID" means insufficient data to develop criterion.
"NA" means a criterion or value is not available or, in the case of background, not applicable.
"NLV" means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

Michigan Department of Environmental Quality Analytical Testing Report

Work Order:	1410055
Report Date:	10/30/2014 12:55
Client:	MDEQ-RRD-LANSING
Attention:	Mary Schafer
Project Name:	ADAMS PLATING COMPANY
Project Number:	LB041499

Sample Number			Target Detection Limit (TDL)	Drinking Water Criteria (DWC)	Groundwater Surface Water Interface Criteria (GSIC)	Groundwater Volatilization to Indoor Air Inhalation Criteria (GVIIC)	Rule 57 Final Acute Value (FAV)	1410055-15	1410055-16	1410055-17	1410055-18	1410055-19	1410055-20	1410055-21
Sample ID								MW11D MS	MW11D MSD	MW09D	MW09D-dup	MW02-D	MW13D	MW04D-dup
Sample Depth														
Date Collected								10/8/2014	10/8/2014	10/8/2014	10/8/2014	10/8/2014	10/8/2014	10/8/2014
Date Received								10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014	10/9/2014
Analyte	Units	Method	Organics-Dioxane											
1,4-dioxane	ug/L	8260 Modified	1	85	2,800	NLV	390,000	12	11	910	930	<1.0	200	34

Grey indicates contaminant was detected.
Yellow indicates contaminant exceeds DWC.
Blue indicates contaminant exceeds GSIC.
Green indicates contaminant exceeds both DWC and GSIC.
Orange indicates contaminant exceeds one or more criteria; GVIIC and/or FAV.
“ID” means insufficient data to develop criterion.
“NA” means a criterion or value is not available or, in the case of background, not applicable.
“NLV” means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

Tabulated Results

Well ID	MW-02D	16CD02-	MW-04D	16CD02-	MW-04S	MW-05D	16CD02-	MW-06D	16CD02-	MW-06S	MW-07D	16CD02-	MW-07S
EPA SAS #	04		02		16CD02-01	08		20		16CD02-19	11		16CD02-10
ng/l	30 U		**80**		**85.1**	30 U		**181**		**245**	**296**		30
ng/l	10 U		**48.7 I**		**12.6**	10 U		**140**		**251**	10 U		10
ng/l	15 U		**600**		**113**	15 U		**2,860**		**1,060**	15 U		15
ng/l	50 UJ		50 UJ		50 UJ	50 UJ		**81.4**		**84 J**	50 UJ		50
ng/l	50 UJ		50 UJ		50 UJ	50 UJ		**735**		**695 J**	50 UJ		50
ng/l	10 U		**23.2 I**		10 U	**15.6**		**600**		**545**	10 U		10
ng/l	10 U		**12.8**		10 U	10 U		**276**		**400**	10 U		10
ng/l	10 UJ		10 UJ		10 UJ	10 UJ		**240**		**1,310**	10 UJ		10
ng/l	10 U		**40.9**		10 U	10 U		**683**		**549**	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		**210**	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		**46.8**	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		14.8	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		17.3		10 U	10 U		43.8		29.8	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		10 U	10 U		10
ng/l	10 U		10 U		10 U	10 U		10 U		34	10 U		10
ng/l	10 U		11.7		10 U	10 U		23		24.4	10 U		10
ng/l	10 U		40.9		10 U	10 U		683		549	10 U		10

Tabulated Results

Well ID	MW-02D	16CD02-04	MW-04D	16CD02-02	MW-04S	MW-05D	16CD02-08	MW-06D	16CD02-20	MW-06S	MW-07D	16CD02-11	MW-07S
EPA SAS #					16CD02-01					16CD02-19			16CD02-10

Tabulated Results

Well ID		MW-08D	16CD02-14	MW-08S	16CD02-13	MW-09D	16CD02-16	MW-11D	16CD02-09	MW-11S	16CD02-03	MW-11S	16CD02-18	MW-12D	16CD02-15
ng/l	U	**85.4 J**		**843**		**2,790**		30 U		**182**		**185**		30 U	
ng/l	U	**84.2 I**		**73.5**		**126 I**		**17.5**		**52**		**51.6**		10 U	
ng/l	U	**204 I**		**435 I**		**200 I**		15 U		**171**		**167**		15 U	
ng/l	UJ	50 UJ		50 UJ		50 UJ		50 UJ		50 UJ		50 UJ		50 UJ	
ng/l	UJ	50 UJ		50 UJ		50 UJ		50 UJ		**338 L**		**352 J**		50 UJ	
ng/l	U	**34.2 J**		**13.1 I**		**22.4**		**19.6**		**321**		**330**		**12.2**	
ng/l	U	**16 J**		10 U		10 U		**12.4**		**179**		**188**		10 U	
ng/l	UJ	10 UJ		10 UJ		10 UJ		10 UJ		**302**		**298**		10 UJ	
ng/l	U	**17.8 J**		10 U		10 U		10 U		**365**		**355**		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	16 J		19.7		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	10 UJ		10 U		10 U		10 U		10 U		10 U		10 U	
ng/l	U	20 J		14.9		145		10 U		14.7		15.8		10 U	
ng/l	U	17.8 J		10 U		10 U		10 U		365		355		10 U	

Tabulated Results

Well ID	MW-08D	16CD02-	MW-08S	16CD02·	MW-09D	16CD02-	MW-11D	16CD02-	MW-11S	MW-11S	MW-12D	16CD02-
EPA SAS #	14		13		16		09		16CD02-03	16CD02-18	15	

Tabulated Results

Well ID	MW-12S	MW-13D	16CD02-	MW-13S	MW-14D	16CD02-	MW-14S	MW-15	MW-15
EPA SAS #	16CD02-12	22		16CD02-21	06		16CD02-05	16CD02-07	16CD02-17
ng/l	30 U	**1,060**		**28,800**	30 U		**478**	**2,380**	**2,290**
ng/l	10 U	**104 I**		**2,450 I**	10 U		**109 J**	**83.5 I**	**83.6 I**
ng/l	15 U	15 UJ		**88 J**	15 U		**741**	**99.6 I**	**91.4 I**
ng/l	50 UJ	50 UJ		**96 J**	50 UJ		50 UJ	50 UJ	50 UJ
ng/l	50 UJ	50 UJ		**78.4 J**	50 UJ		**114 J**	**74.2 L**	**75 J**
ng/l	10 U	**19 J**		**118 J**	10 U		**89.8 J**	**56.1**	**55.4 J**
ng/l	10 U	10 UJ		**37.4 J**	10 U		**40.8 J**	**20.8**	**20.2 J**
ng/l	10 UJ	10 UJ		10 UJ	10 UJ		10 UJ	10 UJ	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		**37.3 J**	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		**26 J**	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		24.8 J	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	10 UJ		10 UJ	10 U		10 UJ	10 U	10 UJ
ng/l	10 U	141 I		1,690	10 U		24.9 I	47.9 I	52 I
ng/l	10 U	10 UJ		10 UJ	10 U		37.3 J	10 U	10 UJ

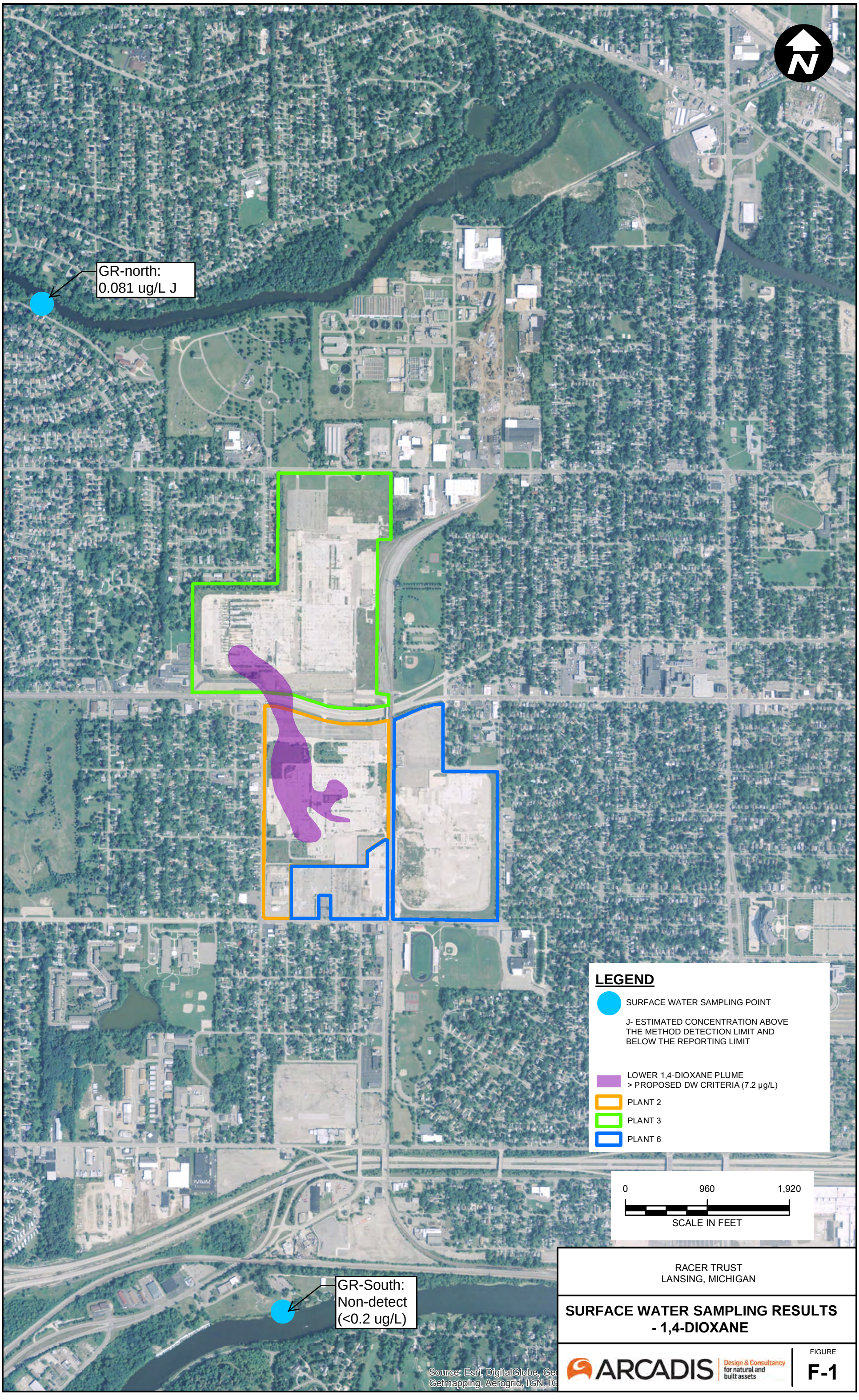
Tabulated Results

Well ID	MW-12S	MW-13D	16CD02-22	MW-13S	MW-14D	16CD02-06	MW-14S	MW-15	MW-15
EPA SAS #	16CD02-12			16CD02-21			16CD02-05	16CD02-07	16CD02-17

APPENDIX F

River Sampling Results

(on attached CD)



RACER TRUST
LANSING, MICHIGAN

SURFACE WATER SAMPLING RESULTS - 1,4-DIOXANE

ARCADIS Design & Consultancy for natural and built assets

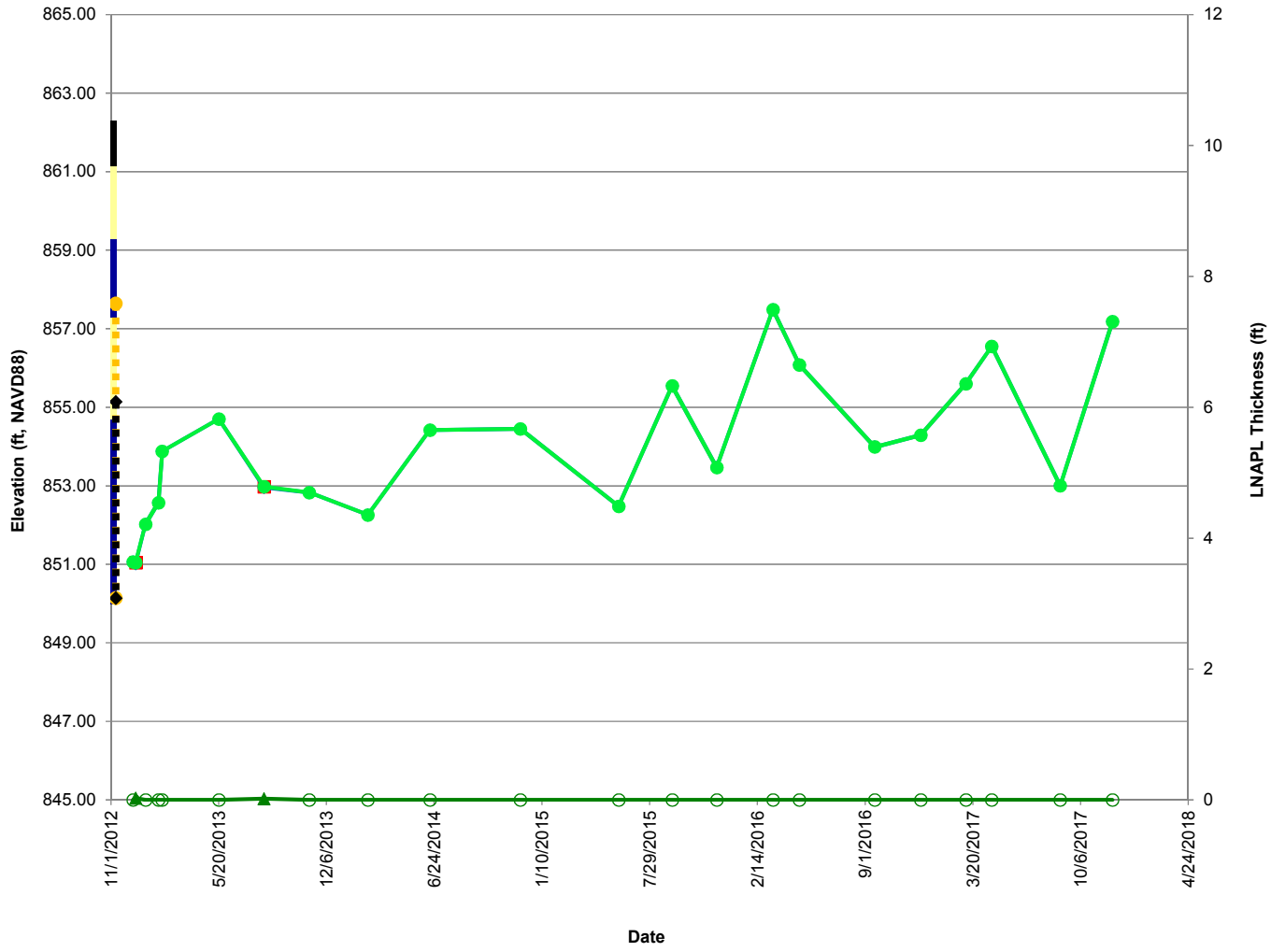
FIGURE
F-1

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\2017 Workplan Figures\Surface Water Sampling.mxd PLOTTED: 3/17/2017 2:56:55 PM BY: dolexa

APPENDIX G

LNAPL Trend Graphs

(On attached CD)

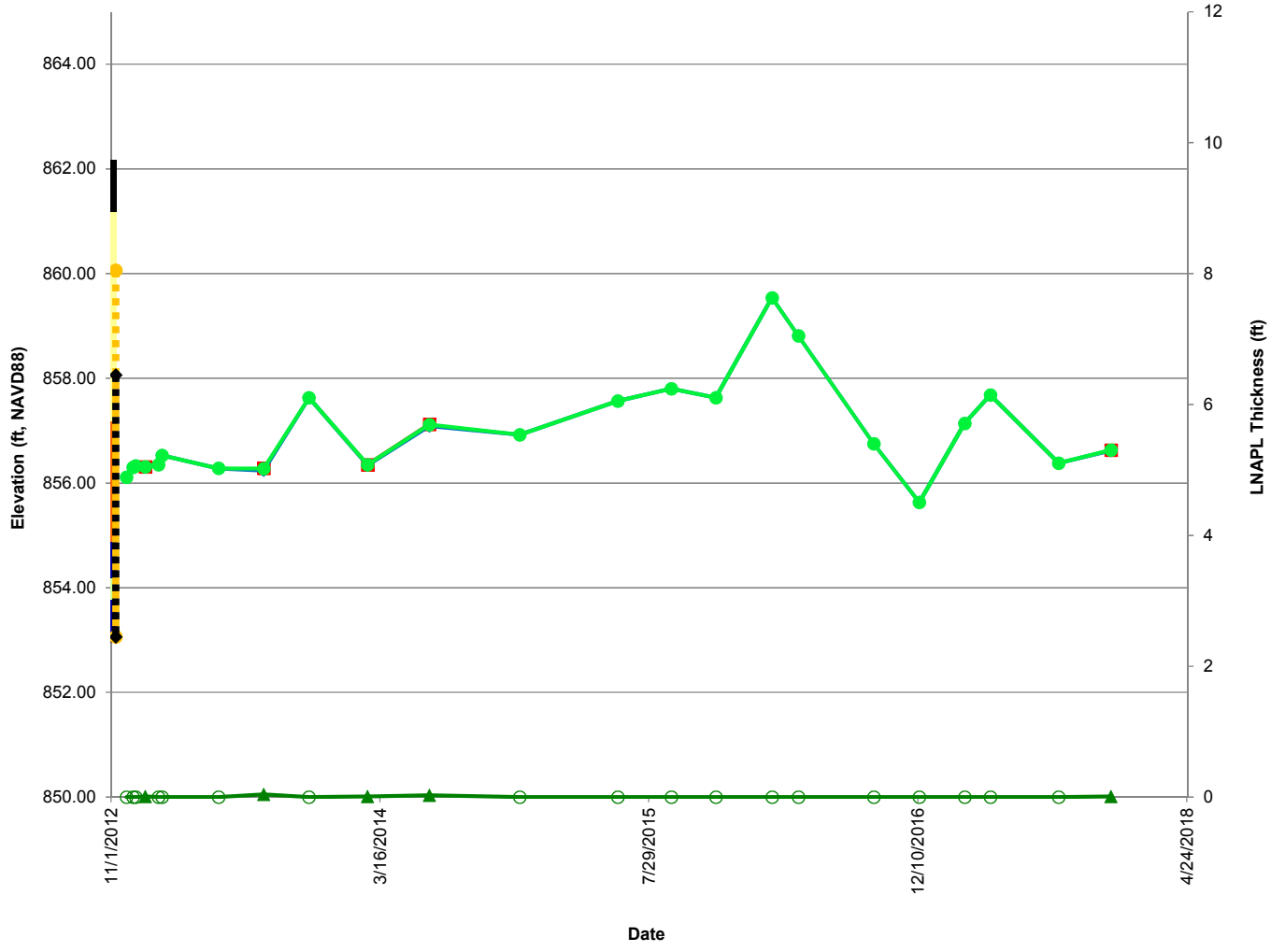


RACER Lansing
Lansing, MI

LMW-12-01 LNAPL HYDROGRAPH

ARCADIS

FIGURE
A



Air-NAPL Interface
NAPL-Water or Air-Water Interface
Potentiometric Surface
Concrete
Medium Sand
Sand and Gravel
Clay
Fine Sand
Filter Pack
Screened Interval
NAPL Thickness

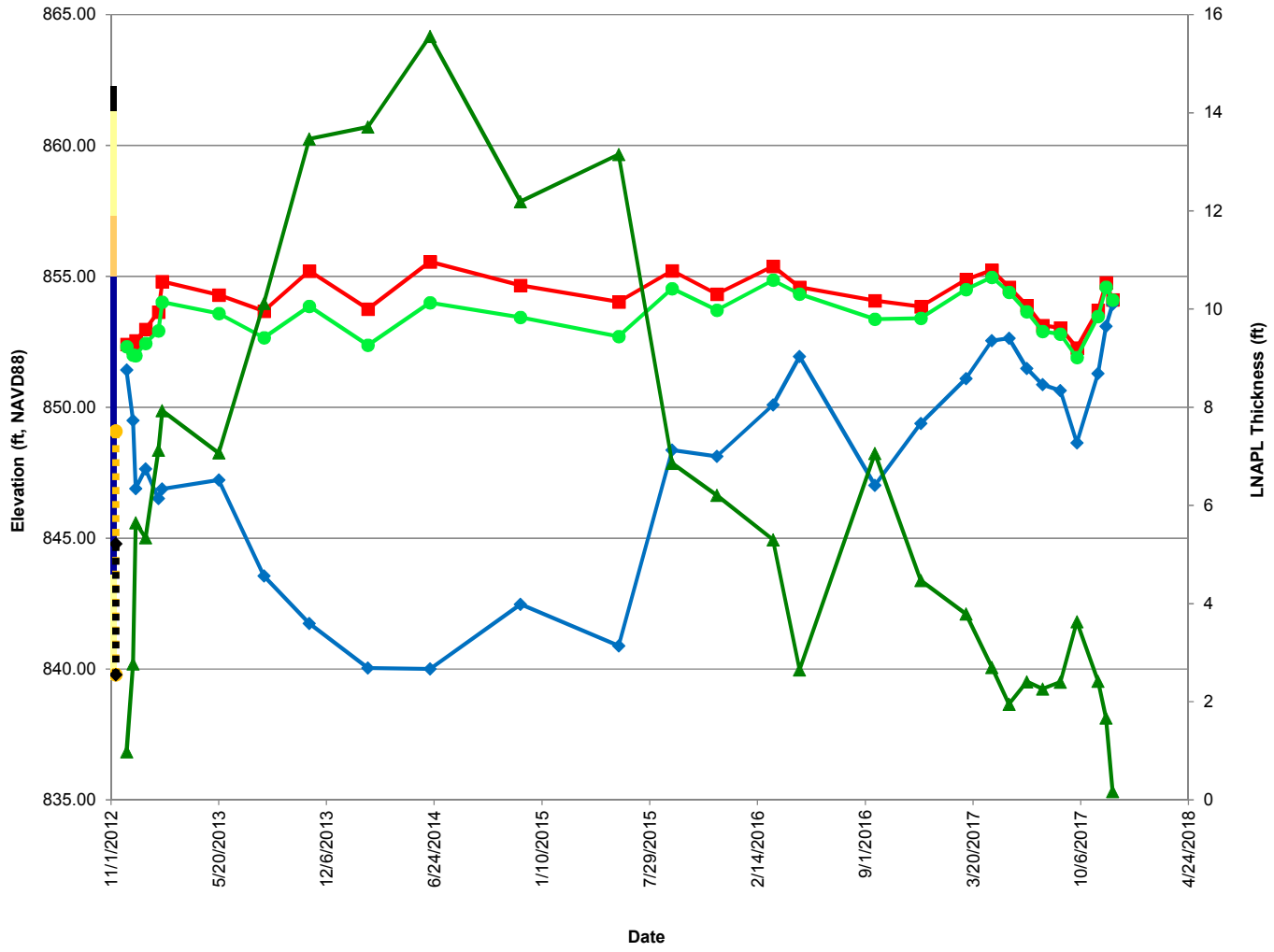
RACER Lansing
Lansing, MI

LMW-12-03S LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



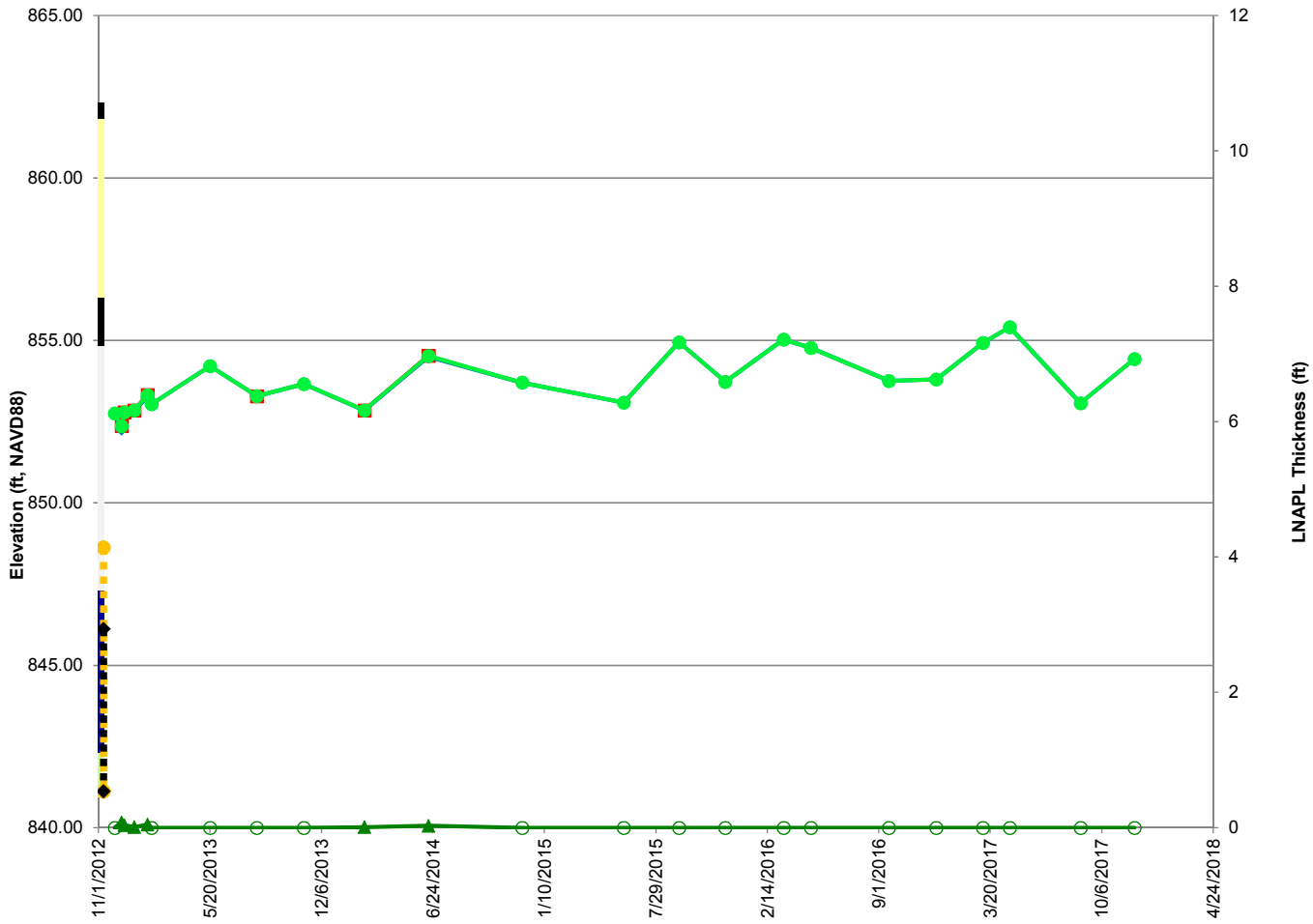
RACER Lansing
Lansing, MI

LMW-12-03D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



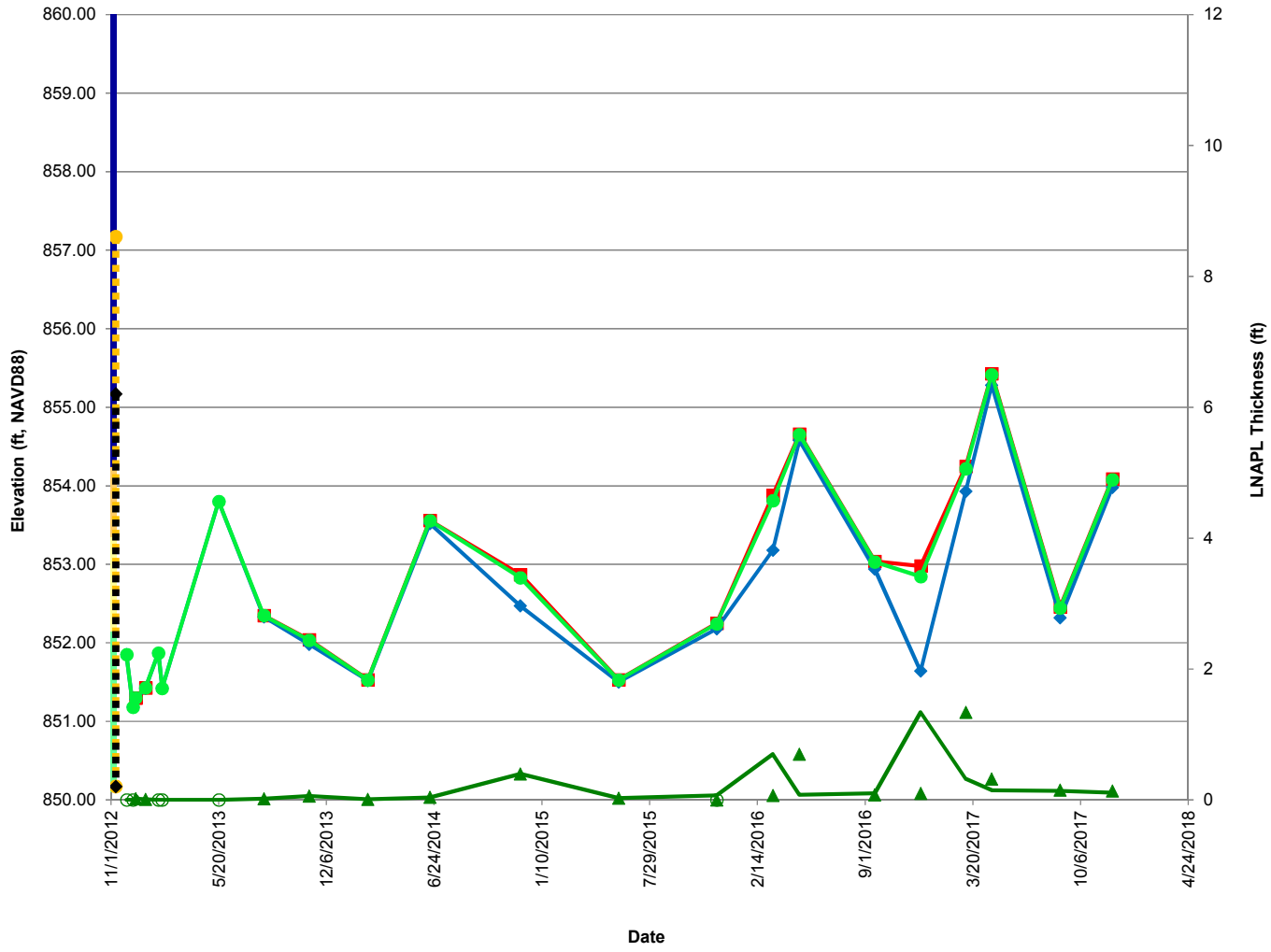
RACER Lansing
Lansing, MI

LMW-12-04 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



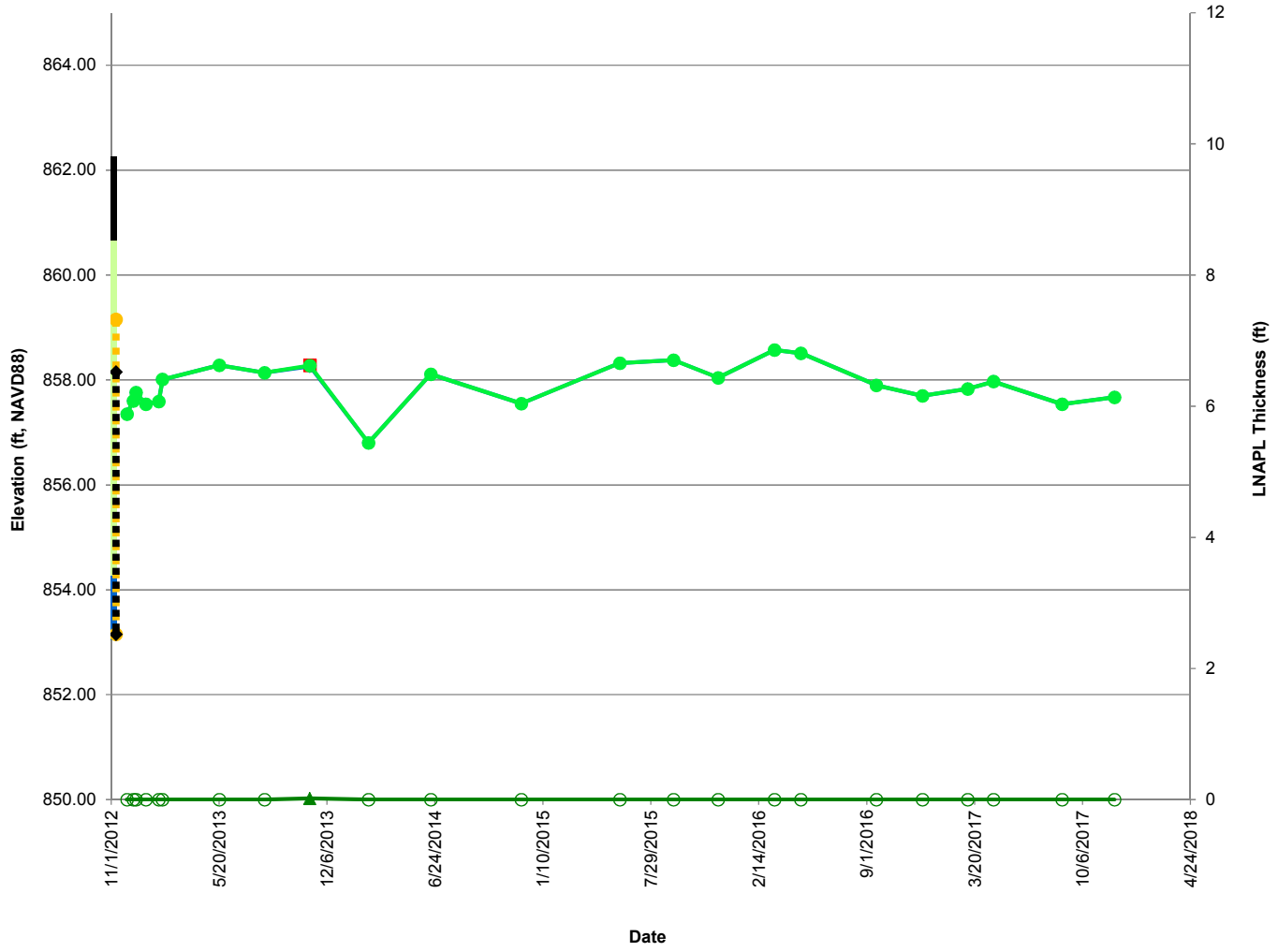
RACER Lansing
Lansing, MI

LMW-12-05 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



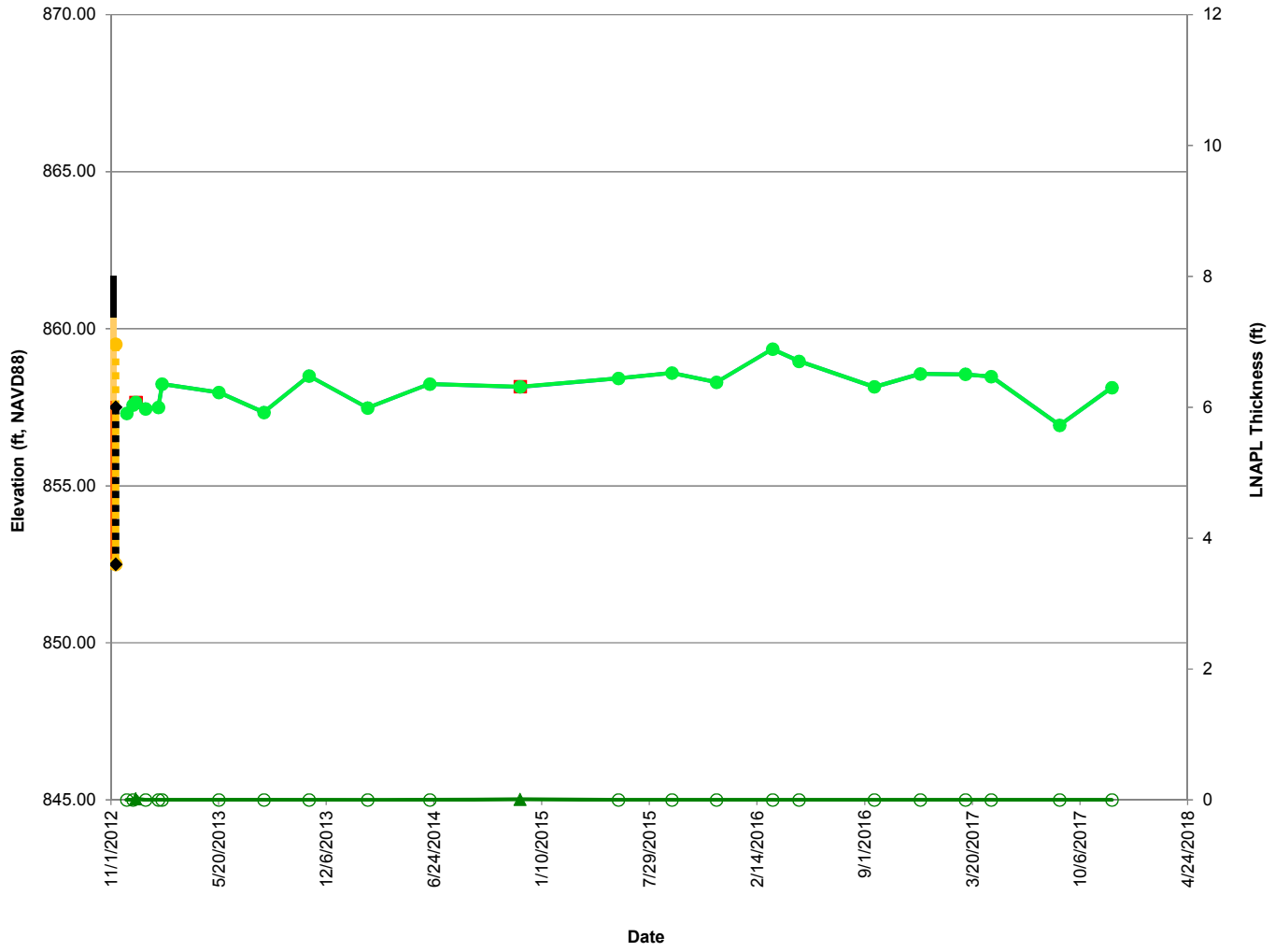
Air-NAPL Interface
NAPL-Water or Air-Water Interface
Potentiometric Surface
Concrete
Fine Sand
Silty Clay
Filter Pack
Screened Interval
NAPL Thickness

RACER Lansing
Lansing, MI

LMW-12-06 LNAPL HYDROGRAPH

ARCADIS

FIGURE
A



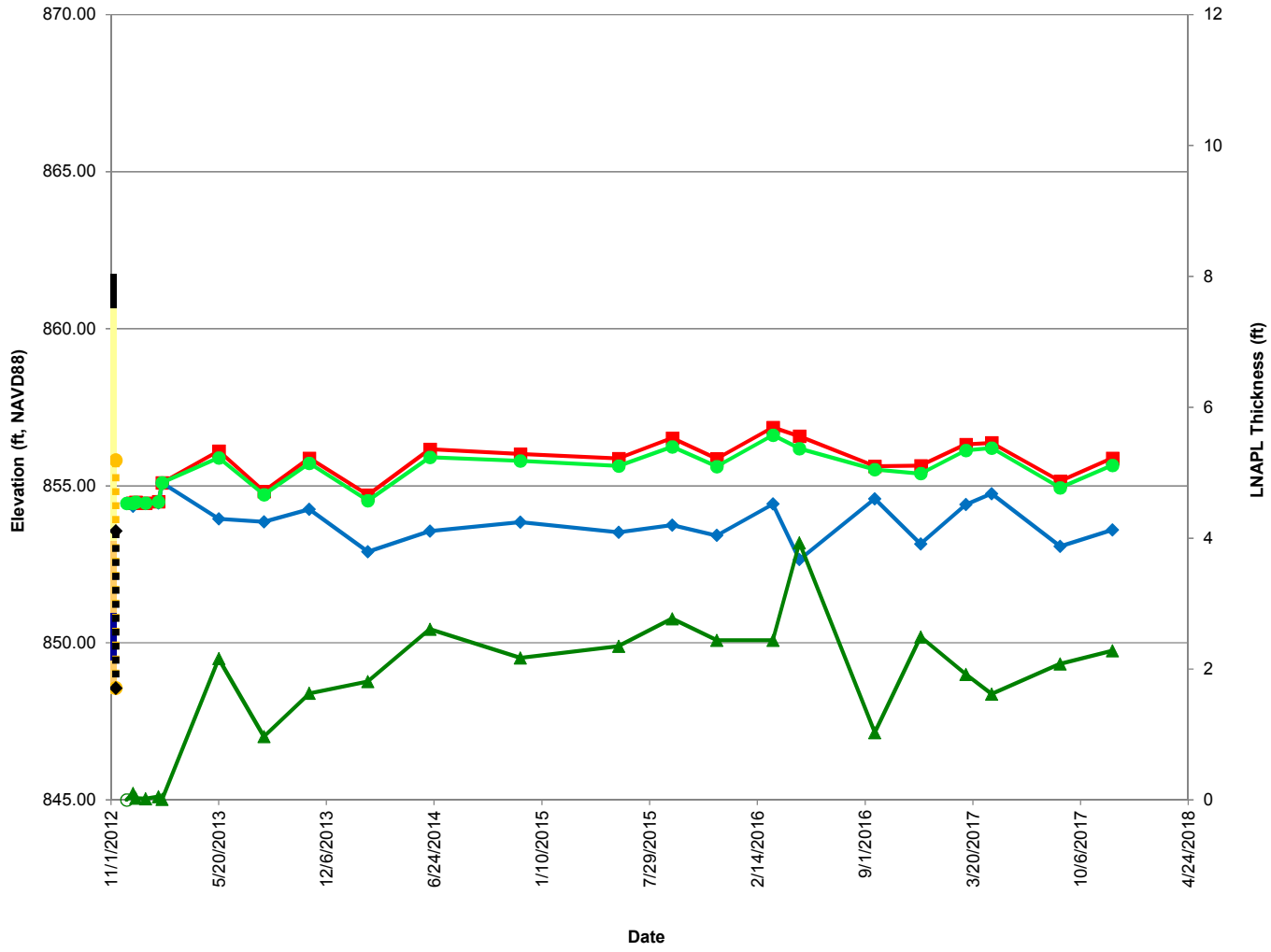
RACER Lansing
Lansing, MI

LMW-12-07 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



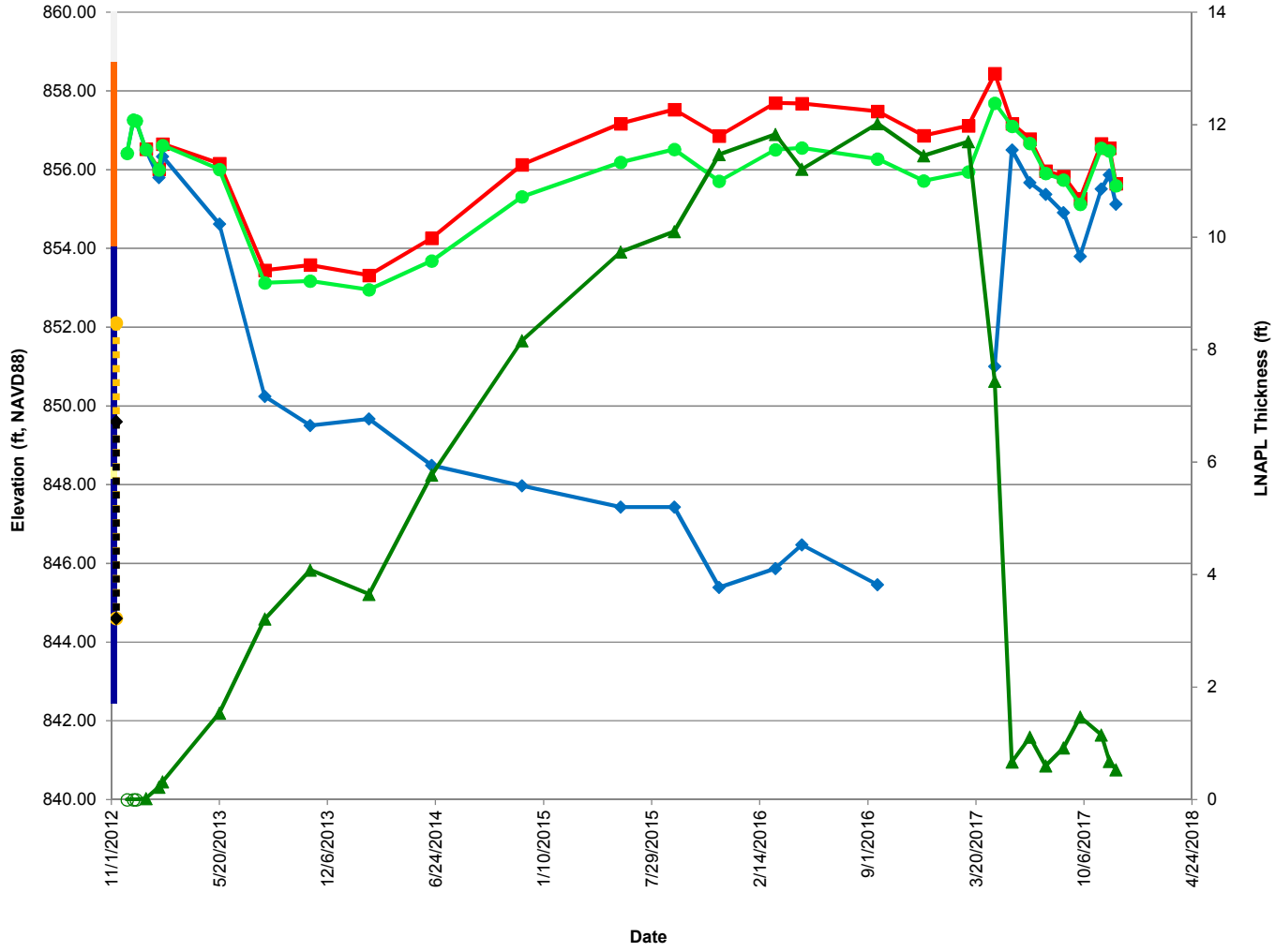
RACER Lansing
Lansing, MI

LMW-12-08 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



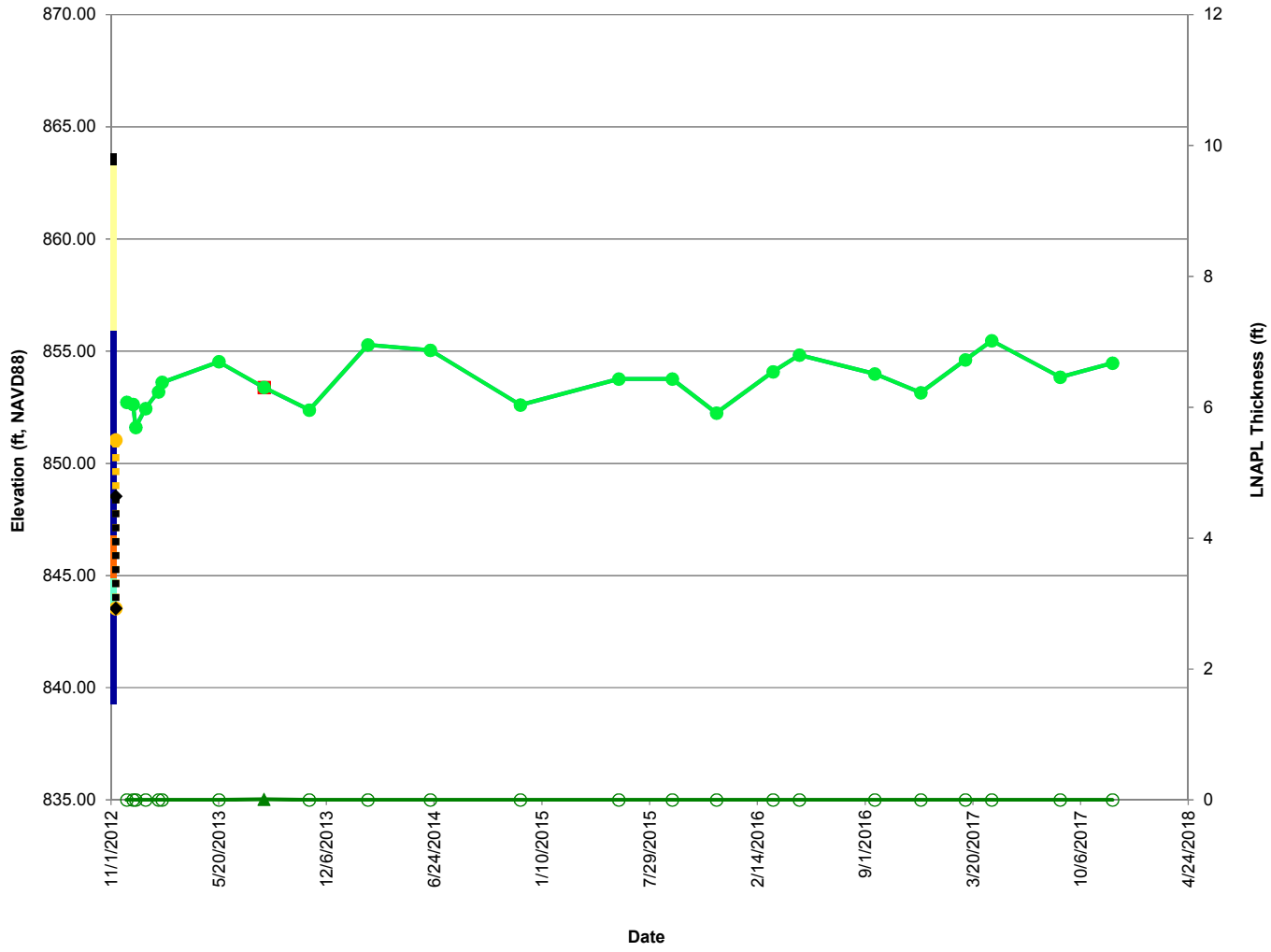
RACER Lansing
Lansing, MI

LMW-12-10 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



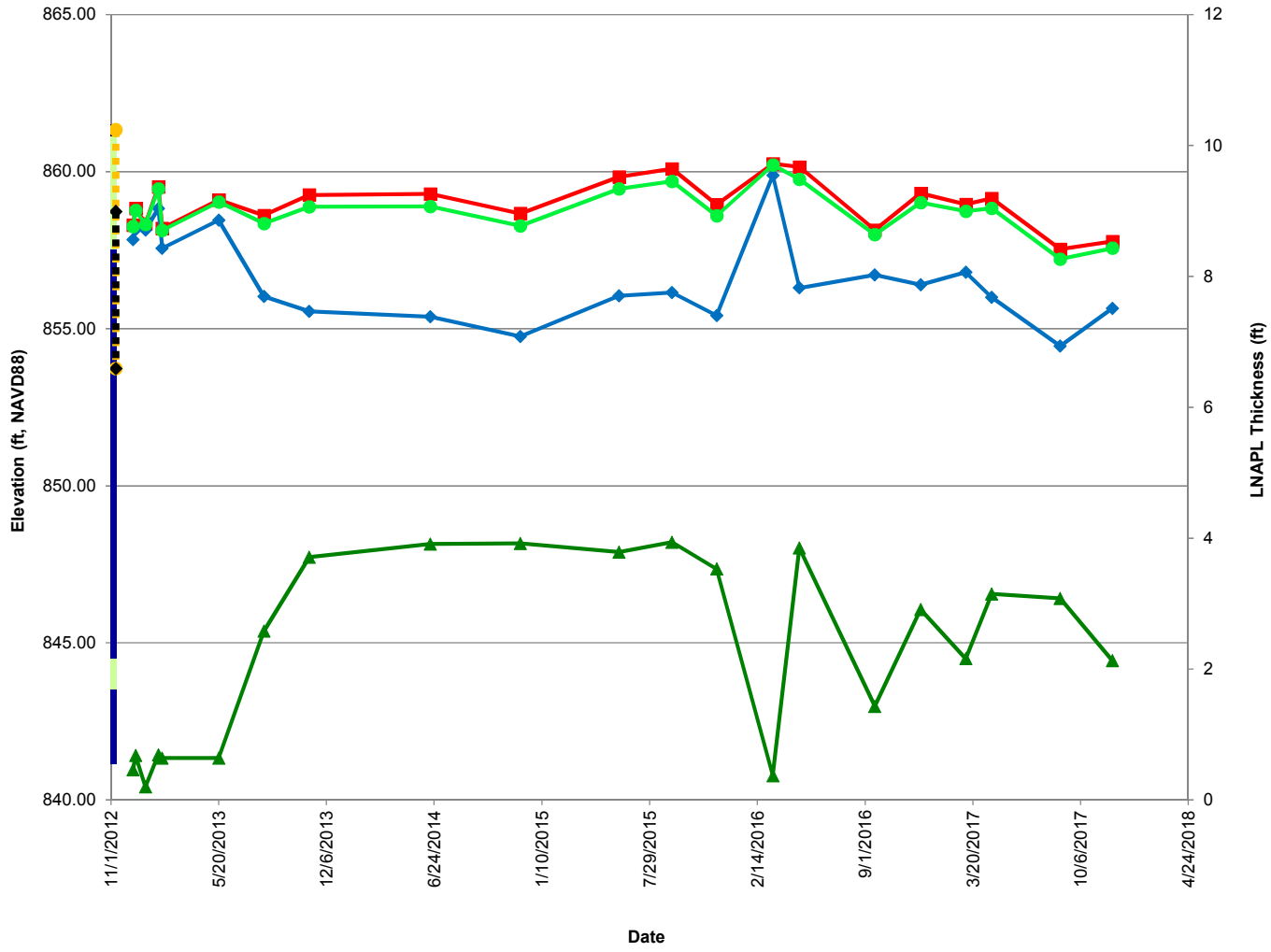
RACER Lansing
Lansing, MI

LMW-12-11 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



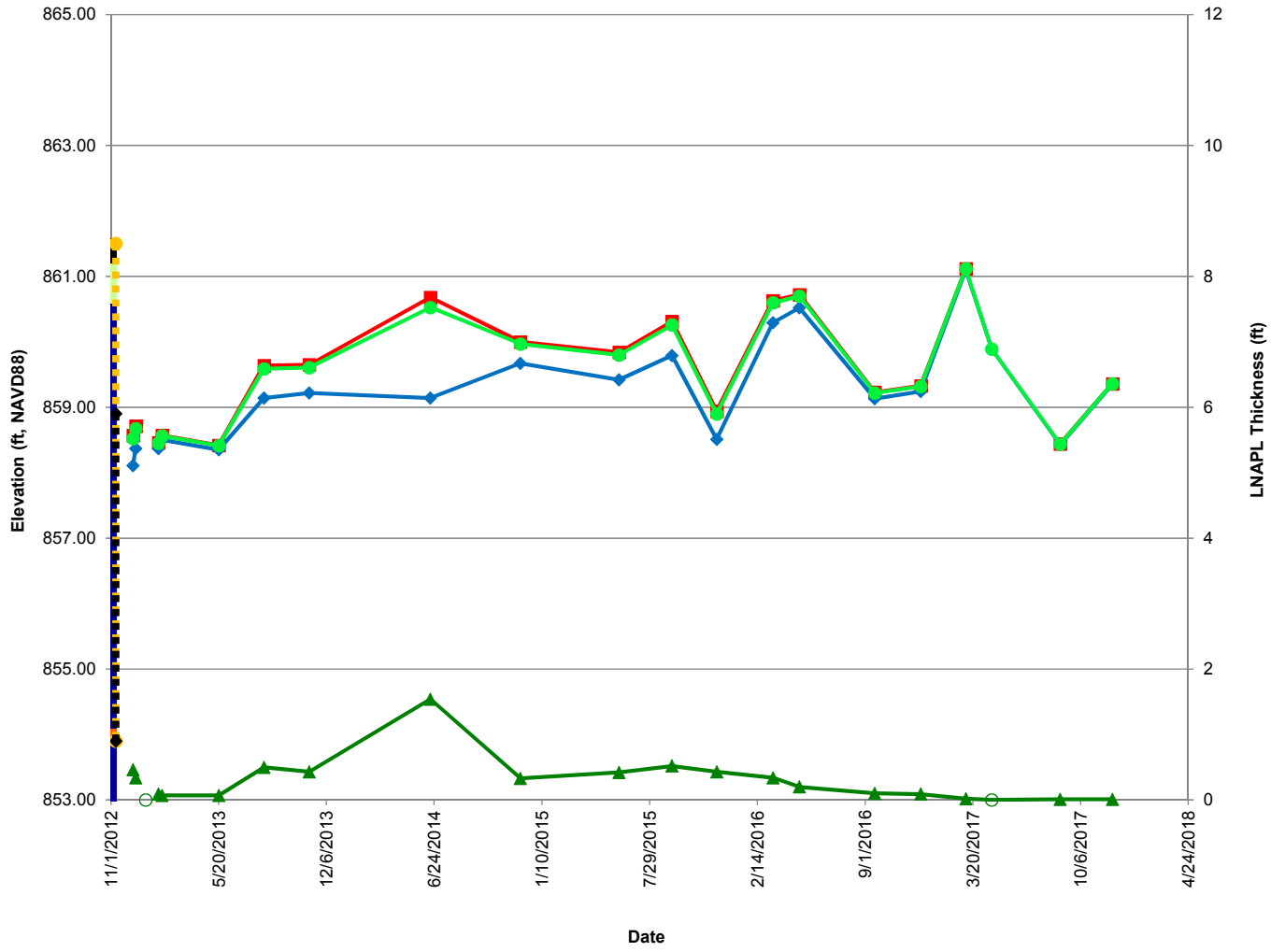
RACER Lansing
Lansing, MI

PMW-1 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



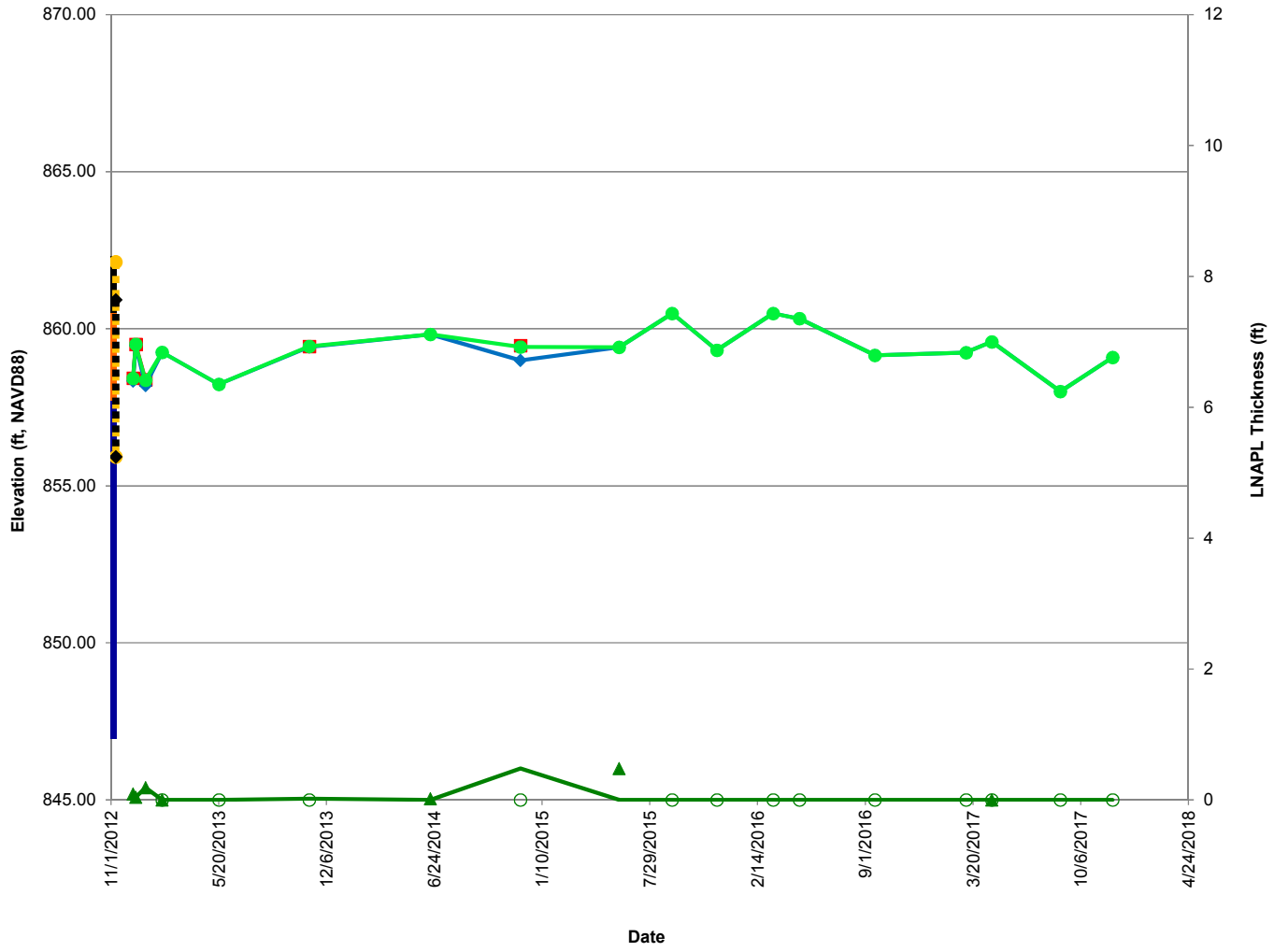
RACER Lansing
Lansing, MI

PMW-2 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



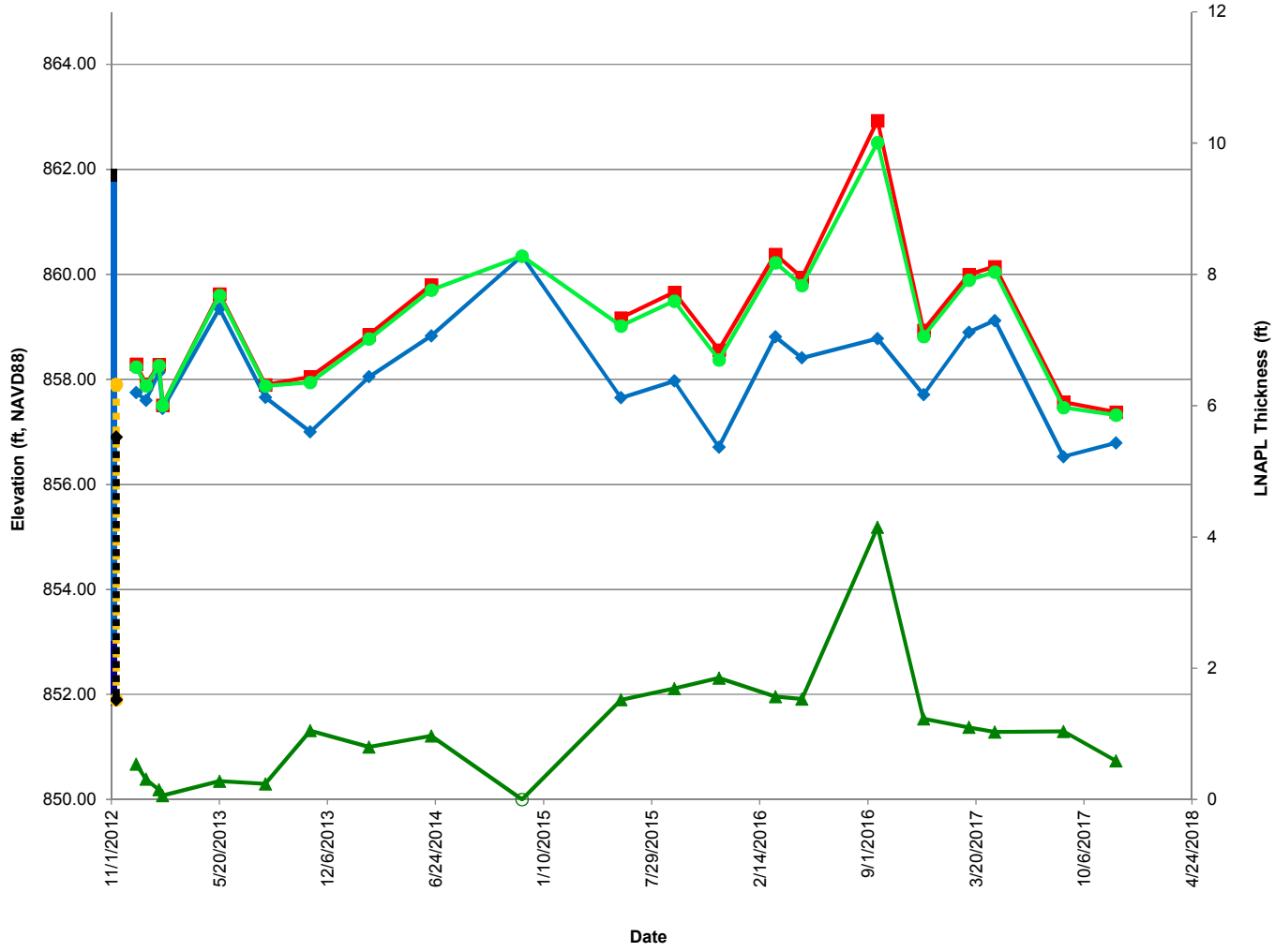
RACER Lansing
Lansing, MI

PMW-3 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



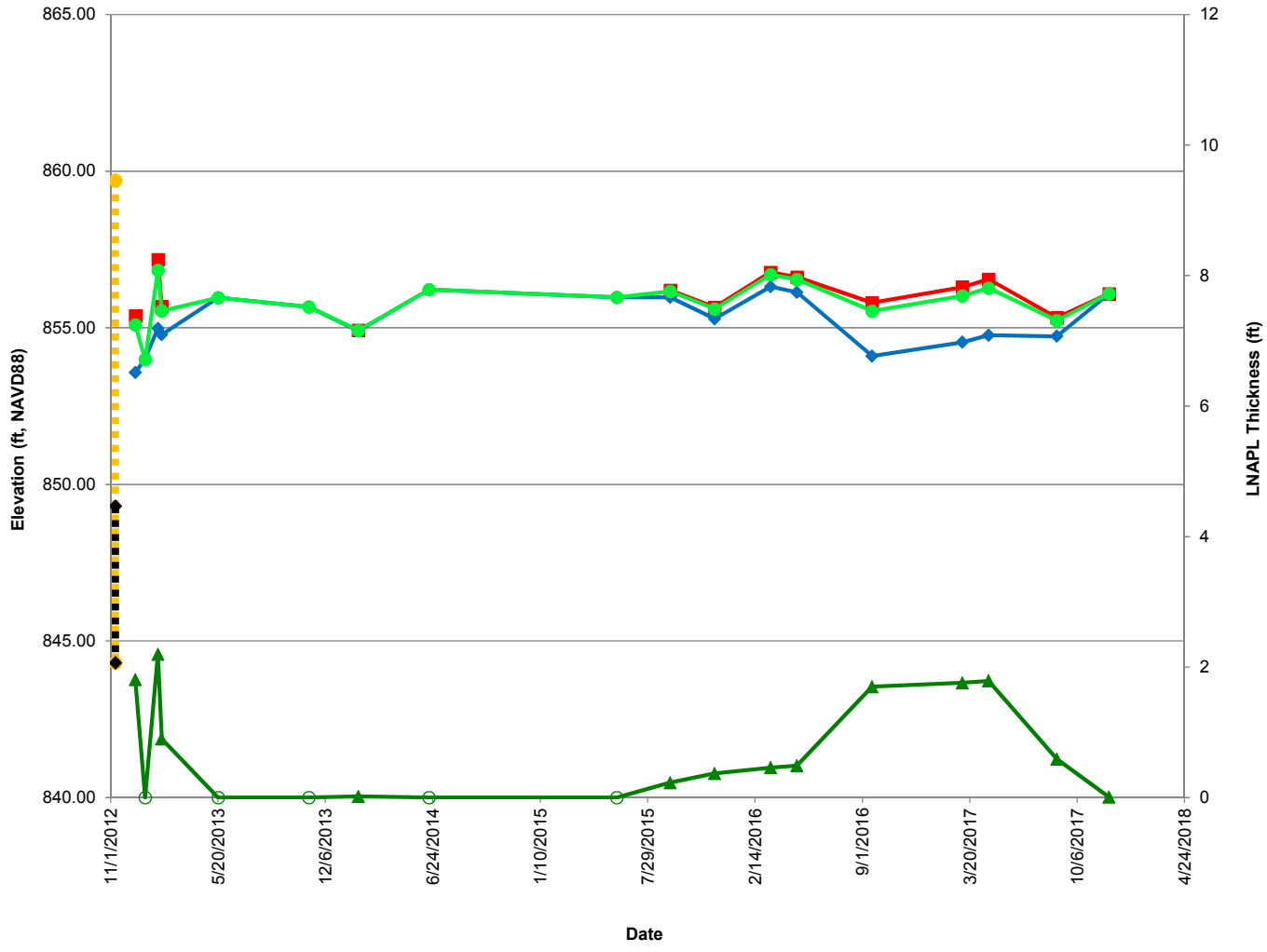
RACER Lansing
Lansing, MI

P2-SB-37 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



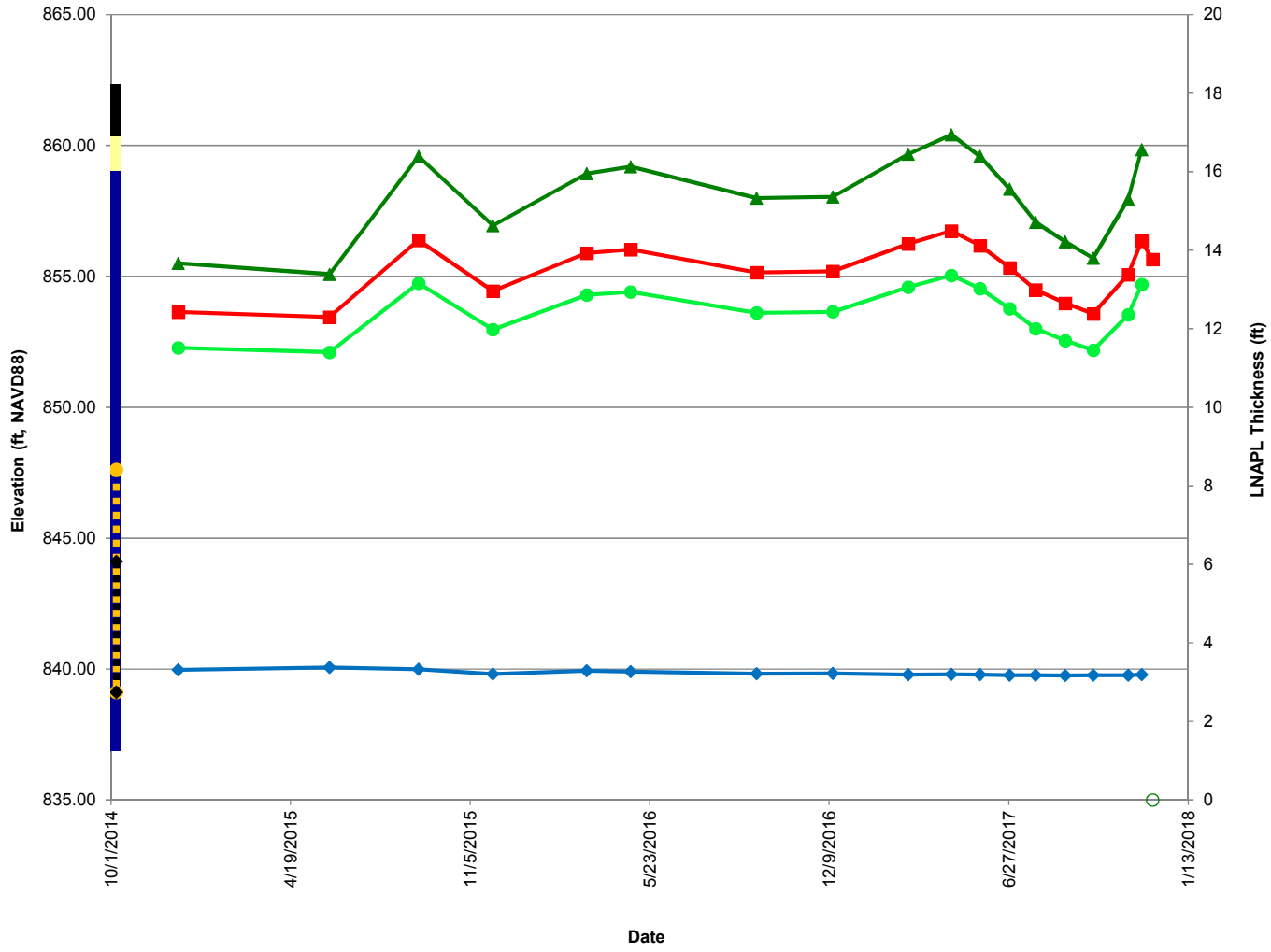
RACER Lansing
Lansing, MI

UNK-14 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



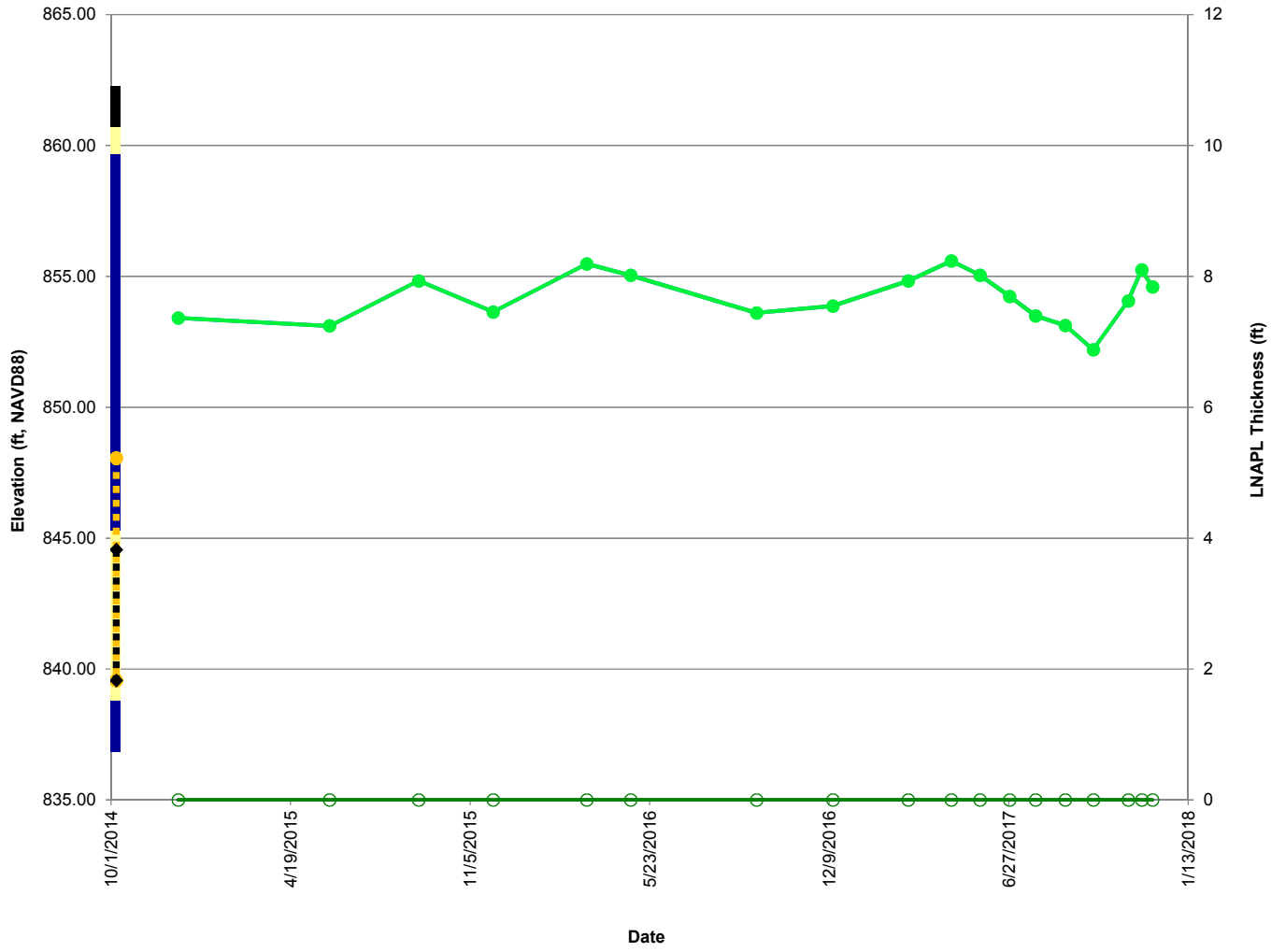
RACER Lansing
Lansing, MI

LMW-14-12D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A

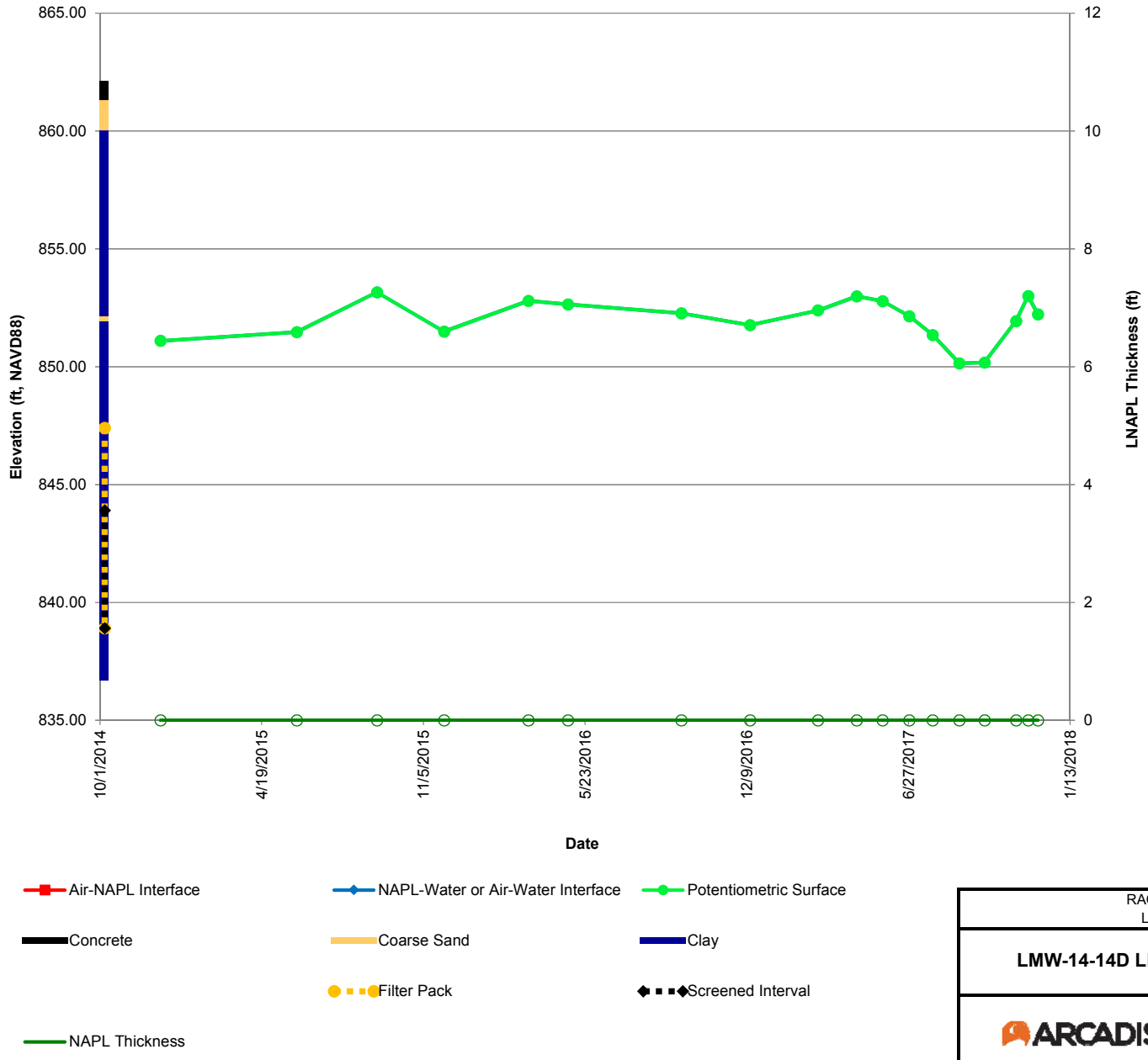


RACER Lansing
Lansing, MI

LMW-14-13D LNAPL HYDROGRAPH

ARCADIS

FIGURE
A

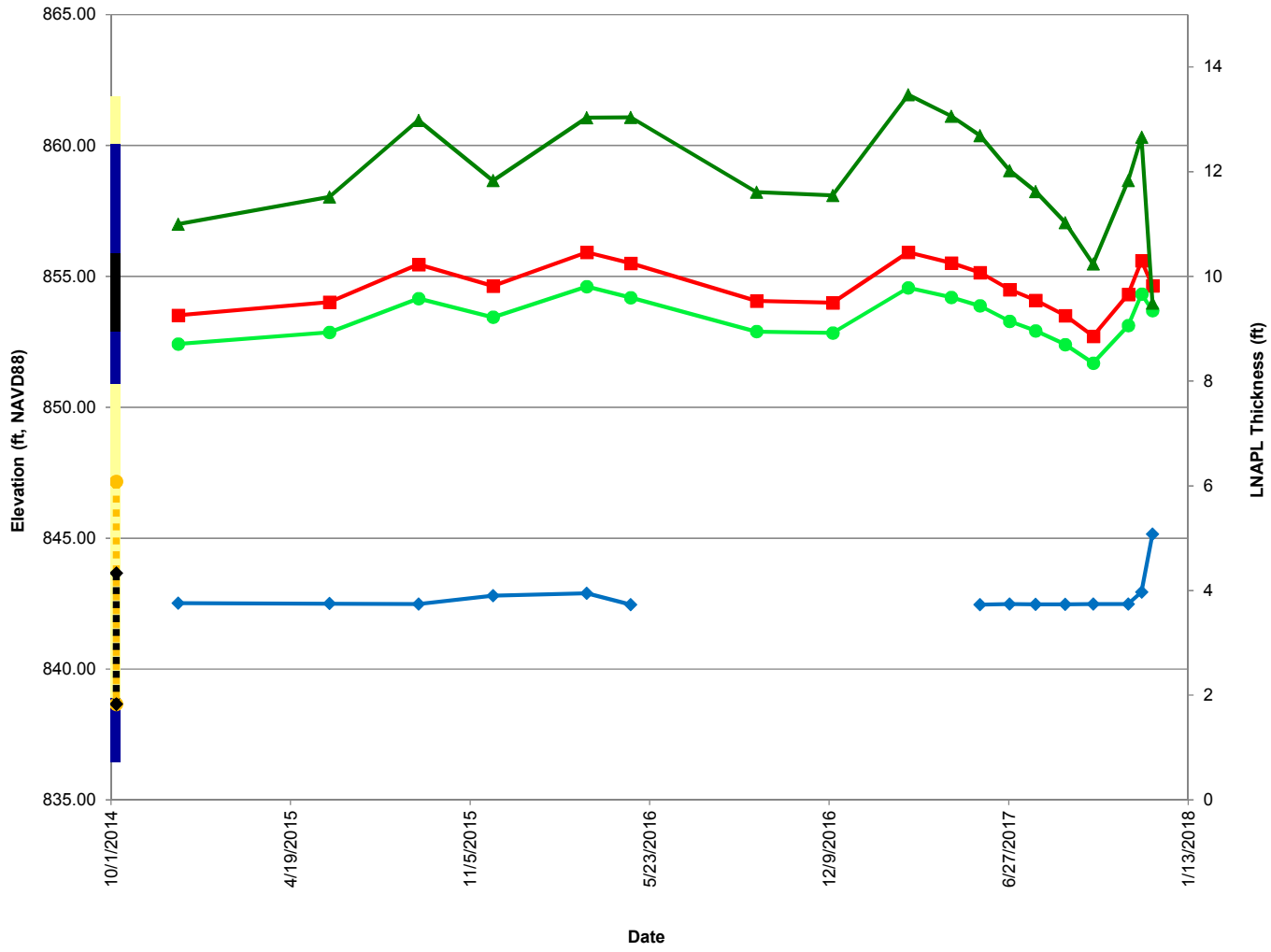


RACER Lansing
Lansing, MI

LMW-14-14D LNAPL HYDROGRAPH

ARCADIS

FIGURE
A

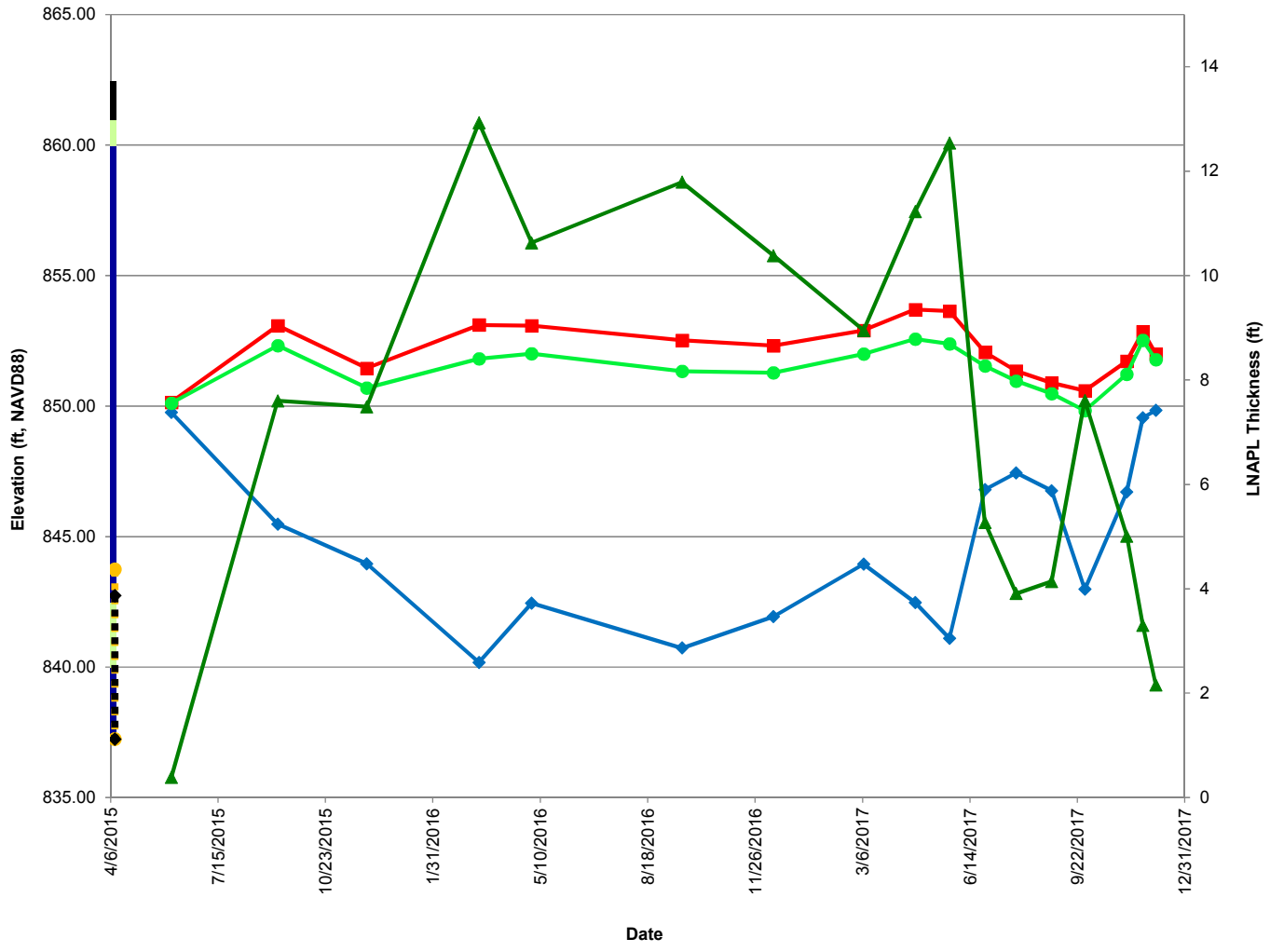


RACER Lansing
Lansing, MI

LMW-14-15D LNAPL HYDROGRAPH

ARCADIS

FIGURE
A



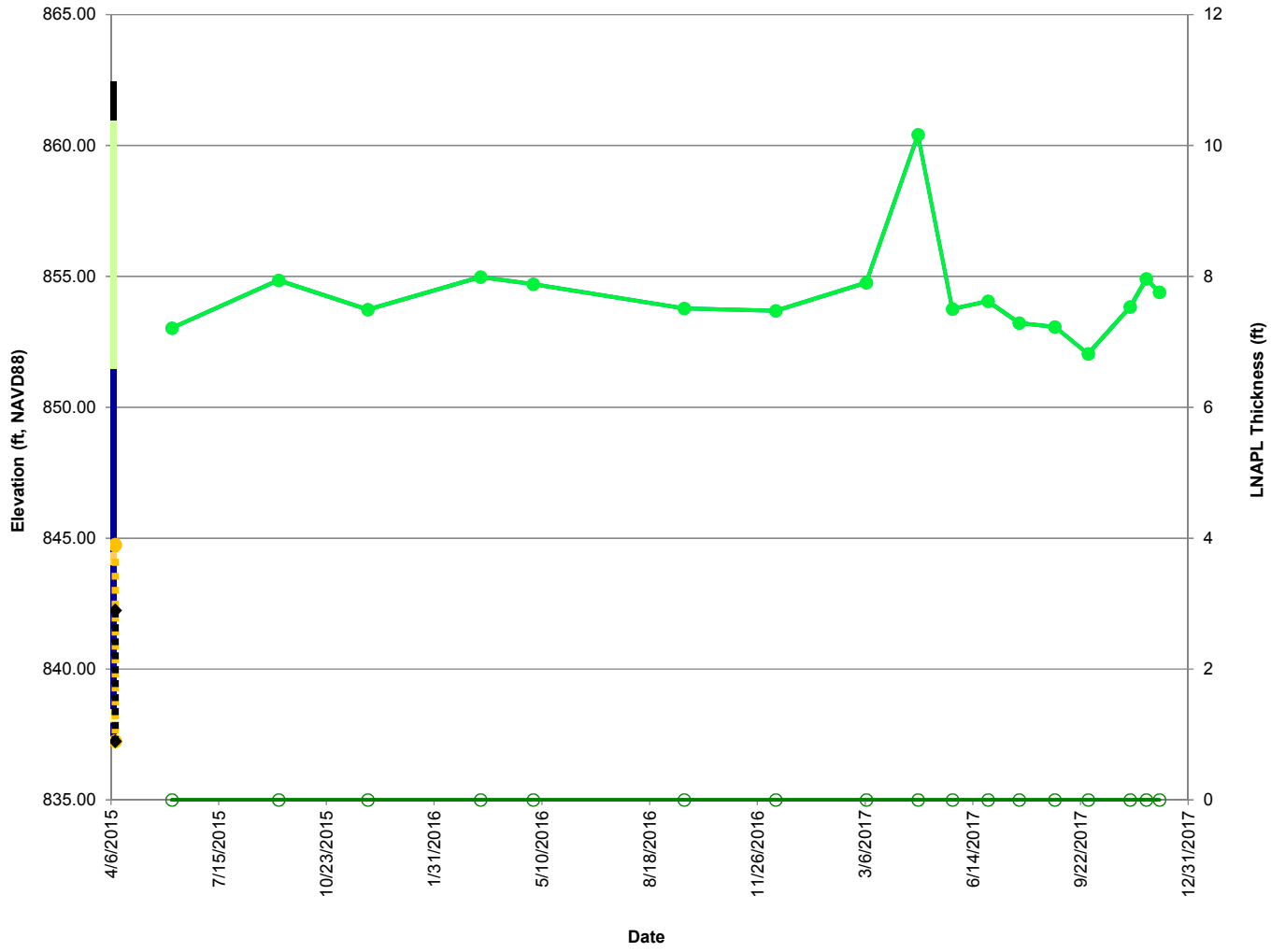
RACER Lansing
Lansing, MI

LMW-15-16D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



Air-NAPL Interface
NAPL-Water or Air-Water Interface
Potentiometric Surface
Concrete
Fine Sand
Clay
Medium Sand
Clay
Filter Pack
Screened Interval
NAPL Thickness

RACER Lansing
Lansing, MI

LMW-15-17D LNAPL HYDROGRAPH

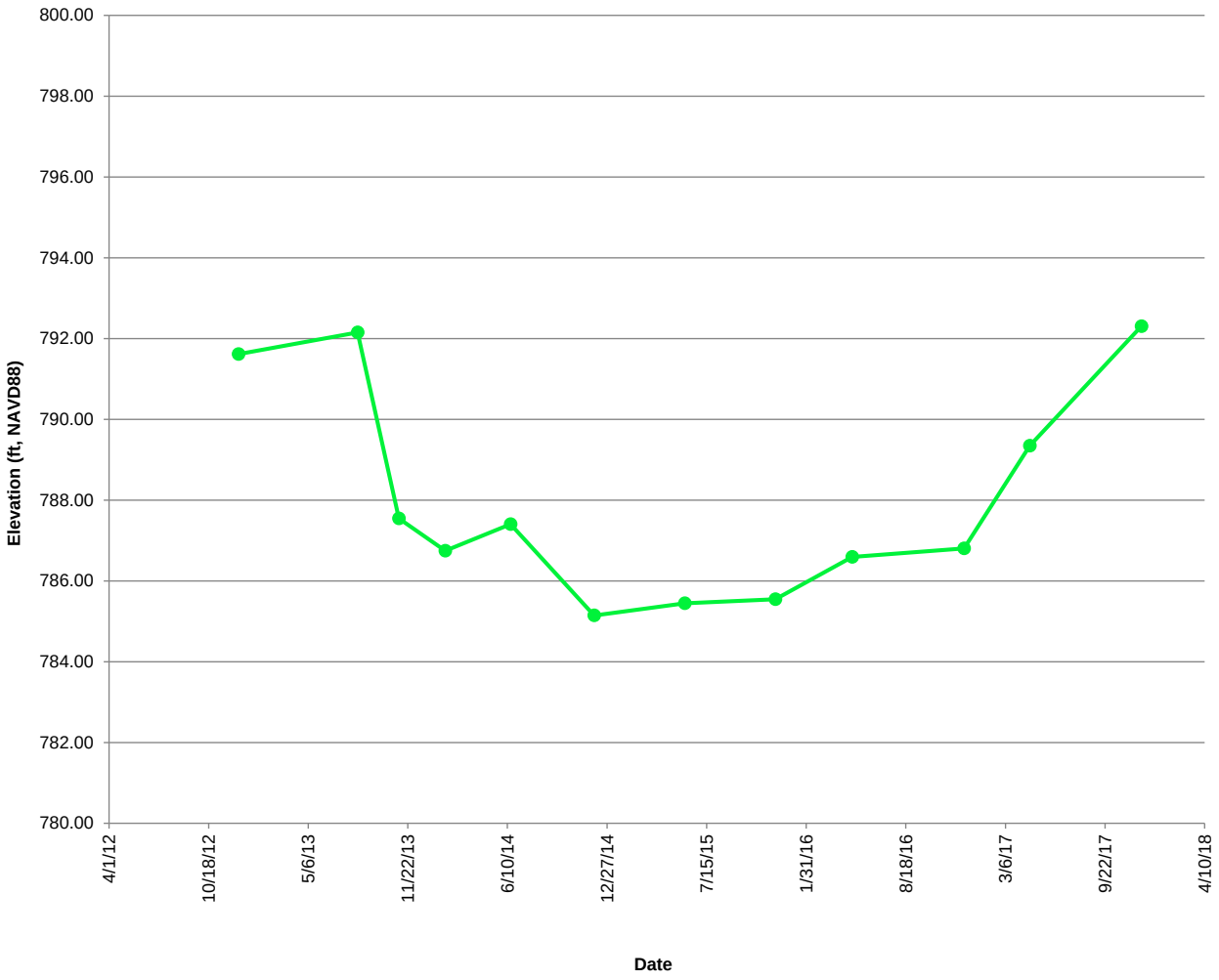
ARCADIS

FIGURE
A

APPENDIX H

Groundwater Elevation Trend Graphs

(On attached CD)

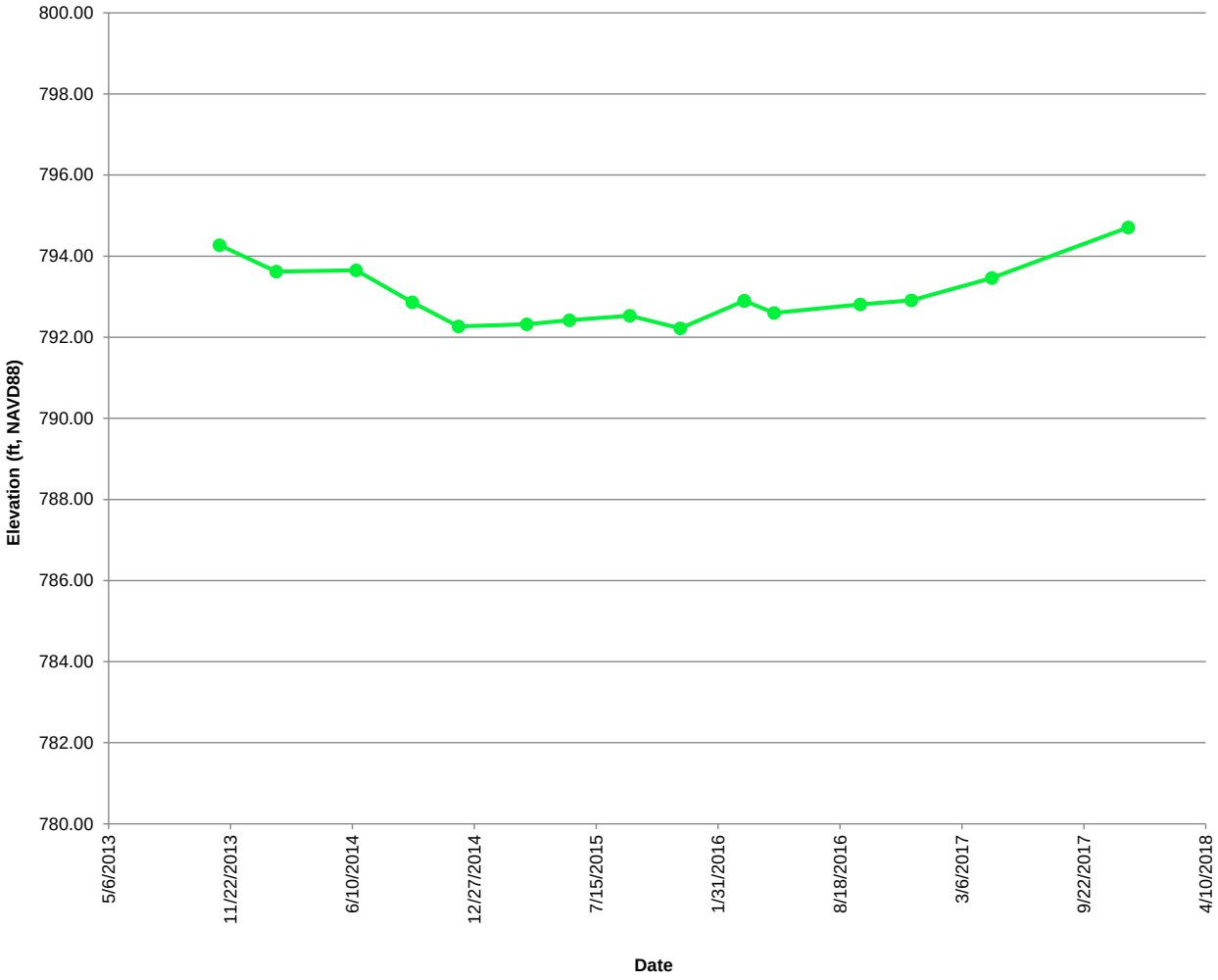


RACER Lansing Plant 2
Lansing, MI

MW-12-01 HYDROGRAPH
BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A



RACER Lansing Plant 2
Lansing, MI

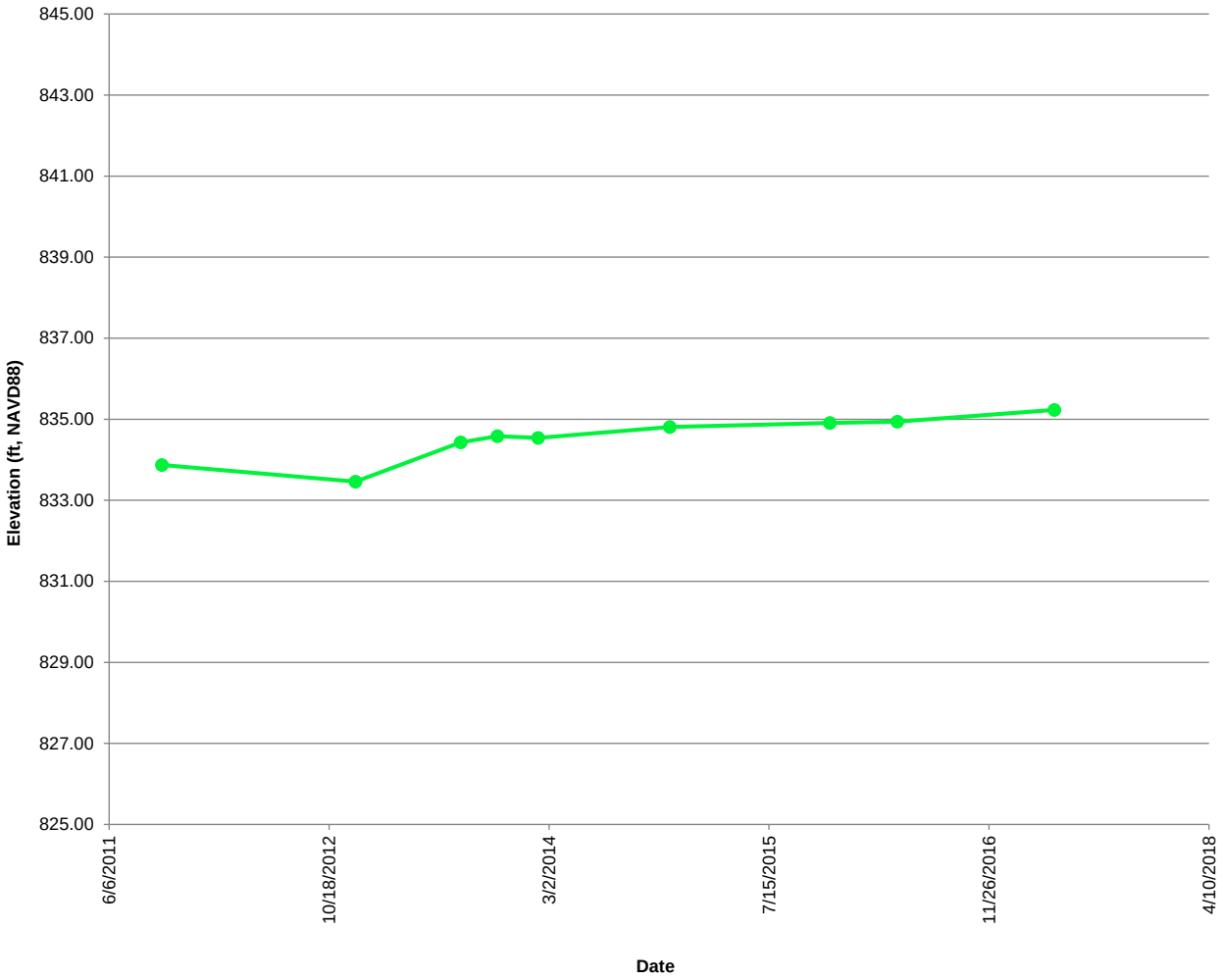
MW-13-43 HYDROGRAPH

DEEP OVERBURDEN/WEATHERED BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE

A

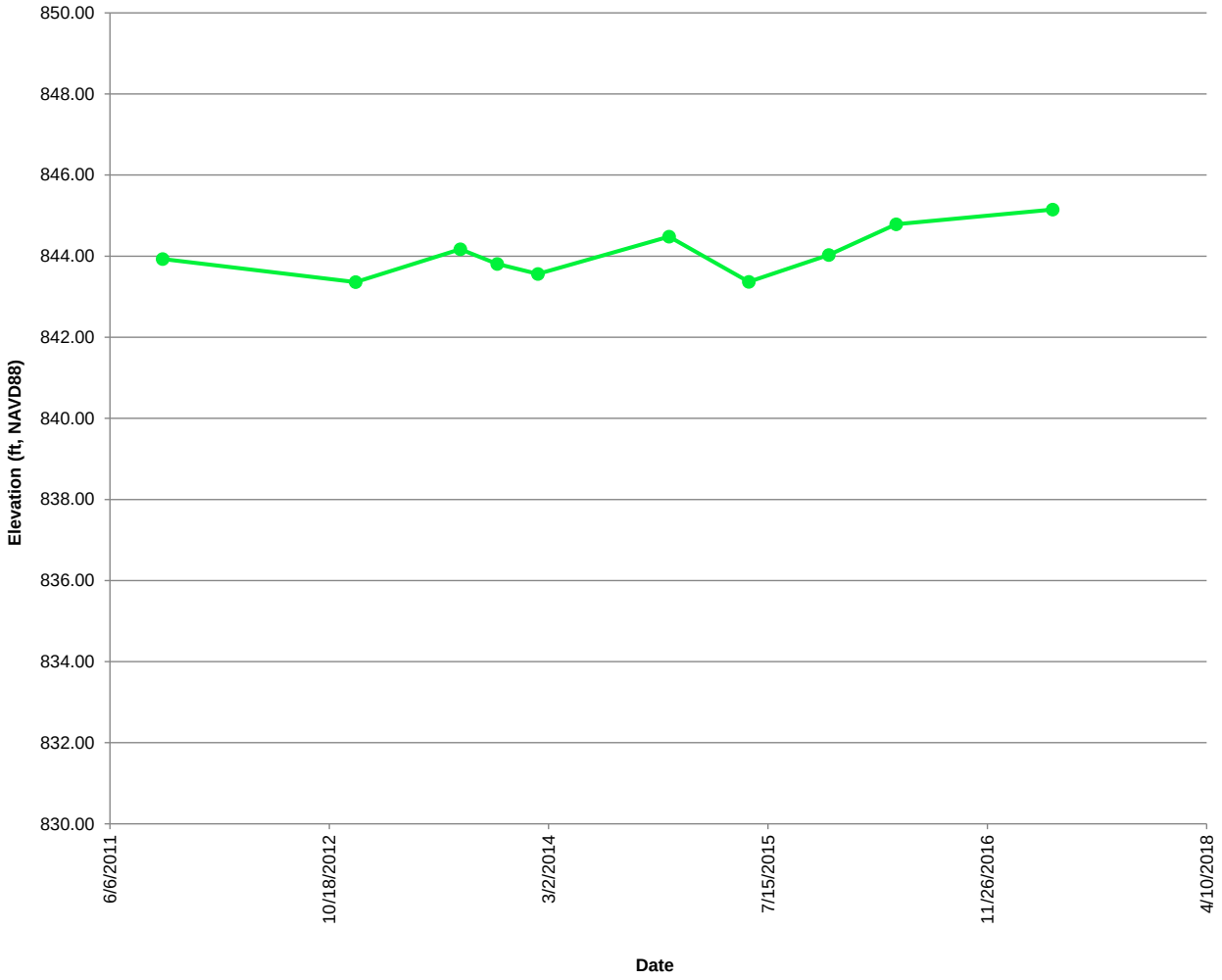


RACER Lansing Plant 2
Lansing, MI

P2-MW-02 HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

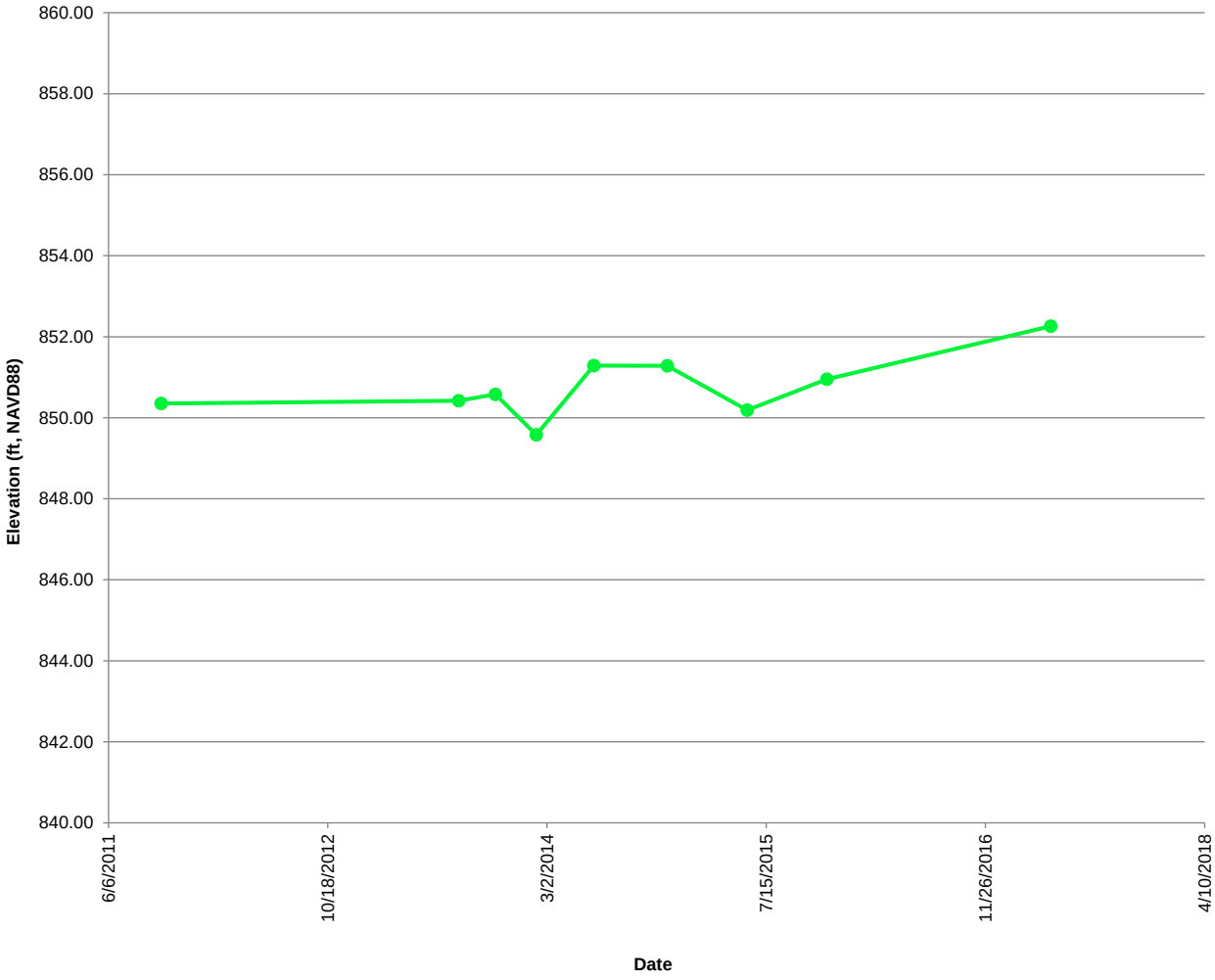


RACER Lansing Plant 2
Lansing, MI

P2-MW-03 HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

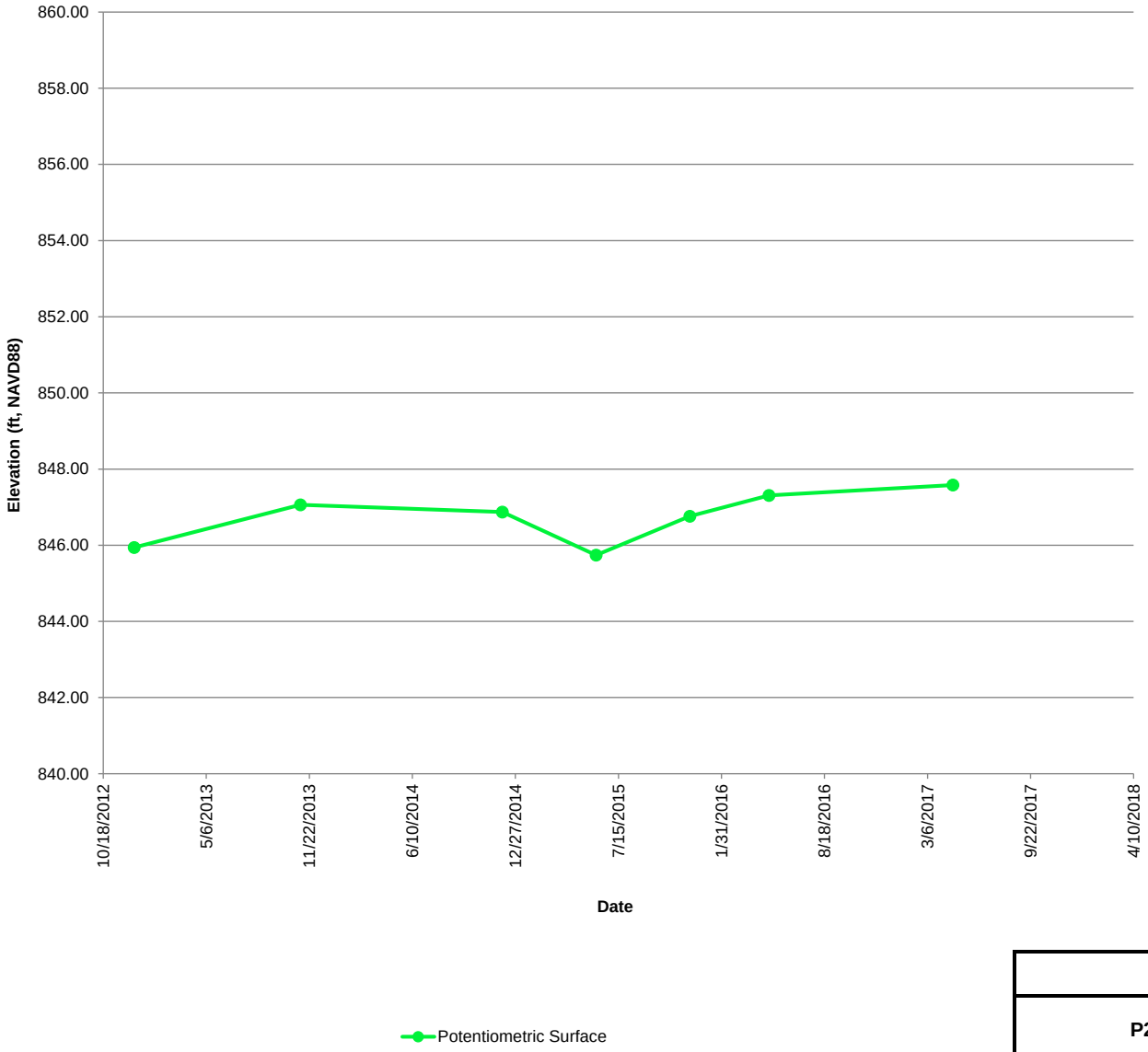


RACER Lansing Plant 2
Lansing, MI

P2-MW-04 HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

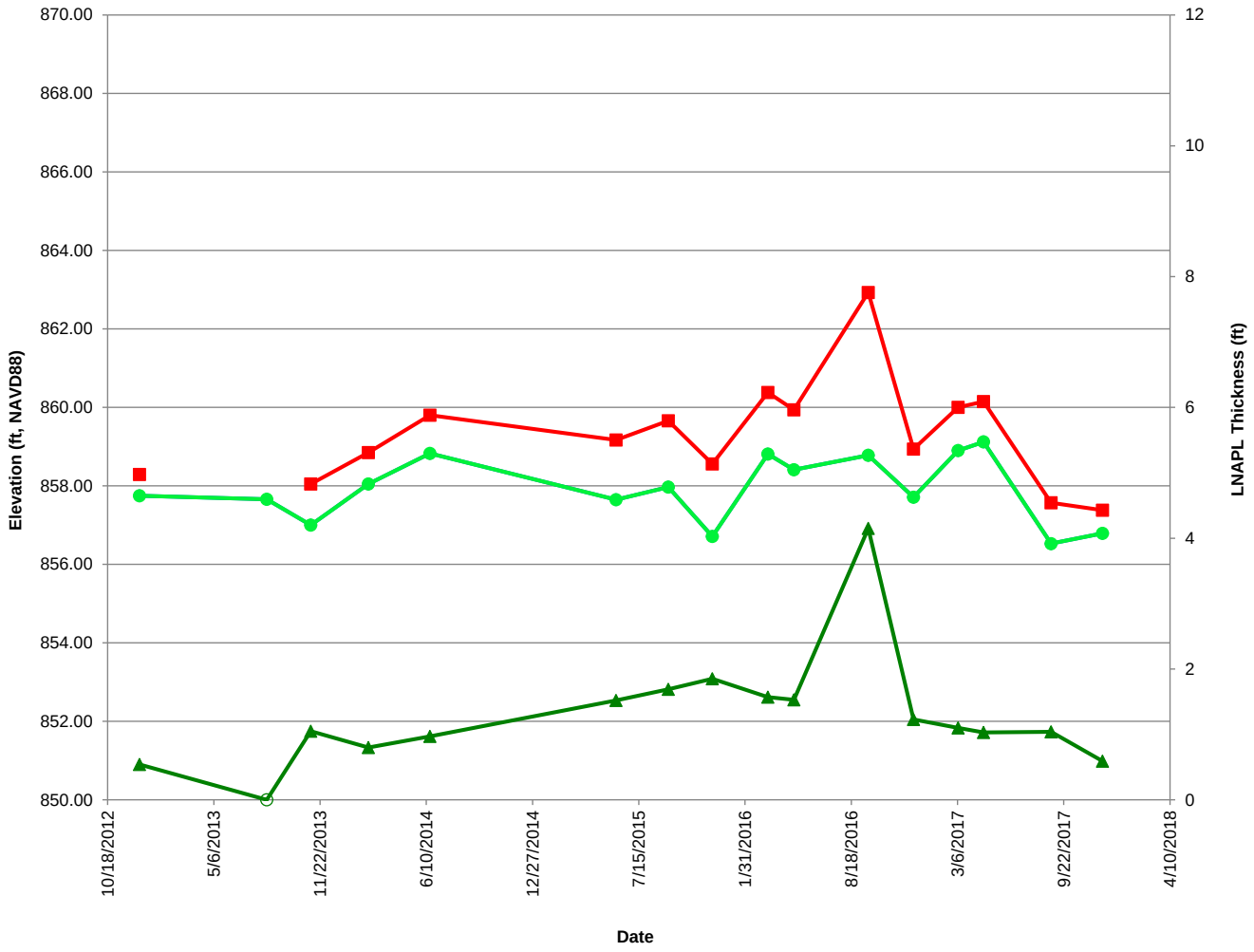


RACER Lansing Plant 2
Lansing, MI

P2-SB-06 HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

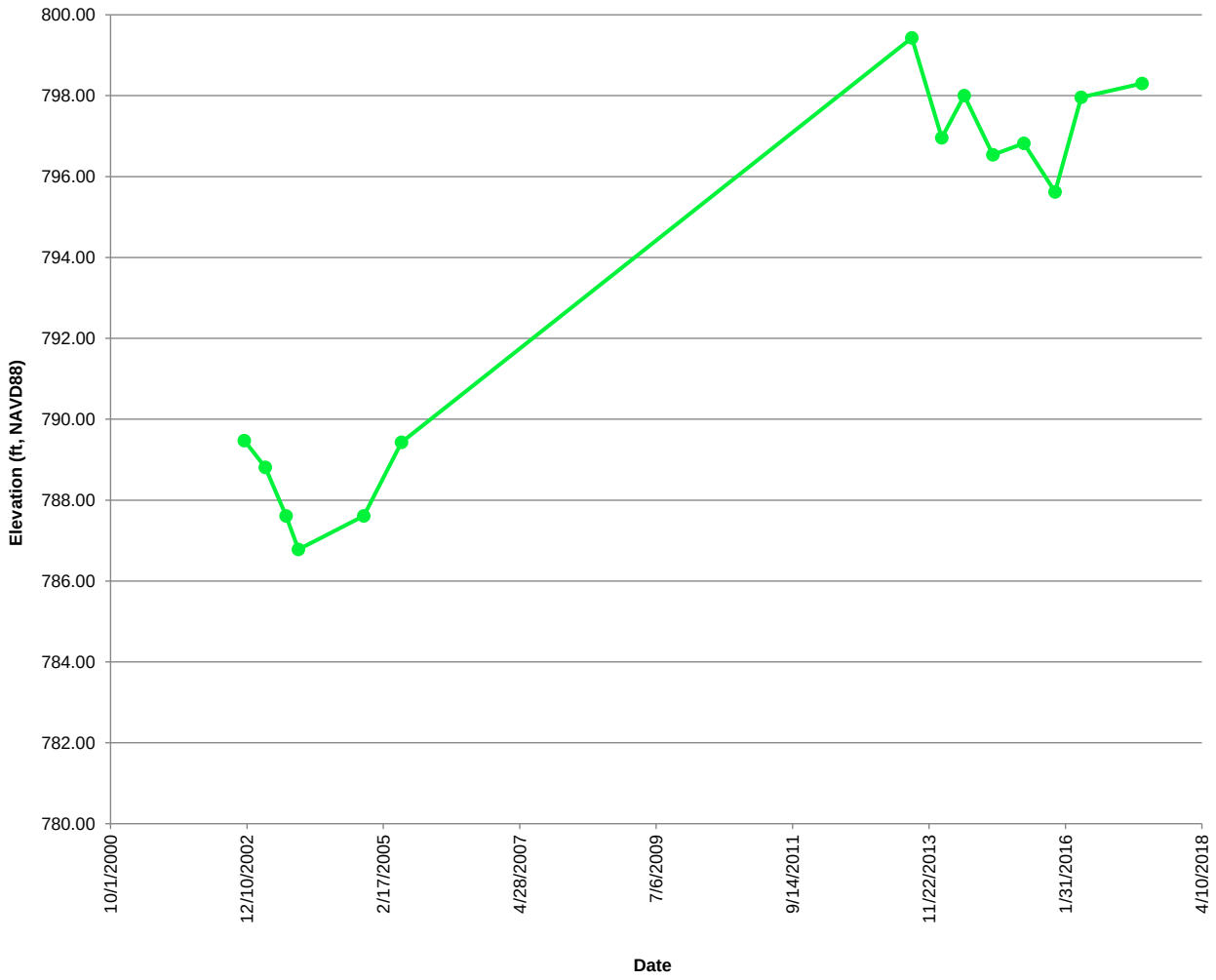


RACER Lansing Plant 2
Lansing, MI

P2-SB-37 LNAPL HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A



RACER Lansing Plant 3
Lansing, MI

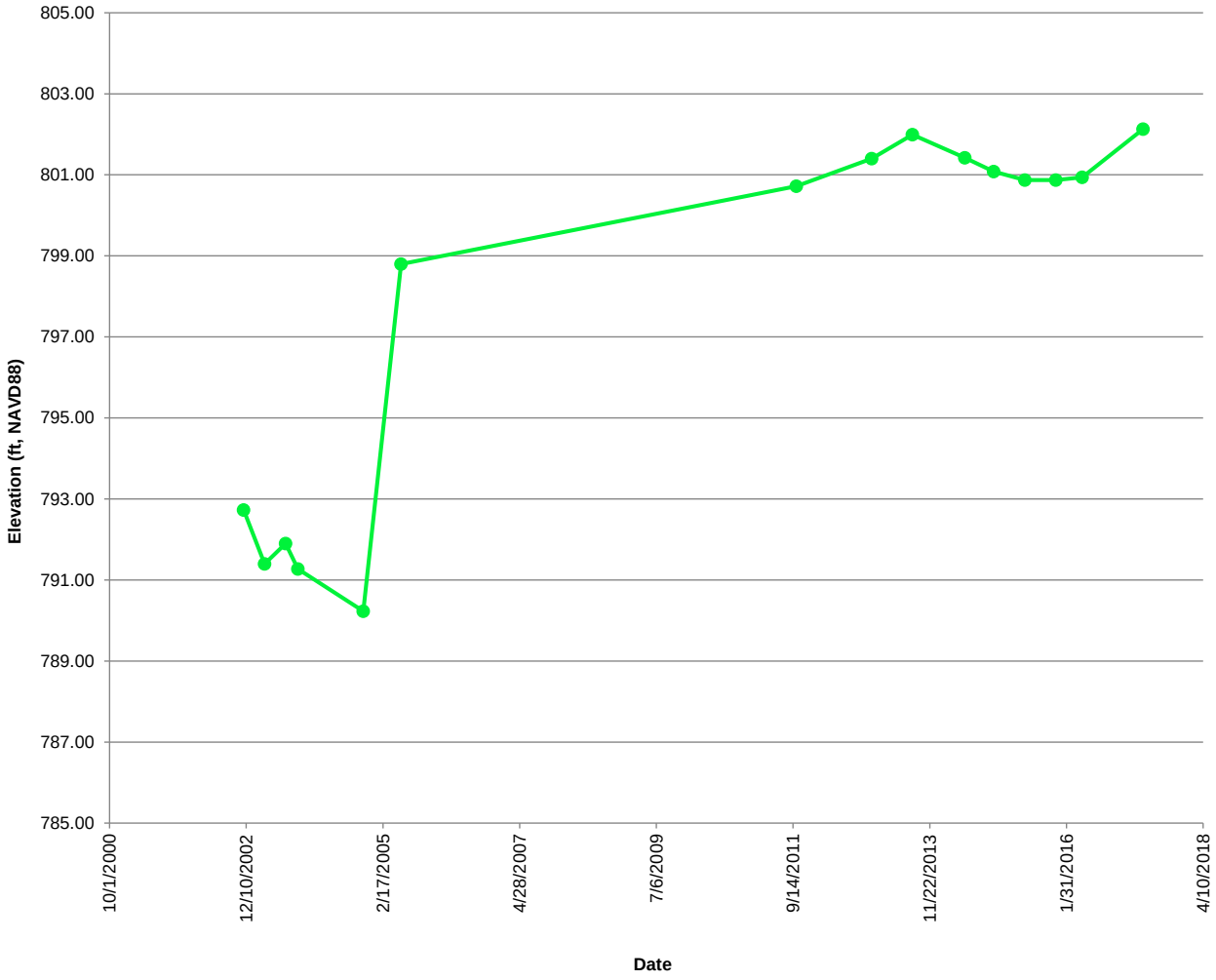
MW-02-04(3) HYDROGRAPH

DEEP OVERBURDEN/WEATHERED BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE

A



RACER Lansing Plant 3
Lansing, MI

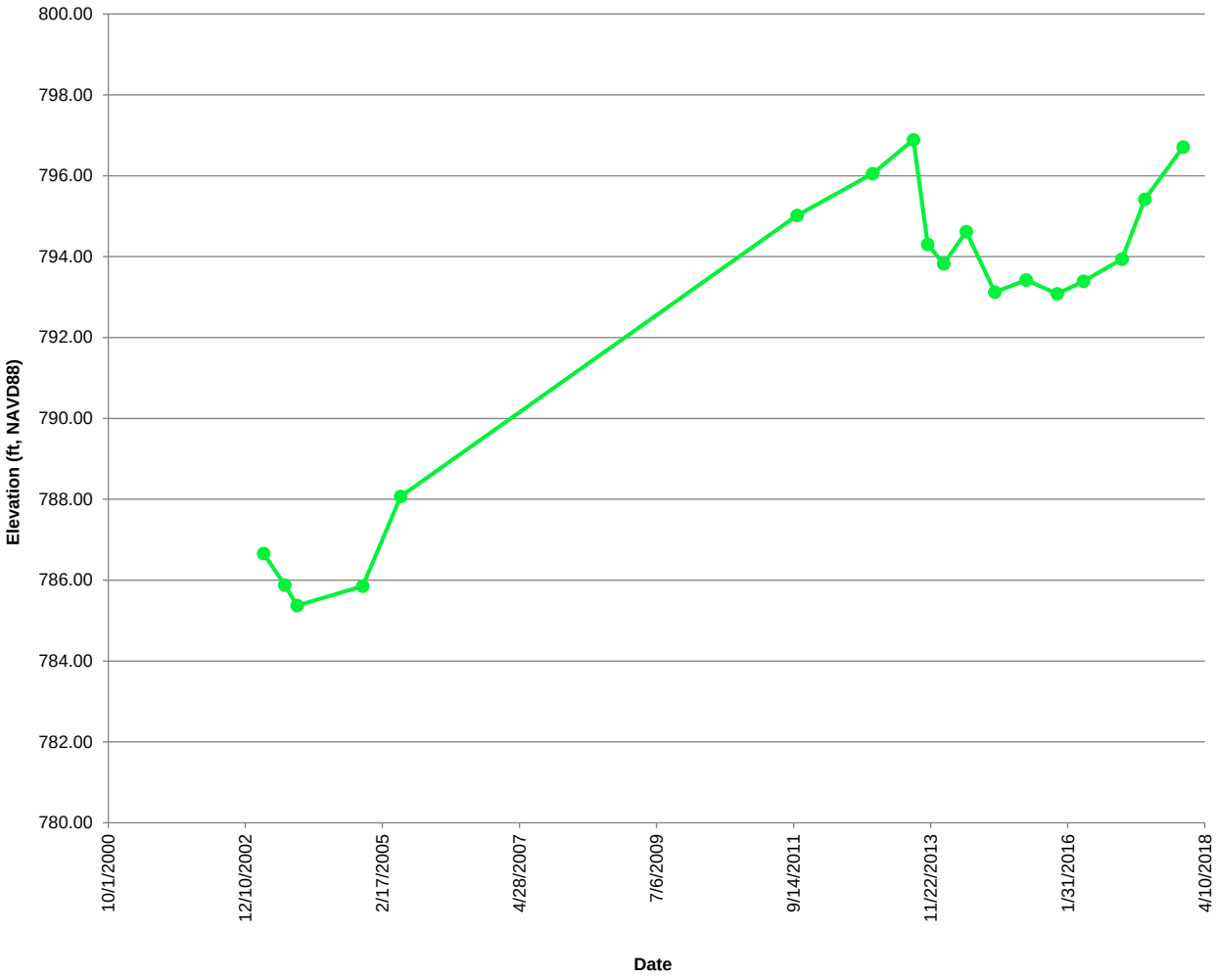
MW-91-2 HYDROGRAPH

BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE

A

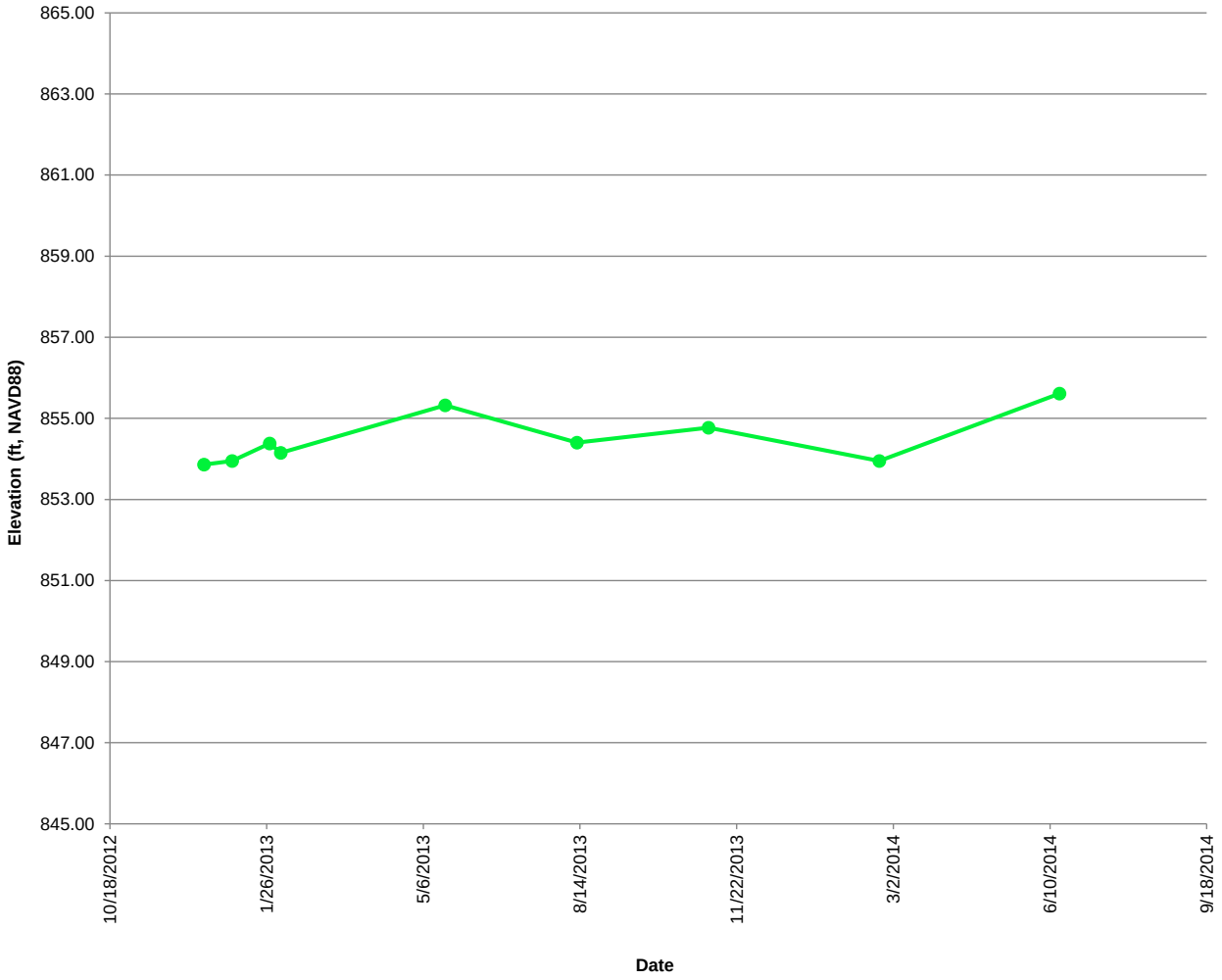


RACER Lansing Plant 3
Lansing, MI

MW-91-5 HYDROGRAPH
BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

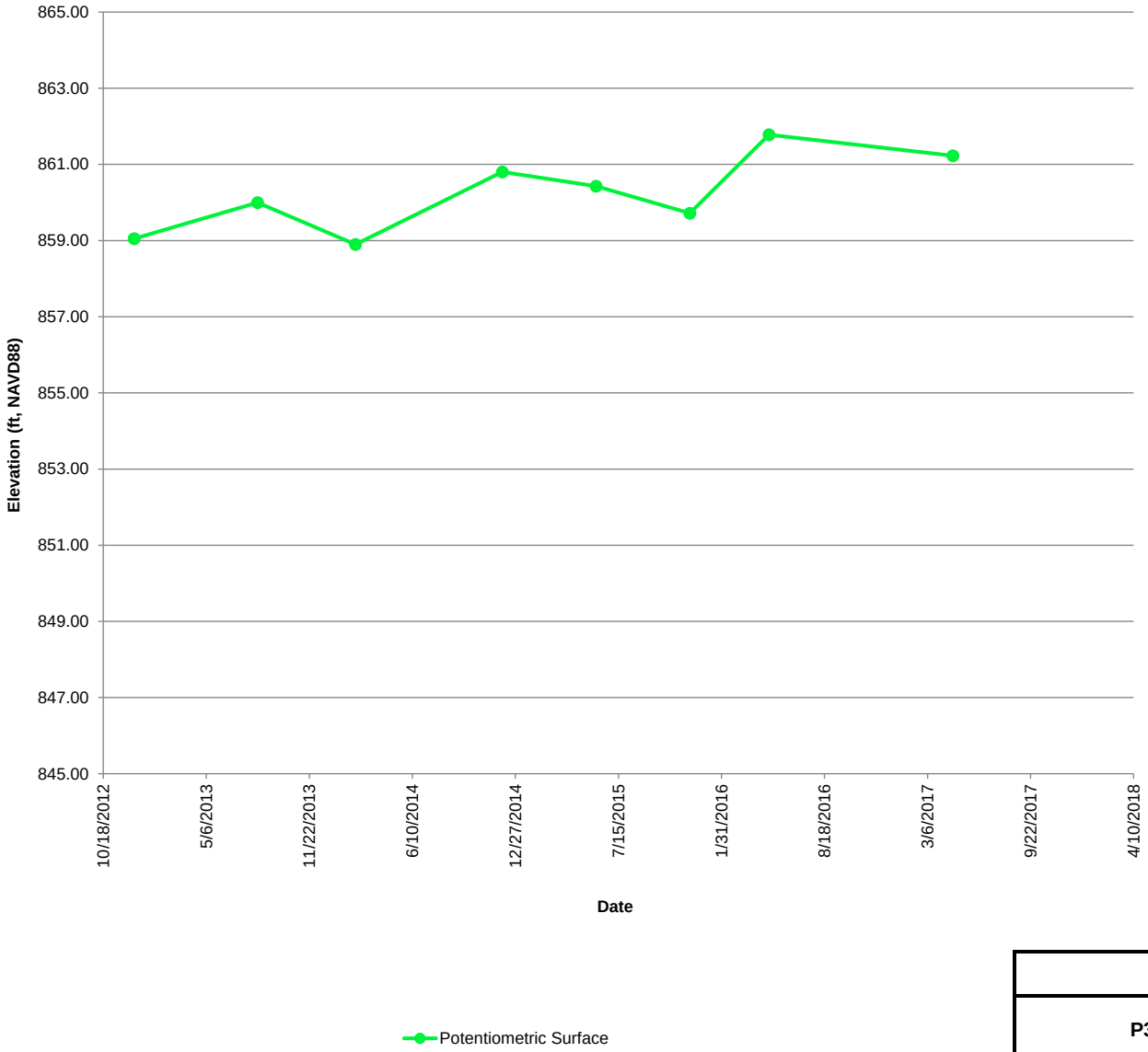


RACER Lansing Plant 3
Lansing, MI

MW-93-1 HYDROGRAPH
BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

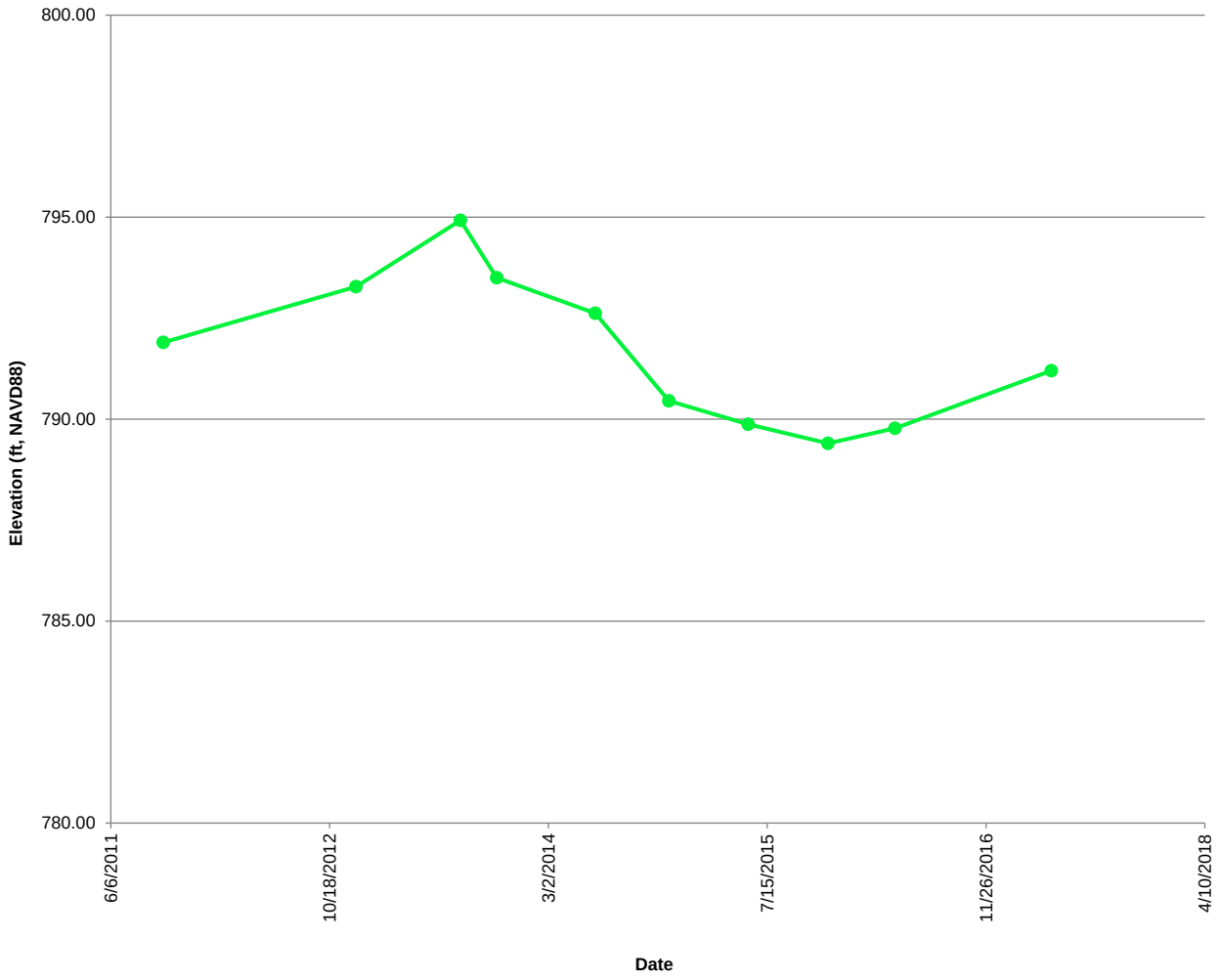


RACER Lansing Plant 3
Lansing, MI

P3-SB-28 HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

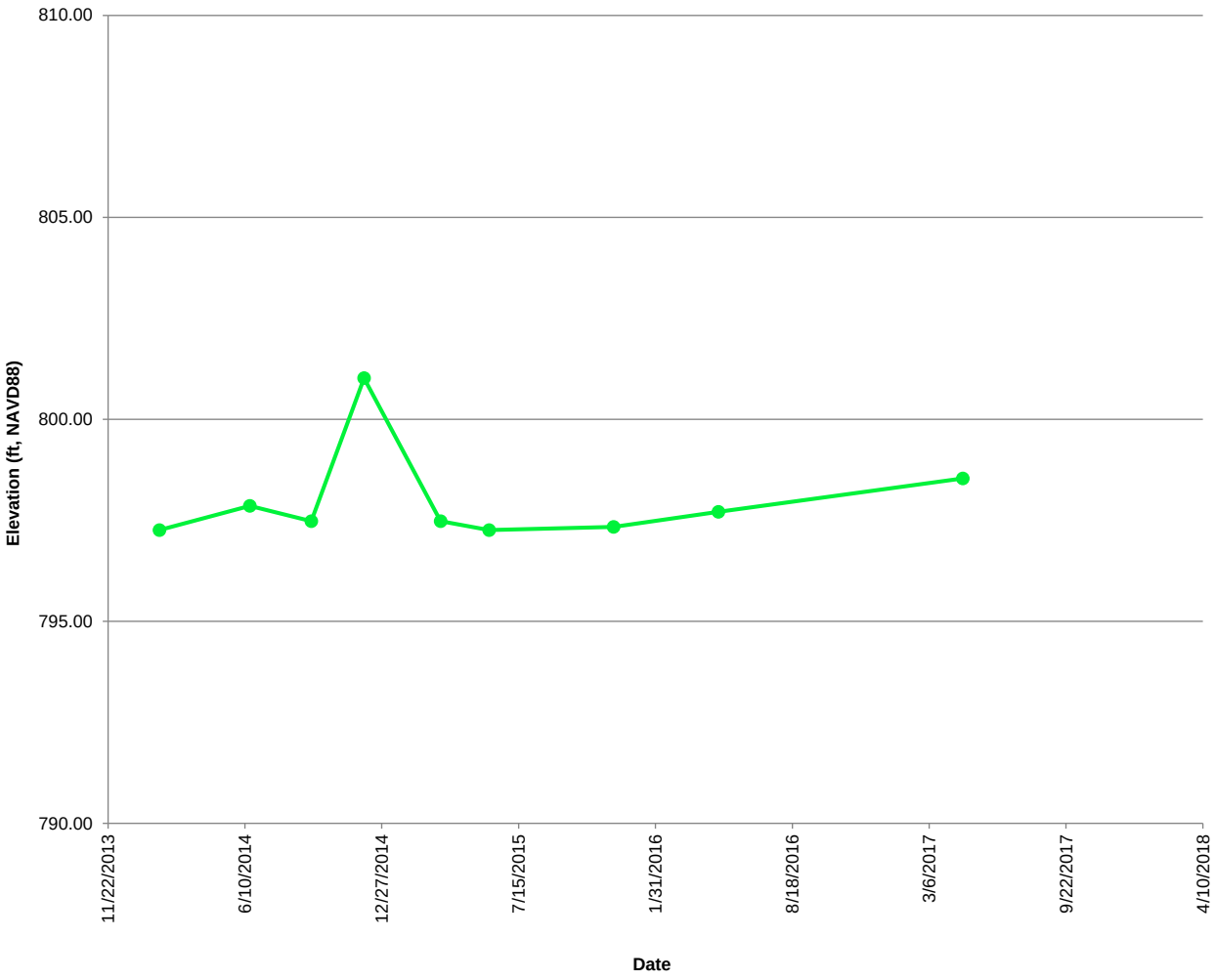


RACER Lansing Plant 6
Lansing, MI

MW-04-01(6) HYDROGRAPH
BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A



RACER Lansing Plant 6
Lansing, MI

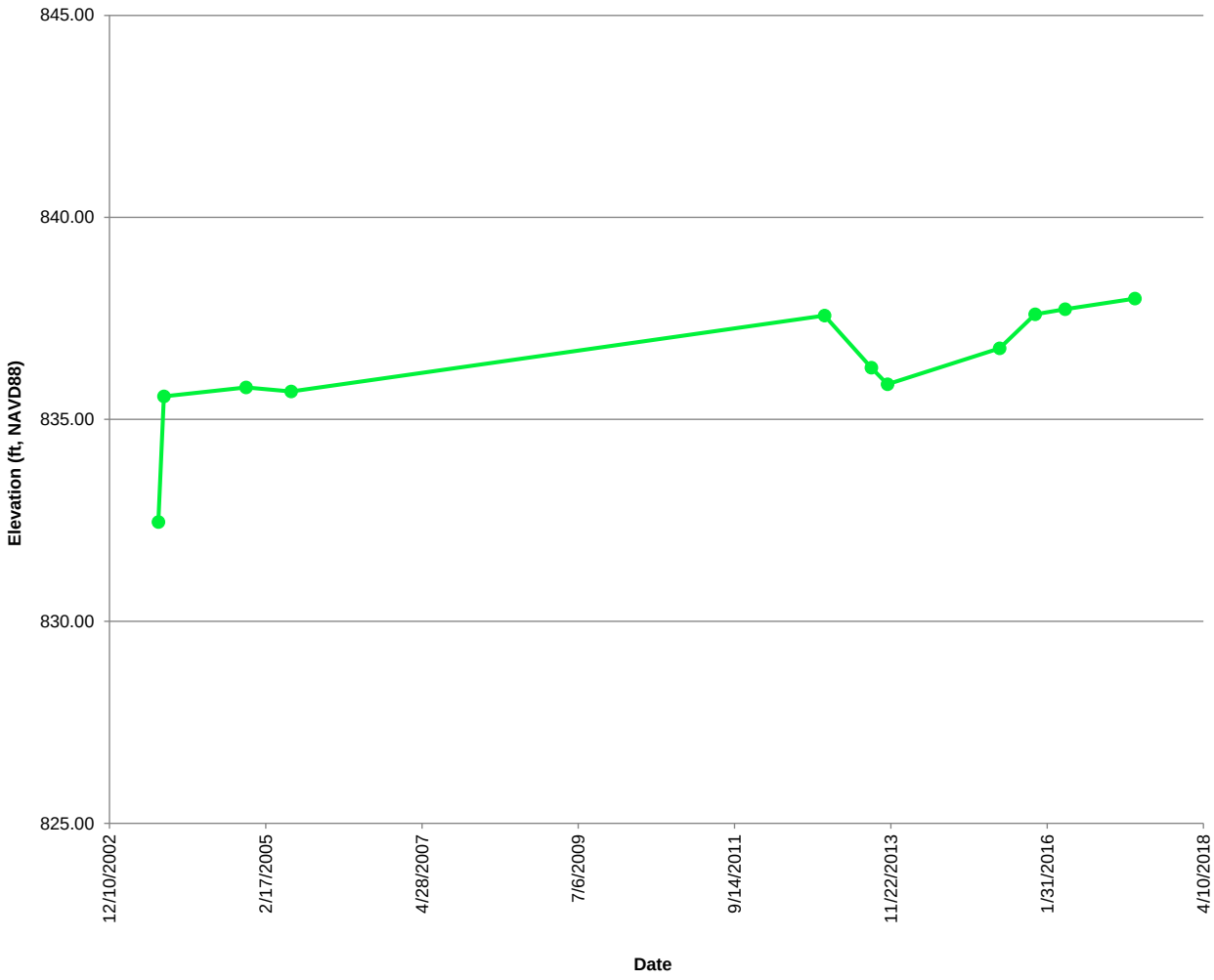
MW-13-53 HYDROGRAPH

DEEP OVERBURDEN/WEATHERED BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE

A

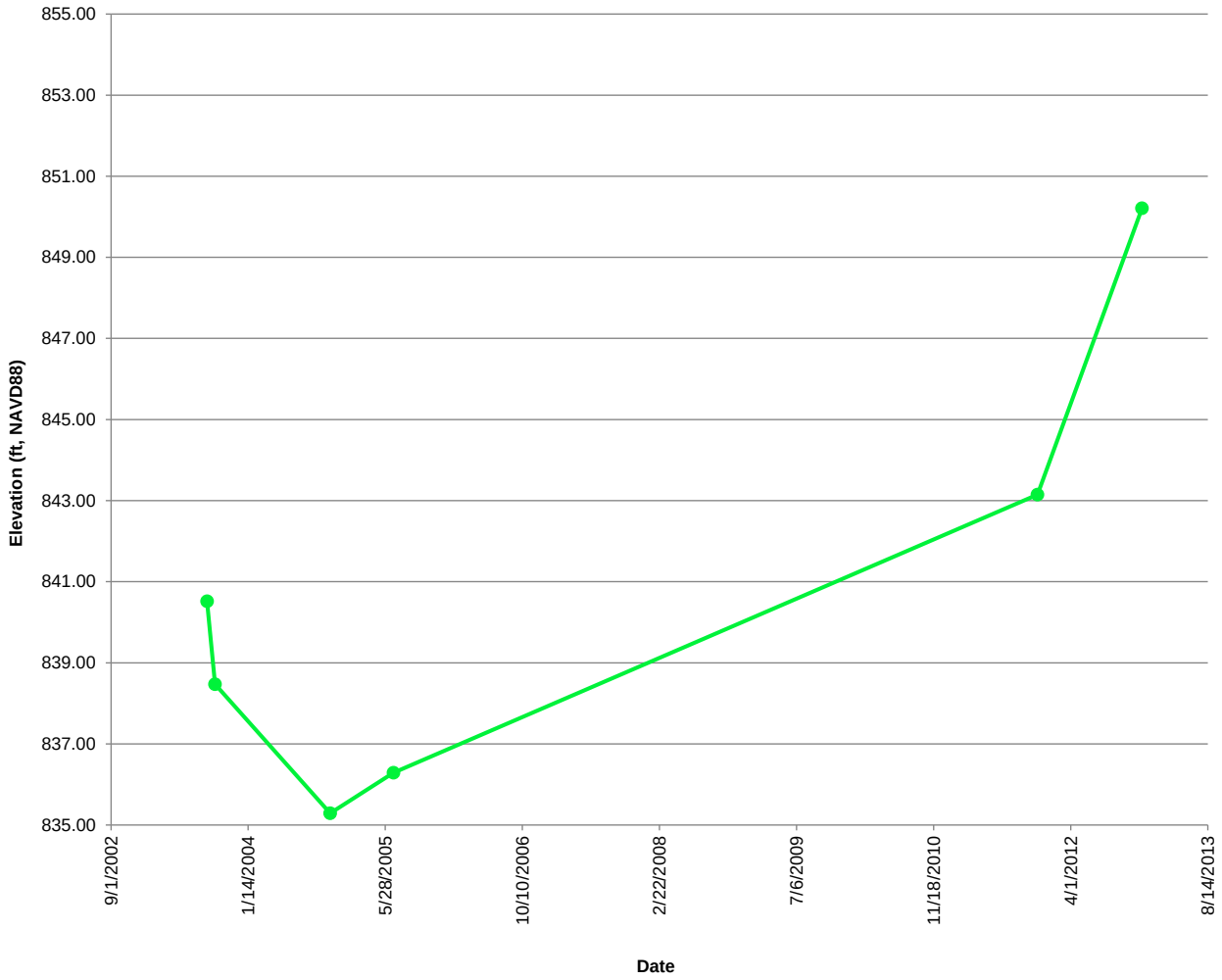


RACER Lansing Plant 6
Lansing, MI

MW-02-01(6) HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

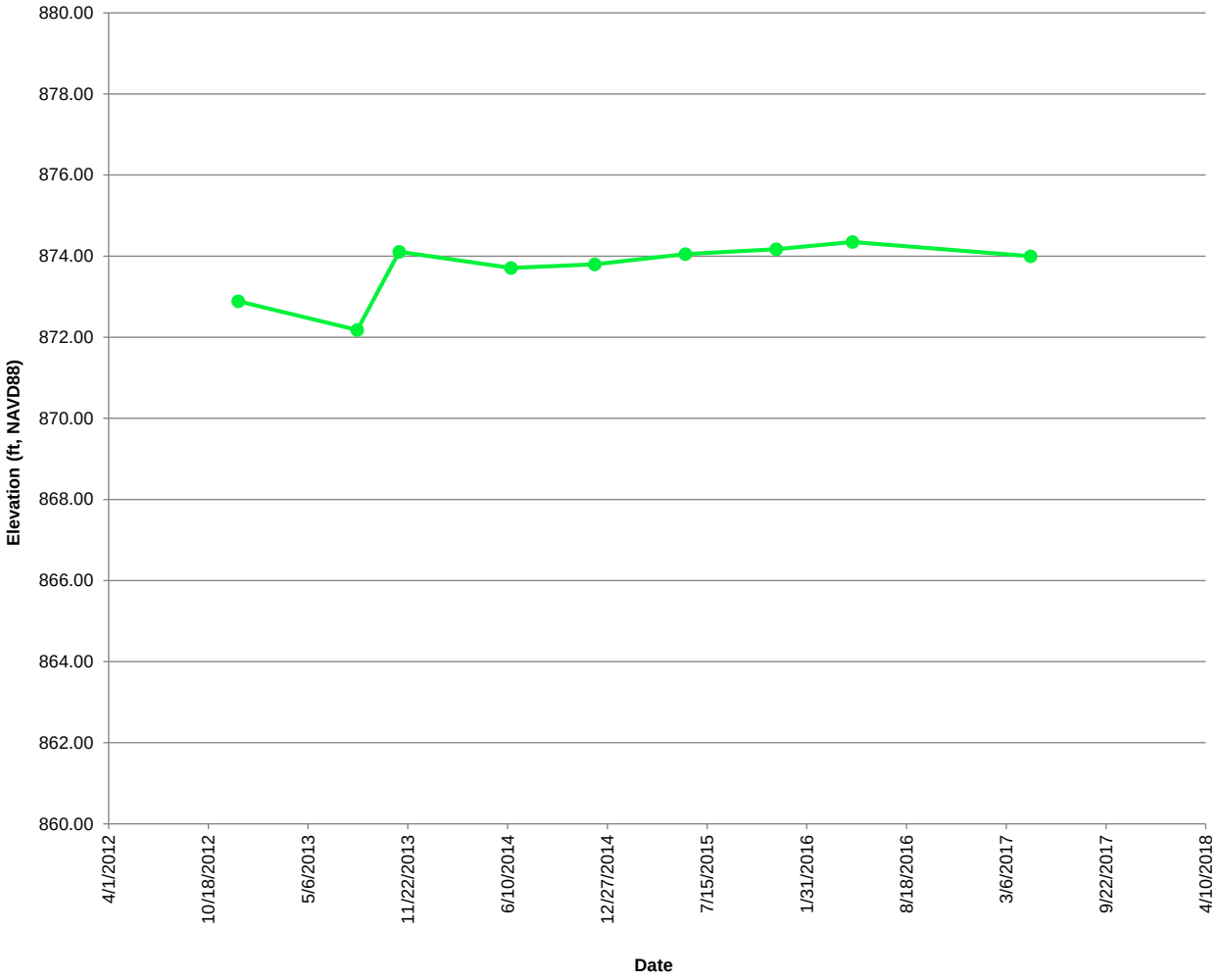


RACER Lansing Plant 6
Lansing, MI

MW-03-05 HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

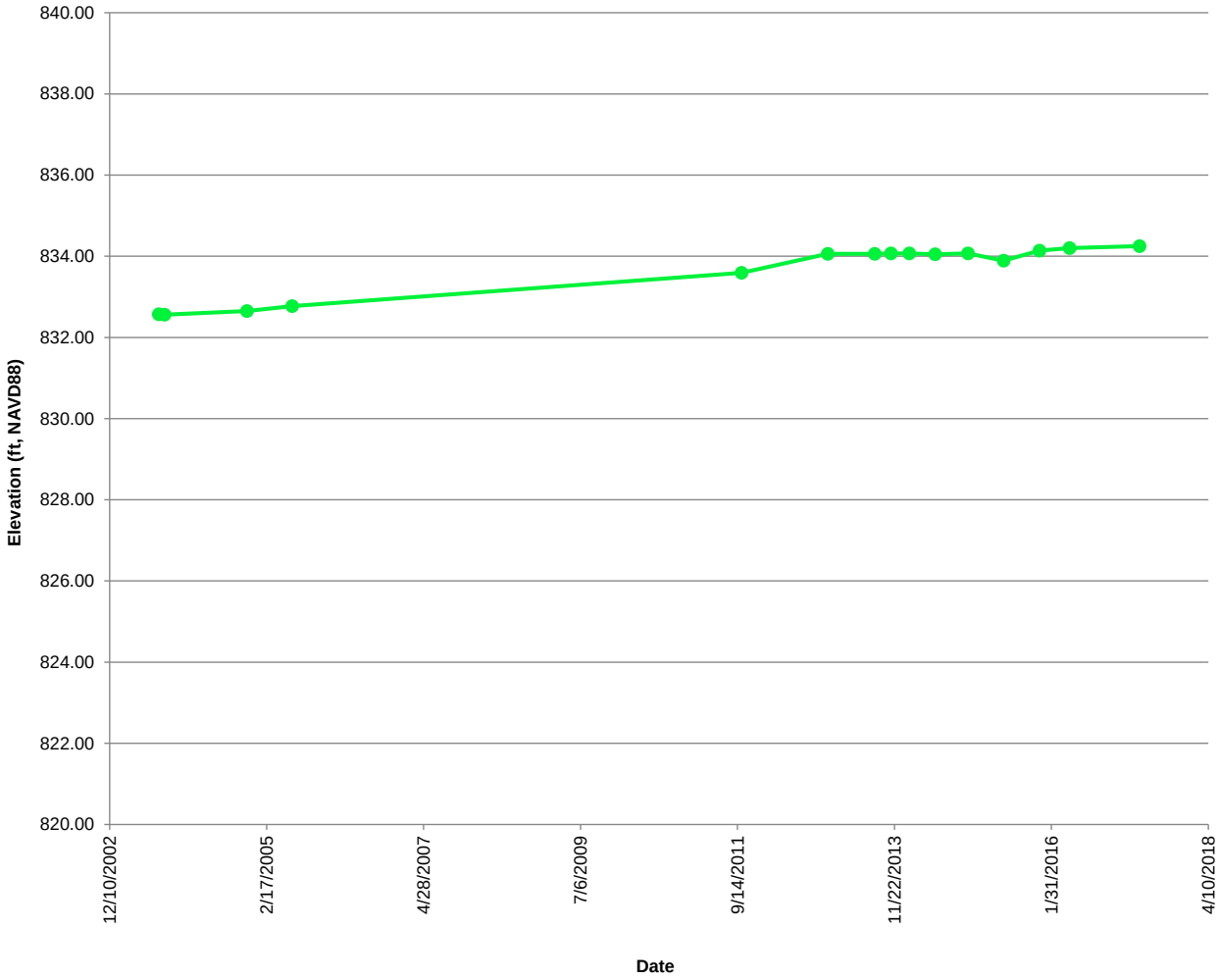


RACER Lansing Plant 6
Lansing, MI

P6-SB-18 HYDROGRAPH
PERCHED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A



RACER Lansing Plant 6
Lansing, MI

MW-03-06 HYDROGRAPH
PERCHED

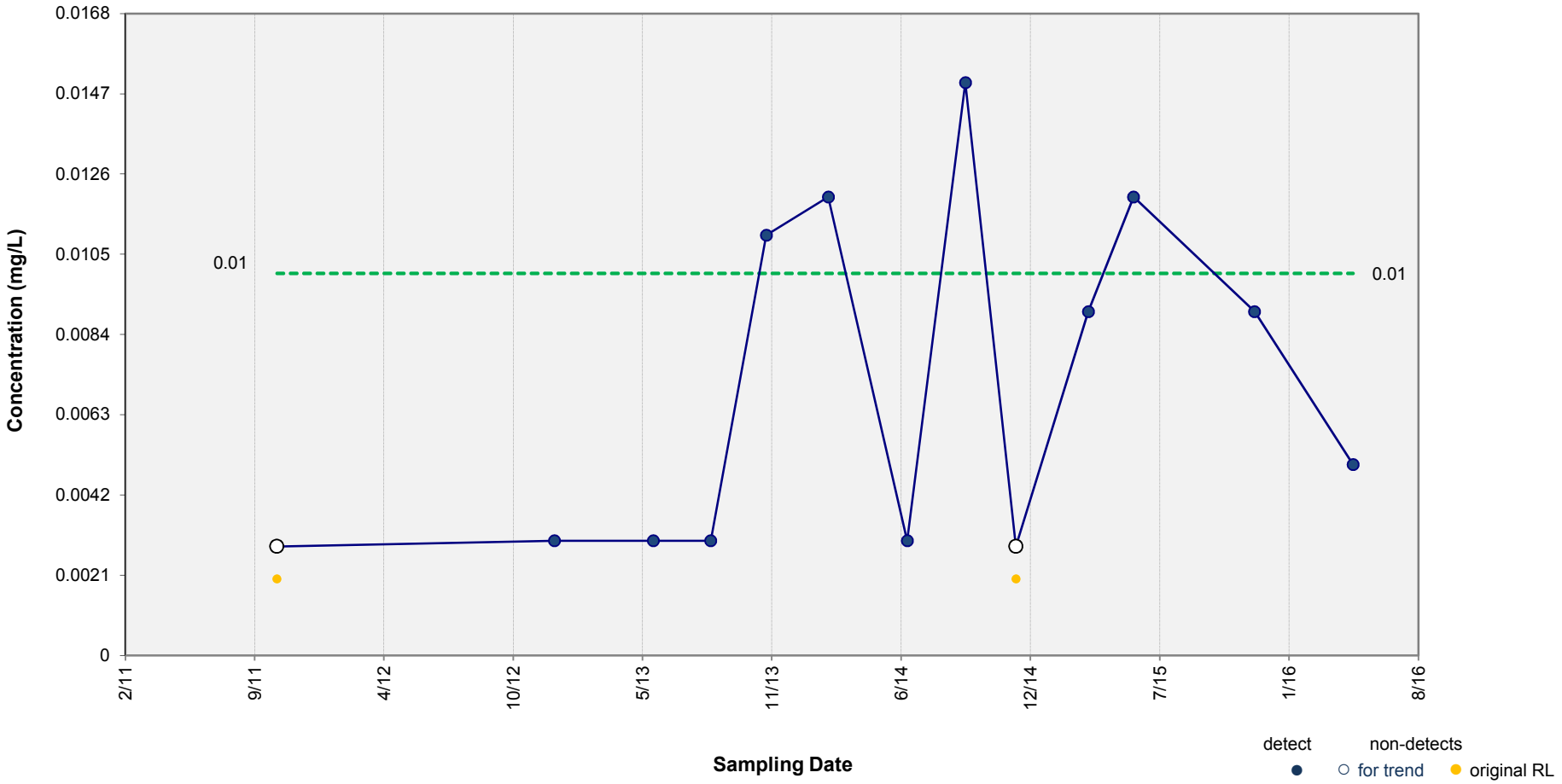
ARCADIS Design & Consultancy for natural and built assets

FIGURE
A

APPENDIX I

Concentration vs. Time Plots

(on attached CD)



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0850 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.80E-03 mg/L per day

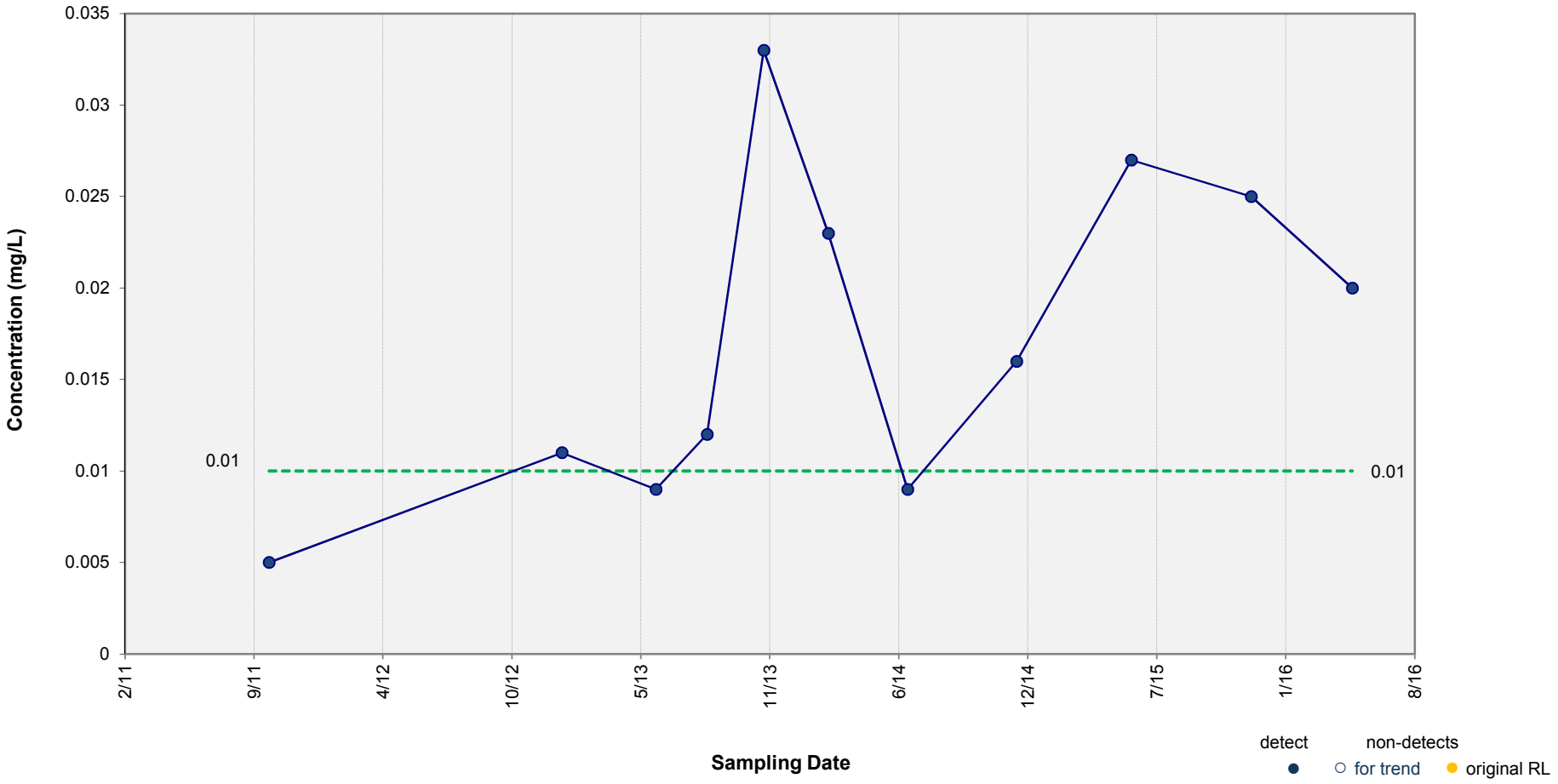
Confidence Interval on the Slope= 0.0E+00 to 1.0E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-03(2), Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0362 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 9.49E-03 mg/L per day

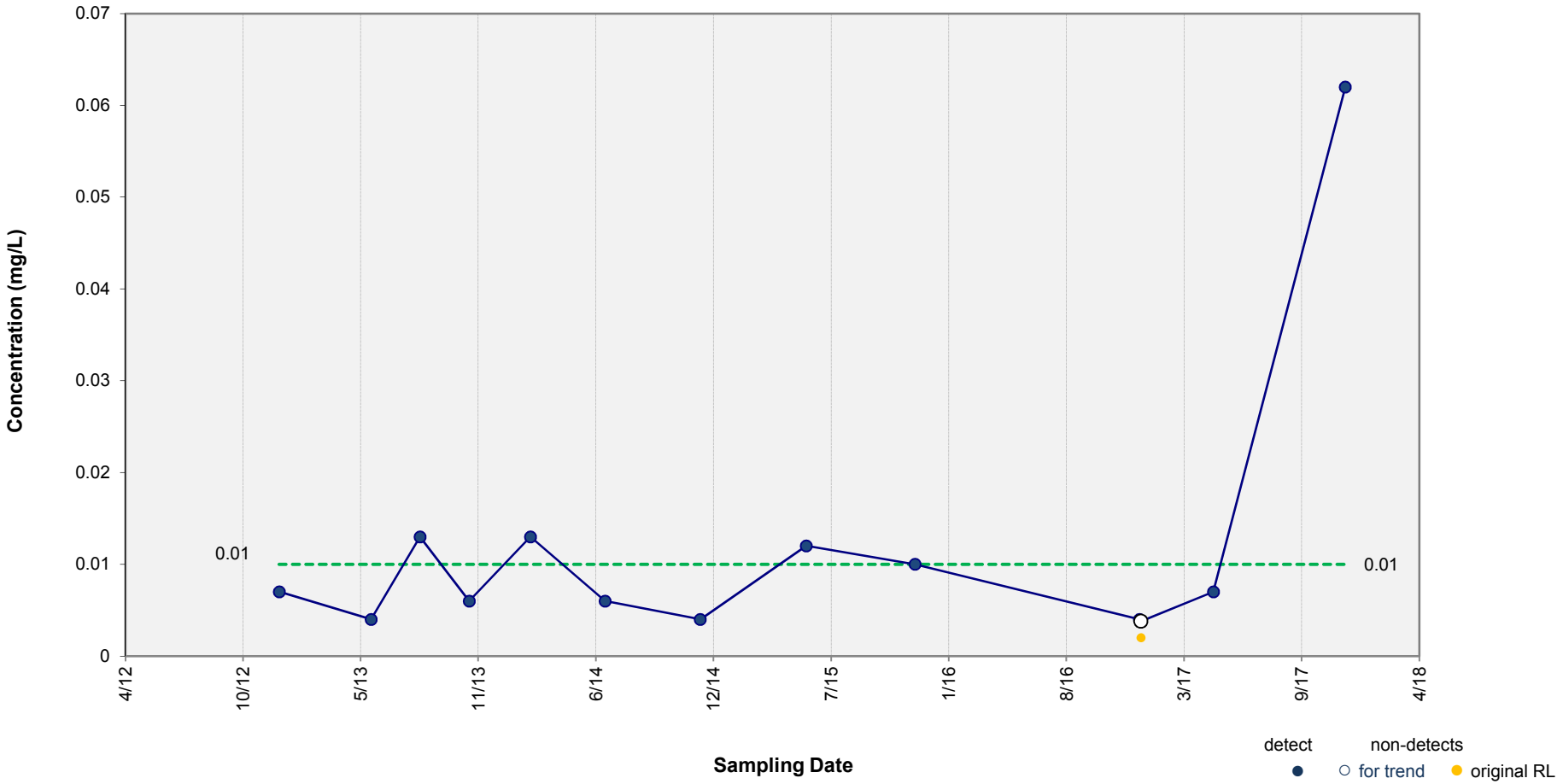
Confidence Interval on the Slope= 3.0E-03 to 1.7E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-03-06, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.4754 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 0.00E+00 mg/L per day

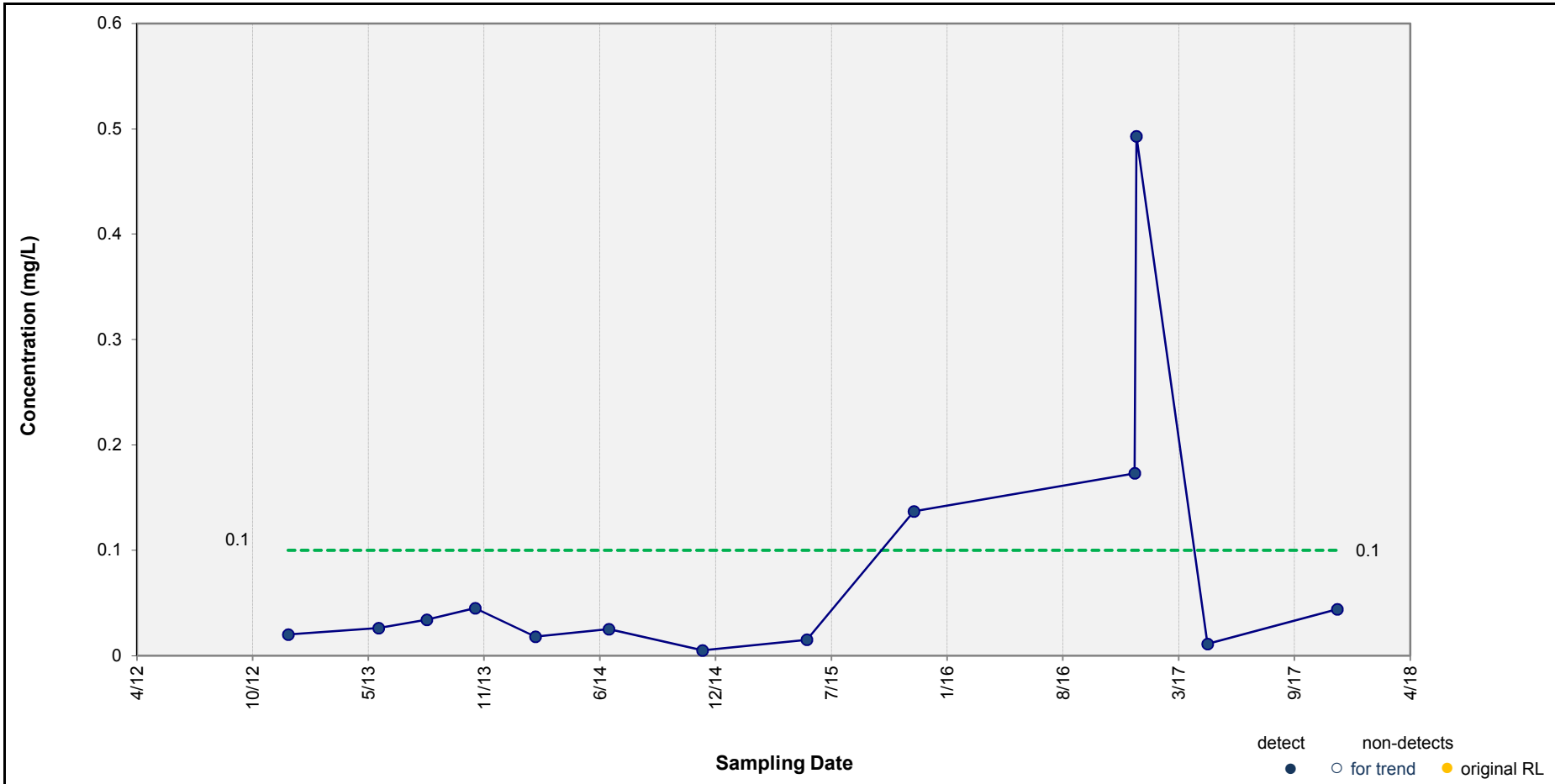
Confidence Interval on the Slope= -3.2E-03 to 6.8E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-12-11, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.2511 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.69E-02 mg/L per day

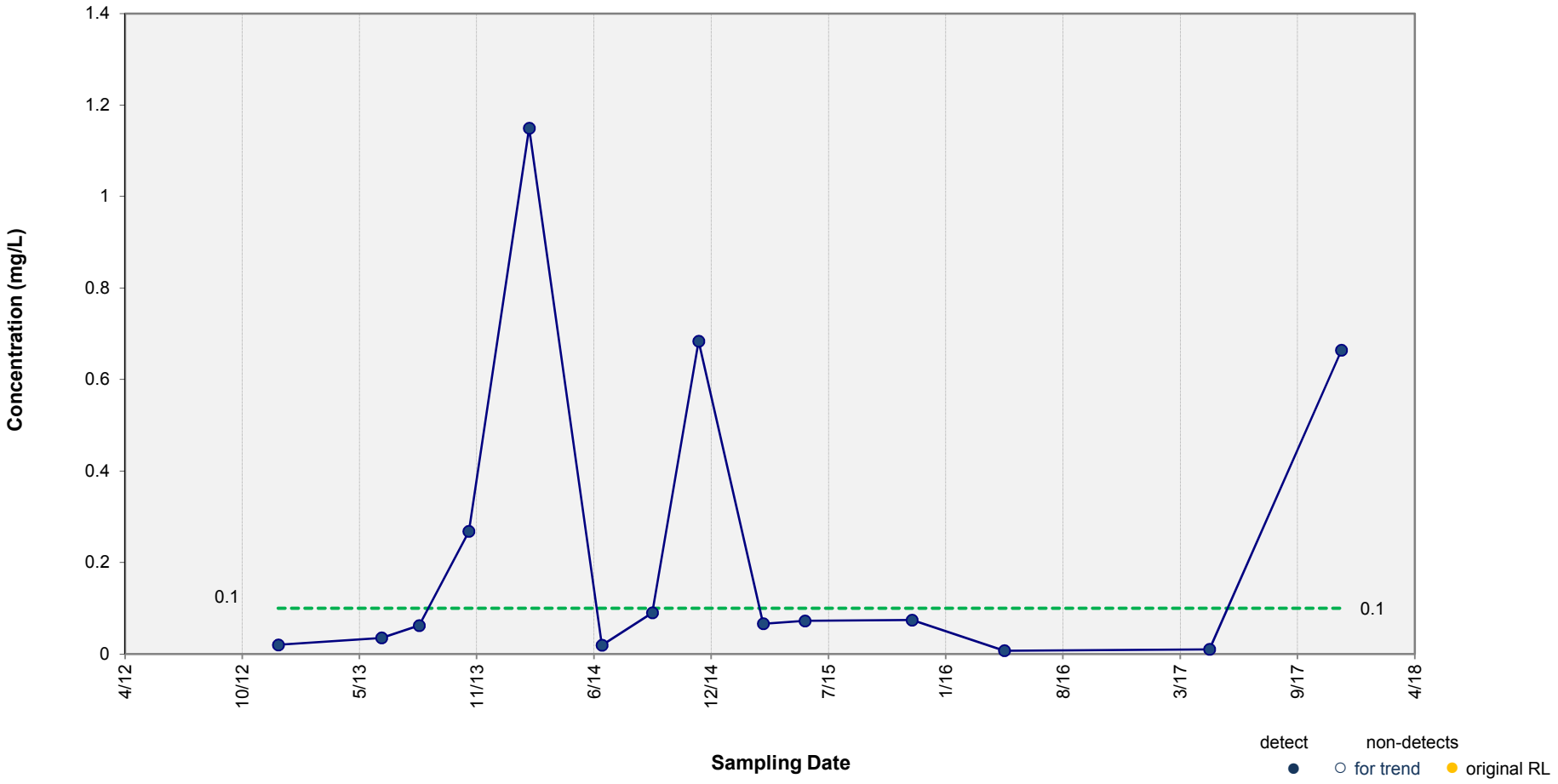
Confidence Interval on the Slope= -8.4E-03 to 1.1E-01 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-12-11, Nickel

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.4564 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 8.57E-03 mg/L per day

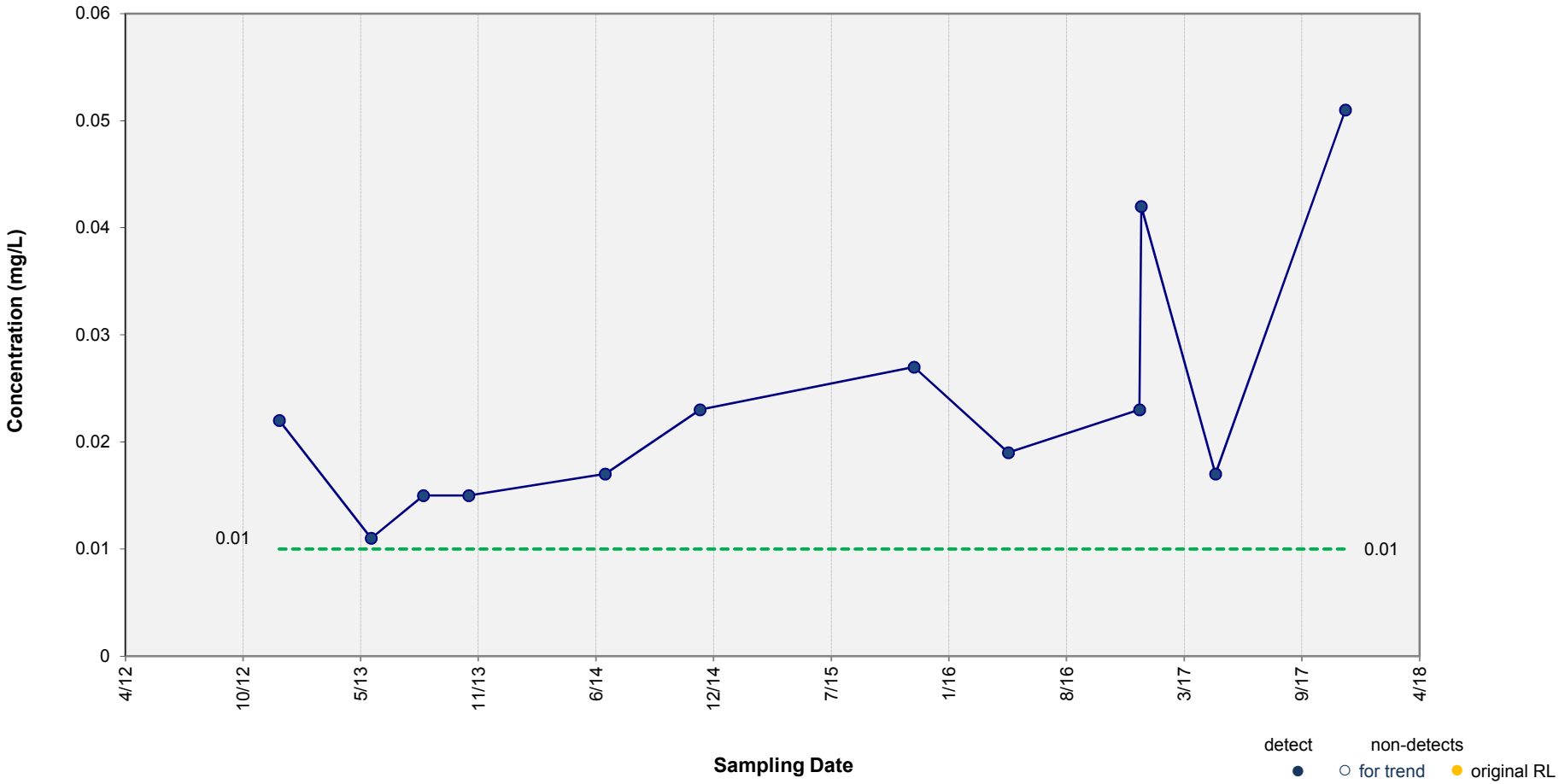
Confidence Interval on the Slope= -7.9E-02 to 1.1E-01 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-12-12, Nickel

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0094 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.01E-02 mg/L per day

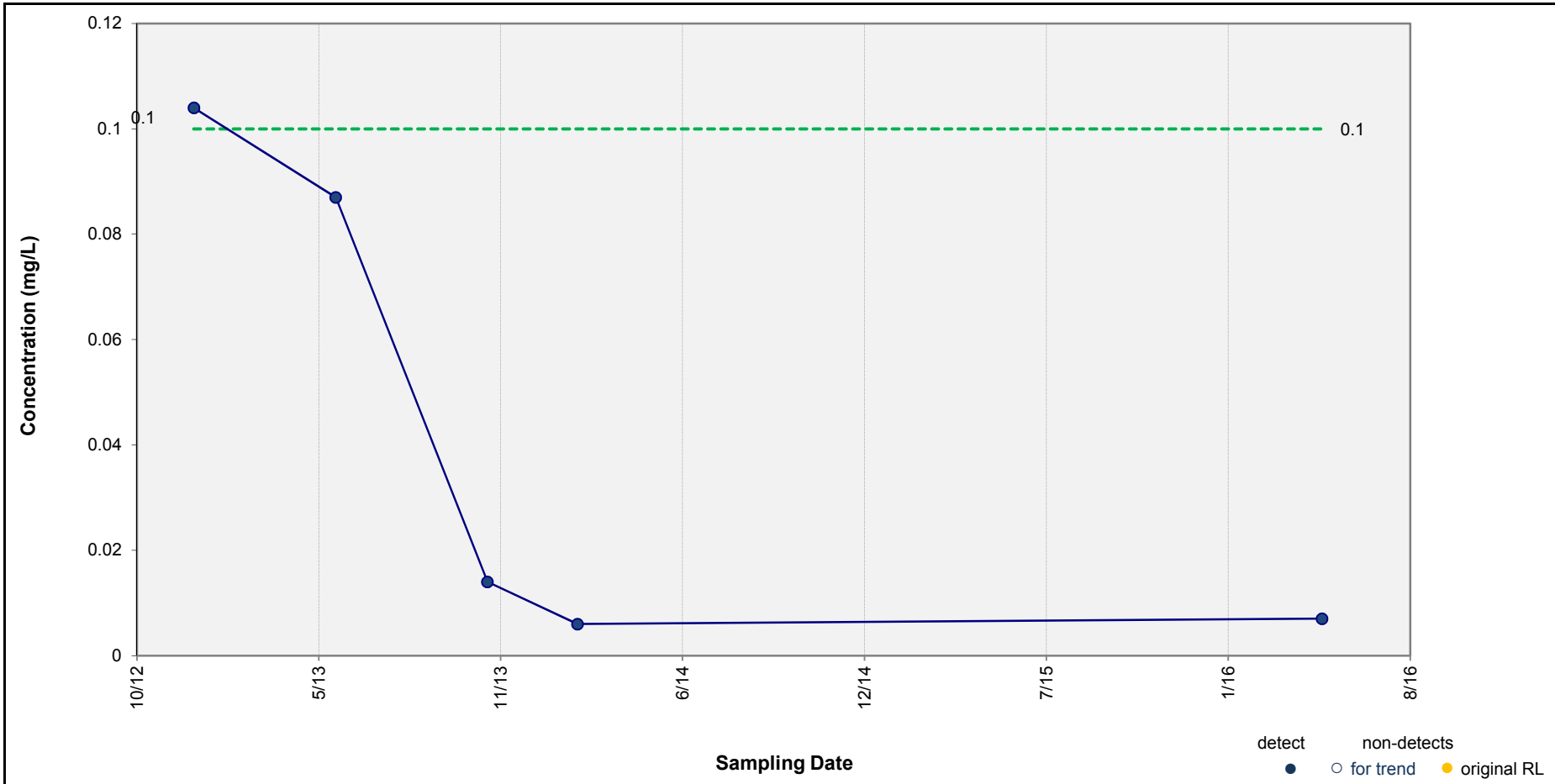
Confidence Interval on the Slope= 1.7E-03 to 2.1E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-12-16, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.0420 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -9.49E-02 mg/L per day

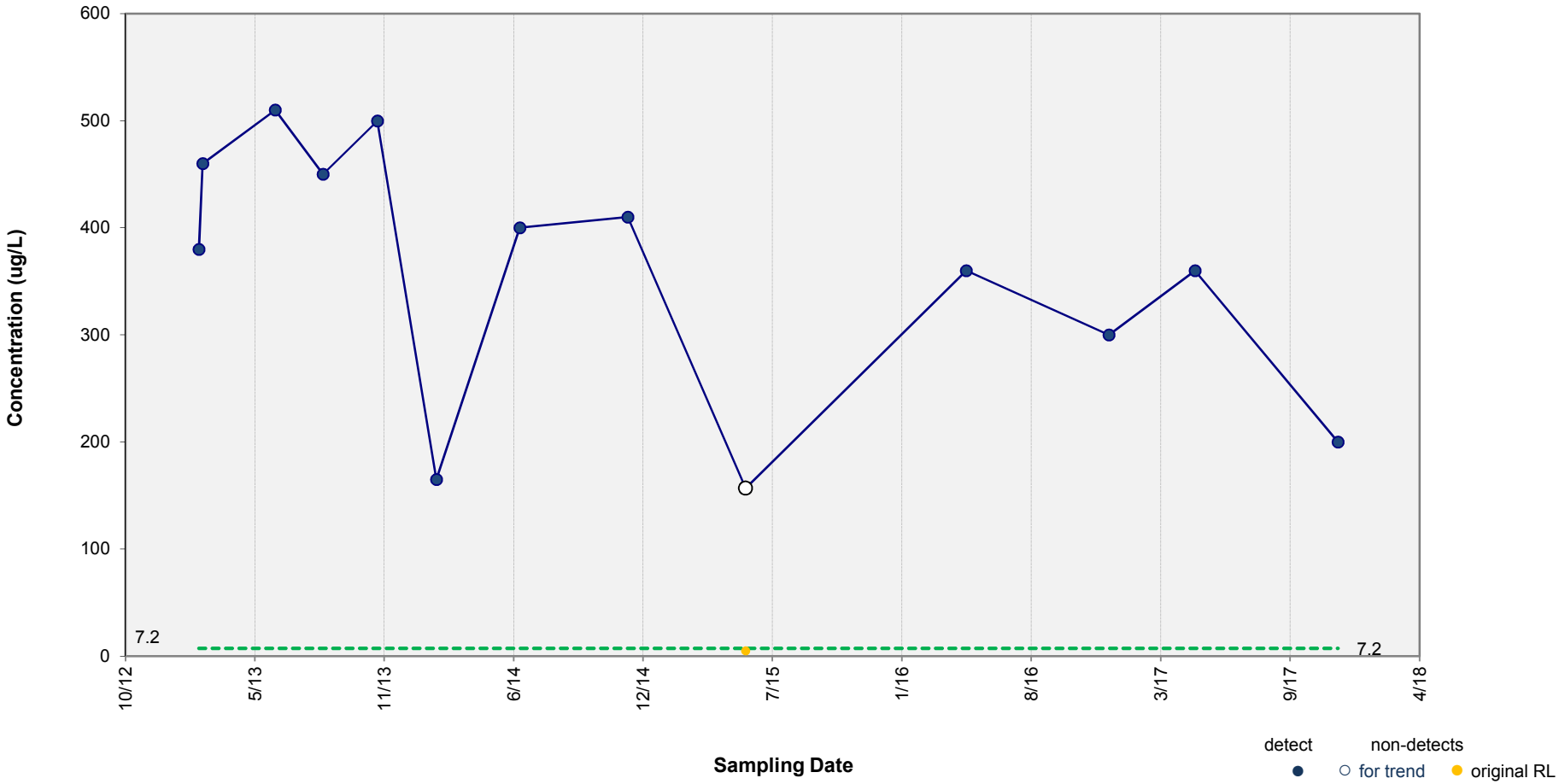
Confidence Interval on the Slope= -3.5E-01 to -5.0E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-12-18, Nickel

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.0188 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -1.04E-01 mg/L per day

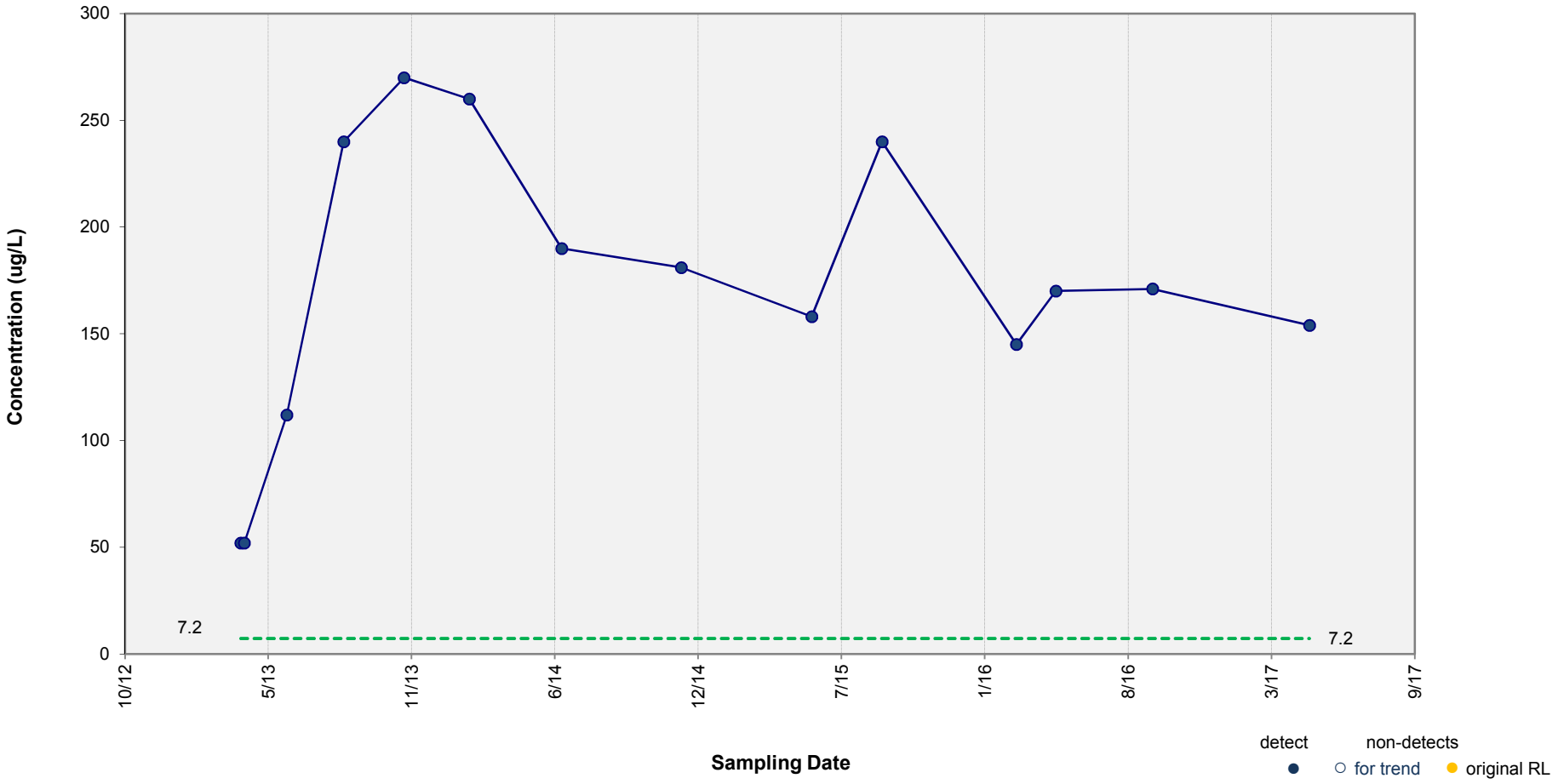
Confidence Interval on the Slope= -1.7E-01 to -4.7E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-12-21, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.4563 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 7.41E-03 mg/L per day

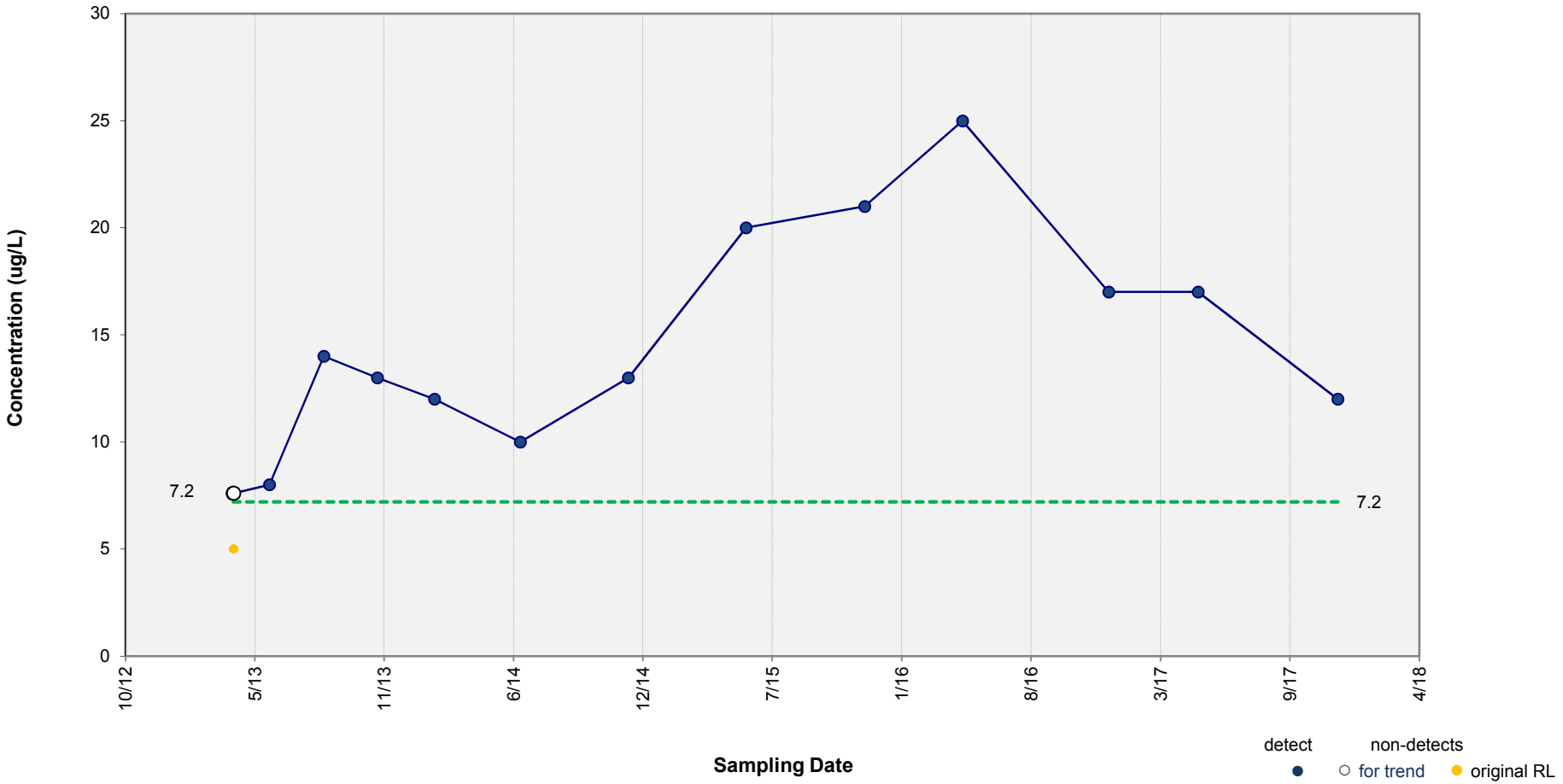
Confidence Interval on the Slope= -6.2E-02 to 9.9E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-22, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0077 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 6.68E-03 mg/L per day

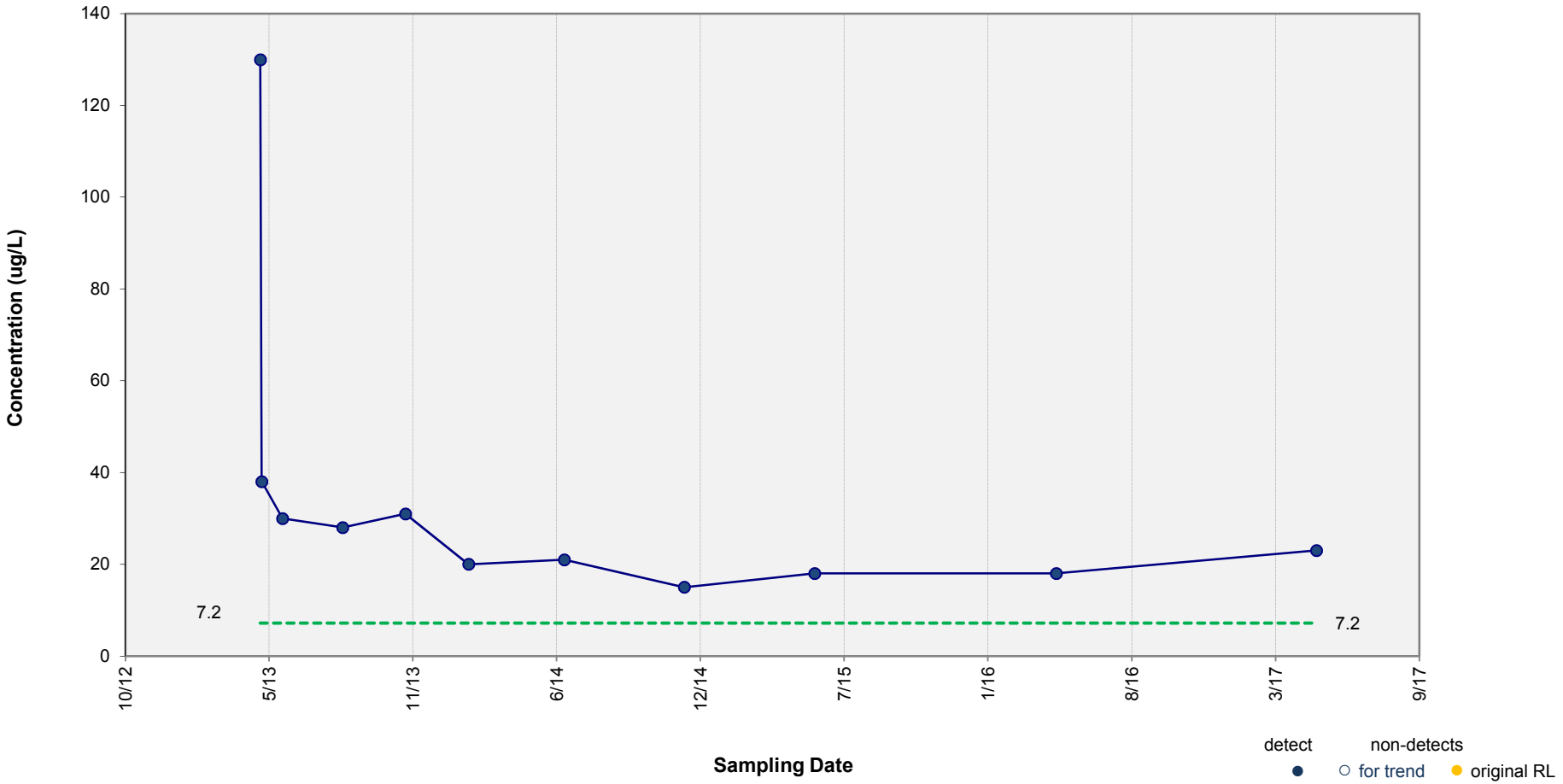
Confidence Interval on the Slope= 2.6E-03 to 1.3E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-25, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.0050 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -2.28E-02 mg/L per day

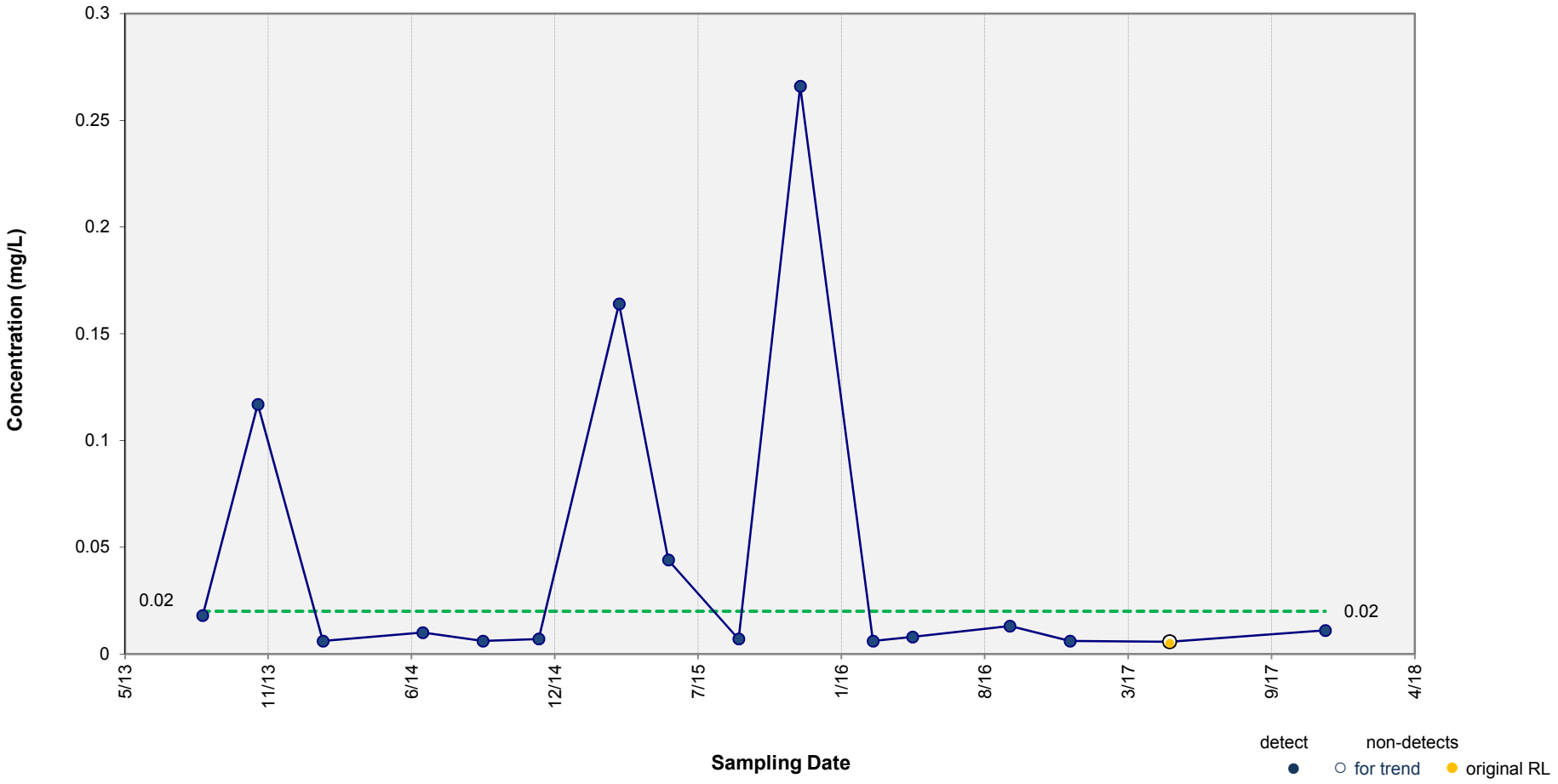
Confidence Interval on the Slope= -4.1E-02 to -8.5E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-29, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.2065 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -2.15E-03 mg/L per day

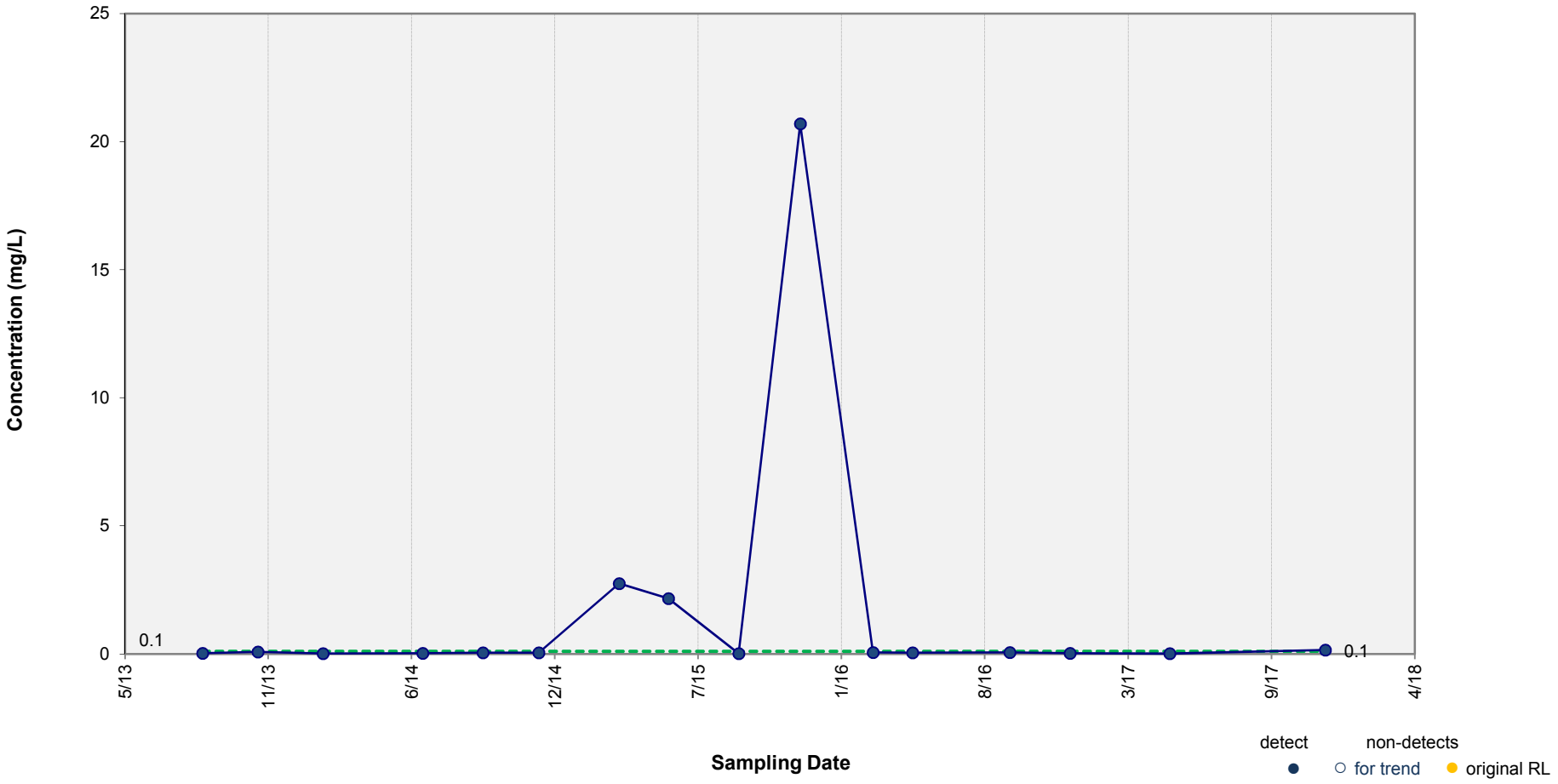
Confidence Interval on the Slope= -1.5E-02 to 2.8E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-31, Copper

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.3427 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.24E-02 mg/L per day

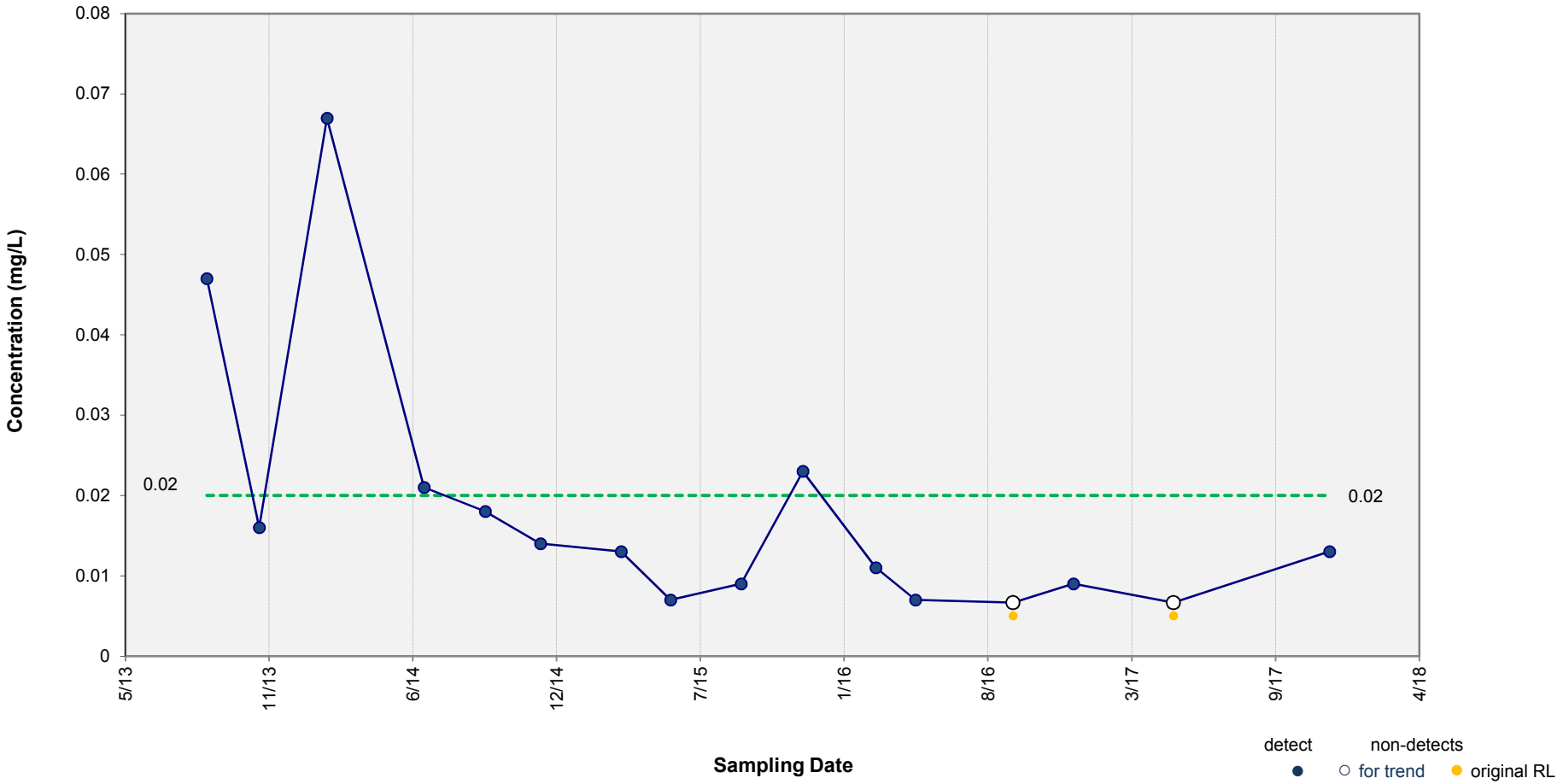
Confidence Interval on the Slope= -3.1E-02 to 6.7E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-31, Nickel

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.0012 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -1.24E-02 mg/L per day

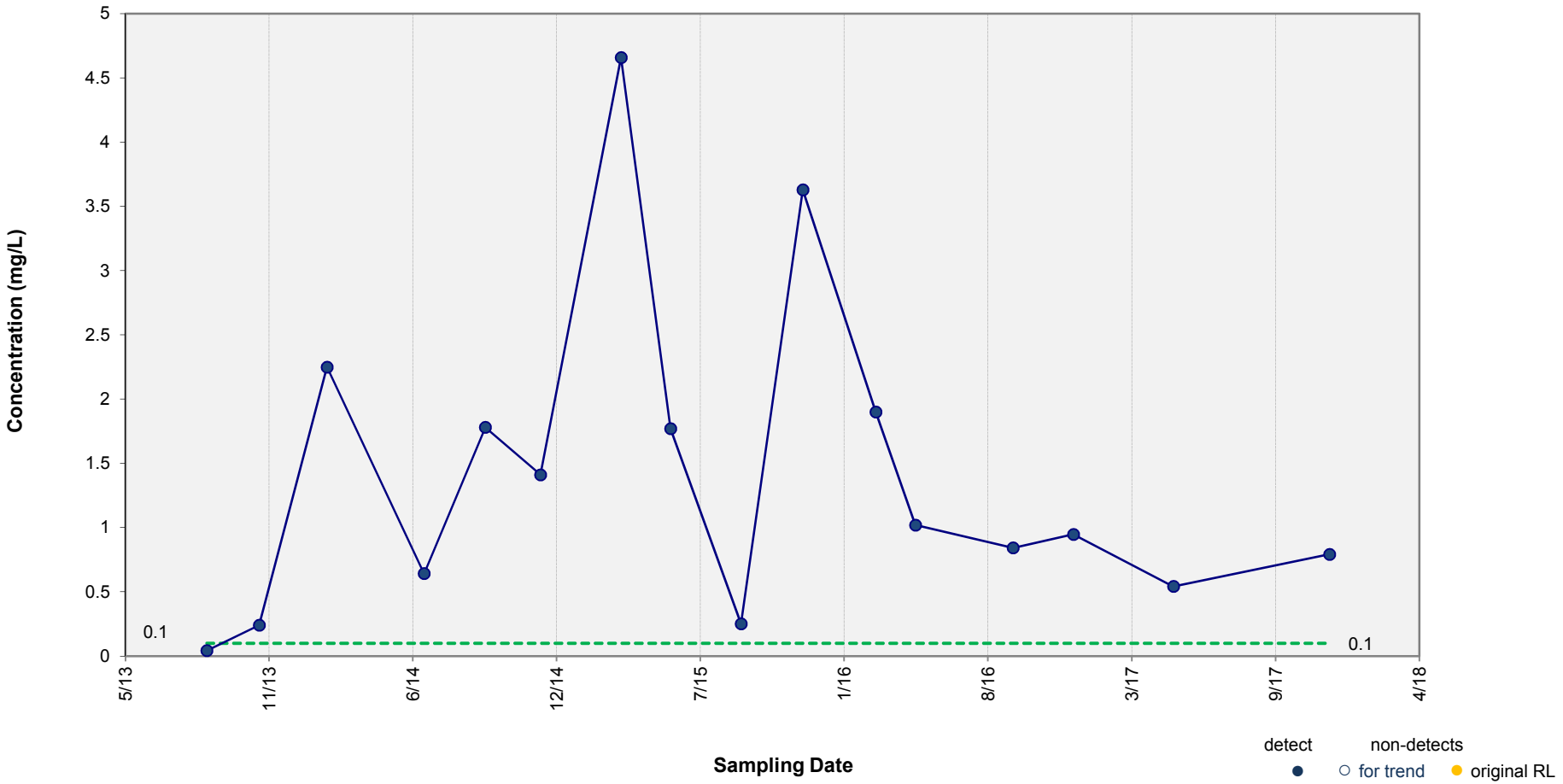
Confidence Interval on the Slope= -2.7E-02 to -6.3E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-32, Copper

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.4820 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -6.73E-02 mg/L per day

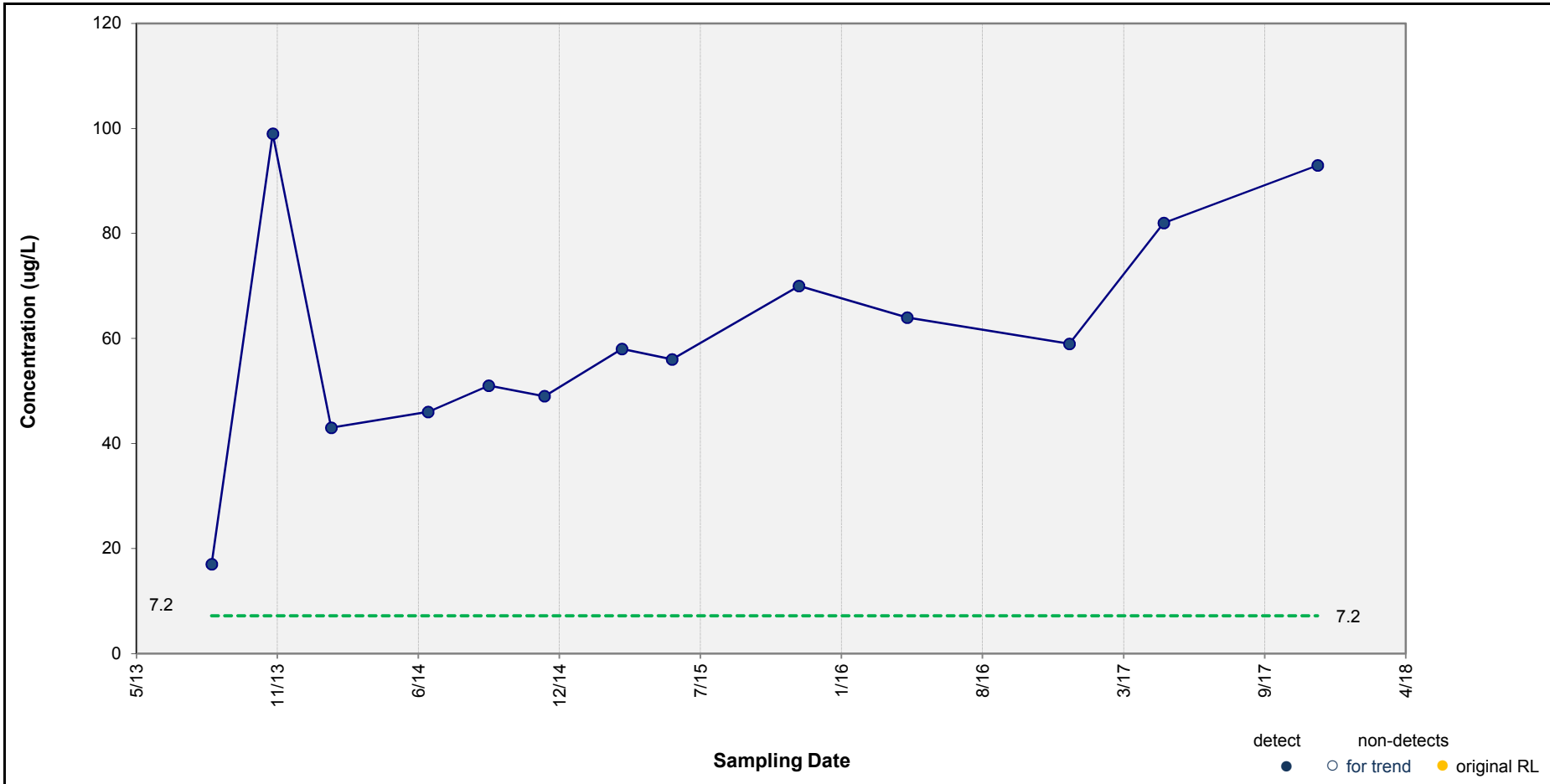
Confidence Interval on the Slope= -1.3E+00 to 7.2E-01 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-32, Nickel

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0030 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 3.38E-02 mg/L per day

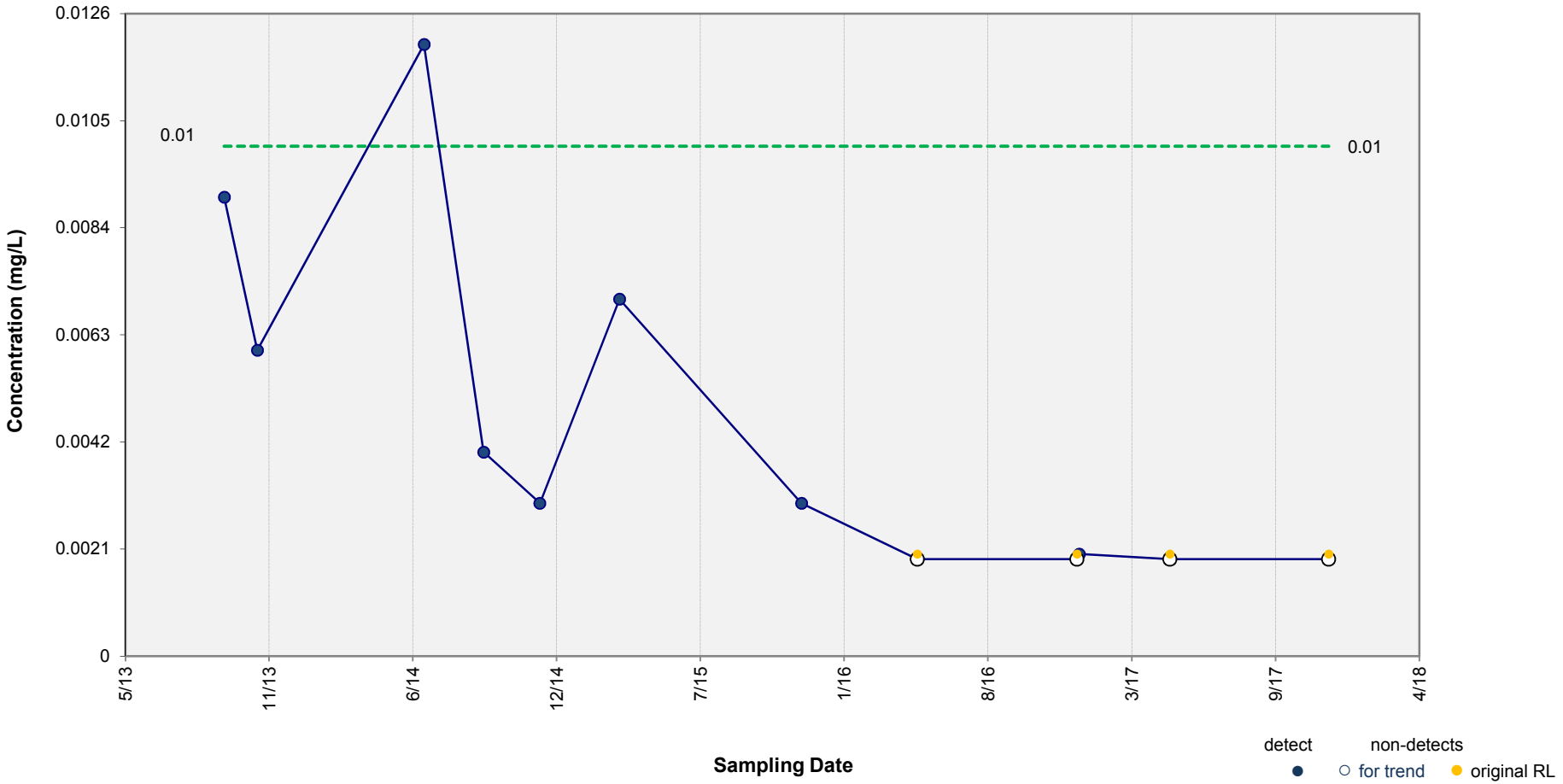
Confidence Interval on the Slope= 2.0E-02 to 4.0E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-34, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.0010 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -3.49E-03 mg/L per day

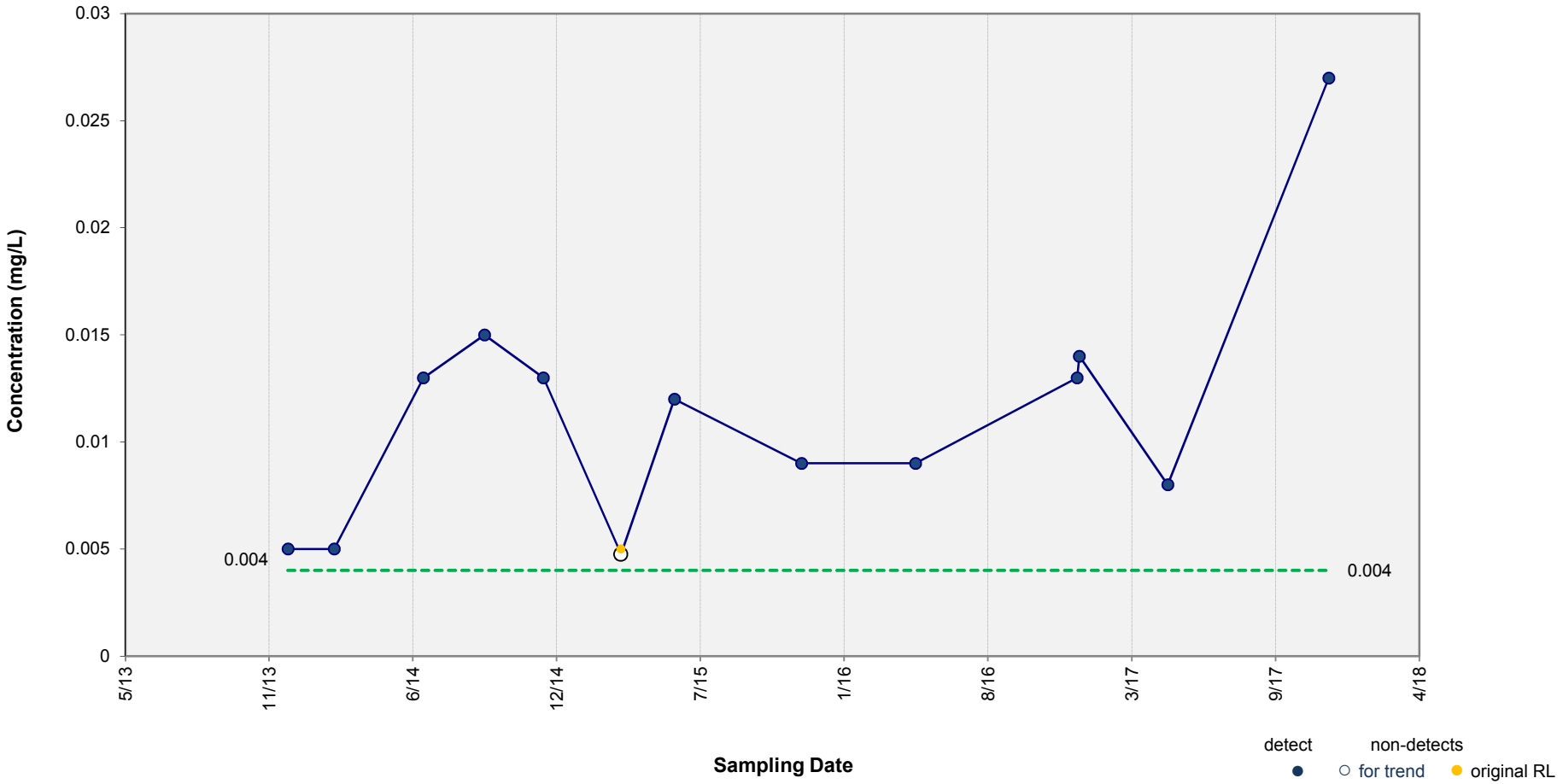
Confidence Interval on the Slope= -6.8E-03 to -1.9E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-35, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.1335 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 4.43E-03 mg/L per day

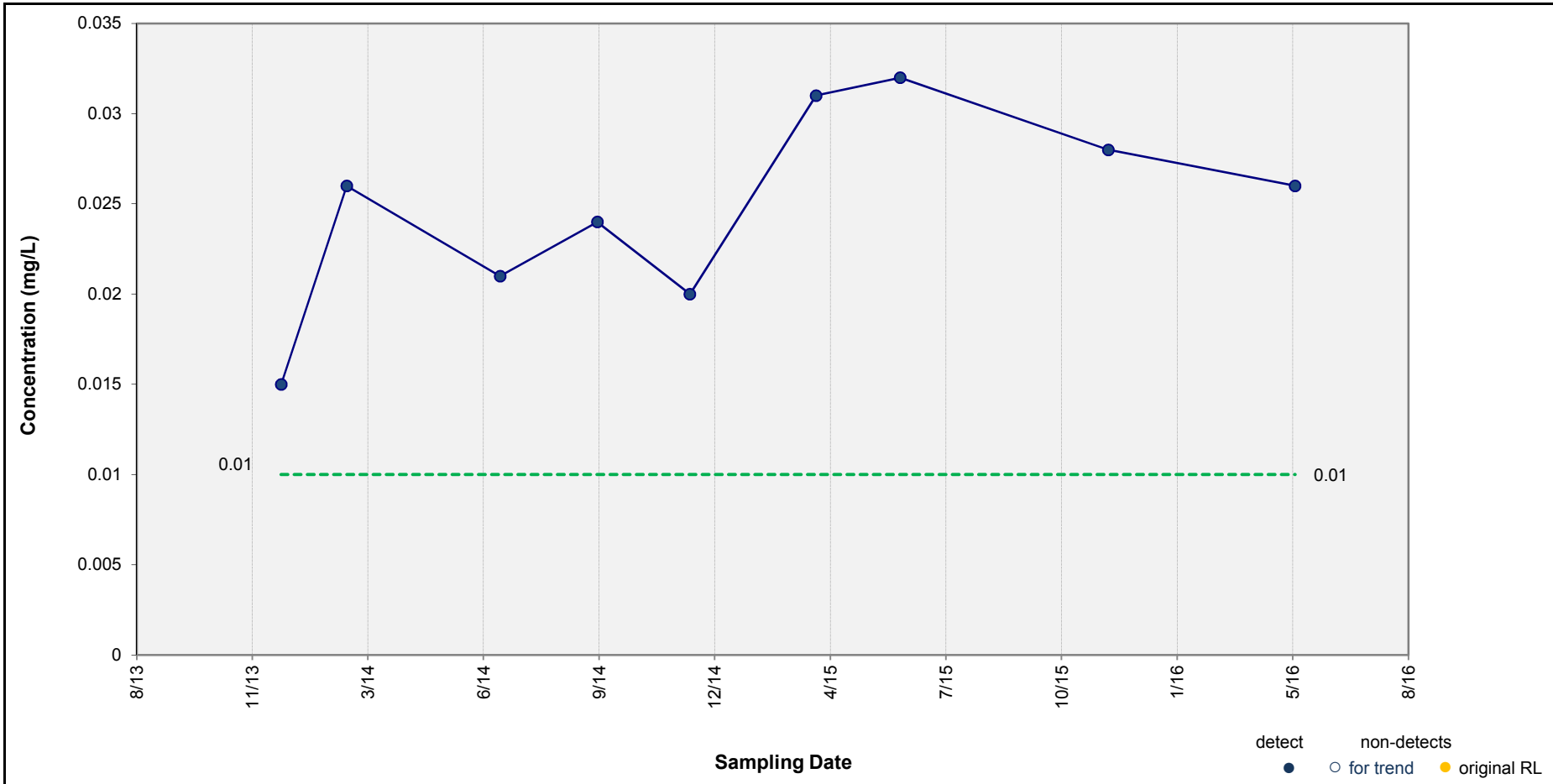
Confidence Interval on the Slope= -8.2E-04 to 1.3E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-36R, Vanadium

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0750 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.25E-02 mg/L per day

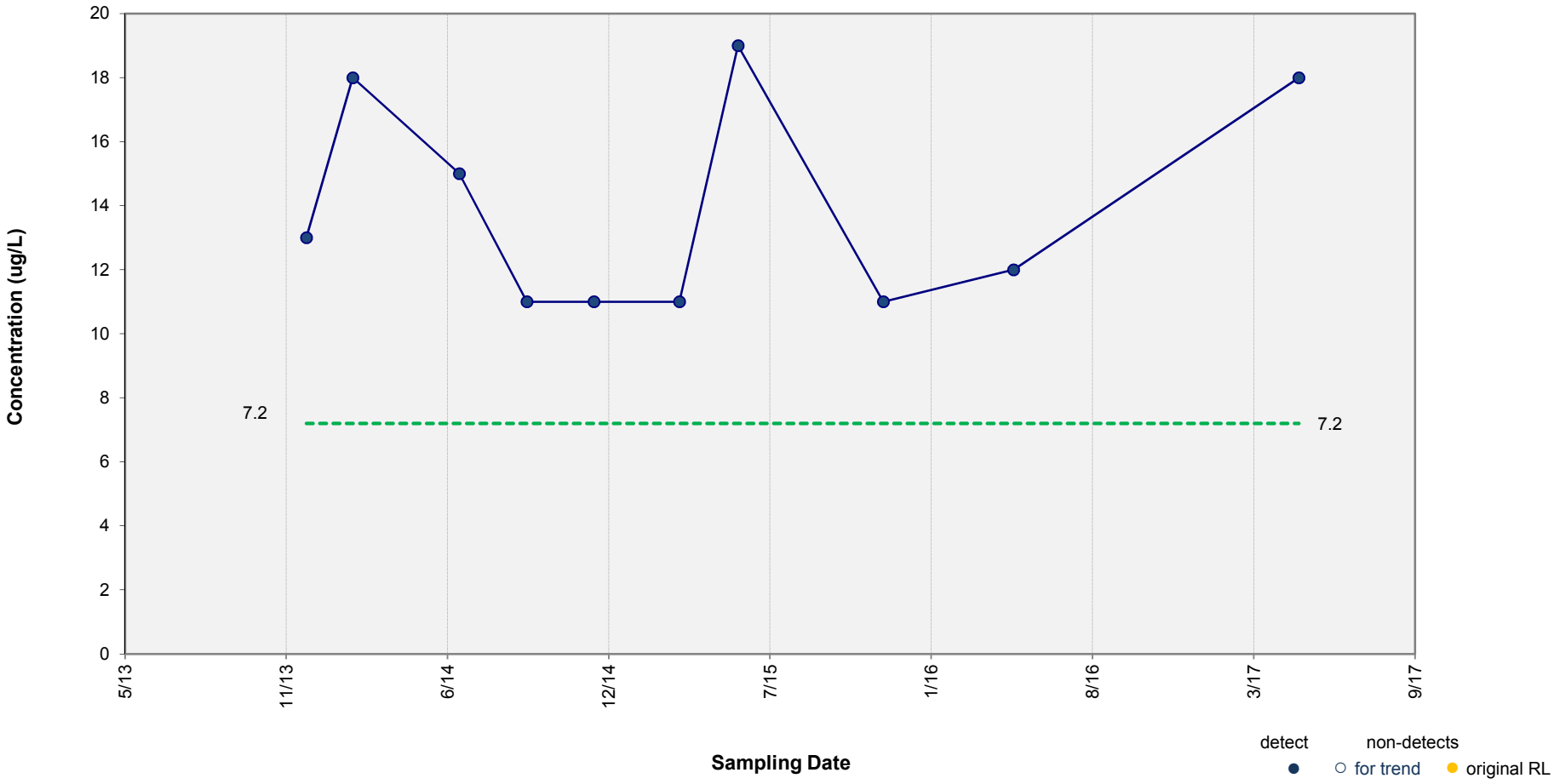
Confidence Interval on the Slope= -5.2E-03 to 3.2E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-40, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.5360 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 0.00E+00 mg/L per day

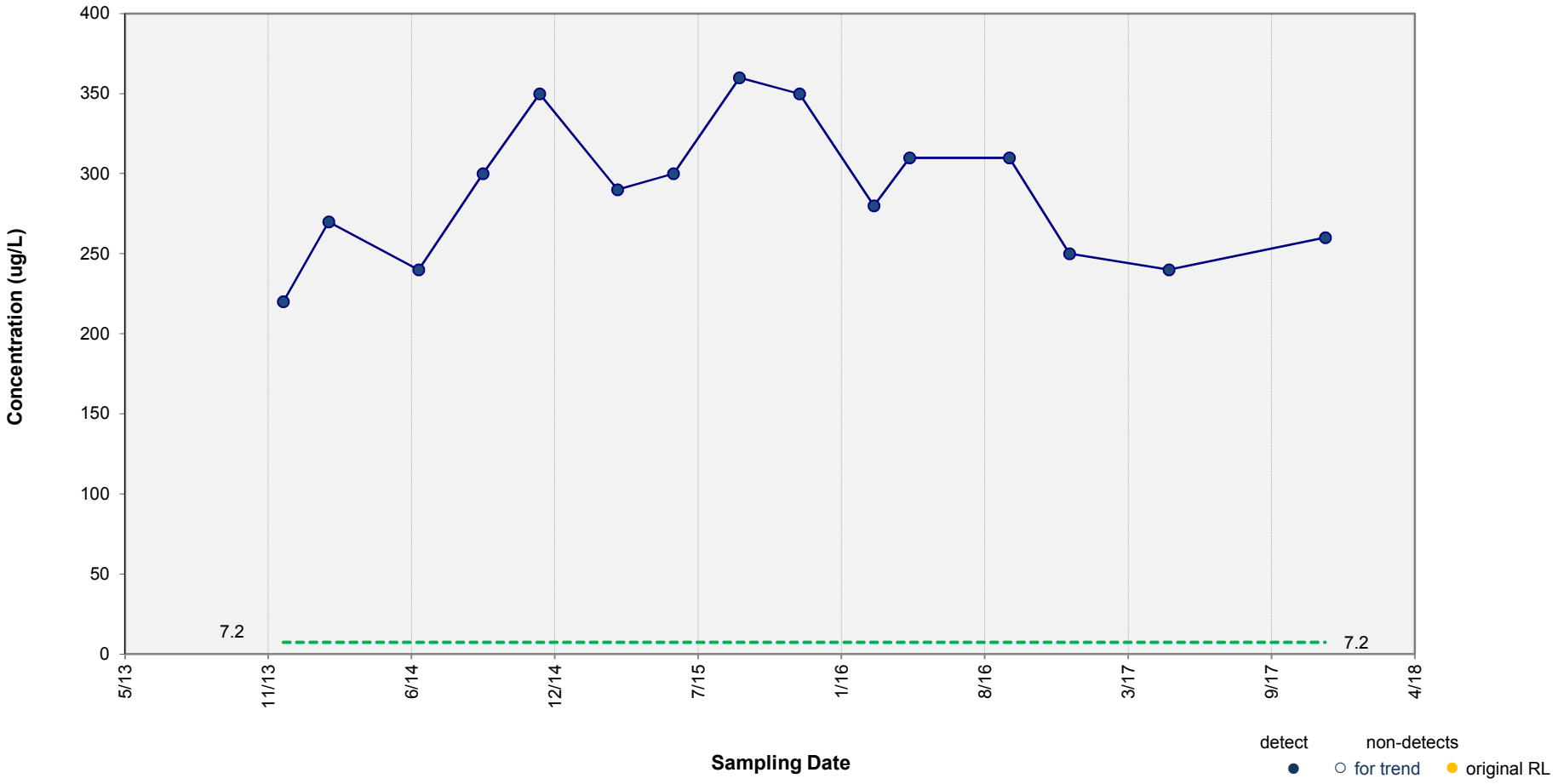
Confidence Interval on the Slope= -6.2E-03 to 3.3E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-41, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.4212 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.10E-02 mg/L per day

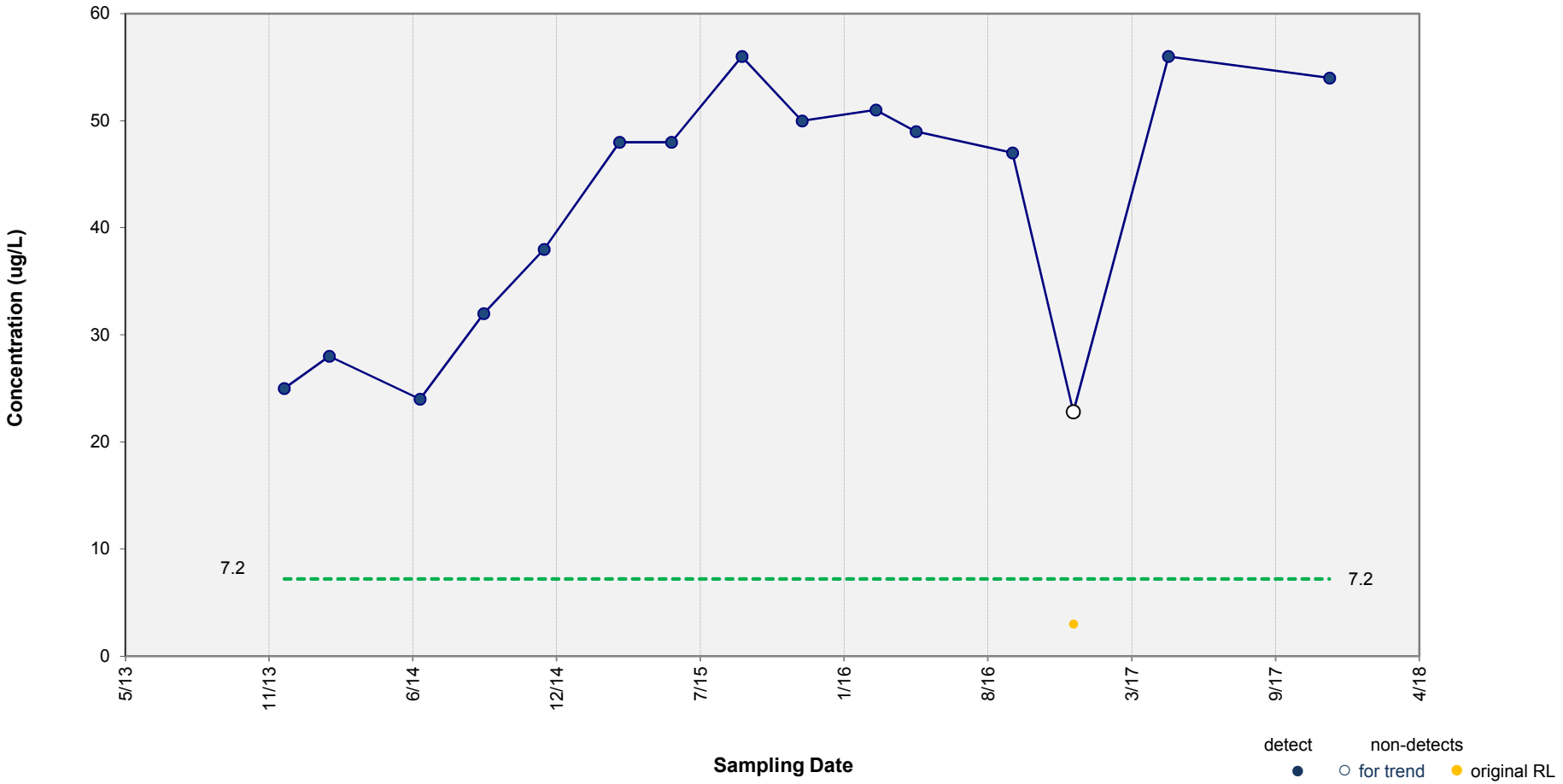
Confidence Interval on the Slope= -6.3E-02 to 5.0E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-43, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0086 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.99E-02 mg/L per day

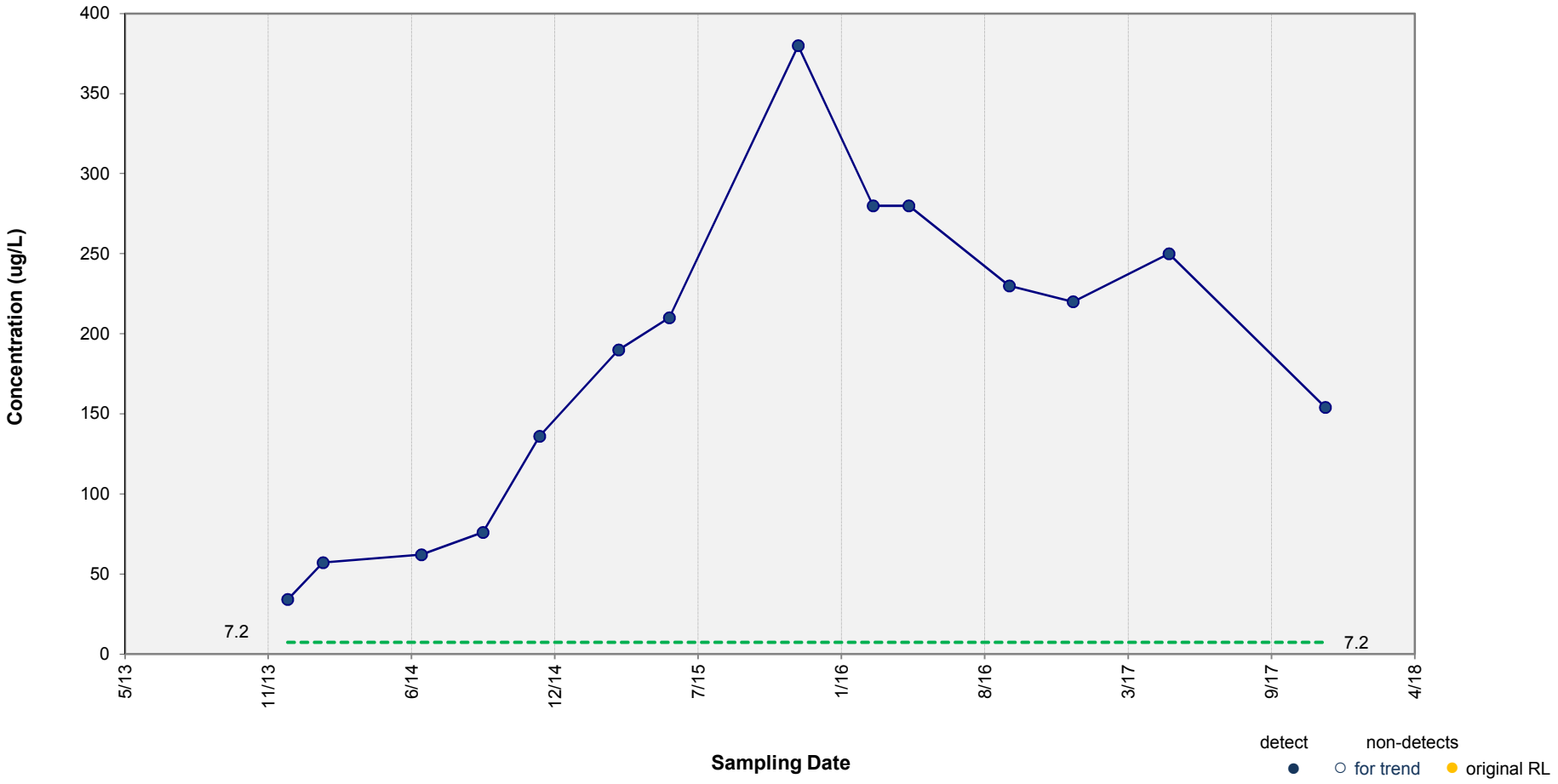
Confidence Interval on the Slope= 7.8E-03 to 3.0E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-45, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0036 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.75E-01 mg/L per day

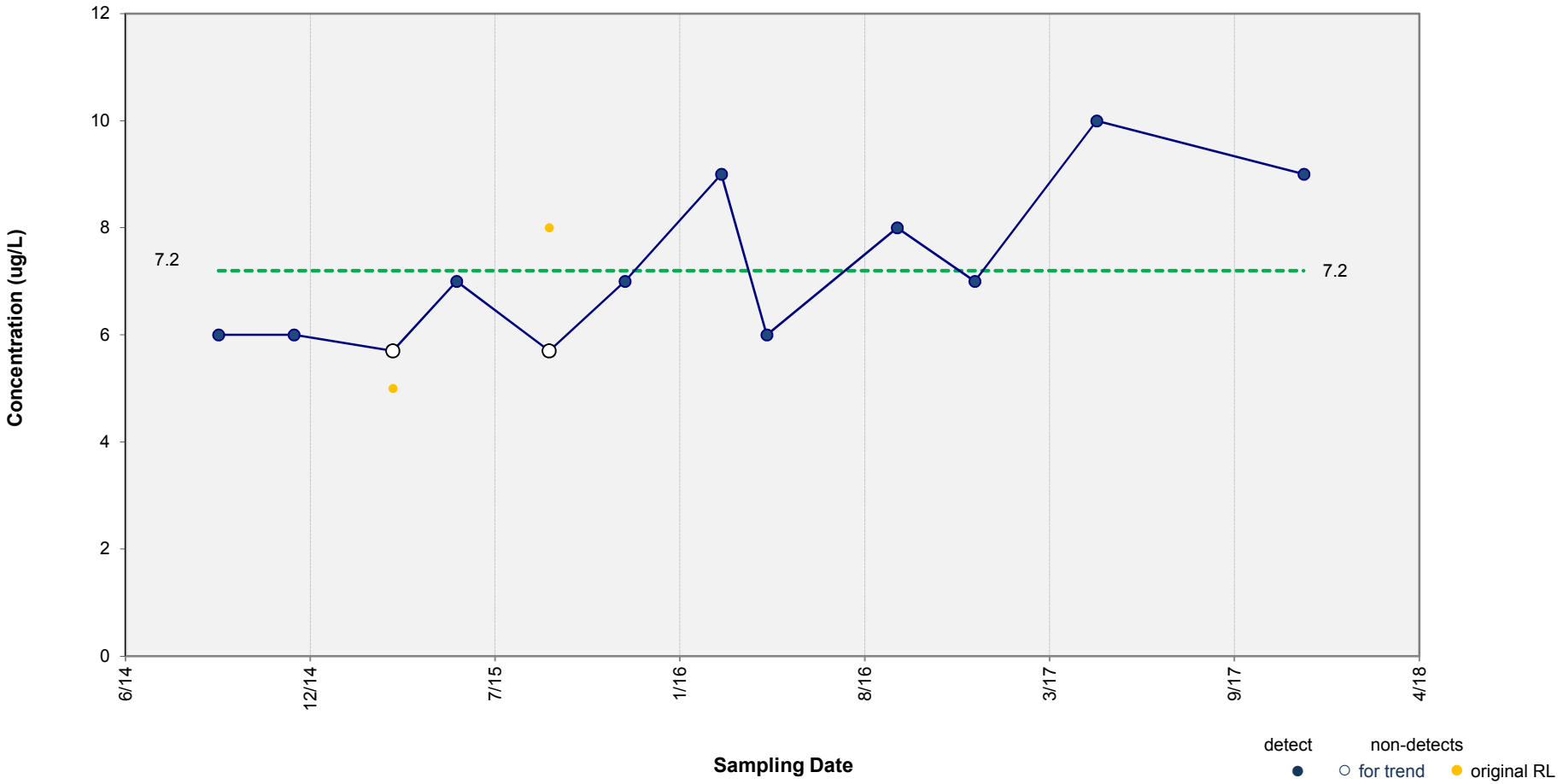
Confidence Interval on the Slope= 7.3E-02 to 2.8E-01 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-13-48, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0103 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 2.73E-03 mg/L per day

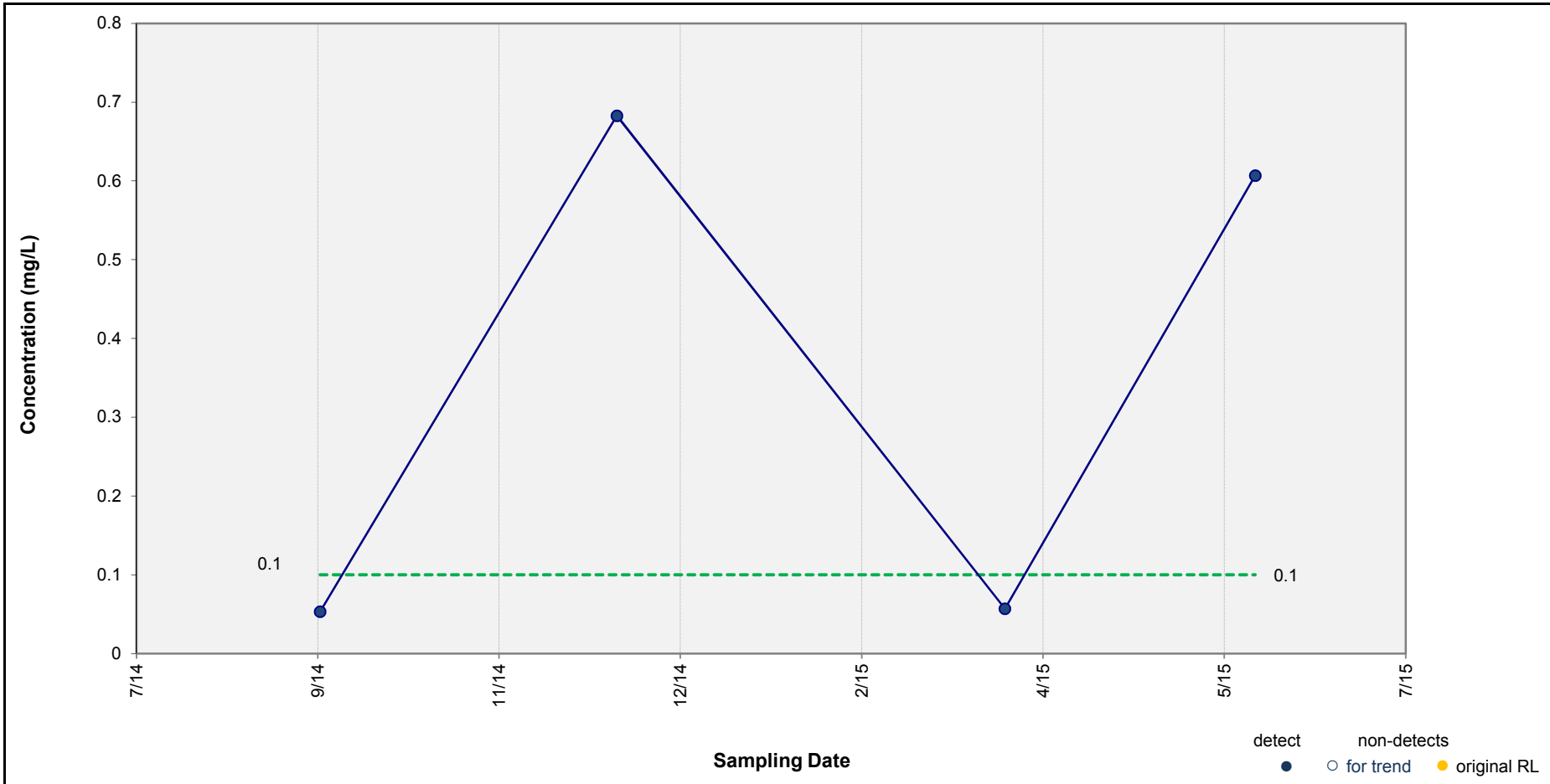
Confidence Interval on the Slope= 8.7E-04 to 4.4E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-14-56, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.3750 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA mg/L per day

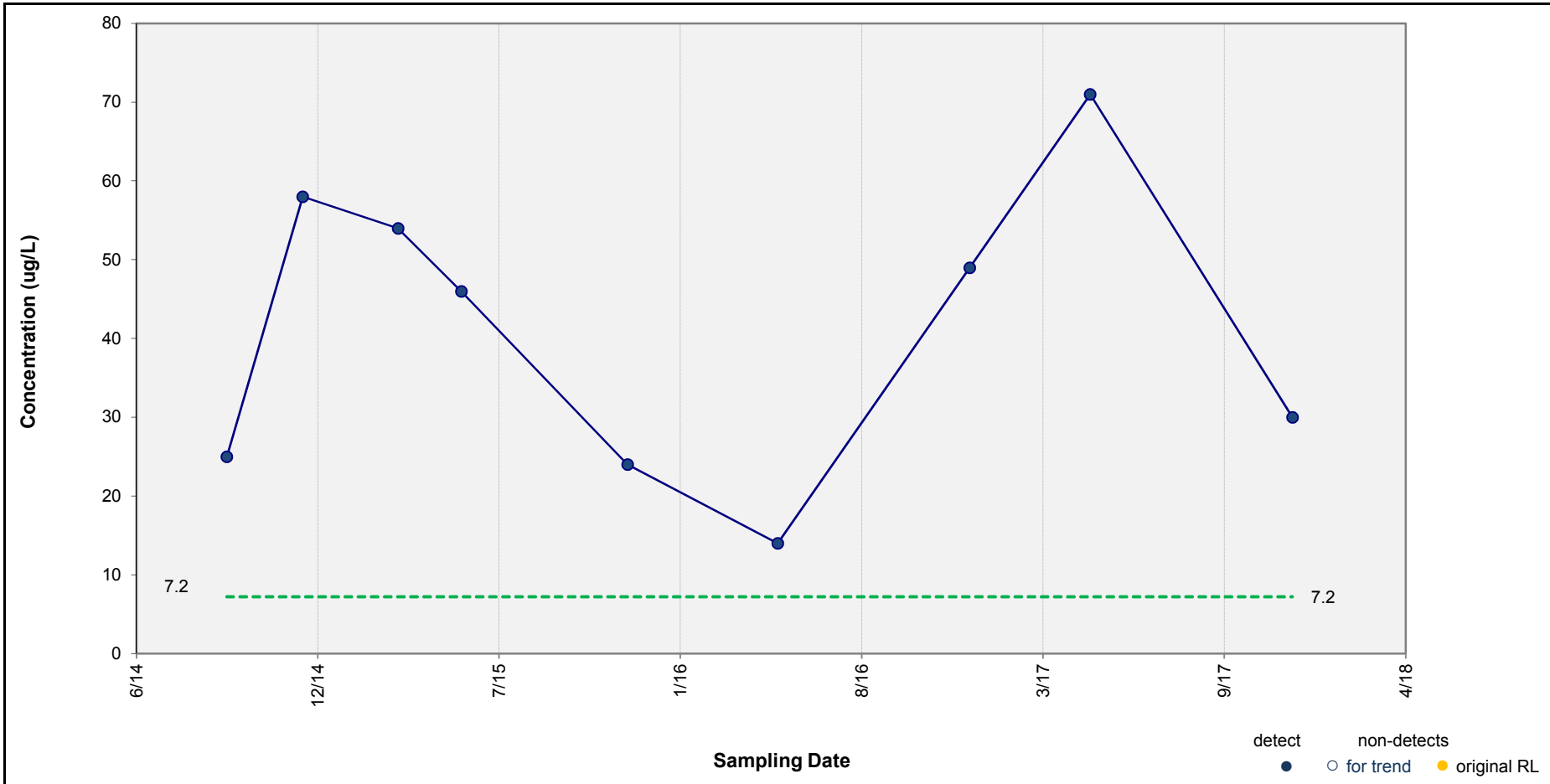
Confidence Interval on the Slope= NA to NA mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-14-56, Nickel

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.4600 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -5.10E-03 mg/L per day

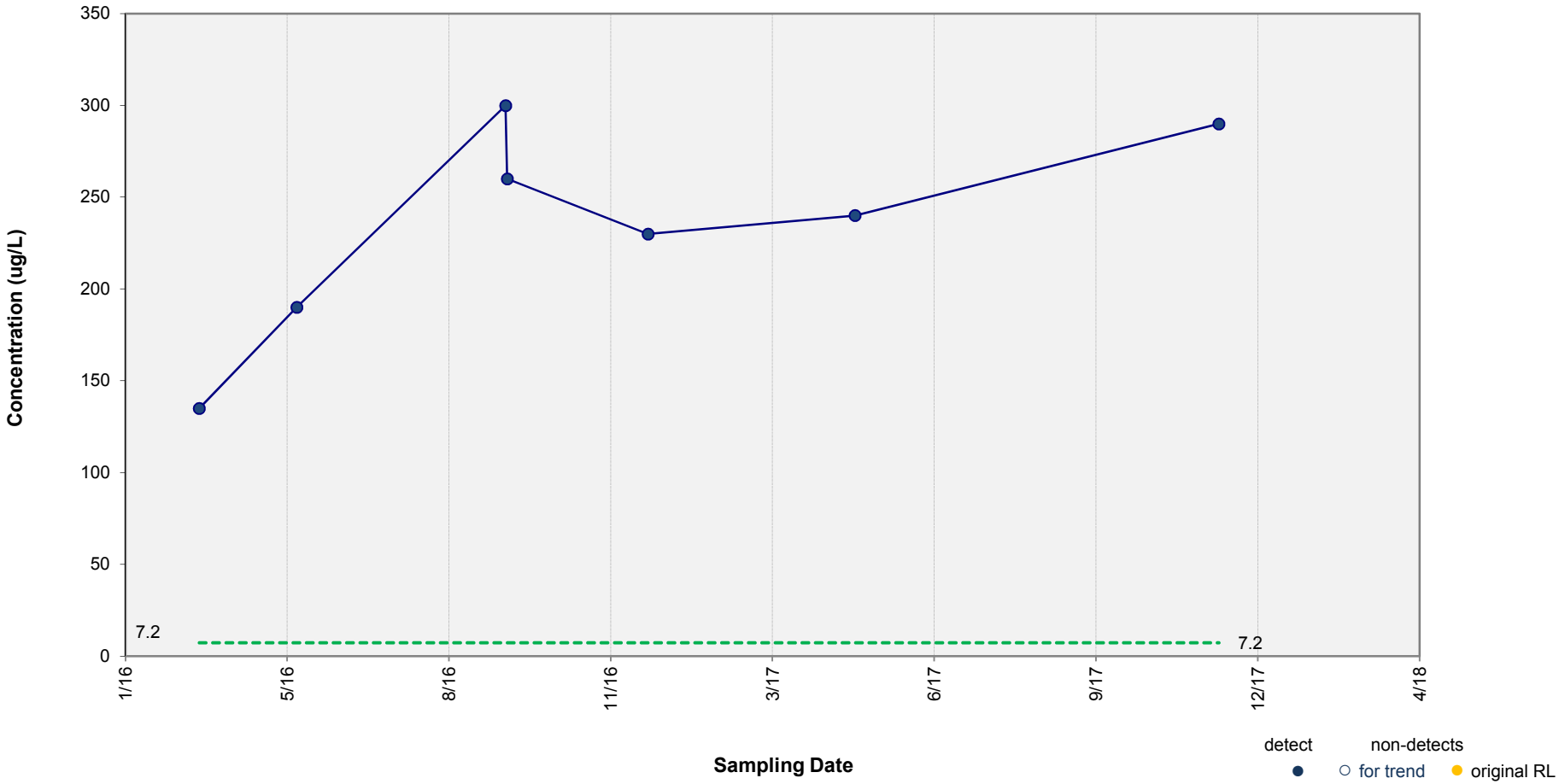
Confidence Interval on the Slope= -6.0E-02 to 2.9E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-14-58, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.1190 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.75E-01 mg/L per day

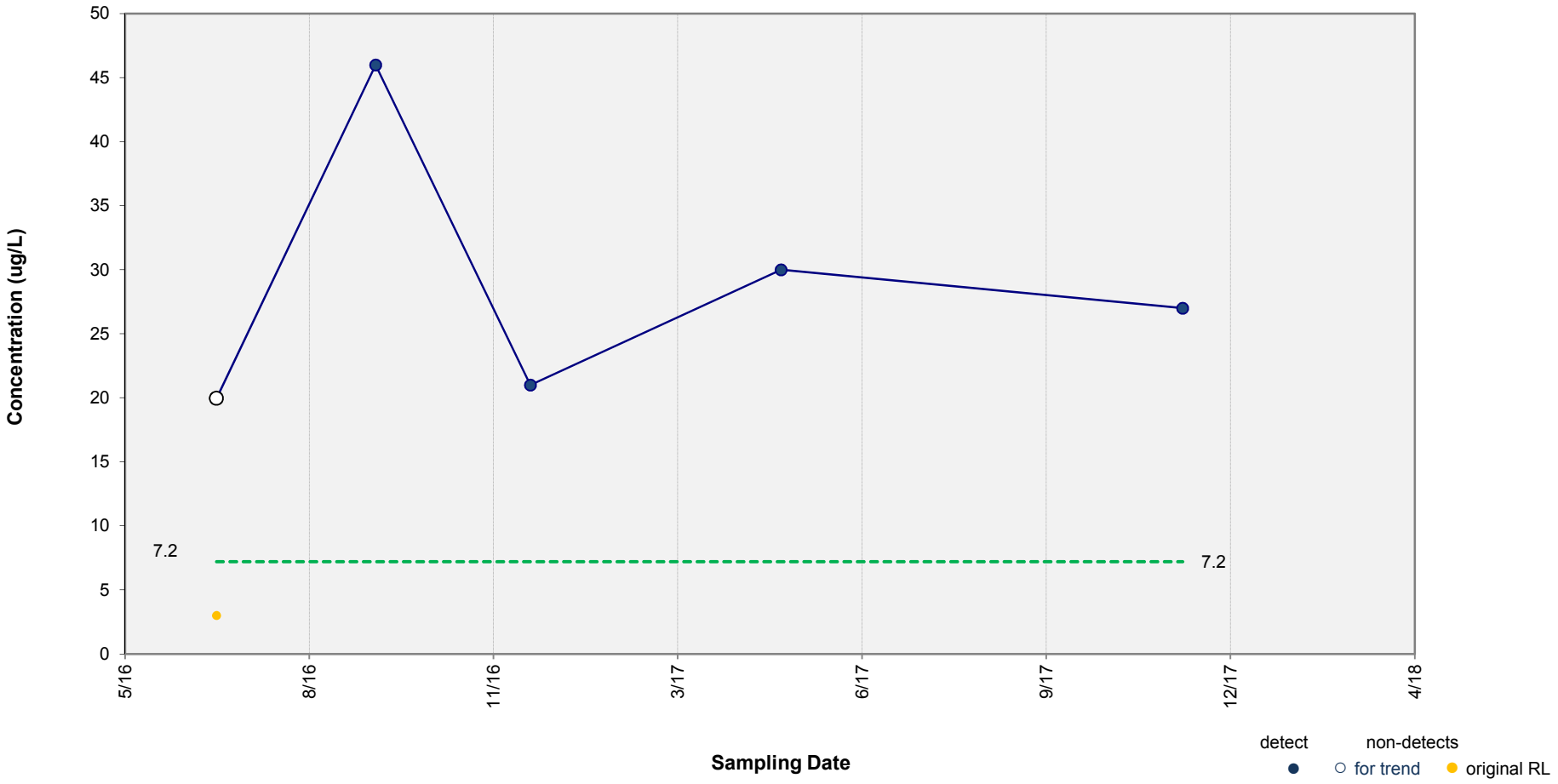
Confidence Interval on the Slope= -9.1E-02 to 3.4E-01 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-15-72, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.4080 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 9.81E-03 mg/L per day

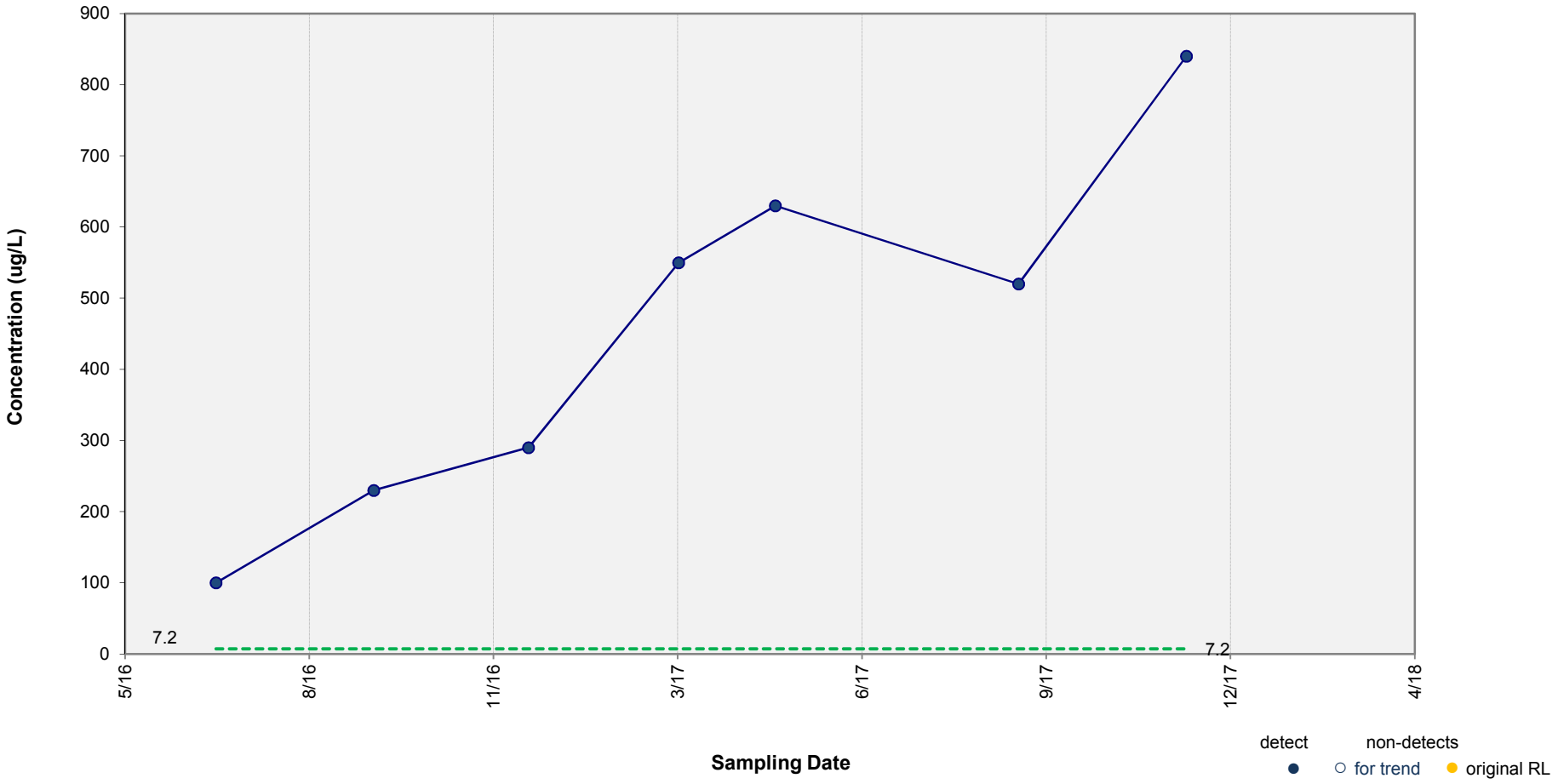
Confidence Interval on the Slope= -1.5E-01 to 4.5E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-16-80, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0054 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.41E+00 mg/L per day

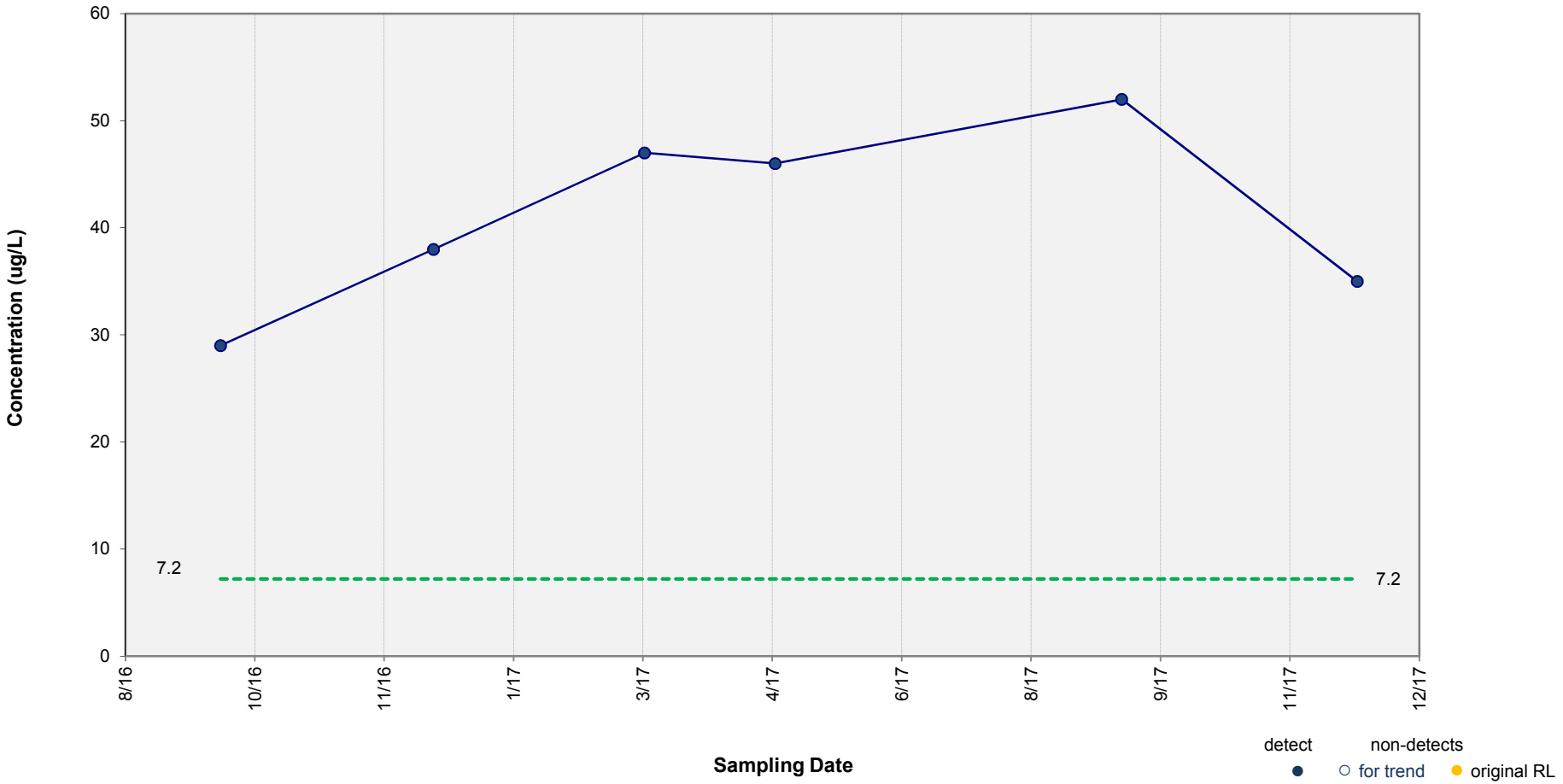
Confidence Interval on the Slope= 8.7E-01 to 1.8E+00 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-16-81, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.2350 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 4.48E-02 mg/L per day

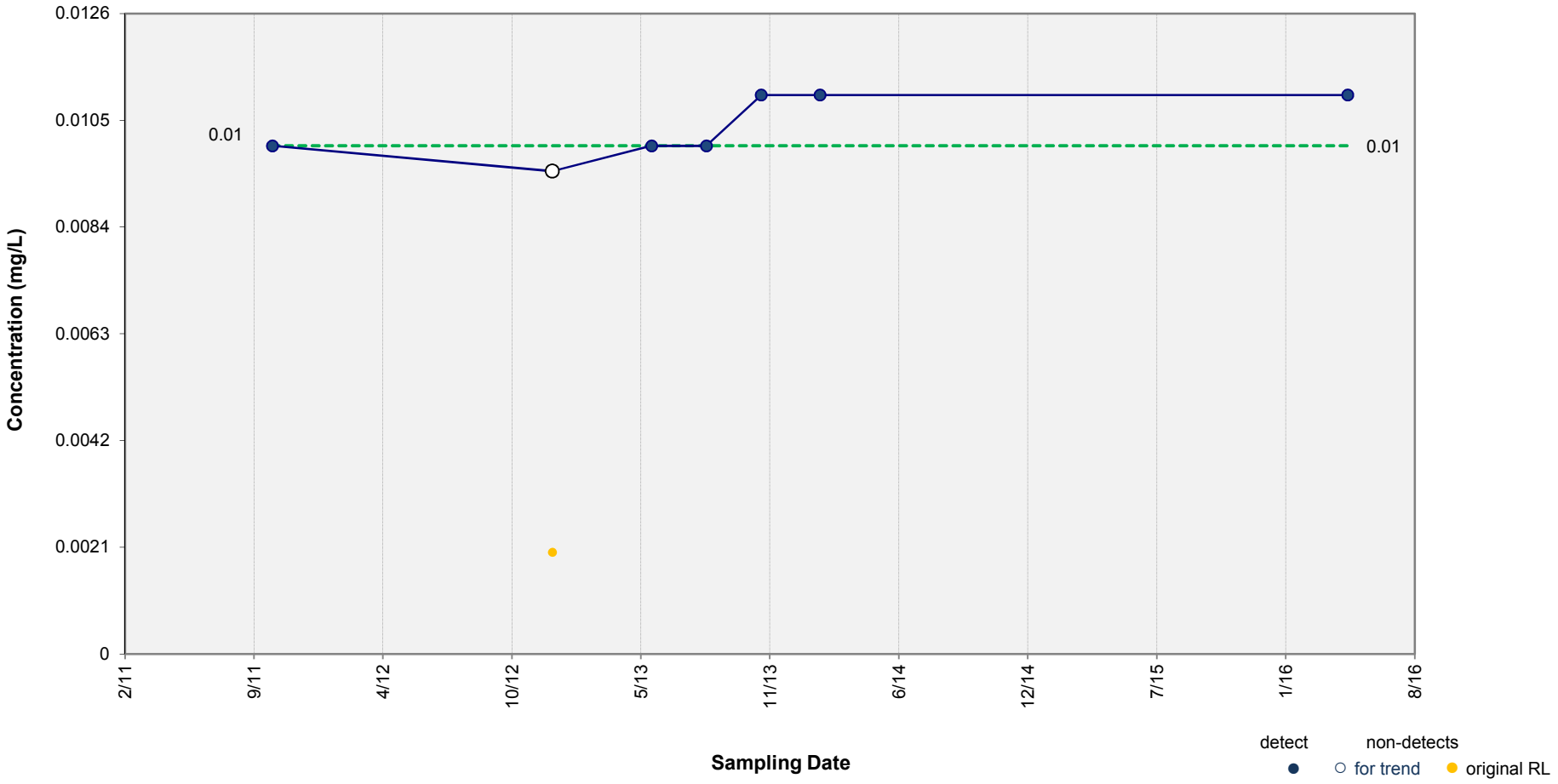
Confidence Interval on the Slope= -4.1E-02 to 7.8E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-16-84, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.0350 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.18E-03 mg/L per day

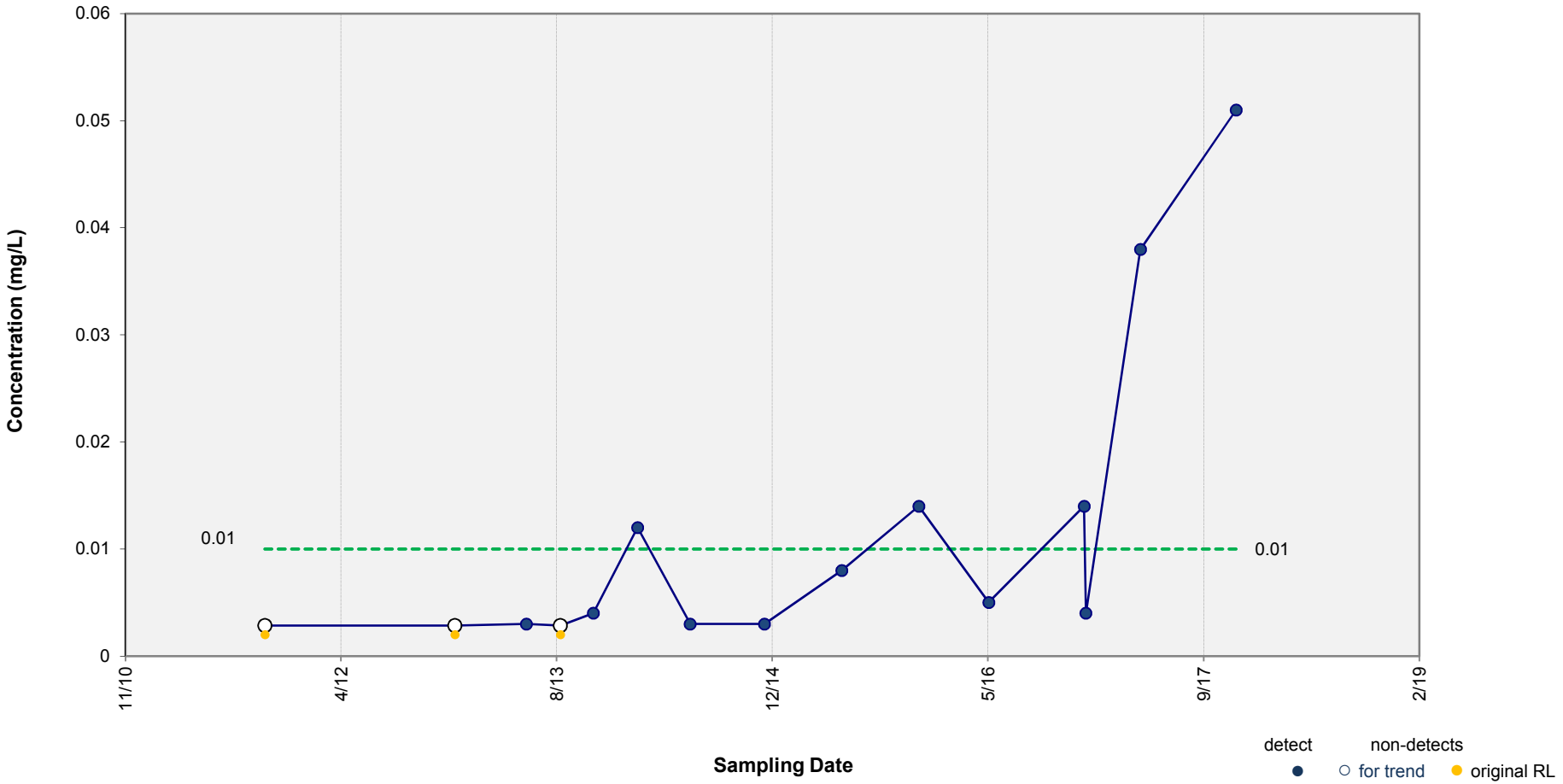
Confidence Interval on the Slope= 0.0E+00 to 3.4E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MW-91-5, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 6.94E-03 mg/L per day

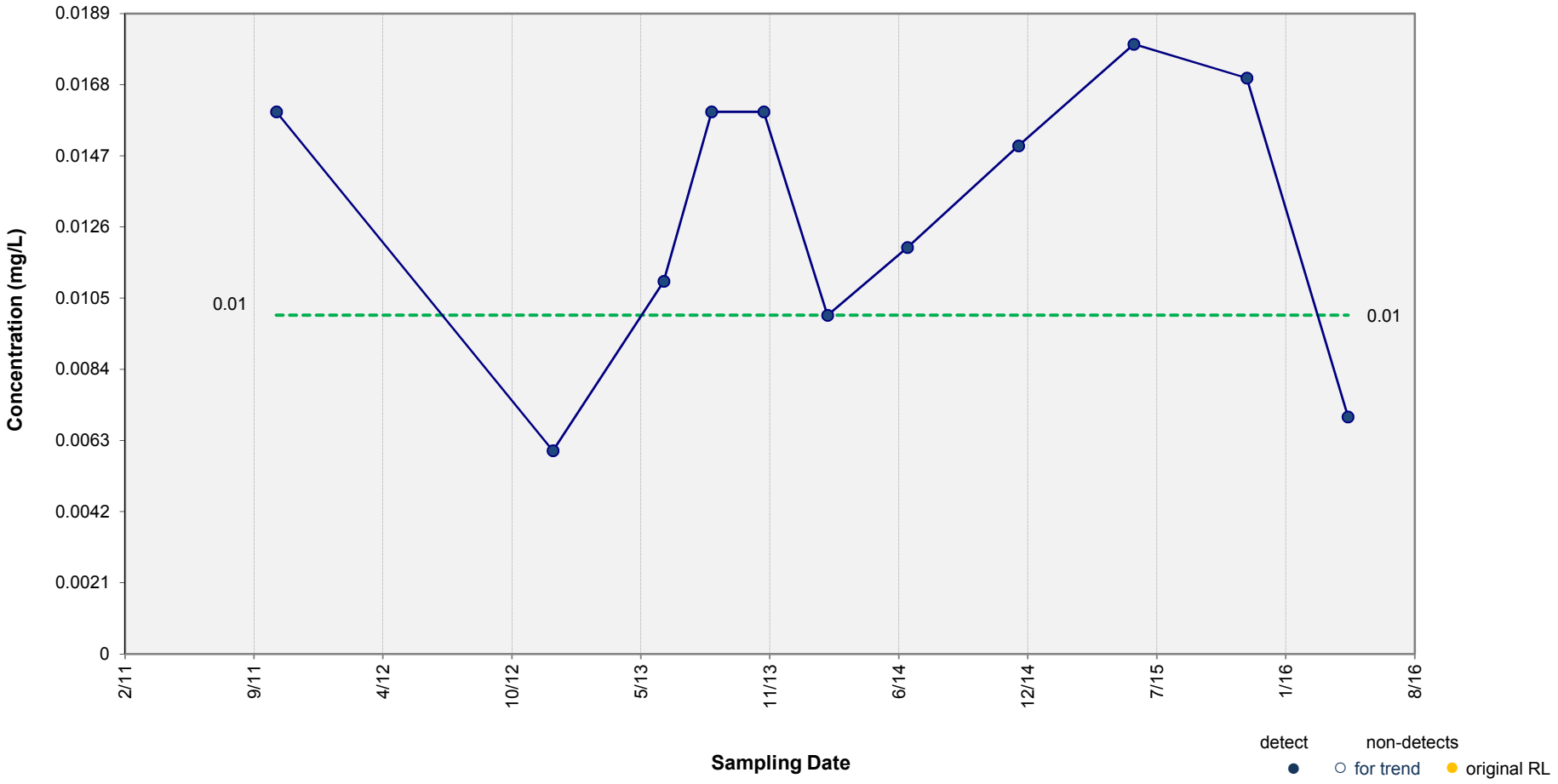
Confidence Interval on the Slope= 1.1E-03 to 1.5E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MWBP-10-UST5-6, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.2908 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.20E-03 mg/L per day

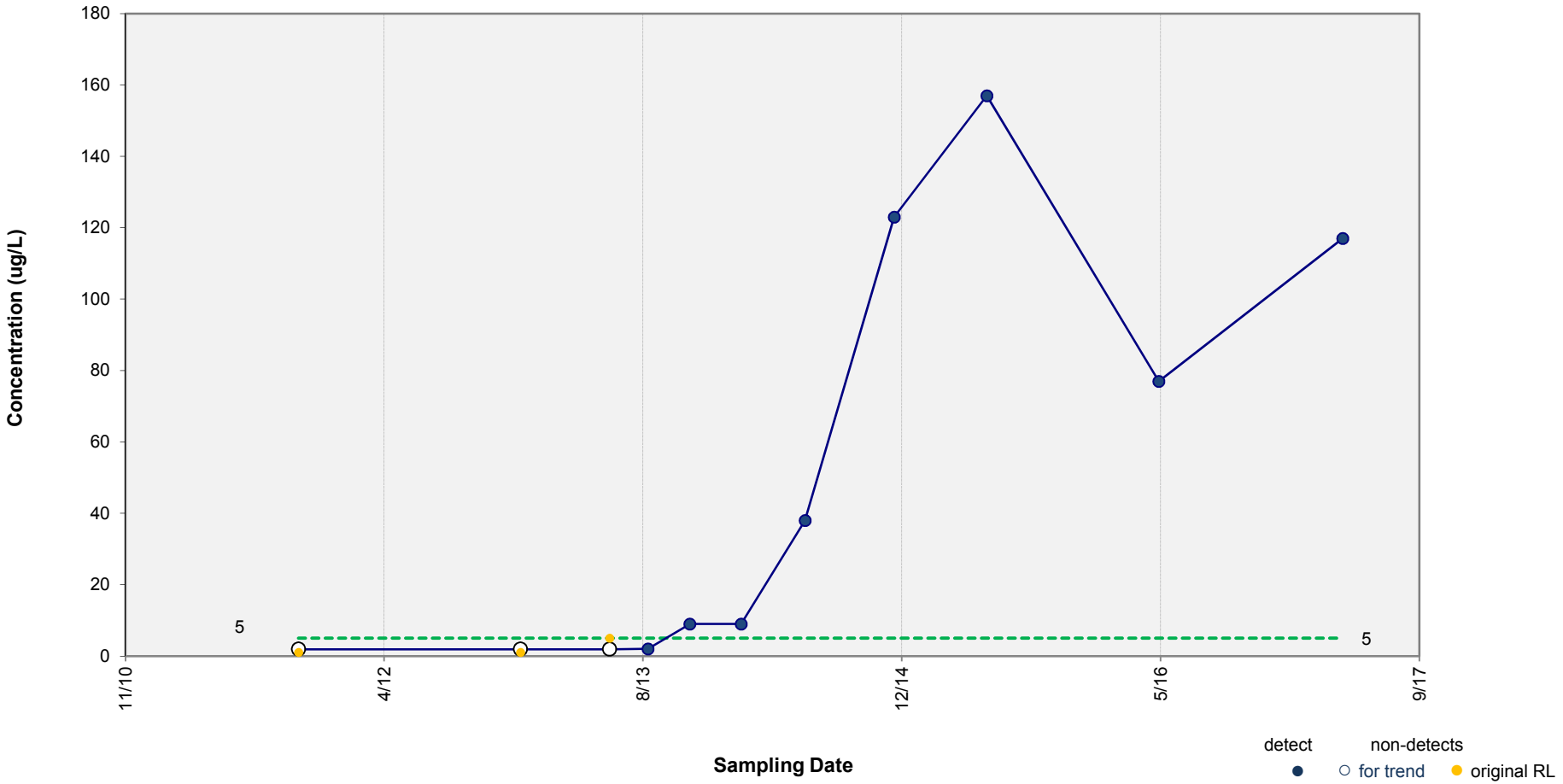
Confidence Interval on the Slope= -3.9E-03 to 9.5E-03 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MWBP-12-UST1-4, Arsenic

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 7.60E-02 mg/L per day

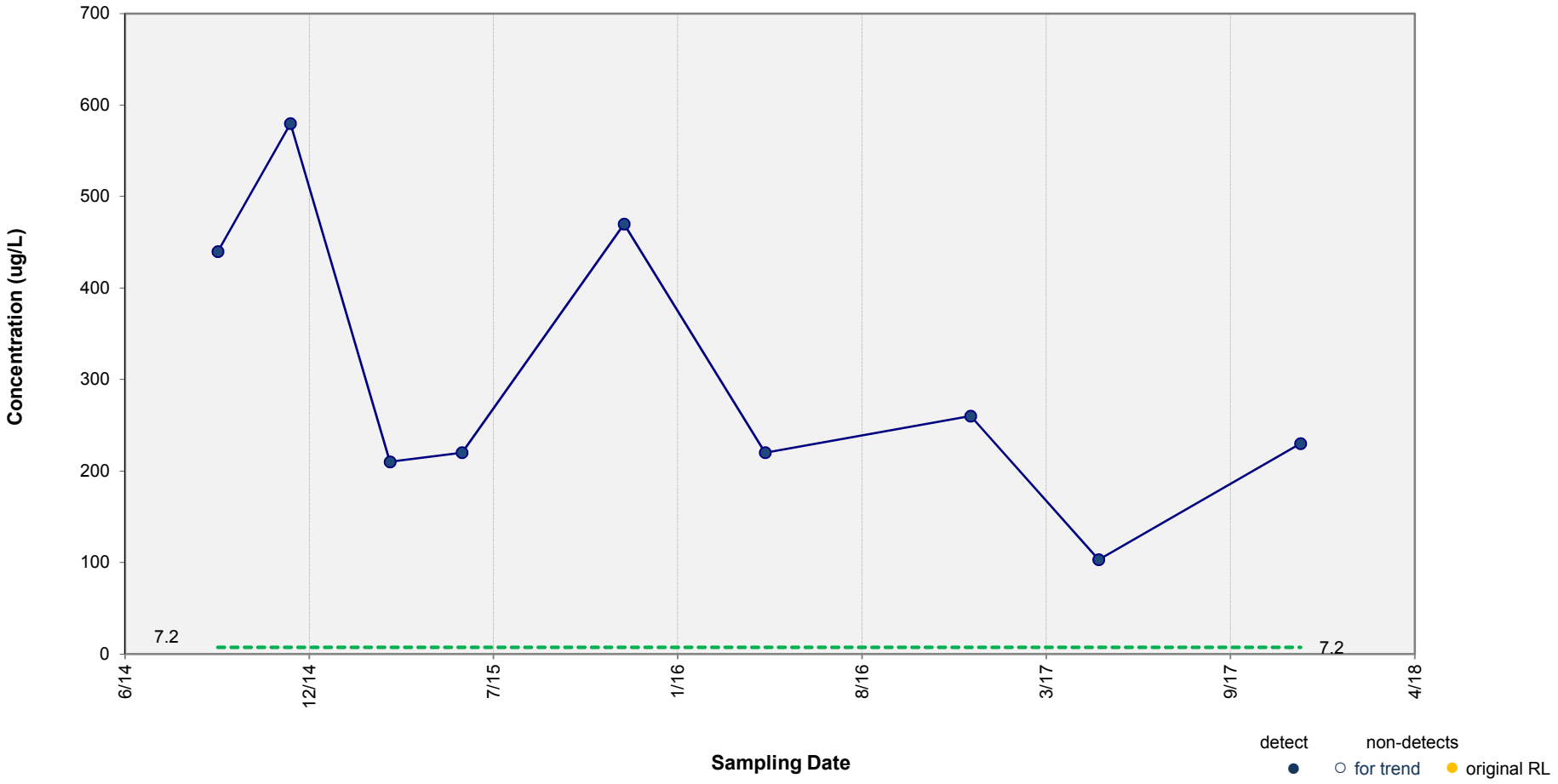
Confidence Interval on the Slope= 3.7E-02 to 1.1E-01 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: MWBP-12-UST1-4, Benzene

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.2090 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = -1.99E-01 mg/L per day

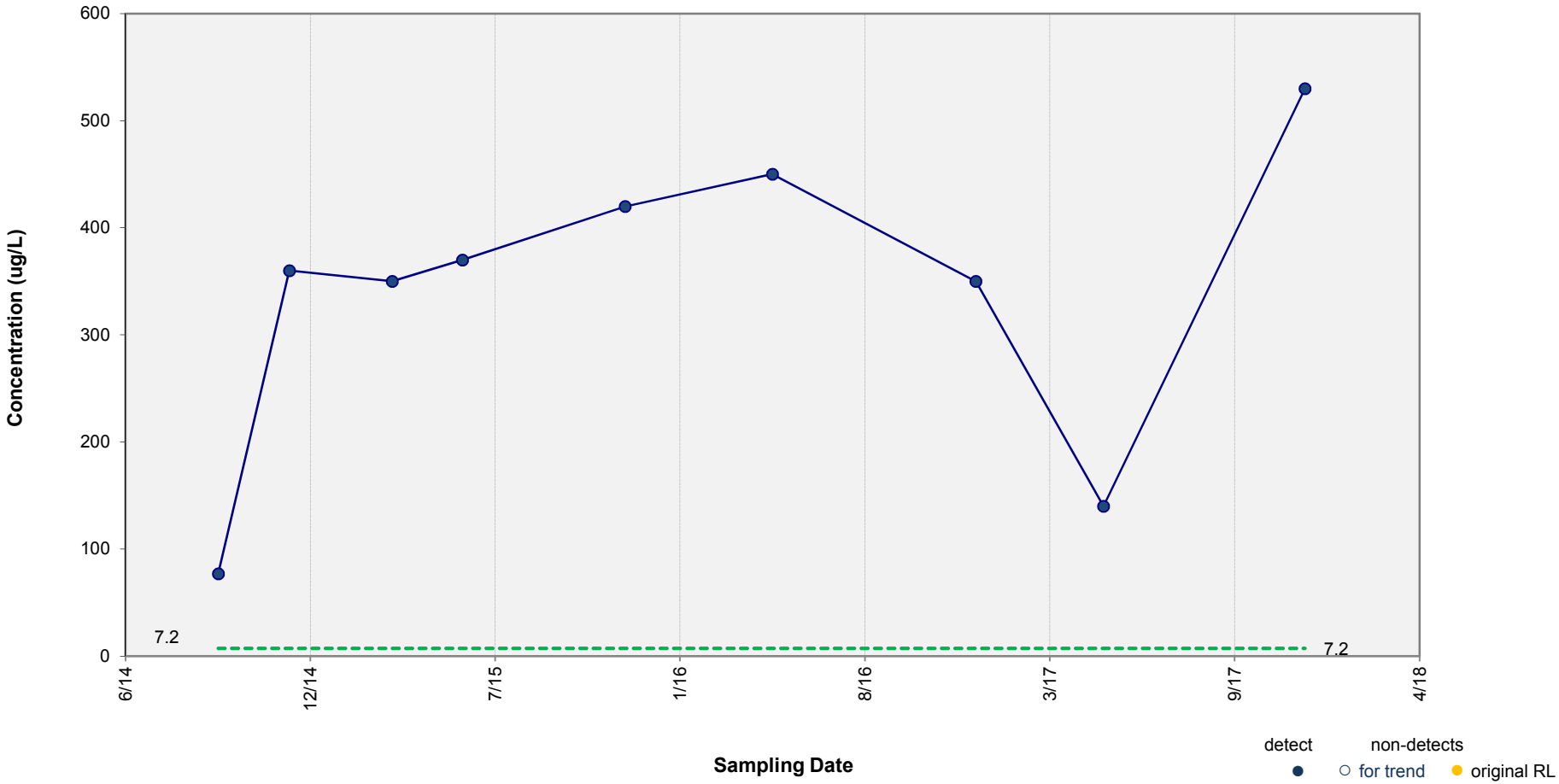
Confidence Interval on the Slope= -5.3E-01 to 2.0E-02 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: PW-14-02, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.1100 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = 1.69E-01 mg/L per day

Confidence Interval on the Slope= -3.3E-02 to 2.8E-01 mg/L per day

ARCADIS Design & Consultancy for natural and built assets

Concentration Plot: PW-14-03, 1,4-Dioxane

RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

Attachment 1

Arcadis of Michigan, LLC

28550 Cabot Drive

Suite 500

Novi, Michigan 48377

Tel 248 994 2240

Fax 248 994 2241

www.arcadis.com