ARCADIS Design & Consultancy for natural and built assets

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ENVIRONMENT

Subject:
Fourth Quarter 2015 Groundwater Monitoring Summary
RACER Lansing - Plants 2, 3 and 6
Lansing, Michigan

Date:
February 23, 2016

Contact:
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Email:
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Our ref:
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B0064481.2016

Dear Mr. Quackenbush:

The purpose of this correspondence is to summarize the fourth quarter 2015 groundwater monitoring activities completed at RACER Lansing – Plants 2, 3 and 6 (Site). Arcadis of Michigan, LLC (Arcadis) completed the fourth quarter 2015 gauging and groundwater monitoring activities as part of the on-going Resource Conservation and Recovery Act (RCRA) Corrective Action, between November 30 and December 10, 2015. The activities completed during the fourth quarter event included:

- Gauging LNAPL wells;
- Site-wide groundwater elevation gauging;
- LNAPL recovery;
- Semi-annual groundwater sampling activities;
- Annual storm sewer sampling

All monitoring activities were completed in accordance with the approved Revised Interim Groundwater Monitoring Work Plan (IGMP), dated November 14, 2014, and incorporated the changes to the IGMP Matrix approved by the MDEQ on August 18, 2015. Deviations from the approved sampling plan include the following:

- Monitoring well MW-13-42, located near the western Plant 2 property boundary, was dry and could not be sampled. This well was replaced by Well MW-15-72 in December 2015 and will be added to the IGMP beginning second quarter 2016.

- Storm sewer sampling point P3-MH-S, located on the southern portion of Plant 3, could not be located during the annual storm sampling event and was not sampled. This structure may be buried. Arcadis will locate this structure in the spring and place markers for future reference.

Monitoring well locations for Plants 2, 3, and 6 are included on **Figure 1, Figure 2,** and **Figure 3**, respectively. Storm sewer sampling locations for Plants 2, 3, & 6 are included in **Attachment 1**.

SITE ACTIVITIES

Site wide groundwater elevation measurements were collected from a total of 162 wells on November 30 and December 1, 2015. Prior to starting the gauging activities, wells were screened for the presence of vapor phase VOCs using a photoionization detector (PID). Light non-aqueous phase liquid (LNAPL) gauging was completed at a total of 24 wells. The groundwater elevations and LNAPL thicknesses are summarized on **Table 1** and **Table 2**, respectively.

LNAPL Removal

As outlined in the Summary of LNAPL Transmissivity Results memorandum provided to the MDEQ on March 30, 2015, LNAPL transmissivity estimates for the deeper LNAPL wells installed in the deeper, confined LNAPL zone at Plant 2 are two to three orders of magnitude below the criterion established by MDEQ to define LNAPL that can be recovered in a cost effective and efficient manner. However, given that PCBs are present in the deeper LNAPL zone at elevated concentrations, and the LNAPL accumulates at significant thickness at several wells, LNAPL is manually recovered from these wells on a quarterly basis.

During the fourth quarter event, four of the seven deeper LNAPL monitoring wells (LMW-12-03D, LMW-14-12D, LMW-14-15D and LMW-14-16D) indicated LNAPL thickness greater than 6 feet. The thickness of the LNAPL measured in the deeper monitoring wells during the fourth quarter 2015 is consistent with previous monitoring events. A summary of the LNAPL recovered from these wells is provided as **Table 3**. Approximately 6.7 gallons of total liquid, consisting primarily of LNAPL, was recovered from the wells during the fourth quarter 2015.

Groundwater Sampling

Between December 1 and December 9, 2015 a total of 93 monitoring wells were sampled and analyzed for one or more of the following:

- Target compound list (TCL) volatile organic compounds (VOCs) using USEPA Method SW8260B.
- 1,4-Dioxane using Method SW8260B-SIM.

- Select metals (arsenic, nickel, lead, vanadium, chromium, and copper) utilizing Method SW6020A. Samples were submitted for dissolved and total metals analysis if turbidity could not be stabilized below 10 nephelometric turbidity units (NTUs).
- Metals (antimony, arsenic, barium, boron, cadmium, chromium, cobalt, copper, lead, manganese, mercury (Method 7471B), nickel, selenium, silver, vanadium, and zinc) using Method SW6020A. Samples were submitted for both dissolved and total metals analysis if turbidity could not be stabilized below 10 NTUs.
- Chromium VI was analyzed at CH-14-RO and MW-91-2 using Method SW6020A.
- Semi-volatile organic compounds (SVOCs) using Method SW8270D at well TW-14-02.

On November 20, 2015, a total of 7 storm sewer samples were collected and analyzed for the following:

- TCL VOCs using USEPA Method SW8260B.
- 1,4-Dioxane using Method SW8260B-SIM.
- TAL Metals (antimony, arsenic, barium, boron, cadmium, chromium, cobalt, copper, lead, manganese, mercury [Method 7471B], nickel, selenium, silver, vanadium, and zinc) using Method SW6020A.

In addition to the analysis completed in accordance with the IGMP, a geochemical evaluation of 14 monitoring wells on Plant 2 was performed to compare “geochemical signatures” between the shallow and deep zones. The selected wells were analyzed for the following parameters:

- Magnesium, sodium, potassium, and calcium utilizing Method SW6020A.
- Chloride utilizing Method E300.0
- Sulfate utilizing Method E300.0
- Total alkalinity utilizing Method SM2320B

An analysis of the geochemical data, including stiff and/or piper diagrams, will be provided as part of the annual groundwater monitoring report to be submitted during the second quarter 2016.

Groundwater samples were collected utilizing low-flow groundwater sampling methods with a submersible pump. Samples were submitted under chain of custody protocol to Merit Laboratories (Merit) located in Lansing, Michigan. Groundwater analytical results are summarized on **Table 4**. Groundwater low-flow sampling logs are included as **Attachment 2.**

RESULTS

The results of the fourth quarter 2015 sampling event are generally consistent with previous groundwater sampling events. Of the 94 wells scheduled to be sampled, one well (MW-13-42) located near the western Plant 2 property boundary was dry and could not be sampled. A slightly deeper well MW-15-72 was installed per MDEQ approval in December 2015 as a better monitoring point. Well MW-15-72, as

well as MW-15-73 (installed adjacent to bedrock well MW-12-05 in the central part of Plant 2), will be added to the IGMP beginning first quarter 2016.

Exceedances of the Part 201 Residential Drinking Water (DW) Criteria are summarized on **Table 4** and illustrated on **Figures 4**, **5, and 6**. Results of the fourth quarter 2015 sampling event are summarized below.

- VOCs exceeding DW Criteria include tetrachloroethene, vinyl chloride, total xylene, 1,1-Dichloroethane, and 1,4-dioxane. This is consistent with previous groundwater investigation and monitoring results.
- Metals that exceed DW Criteria include arsenic, lead, manganese, nickel, and vanadium throughout the site. This is consistent with previous groundwater investigation and monitoring results. Manganese has been shown to be elevated regionally in groundwater relative to aesthetic DW Criteria and is not shown on Figures 4 through 6.
- Chromium VI exceeds the DW criterion at monitoring well CH-14-RO in the north central portion of Plant 3 near the former plating operation. This is consistent with previous groundwater investigation and monitoring results.

There were several detections of COCs observed in the perched zone or weathered bedrock near the property boundary. The following outlines these detections and proposes one or more explanations for the occurrence:

- MW-14-58, a monitoring well located within the perched zone near the western Plant 2 property boundary, has a 1,4-dioxane concentration of 24 µg/L. This is the lowest concentration observed at this location since the well was installed in August 2014. The concentration of 1,4-dioxane at MW-14-58 has ranged from 25 to 58 µg/L during the past four quarterly sampling events; consistently below the current DW Criteria of 85 µg/L. As previously reported, the detections of 1,4-dioxane at this location could be associated with the perched plume at Plant 2, or comingled with the former Adam's Plating Company (APC) perched groundwater plume.
- MW-14-56, a weathered bedrock well located near the western Plant 2 property boundary, had a 1,4-dioxane concentration of 7 µg/L (below the proposed DW Criteria of 8.5 µg/L) during the fourth quarter sampling event. 1,4-Dioxane was detected at similar concentrations (6 to 8 µg/L) during the past four quarterly sampling events, and the plume at this location appears to be stable. As discussed with the MDEQ on January 2016, recent investigation results along W. Genesee Street suggest the possibility that this detection could be related to a deeper 1,4-dioxane impact associated with the former APC. A summary of the "lower 1,4-dioxane toe investigation" will be provided to the MDEQ in March 2016. This well will continue to be monitored on a quarterly basis through the first quarter 2016 to verify concentrations are not changing. The sampling frequency at this well will be re-evaluated as part of the next annual report.
- Nickel was detected at a concentration of 3.63 mg/L (DW criteria: 0.10 mg/L) at MW-13-32 located near the Plant 3 eastern property boundary. Nickel was detected at a concentration of 20.7 mg/L at MW-13-31 located west of MW-13-32. Well MW-13-31 is installed in fill with limited amount of

available water. The well goes dry during sampling and samples collected are typically turbid. The sample was filtered at the time of collection and dissolved analysis indicates nickel at a concentration of 8.24 mg/L. This result suggests at least a portion of the nickel in groundwater at this location is related to suspended sediment. Previous sampling events have shown inconsistent nickel concentrations in this area. For example, prior to the second quarter 2015, the concentration of nickel at these locations appeared to be increasing, however, during the third quarter 2016, the concentration of nickel at both wells MW-13-32 and MW-13-31 decreased to 0.251 and 0.017 mg/L, respectively. The fourth quarter results are the highest yet measured at these locations. Groundwater elevation in this area has indicated a component of the groundwater flow is westerly, onto the Site. A detailed summary of the nickel occurrence at Plant 3 has been provided to the MDEQ for both soil and groundwater (Arcadis 2014, 2015a, 2015b). These wells will continue to be monitored quarterly to determine the overall trend of nickel at these locations.

- Various metals, primarily arsenic, nickel, and vanadium, were detected above criteria near the property boundaries at several other monitoring well locations similar to previous sampling events. As stated in the Preliminary Geochemical and Plume Stability Assessment and the 2014-2015 Annual Groundwater Monitoring Report (Arcadis, 2014a, 2015c), metals impacts appear stable, are spatially limited, and appear to be a result of minor shifts in Site geochemistry.
- Samples from well TW-14-02, located at the toe of the lower 1,4-dioxane plume on Plant 2 has had elevated concentrations of 1,4-dioxane since first being sampled during the second quarter 2015. During the fourth quarter sampling event, the concentration of 1,4-dioxane at this location was 2,600 µg/L. There are several possible explanations for this occurrence including leakage from the perched zone, an off-site source, or simply a heretofore undetected pocket of elevated 1,4-dioxane related to the previously identified source area on Plant 3. Additional work was completed in December 2015 to characterize the area around TW-14-02 and other potential contributing factors such as the perched 1,4-dioxane LNAPL source area located to the north. The results of the investigation suggest a high degree of variability of 1,4-dioxane within the core of the lower plume. A summary of the lower 1,4-dioxane toe investigation will be provided to the MDEQ in March 2016. Well TW-14-02 will continue to be monitored quarterly.
- Groundwater monitoring will continue in accordance with the revised IGMP Matrix, approved by the MDEQ on August 18, 2015. The first quarter 2016 sampling event is scheduled to be completed in March.

ANNUAL 2015 STORM SEWER SAMPLING EVENT

The results of the storm sewer sampling event are similar to previous sampling events. Of the 8 locations, one was unable to be sampled. P3-MH-S could not be located and may be buried under gravel. The results of the sampling were compared to the Part 201 Groundwater Surface Water Interface (GSI) Criteria. A summary of the results is provided below.

- Plant 2 1,4-Dioxane - 1,4-Dioxane was detected at the P2-MH-NW (discharge from Plant 2 to Plant 3) and at P2 outfall on Plant 3 at concentrations ranging from 8 to 25 µg/L. GSI Criteria for 1,4-dioxane is 2,800 µg/L.
- Inorganics, including arsenic, barium, boron, copper, lead, manganese, nickel, and zinc were detected on all three Plants, but all below GSI criteria.
- Plant 6 Xylenes - Xylenes have historically been detected at the Plant 6 outfall to the City of Lansing storm sewer system. During the fourth quarter 2015, a sample was collected from manhole P6-MH2-SW located upgradient from the Plant 6 outfall. Xylenes were not detected at this location. In December 2015, following the storm sewer sampling event, RFI Areas 9 and 7 were excavated to remove the highest concentration of xylenes remaining in this area.

A summary of the fourth quarter 2015 storm sewer sampling results are included on a table included as part of **Attachment 1**. Attachment 1 also includes figures indicating storm sewer sampling locations Results of the storm sewer sampling are consistent with previous events and no immediate action is recommended. Monitoring at these locations will continue per the approved revised Interim Groundwater Monitoring Plan. The next storm sewer sampling event is planned for fourth quarter 2016.

The first quarter quarterly groundwater sampling event is scheduled to begin March 14th 2016 following the first quarter event a comprehensive annual groundwater monitoring report will be prepared and submitted during the second quarter 2016, as outlined in the approved IGMP. The annual report will include an updated plume stability and geochemical evaluation, geochemical signature evaluation based on the additional parameters collected during the fourth quarter 2015 event, groundwater elevation contour maps and validated laboratory analytical reports.

If you should have any questions regarding the enclosed data please do not hesitate to contact me at 810.225.1926 or via email at patrick.curry@arcadis.com.

Sincerely,

Arcadis U.S., Inc.

Patrick J. Curry, CPG
Senior Geologist

Copies:

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David Love, Ingham County Drain Commission
Steve Haywood, Lansing Township
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Enclosures:

Tables

1 Summary of Groundwater Elevations – November - December 2015
2 Summary of LNAPL Thicknesses – November - December 2015
3 Summary of LNAPL Recovery – December 2015
4 Summary of Fourth Quarter 2015 Groundwater Analytical Data – December 2015

Figures

1 Fourth Quarter 2015 Sampling Locations Plant 2 and W. Plant 6
2 Fourth Quarter 2015 Sampling Locations Plant 3
3 Fourth Quarter 2015 Sampling Locations Plant 6
4 Fourth Quarter 2015 Drinking Water Exceedances Plant 2 and W. Plant 6
5 Fourth Quarter 2015 Drinking Water Exceedances Plant 3
6 Fourth Quarter 2015 Drinking Water Exceedances Plant 6

Attachments

1 Fourth Quarter 2015 Storm Sewer Sampling Locations and Analytical Results
2 Fourth Quarter 2015 Groundwater Sampling Logs

REFERENCES

Arcadis. 2014. Memorandum, Re: Area 16 Metals Summary. RACER Trust Plant 3, Lansing, Michigan. June 24.

Arcadis 2014a. Preliminary Geochemical and Plume Stability Assessment. RACER Trust Plant 3, Lansing, Michigan.

Arcadis. 2015a. Memorandum, Re: Area 16 Soil Risk Evaluation. RACER Trust Plant 3, Lansing, Michigan. February 4.

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

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

TABLES

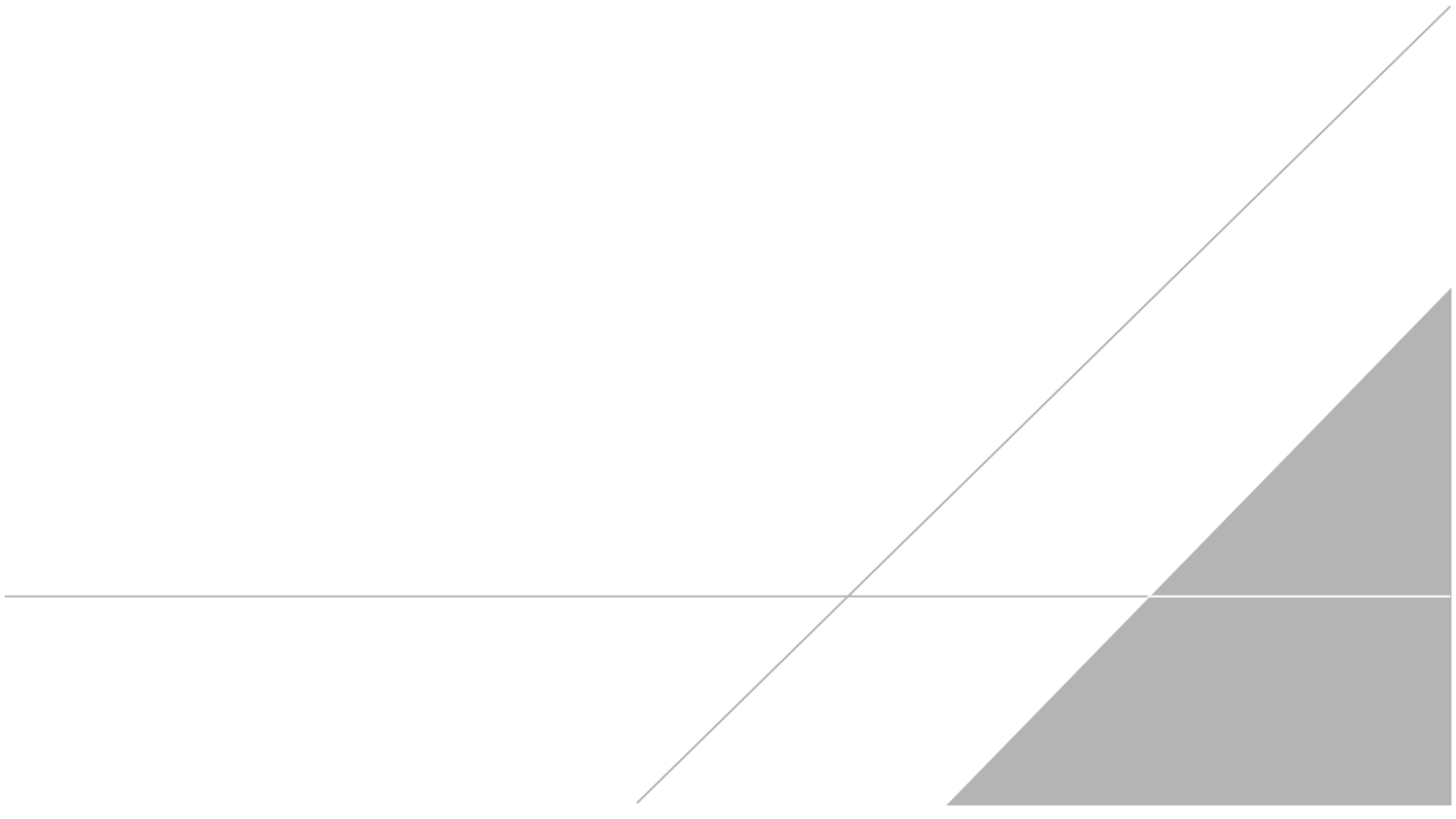

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION MEASUREMENTS
November - December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID:	Date Collected:	Screened Interval Top (ft. bgs)	Screened Interval Bottom (ft. bgs):	Reference Elevation (TOC [ft. msl]):	Ground Surface Elevation (ft. msl):	Total Well Depth (ft. below TOC):	Depth to Water (ft. below TOC):	Groundwater Elevation (ft. msl):
Plant 2								
LMW-12-01	11/30/2015	7	12	864.91	862.14	14.76	11.44	853.47
LMW-12-02	11/30/2015	5	10	865.25	862.17	12.90	8.24	857.01
LMW-12-03D	11/30/2015	17.3	22.3	864.99	862.08	--	16.87	853.71*
LMW-12-03S	11/30/2015	4	9	864.93	862.06	11.75	7.30	857.63
LMW-12-04	11/30/2015	16	21	864.94	862.12	--	11.22	853.72
LMW-12-05	11/30/2015	7	12	865.03	862.17	--	12.85	852.25*
LMW-12-06	11/30/2015	4	9	865.02	862.15	11.98	6.98	858.04
LMW-12-07	11/30/2015	4	9	864.13	861.50	11.97	5.83	858.30
LMW-12-08	11/30/2015	8	13	864.40	861.56	--	10.98	855.61*
LMW-14-12D	11/30/2015	18	23	864.59	862.11	24.78	24.78	852.97*
LMW-14-13D	11/30/2015	17.5	22.5	865.03	862.06	48.92	11.39	853.64
LMW-14-14D	11/30/2015	18	23	864.89	861.90	25.12	13.40	853.44*
LMW-14-15D	11/30/2015	18	23	865.11	861.66	22.68	22.31	850.70*
LMW-15-16D	11/30/2015	19.5	24.5	865.20	862.24	--	21.24	843.96
LMW-15-17D	11/30/2015	20	25	865.21	862.24	27.31	11.48	853.73
MW-01(2)	11/30/2015	10	20	875.79	876.10	15.90	9.10	866.69
MW-02(2)	11/30/2015	12	22	875.96	876.20	19.20	9.65	866.31
MW-03(2)	11/30/2015	12	22	876.70	876.79	21.10	10.25	866.45
MW-12-01	11/30/2015	87	110	867.94	865.46	111.20	82.40	785.54
MW-12-02	11/30/2015	87	110	853.91	851.88	109.40	73.50	780.41
MW-12-05	11/30/2015	75	99	865.19	862.23	103.68	77.85	787.34
MW-12-06	11/30/2015	80.6	99.5	864.64	861.69	103.60	79.40	785.24
MW-12-07	11/30/2015	10	15	872.11	869.21	17.70	8.35	863.76
MW-12-08	11/30/2015	19	24	864.53	861.55	27.40	8.08	856.45
MW-12-09	11/30/2015	14	19	863.54	860.63	21.60	14.70	848.84
MW-12-17	11/30/2015	9.5	14.5	875.47	875.83	14.00	8.80	866.67
MW-12-18	11/30/2015	28	33	866.43	864.19	34.80	24.25	842.18
MW-13-42	11/30/2015	70	75	861.61	860.03	76.90	76.75	784.86
MW-13-43	11/30/2015	72	77	863.82	860.97	80.10	71.60	792.22
MW-13-44	11/30/2015	96	115	864.24	861.03	123.00	83.25	780.99
MW-13-45	11/30/2015	72	77	863.80	861.54	78.35	70.70	793.10
MW-13-48	11/30/2015	65	70	854.83	852.17	29.93	14.90	839.93
MW-13-51	11/30/2015	77	87	875.34	872.51	89.85	76.00	799.34
MW-14-54	11/30/2015	14	19	865.21	862.21	19.05	15.30	849.91
MW-14-55	11/30/2015	13	18	864.17	861.73	20.10	18.32	845.85
MW-14-56	11/30/2015	71	76	863.27	860.56	79.00	76.23	787.04
MW-14-57	11/30/2015	15	20	863.97	861.10	21.40	14.60	849.37
MW-14-58	11/30/2015	22	27	863.12	860.12	29.93	14.90	848.22
MW-14-59	11/30/2015	12	17	864.61	861.80	18.89	8.00	856.61
MW-14-60	11/30/2015	15	20	864.65	861.80	23.56	13.60	851.05
MW-14-61	11/30/2015	70	75	865.51	862.30	73.50	73.40	792.11
MW-14-62	11/30/2015	12	17	865.17	862.25	19.64	6.79	858.38
MW-14-63	11/30/2015	68	73	854.64	851.68	77.15	72.90	781.74
P2-MW-01	11/30/2015	31	36	858.00	858.35	35.75	15.24	842.76
P2-MW-02	11/30/2015	31	41	872.24	872.70	40.20	37.33	834.91
P2-MW-03	11/30/2015	27	32	854.18	854.66	27.15	10.15	844.03
P2-MW-04	11/30/2015	26	36	862.28	862.59	35.70	11.33	850.95
P2-SB-03	11/30/2015	14	19	863.89	861.03	22.10	18.10	845.79

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION MEASUREMENTS
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RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID:	Date Collected:	Screened Interval Top (ft. bgs)	Screened Interval Bottom (ft. bgs):	Reference Elevation (TOC [ft. msl]):	Ground Surface Elevation (ft. msl):	Total Well Depth (ft. below TOC):	Depth to Water (ft. below TOC):	Groundwater Elevation (ft. msl):
Plant 2 (cont.)								
P2-SB-06	11/30/2015	24	29	866.06	862.09	33.50	19.30	846.76
P2-SB-20	11/30/2015	8	13	864.46	861.12	16.30	9.85	854.61
P2-SB-37	11/30/2015	5	10	865.90	861.90	--	9.19	858.37*
PMW-01	11/30/2015	2.59	7.59	860.85	861.33	--	5.43	858.59*
PMW-02	11/30/2015	2.59	7.59	861.12	861.50	--	2.61	858.90*
PMW-03	11/30/2015	1.2	6.2	861.59	862.12	6.09	2.27	859.32
PW-14-01	11/30/2015	71.6	76.8	864.97	862.38	85.50	68.36	796.61
PW-14-02	11/30/2015	75	80	863.91	861.17	89.30	71.20	792.71
TW-14-02	11/30/2015	67	72	865.01	862.13	74.70	66.87	798.14
Plant 3								
CH-14-RO	11/30/2015	7	12	866.44	863.68	14.85	9.14	857.30
LMW-12-09	11/30/2015	3	8	863.22	860.40	10.78	4.63	858.59
LMW-12-10	11/30/2015	14	19	866.82	863.60	--	21.43	855.71*
LMW-12-11	11/30/2015	15	20	866.53	863.53	22.87	14.28	852.25
MW-02-01(3)	12/1/2015	59	69	865.54	863.35	72.15	54.07	811.47
MW-02-02(3)	11/30/2015	74	84	862.70	863.11	83.75	68.33	794.37
MW-02-03(3)	11/30/2015	79	89	859.63	859.90	89.15	66.40	793.23
MW-02-04(3)	11/30/2015	76	86	862.61	862.93	84.32	66.99	795.62
MW-04(3)	11/30/2015	10.5	15.5	859.40	859.79	15.75	4.54	854.86
MW-04-01(3)	12/1/2015	95	105	862.61	862.93	104.60	53.58	809.03
MW-04-02(3)	11/30/2015	126	136	861.09	861.26	132.30	68.63	792.46
MW-04-03(3)	11/30/2015	80	90	860.72	861.00	87.40	67.59	793.13
MW-04-04(3)	11/30/2015	72	82	855.72	856.11	81.50	62.25	793.47
MW-05(3)	11/30/2015	10	15	859.02	859.79	15.25	4.73	854.29
MW-06(3)	11/30/2015	6.5	11.5	859.52	859.79	11.55	3.75	855.77
MW-12-04	11/30/2015	77	100	844.08	844.26	100.00	53.68	790.40
MW-12-19	12/1/2015	5	10	859.55	859.96	8.90	0.00	859.55
MW-12-20	11/30/2015	75	80	864.20	861.45	79.50	70.80	793.40
MW-12-21	11/30/2015	70	75	864.50	861.45	78.10	69.32	795.18
MW-13-22	11/30/2015	89	94	864.37	861.50	96.25	73.51	790.86
MW-13-23	11/30/2015	69	74	864.31	861.45	77.55	74.37	789.94
MW-13-24	11/30/2015	69	74	864.35	861.48	77.35	69.24	795.11
MW-13-25	11/30/2015	67	72	863.77	860.49	75.00	69.96	793.81
MW-13-26	11/30/2015	72	77	863.95	861.67	79.20	69.17	794.78
MW-13-27	11/30/2015	67	72	864.50	861.54	75.90	71.43	793.07
MW-13-28	11/30/2015	99	115.5	864.42	861.61	115.20	74.29	790.13
MW-13-29	11/30/2015	68	73	862.81	859.81	76.30	69.89	792.92
MW-13-30	11/30/2015	72	77	864.53	861.66	79.80	71.92	792.61
MW-13-31	12/1/2015	5	10	861.27	858.36	12.80	11.93	849.34
MW-13-32	12/1/2015	5	10	860.11	857.32	12.65	8.69	851.42
MW-13-33	12/1/2015	12	17	860.71	857.69	19.20	17.34	843.37
MW-13-34	11/30/2015	74	79	853.92	851.82	79.90	70.52	783.40
MW-13-37	11/30/2015	97	112	866.02	863.75	115.80	75.44	790.58
MW-13-38	11/30/2015	107	124	866.47	863.71	127.30	76.26	790.21
MW-13-39B	11/30/2015	97	112	860.20	857.33	105.30	69.72	790.48
MW-13-40	11/30/2015	72	77	862.67	859.69	78.65	66.74	795.93
MW-13-41	11/30/2015	77	82	866.38	863.68	84.80	66.44	799.94
MW-13-46	11/30/2015	68	73	854.54	852.12	74.65	68.75	785.79

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION MEASUREMENTS
November - December 2015
Fourth Quarter 2015 Groundwater 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 (ft. bgs)	Screened Interval Bottom (ft. bgs):	Reference Elevation (TOC [ft. msl]):	Ground Surface Elevation (ft. msl):	Total Well Depth (ft. below TOC):	Depth to Water (ft. below TOC):	Groundwater Elevation (ft. msl):
Plant 3 (cont.)								
MW-13-47	11/30/2015	99	119	853.74	851.89	113.70	69.75	783.99
MW-13-48	11/30/2015	65	70	854.83	852.17	73.10	61.25	793.58
MW-13-49	11/30/2015	73	78	853.01	850.55	81.65	70.73	782.28
MW-14-64	11/30/2015	98.6	103.6	864.56	861.77	106.30	73.73	790.83
MW-14-65	11/30/2015	5	10	866.34	863.71	13.25	6.51	859.83
MW-15-71	11/30/2015	110	115	864.56	861.58	118.30	71.42	793.14
MW-19	11/30/2015	55	65	859.74	859.92	64.35	54.81	804.93
MW-22	11/30/2015	52.5	62.5	859.69	860.08	63.45	53.81	805.88
MW-23	11/30/2015	52	62	859.45	859.76	61.40	52.65	806.80
MW-88-1	11/30/2015	103.5	140	858.75	859.06	137.35	72.78	785.97
MW-91-2	11/30/2015	68	78	863.62	863.88	76.60	62.75	800.87
MW-91-3	11/30/2015	105	117	860.81	859.35	119.15	72.89	787.92
MW-91-4	11/30/2015	116	132.5	855.59	855.93	130.65	64.15	791.44
MW-91-5	11/30/2015	112.5	128	860.61	861.20	126.55	67.53	793.08
MW-91-6	11/30/2015	82	98	851.84	852.22	80.80	66.37	785.47
P3-SB-07	11/30/2015	11	16	866.84	863.63	19.65	9.69	857.15
P3-SB-28	11/30/2015	8	13	866.43	863.63	10.35	6.71	859.72
PW-14-03	11/30/2015	79.6	84.6	864.31	861.55	94.35	76.39	787.92
UNK-09	11/30/2015	11	16	859.42	860.02	15.29	2.74	856.68
UNK-10	11/30/2015	11	16	859.34	860.05	15.35	3.20	856.14
UNK-11	11/30/2015	6.5	11.5	859.91	860.17	11.75	5.13	854.78
UNK-13	11/30/2015	11	16	859.11	859.91	14.98	4.18	854.93
UNK-14	11/30/2015	10.4	15.4	859.32	859.70	--	4.03	855.62*
UNK-15	11/30/2015	11	16	859.56	859.94	15.65	3.34	856.22
Plant 6								
MW-02-01(6)	11/30/2015	35	45	865.54	863.35	40.11	27.94	837.60
MW-02-02(6)	11/30/2015	35	45	868.04	868.41	43.44	30.07	837.97
MW-02-03(6)	11/30/2015	35	45	869.54	869.97	44.70	30.38	839.16
MW-03-01	11/30/2015	28	33	861.37	861.88	33.31	23.57	837.80
MW-03-02	11/30/2015	30	40	864.52	864.76	39.38	22.88	841.64
MW-03-04	11/30/2015	33	43	865.28	865.53	42.70	22.92	842.36
MW-03-06	11/30/2015	30	40	870.45	870.80	40.60	36.31	834.14
MW-03-07	11/30/2015	30	40	866.88	867.02	88.00	77.45	789.43
MW-04-01(6)	11/30/2015	78	88	866.85	867.15	40.48	29.65	837.20
MW-04-04R	11/30/2015	82	110	873.31	870.64	111.08	83.80	789.51
MW-04-05(6)	12/1/2015	20	30	858.33	858.87	29.68	9.92	848.41
MW-04-06R	11/30/2015	74	99.5	861.56	858.59	78.16	73.22	788.34
MW-12-10	12/8/2015	8	13	860.89	858.82	17.98	11.52	849.37
MW-12-11	11/30/2015	13	18	857.26	857.68	16.82	5.82	851.44
MW-12-12	11/30/2015	13	18	874.34	874.61	17.23	7.32	867.02
MW-12-13	11/30/2015	18.5	23.5	882.60	880.51	25.44	10.34	872.26
MW-12-14	11/30/2015	25	30	872.56	869.28	32.09	25.53	847.03
MW-12-15	11/30/2015	18	23	865.23	865.49	22.69	19.83	845.40
MW-12-16	11/30/2015	28	33	864.24	864.73	32.20	23.45	840.79
MW-13-35	11/30/2015	25	30	864.81	865.23	29.52	24.22	840.59
MW-13-36R	11/30/2015	5.5	10.5	878.04	875.28	12.88	6.09	871.95
MW-13-50	11/30/2015	85	107	872.85	869.93	110.00	86.50	786.35
MW-13-52	11/30/2015	70	80	872.50	869.84	82.00	71.40	801.10

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION MEASUREMENTS
November - December 2015
Fourth Quarter 2015 Groundwater 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 (ft. bgs)	Screened Interval Bottom (ft. bgs):	Reference Elevation (TOC [ft. msl]):	Ground Surface Elevation (ft. msl):	Total Well Depth (ft. below TOC):	Depth to Water (ft. below TOC):	Groundwater Elevation (ft. msl):
Plant 6 (cont.)								
MW-13-53	11/30/2015	73	83	875.56	873.10	85.50	78.22	797.34
MW-14-66	11/30/2015	14	19	877.85	874.73	22.24	4.60	873.25
MW-14-67	11/30/2015	13	18	877.76	875.07	20.84	5.83	871.93
MW-14-68	11/30/2015	36	41	878.44	875.42	44.10	--	878.44
MW-14-69	11/30/2015	41	46	883.62	880.72	49.02	--	883.62
MW-14-70	11/30/2015	16	21	882.79	880.08	23.14	10.95	871.84
MWBP-10-UST5-6	11/30/2015	28	38	867.70	867.99	36.85	31.40	836.30
MWBP-11-UST1-4	11/30/2015	9	19	868.66	869.07	11.26	2.31	866.35
MWBP-12A-UST1-4	11/30/2015	28	38	869.74	869.96	36.61	30.40	839.34
MWBP-12-UST1-4	11/30/2015	15	25	870.02	870.58	11.28	7.19	862.83
MWBP-12-UST5-6	11/30/2015	28	38	NS	NS	38.50	32.74	--
MWBP-13A-UST1-4	11/30/2015	28	38	869.99	870.10	38.03	32.90	837.09
P6-MW-01	11/30/2015	23	28	870.10	866.87	31.21	29.32	840.78
P6-SB-07	11/30/2015	15	20	877.36	874.36	23.63	7.09	870.27
P6-SB-18	11/30/2015	3	8	878.46	874.60	12.18	4.29	874.17
P6-SB-21	11/30/2015	3	8	874.20	870.92	11.13	2.73	871.47
P6-SB-32	11/30/2015	7	12	877.79	873.79	16.48	10.18	867.61
P6-SB-35	11/30/2015	3	8	877.76	874.28	11.98	4.10	873.66
P6-SB-37	11/30/2015	5	10	878.12	874.32	13.94	5.32	872.80
SME-MW-02	11/30/2015	33	38	869.30	NS	37.30	33.86	835.44

Note:
*Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 g/mL
-- not calculated or not available
ft. - feet
ft. msl - feet above mean sea level
N/A - not analyzed
NS - not surveyed
ID - Identification
TOC - Top of Casing
bgs - below ground suface

TABLE 2
SUMMARY OF LNAPL THICKNESS
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2 and 3 - Lansing, Michigan

Well ID:	Date Collected:	Reference Elevation (TOC [ft. msl]):	Ground Surface Elevation (ft. msl):	Total Well Depth (ft. below TOC):	Depth to Water (ft. below TOC):	Depth to LNAPL (ft. below TOC):	Calc. Thickness NAPL (ft.)	Groundwater Elevation (ft. msl):
LMW-12-01	11/30/2015	864.91	862.14	14.76	11.44	NP	NP	853.47
LMW-12-02	11/30/2015	865.25	862.17	12.9	8.24	NP	NP	857.01
LMW-12-03D	11/30/2015	864.99	862.08	NM	16.87	10.66	6.21	853.71*
LMW-12-03S	11/30/2015	864.93	862.06	11.75	7.3	NP	NP	857.63
LMW-12-04	11/30/2015	864.94	862.12	NM	11.22	NP	NP	853.72
LMW-12-05	11/30/2015	865.03	862.17	NM	12.85	12.78	0.07	852.25*
LMW-12-06	11/30/2015	865.02	862.15	11.98	6.98	NP	NP	858.04
LMW-12-07	11/30/2015	864.13	861.50	11.97	5.83	NP	NP	858.30
LMW-12-08	11/30/2015	864.40	861.56	NM	10.98	8.54	2.44	855.61*
LMW-14-12D	11/30/2015	864.59	862.11	24.78	24.78	10.15	14.63	852.97*
LMW-14-13D	11/30/2015	865.03	862.06	48.92	11.39	NP	NP	853.64
LMW-14-14D	11/30/2015	864.89	861.90	25.12	13.4	NP	NP	851.49
LMW-14-15D	11/30/2015	865.11	861.66	22.68	22.31	10.48	11.83	853.44*
LMW-15-16D	11/30/2015	865.20	862.24	NM	21.24	13.75	7.49	850.70*
LMW-15-17D	11/30/2015	865.21	862.24	27.31	11.48	NP	NP	853.73
P2-SB-37	11/30/2015	865.90	861.90	NM	9.19	7.34	1.85	858.37*
PMW-01	11/30/2015	860.85	861.33	NM	5.43	1.9	3.53	858.59*
PMW-02	11/30/2015	861.12	861.50	NM	2.61	2.18	0.43	858.90*
PMW-03	11/30/2015	861.59	862.12	6.09	2.27	NP	NP	859.32
LMW-12-09	11/30/2015	863.22	860.40	10.78	4.63	NP	NP	858.59
LMW-12-10	11/30/2015	866.82	863.60	NM	21.43	9.96	11.47	855.71*
LMW-12-11	11/30/2015	866.53	863.53	22.87	14.28	NP	NP	852.25
UNK-13	11/30/2015	859.11	859.91	14.98	4.18	NP	NP	854.93
UNK-14	11/30/2015	859.32	859.70	NM	4.03	3.66	0.37	855.62*

Note:
*Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 g/mL
ft. - feet
ft. msl - feet above mean sea level
ID - Identification
NM - Not Measured
NP - No Product
TOC - Top of Casing

TABLE 3
SUMMARY OF LNAPL RECOVERY
December 2015
Fourth Quarter 2015 Groundwater Monitoring Report
RACER Trust Plant 2 - Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID:	Recovery Date:	Reference Elevation (TOC):	Ground Surface Elevation:	Total Well Depth (ft. below TOC):	Depth to Water (ft. below TOC):	Depth to LNAPL (ft. below TOC):	Starting LNAPL Thickness (ft):	Groundwater Elevation (ft msl):	Estimated LNAPL Volume Recovered (gallons):	Liquid Recovered (gallons)***
LMW-12-03D	12/10/2015**	864.99	862.08	NM	16.87	10.66	6.21	853.71*	1.00	1.00
LMW-14-12D	12/10/2015**	864.59	862.11	24.78	24.78	10.15	14.63	852.97*	2.50	2.50
LMW-14-13D	12/10/2015**	865.03	862.06	48.92	11.39	NP	NP	853.64	NP	NP
LMW-14-14D	12/10/2015**	864.89	861.90	25.12	13.4	NP	NP	851.49	NP	NP
LMW-14-15D	12/10/2015**	865.11	861.66	22.68	22.31	10.48	11.83	853.44*	2.00	2.00
LMW-15-16D	12/10/2015**	865.20	862.24	NM	21.24	13.75	7.49	850.70*	1.20	1.20
LMW-15-17D	12/10/2015**	865.21	862.24	27.31	11.48	NP	NP	853.73	NP	NP
								Total:	6.70	6.70

Note:
*Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 g/mL
** Depth to water and depth to LNAPL measurements were collected on 11/30/2015 as part of the 2nd quarter sitewide gauging.
*** Recovery performed via 1.5 inch diameter weighted PVC bailers. Volume includes groundwater and LNAPL recovered.

ft. - feet
ID - Identification
msl - mean sea level
NM - Not Measured
NP - No Product
TOC - Top of Casing

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	CH-14-RO 12/02/15 CH-14-RO_120215	MW-01(2) 12/08/15 MW-01(2)_120815	MW-02-02(3) 12/02/15 MW-02-02(3)_120215	MW-02-03(6) 12/09/15 MW-02-03(6)_120915	MW-02-04(3) 12/02/15 MW-02-04(3)_120215	MW-03(2) 12/08/15 MW-03(2)_120815	MW-03-01 12/07/15 MW-03-01_120715	MW-03-04 12/08/15 MW-03-04_120815	MW-03-06 12/08/15 MW-03-06_120815
Field												
Conductance, specific	mS/cm	- -	- -	1,087	5.006	6,318	8.507	3,704	7.201	14,065	1,330	12.077
Dissolved oxygen (DO)	mg/L	- -	- -	0.27	1.8	0.85	0.45	0.58	1.07	0.37	1.86	0.38
Oxidation reduction potential (ORP), field	millivolts	- -	- -	75.8	27.6	68.2	80.5	0.3	105.2	-15.80	113.8	121.5
pH	s.u.	- -	- -	6.87	6.70	6.18	6.78	6.70	6.68	6.59	6.68	6.95
Temperature, field	Deg C	- -	- -	11.48	11.25	5.62	10.92	12.04	10.66	10.82	9.73	10.74
Turbidity (field)	NTU	- -	- -	6.13	3.62	9.21	20.8	9.48	5.28	7.81	7.45	5.72
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	NA	NA	<3	**14** [a]	<3	NA	<3 [<3]	**42** [a]	7
1,1,1-Trichloroethane	ug/L	200	89	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
2-Hexanone	ug/L	1,000	- -	NA	<10	<10	<10	<10	<10 [<10]	<10 [<10]	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Acetone	ug/L	730	1,700	NA	<10	<10	<10	<10	<10 [<10]	<10 [<10]	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Bromodichloromethane	ug/L	80	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,1-Dichloroethane	ug/L	880	740	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Bromoform	ug/L	80	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,1-Dichloroethene	ug/L	7	130	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,2-Dichloroethane	ug/L	5	360	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Carbon disulfide	ug/L	800	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Carbon tetrachloride	ug/L	5	45	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Chlorobenzene	ug/L	100	25	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Trichloroethene	ug/L	5	200	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Tetrachloroethene	ug/L	5	60	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Vinyl chloride	ug/L	2	13	NA	<1	<1	2	<1	<1 [<1]	<1 [<1]	<1	**7** [a]
Chloroethane	ug/L	430	1,100	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Benzene	ug/L	5	200	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Methyl acetate	ug/L	- -	- -	NA	<10	<10	<10	<10	<10 [<10]	<10 [<10]	<10	<10
Ethylbenzene	ug/L	74	18	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Methylene chloride	ug/L	5	1,500	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Styrene	ug/L	100	80	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Toluene	ug/L	790	270	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	NA	11	<1	<1	<1	4 [2]	<1 [<1]	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	NA	<10	<10	<10	<10	<10 [<10]	<10 [<10]	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	NA	<10	<10	<10	<10	<10 [<10]	<10 [<10]	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,2-Dichloropropane	ug/L	5	230	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Cyclohexane	ug/L	- -	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Methyl cyclohexane	ug/L	- -	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Dibromochloromethane	ug/L	80	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
Isopropyl benzene	ug/L	800	28	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
o-Xylene	ug/L	- -	- -	NA	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1	<1
m&p-Xylene	ug/L	- -	- -	NA	<2	<2	<2	<2	<2 [<2]	<2 [<2]	<2	<2
Total Xylene	ug/L	280	41	NA	<3	<3	<3	<3	<3 [<3]	<3 [<3]	<3	<3

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	CH-14-RO 12/02/15 CH-14-RO_120215	MW-01(2) 12/08/15 MW-01(2)_120815	MW-02-02(3) 12/02/15 MW-02-02(3)_120215	MW-02-03(6) 12/09/15 MW-02-03(6)_120915	MW-02-04(3) 12/02/15 MW-02-04(3)_120215	MW-03(2) 12/08/15 MW-03(2)_120815	MW-03-01 12/07/15 MW-03-01_120715	MW-03-04 12/08/15 MW-03-04_120815	MW-03-06 12/08/15 MW-03-06_120815
Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	CH-14-RO 12/02/15 CH-14-RO_120215	MW-01(2) 12/08/15 MW-01(2)_120815	MW-02-02(3) 12/02/15 MW-02-02(3)_120215	MW-02-03(6) 12/09/15 MW-02-03(6)_120915	MW-02-04(3) 12/02/15 MW-02-04(3)_120215	MW-03(2) 12/08/15 MW-03(2)_120815	MW-03-01 12/07/15 MW-03-01_120715	MW-03-04 12/08/15 MW-03-04_120815	MW-03-06 12/08/15 MW-03-06_120815
Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	<0.002	0.008	NA	**0.059** [ab]	NA	0.009 [0.009]	**0.035 [0.034]** [ab]	NA	**0.025** [ab]
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	**11.1** [b]	<0.005	NA	0.010	NA	<0.005 [<0.005]	<0.005 [<0.005]	NA	0.006
Chromium VI (hexavalent)	mg/L	0.1	0.011	**11.8** [ab]	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	<0.005	0.005	NA	0.007	NA	0.007 [0.006]	<0.005 [<0.005]	NA	<0.005
Lead	mg/L	0.004	0.044	<0.003	<0.003	NA	**0.005** [a]	NA	<0.003 [<0.003]	<0.003 [<0.003]	NA	<0.003
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	0.027	0.021	NA	0.042	NA	0.032 [0.031]	0.020 [0.021]	NA	0.026
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	<0.005	<0.005	NA	**0.005** [a]	NA	<0.005 [<0.005]	<0.005 [<0.005]	NA	<0.005
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	NA	NA	**0.055** [ab]	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	NA	NA	<0.005	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	NA	NA	<0.005	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	NA	NA	NA	<0.003	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	NA	NA	0.038	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	NA	NA	<0.005	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-03-08 12/08/15 MW-03-08_120815	MW-04-01(6) 12/08/15 MW-04-01(6)_120815	MW-04-05(6) 12/07/15 MW-04-05(6)_120715	MW-05(3) 12/03/15 MW-05(3)_120315	MW-06(3) 12/03/15 MW-06(3)_120315	MW-12-01 12/08/15 MW-12-01_120815	MW-12-02 12/01/15 MW-12-02_120115	MW-12-05 12/08/15 MW-12-05_120815	MW-12-06 12/07/15 MW-12-06_120715
Field												
Conductance, specific	mS/cm	- -	- -	2.000	1,097	8,675	2,133	535	1.951	1.187	3.499	0.894
Dissolved oxygen (DO)	mg/L	- -	- -	0.35	0.46	0.51	4.18	2.78	0.47	0.51	0.56	1.26
Oxidation reduction potential (ORP), field	millivolts	- -	- -	29.9	-46.40	6.0	47.4	76.4	6.0	-23.40	-11.60	-90.80
pH	s.u.	- -	- -	7.15	6.79	6.81	6.92	7.06	6.99	6.75	6.88	7.24
Temperature, field	Deg C	- -	- -	11.07	9.96	10.79	12.60	11.46	8.59	9.39	11.98	5.95
Turbidity (field)	NTU	- -	- -	13.8	11.5	9.57	9.23	18.1	250	7.69	29.6	3.02
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	<3	**28 [a] [30 [a]]**	NA	NA	NA	<3	<3	8	<3
1,1,1-Trichloroethane	ug/L	200	89	<1	<1 [<1]	<1	<1	22	<1	<1	<1	<1
2-Hexanone	ug/L	1,000	- -	<10	<10 [<10]	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Acetone	ug/L	730	1,700	<10	<10 [<10]	<10	<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	80	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	880	740	<1	<1 [<1]	<1	<1	2	<1	<1	<1	<1
Bromoform	ug/L	80	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	7	130	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	5	360	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	800	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	5	45	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	100	25	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ug/L	5	200	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	5	60	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	ug/L	2	13	<1	<1 [<1]	1	<1	<1	<1	<1	<1	<1
Chloroethane	ug/L	430	1,100	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Benzene	ug/L	5	200	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	ug/L	- -	- -	<10	<10 [<10]	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	ug/L	74	18	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	ug/L	5	1,500	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Styrene	ug/L	100	80	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Toluene	ug/L	790	270	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10	<10 [<10]	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10	<10 [<10]	<10	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	5	230	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	ug/L	- -	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Methyl cyclohexane	ug/L	- -	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	ug/L	80	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
Isopropyl benzene	ug/L	800	28	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
o-Xylene	ug/L	- -	- -	<1	<1 [<1]	<1	<1	<1	<1	<1	<1	<1
m&p-Xylene	ug/L	- -	- -	<2	<2 [<2]	<2	<2	<2	<2	<2	<2	<2
Total Xylene	ug/L	280	41	<3	<3 [<3]	<3	<3	<3	<3	<3	<3	<3

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-03-08 12/08/15 MW-03-08_120815	MW-04-01(6) 12/08/15 MW-04-01(6)_120815	MW-04-05(6) 12/07/15 MW-04-05(6)_120715	MW-05(3) 12/03/15 MW-05(3)_120315	MW-06(3) 12/03/15 MW-06(3)_120315	MW-12-01 12/08/15 MW-12-01_120815	MW-12-02 12/01/15 MW-12-02_120115	MW-12-05 12/08/15 MW-12-05_120815	MW-12-06 12/07/15 MW-12-06_120715
Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

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Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	NA	NA	0.010	<0.002	NA	NA	NA	NA	NA
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	NA	NA	<0.005	<0.005	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	NA	NA	<0.005	<0.005	NA	NA	NA	NA	NA
Lead	mg/L	0.004	0.044	NA	NA	<0.003	<0.003	NA	NA	NA	NA	NA
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	NA	NA	0.008	0.008	NA	NA	NA	NA	NA
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	NA	NA	<0.005	<0.005	NA	NA	NA	NA	NA
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-12-09 12/02/15 MW-12-09_120215	MW-12-11 12/04/15 MW-12-11_120415	MW-12-12 12/04/15 MW-12-12_120415	MW-12-13 12/04/15 MW-12-13_120415	MW-12-16 12/02/15 MW-12-16_120215	MW-12-18 12/09/15 MW-12-18_120915	MW-12-20 12/02/15 MW-12-20_120215	MW-12-21 12/03/15 MW-12-21_120315	MW-13-22 12/03/15 MW-13-22_120315
Field												
Conductance, specific	mS/cm	- -	- -	3.070	6.451	1.838	1.413	2.155	2.772	1.18	2.002	1.935
Dissolved oxygen (DO)	mg/L	- -	- -	0.32	0.47	0.45	1.03	0.38	0.21	1.20	0.62	0.26
Oxidation reduction potential (ORP), field	millivolts	- -	- -	3.3	133.8	76.0	128.7	49.5	20.0	-26.10	29.3	28.6
pH	s.u.	- -	- -	6.73	6.56	7.13	7.19	6.85	6.98	6.83	6.65	6.71
Temperature, field	Deg C	- -	- -	8.94	9.52	12.24	10.70	11.89	11.61	12.47	9.86	10.69
Turbidity (field)	NTU	- -	- -	23.2	16.4	58	44	3.77	7.93	830	199	8.38
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	5	NA	NA	<3	NA	NA	<3	**400 Y** [a]	**166** [a]
1,1,1-Trichloroethane	ug/L	200	89	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	ug/L	1,000	- -	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acetone	ug/L	730	1,700	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	880	740	<1	<1	<1	<1	<1	2	<1	<1	<1
Bromoform	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	7	130	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	5	360	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	800	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	5	45	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	100	25	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	5	60	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	ug/L	2	13	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ug/L	430	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	ug/L	- -	- -	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	ug/L	74	18	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	ug/L	5	1,500	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	ug/L	100	80	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	ug/L	790	270	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	5	230	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropyl benzene	ug/L	800	28	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
m&p-Xylene	ug/L	- -	- -	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Xylene	ug/L	280	41	<3	<3	<3	<3	<3	<3	<3	<3	<3

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Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-12-09 12/02/15 MW-12-09_120215	MW-12-11 12/04/15 MW-12-11_120415	MW-12-12 12/04/15 MW-12-12_120415	MW-12-13 12/04/15 MW-12-13_120415	MW-12-16 12/02/15 MW-12-16_120215	MW-12-18 12/09/15 MW-12-18_120915	MW-12-20 12/02/15 MW-12-20_120215	MW-12-21 12/03/15 MW-12-21_120315	MW-13-22 12/03/15 MW-13-22_120315
Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	447	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	57.0	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	6.18	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	230	- -	**262** [a]	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	NA	0.010	0.002	0.003	**0.027** [ab]	NA	NA	NA	NA
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	NA	0.070	<0.005	0.027	<0.005	NA	NA	NA	NA
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	NA	<0.005	<0.005	0.012	<0.005	NA	NA	NA	NA
Lead	mg/L	0.004	0.044	NA	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	NA	**0.137** [ab]	0.074	0.023	0.005	NA	NA	NA	NA
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	433	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	57.5	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	6.01	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	**263** [a]	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	0.010	<0.002	<0.002	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	0.071	0.012	0.011	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	<0.005	0.008	<0.005	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	NA	<0.003	<0.003	<0.003	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	**0.140** [ab]	0.068	0.018	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	330	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	249	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	250	- -	**1,120** [a]	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-23 12/03/15 MW-13-23_120315	MW-13-24 12/02/15 MW-13-24_120215	MW-13-25 12/04/15 MW-13-25_120415	MW-13-26 12/04/15 MW-13-26_120415	MW-13-28 12/03/15 MW-13-28_120315	MW-13-29 12/04/15 MW-13-29_120415	MW-13-30 12/03/15 MW-13-30_120315	MW-13-31 12/04/15 MW-13-31_120415	MW-13-32 12/04/15 MW-13-32_120415
Field												
Conductance, specific	mS/cm	- -	- -	2.165	1.923	2.028	1.440	0.966	2.491	1.492	NA	1,486
Dissolved oxygen (DO)	mg/L	- -	- -	1.32	0.85	1.10	0.85	0.60	0.97	1.06	NA	1.29
Oxidation reduction potential (ORP), field	millivolts	- -	- -	144.5	15.5	71.3	29.1	146.3	105.5	24.1	NA	55.6
pH	s.u.	- -	- -	6.51	6.55	6.54	6.60	8.14	6.47	6.62	NA	6.06
Temperature, field	Deg C	- -	- -	8.97	12.70	10.00	10.09	12.13	10.05	9.64	NA	7.56
Turbidity (field)	NTU	- -	- -	402	30.4	36.7	8.25	34.7	35.0	52.7	999	9.89
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,2-Dichlorobenzene	ug/L	600	13	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,4-Dichlorobenzene	ug/L	75	17	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,4-Dioxane	ug/L	8.5	2,800	6	<3	**21** [a]	3	5	**21** [a]	<3	NA	NA
1,1,1-Trichloroethane	ug/L	200	89	<1	<1	<1	<1	<1	<1	<1	NA	NA
2-Hexanone	ug/L	1,000	- -	<10	<10	<10	<10	<10	<10	<10	NA	NA
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1	<1	<1	<1	<1	<1	<1	NA	NA
Acetone	ug/L	730	1,700	<10	<10	<10	<10	<10	<10	<10	NA	NA
1,1,2-Trichloroethane	ug/L	5	330	<1	<1	<1	<1	<1	<1	<1	NA	NA
Bromodichloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,1-Dichloroethane	ug/L	880	740	<1	<1	<1	<1	<1	<1	<1	NA	NA
Bromoform	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,1-Dichloroethene	ug/L	7	130	<1	<1	<1	<1	<1	<1	<1	NA	NA
Bromomethane (Methyl bromide)	ug/L	10	35	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,2-Dichloroethane	ug/L	5	360	<1	<1	<1	<1	<1	<1	<1	NA	NA
Carbon disulfide	ug/L	800	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Carbon tetrachloride	ug/L	5	45	<1	<1	<1	<1	<1	<1	<1	NA	NA
cis-1,2-Dichloroethene	ug/L	70	620	<1	<1	<1	<1	<1	<1	<1	NA	NA
Chlorobenzene	ug/L	100	25	<1	<1	<1	<1	<1	<1	<1	NA	NA
trans-1,2-Dichloroethene	ug/L	100	1,500	<1	<1	<1	<1	<1	<1	<1	NA	NA
Chloroform (Trichloromethane)	ug/L	80	350	<1	<1	<1	<1	<1	<1	<1	NA	NA
Trichloroethene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	NA	NA
Chloromethane (Methyl chloride)	ug/L	260	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Tetrachloroethene	ug/L	5	60	<1	<1	<1	<1	<1	<1	<1	NA	NA
cis-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Vinyl chloride	ug/L	2	13	<1	<1	<1	<1	<1	<1	<1	NA	NA
Chloroethane	ug/L	430	1,100	<1	<1	<1	<1	<1	<1	<1	NA	NA
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Benzene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	NA	NA
Methyl acetate	ug/L	- -	- -	<10	<10	<10	<10	<10	<10	<10	NA	NA
Ethylbenzene	ug/L	74	18	<1	<1	<1	<1	<1	<1	<1	NA	NA
Methylene chloride	ug/L	5	1,500	<1	<1	<1	<1	<1	<1	<1	NA	NA
Styrene	ug/L	100	80	<1	<1	<1	<1	<1	<1	<1	NA	NA
Toluene	ug/L	790	270	<1	<1	<1	<1	<1	<1	<1	NA	NA
trans-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1	<1	<1	<1	<1	<1	<1	NA	NA
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1	<1	<1	<1	<1	<1	<1	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10	<10	<10	<10	<10	<10	<10	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10	<10	<10	<10	<10	<10	<10	NA	NA
1,2,4-Trichlorobenzene	ug/L	70	99	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,2-Dichloropropane	ug/L	5	230	<1	<1	<1	<1	<1	<1	<1	NA	NA
1,3-Dichlorobenzene	ug/L	6.6	28	<1	<1	<1	<1	<1	<1	<1	NA	NA
Cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Methyl cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Dibromochloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
Isopropyl benzene	ug/L	800	28	<1	<1	<1	<1	<1	<1	<1	NA	NA
o-Xylene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA	NA
m&p-Xylene	ug/L	- -	- -	<2	<2	<2	<2	<2	<2	<2	NA	NA
Total Xylene	ug/L	280	41	<3	<3	<3	<3	<3	<3	<3	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-23 12/03/15 MW-13-23_120315	MW-13-24 12/02/15 MW-13-24_120215	MW-13-25 12/04/15 MW-13-25_120415	MW-13-26 12/04/15 MW-13-26_120415	MW-13-28 12/03/15 MW-13-28_120315	MW-13-29 12/04/15 MW-13-29_120415	MW-13-30 12/03/15 MW-13-30_120315	MW-13-31 12/04/15 MW-13-31_120415	MW-13-32 12/04/15 MW-13-32_120415
Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-23 12/03/15 MW-13-23_120315	MW-13-24 12/02/15 MW-13-24_120215	MW-13-25 12/04/15 MW-13-25_120415	MW-13-26 12/04/15 MW-13-26_120415	MW-13-28 12/03/15 MW-13-28_120315	MW-13-29 12/04/15 MW-13-29_120415	MW-13-30 12/03/15 MW-13-30_120315	MW-13-31 12/04/15 MW-13-31_120415	MW-13-32 12/04/15 MW-13-32_120415
Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	NA	0.005 [0.011]	<0.002
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	NA	**1.38 [0.794]** [b]	**0.510** [b]
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	NA	**0.266 [0.007]** [b]	**0.023** [b]
Lead	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	NA	**0.344 [0.321]** [ab]	<0.003
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	NA	**20.7 [13.3]** [ab]	**3.63** [ab]
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	NA	**0.038 [0.061]** [ab]	<0.005
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	NA	<0.002 [<0.002]	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	NA	0.034 [0.043]	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	NA	**0.046 [<0.005]** [b]	NA
Lead (dissolved)	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	NA	<0.003 [<0.003]	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	NA	**8.24 [10.7]** [ab]	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	NA	<0.005 [<0.005]	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-33 12/04/15 MW-13-33_120415	MW-13-34 12/01/15 MW-13-34_120115	MW-13-35 12/02/15 MW-13-35_120215	MW-13-36R 12/02/15 MW-13-36R_120215	MW-13-38 12/02/15 MW-13-38_120215	MW-13-40 12/02/15 MW-13-40_120215	MW-13-41 12/02/15 MW-13-41_120215	MW-13-43 12/03/15 MW-13-43_120315	MW-13-44 12/03/15 MW-13-44_120315
Field												
Conductance, specific	mS/cm	- -	- -	862	1,827	2.023	1.738	1,960	6,972	5,335	5.196	1.426
Dissolved oxygen (DO)	mg/L	- -	- -	1.67	1.06	0.3	0.23	0.40	0.53	0.49	0.45	1.02
Oxidation reduction potential (ORP), field	millivolts	- -	- -	111.0	-34.60	61.7	40.6	-203.30	-19.30	-1.10	45.7	-42.60
pH	s.u.	- -	- -	6.47	6.95	6.93	11.7	7.65	6.73	6.91	6.21	7.07
Temperature, field	Deg C	- -	- -	9.67	11.57	11.43	10.88	9.07	10.23	9.52	8.37	6.20
Turbidity (field)	NTU	- -	- -	999	59.0	1.47	9.21	9.65	9.02	7.29	7.99	6.34
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	NA	**70** [a]	NA	NA	<3	<3	**11** [a]	**350 Y** [a]	<3
1,1,1-Trichloroethane	ug/L	200	89	NA	<1	NA	NA	<1	<1	<1	<1	<1
2-Hexanone	ug/L	1,000	- -	NA	<10	NA	NA	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	NA	<1	NA	NA	<1	<1	<1	<1	<1
Acetone	ug/L	730	1,700	NA	<10	NA	NA	24	<10	<10	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	NA	<1	NA	NA	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	80	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	880	740	NA	<1	NA	NA	<1	<1	<1	<1	<1
Bromoform	ug/L	80	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	7	130	NA	<1	NA	NA	<1	<1	<1	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	5	360	NA	<1	NA	NA	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	800	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	5	45	NA	<1	NA	NA	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	NA	<1	NA	NA	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	100	25	NA	<1	NA	NA	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	NA	<1	NA	NA	<1	<1	<1	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	NA	<1	NA	NA	<1	<1	<1	<1	<1
Trichloroethene	ug/L	5	200	NA	<1	NA	NA	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	5	60	NA	<1	NA	NA	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Vinyl chloride	ug/L	2	13	NA	<1	NA	NA	<1	<1	<1	<1	<1
Chloroethane	ug/L	430	1,100	NA	<1	NA	NA	<1	<1	<1	<1	<1
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Benzene	ug/L	5	200	NA	<1	NA	NA	<1	<1	<1	<1	<1
Methyl acetate	ug/L	- -	- -	NA	<10	NA	NA	<10	<10	<10	<10	<10
Ethylbenzene	ug/L	74	18	NA	<1	NA	NA	<1	<1	<1	<1	<1
Methylene chloride	ug/L	5	1,500	NA	<1	NA	NA	<1	<1	<1	<1	<1
Styrene	ug/L	100	80	NA	<1	NA	NA	<1	<1	<1	<1	<1
Toluene	ug/L	790	270	NA	<1	NA	NA	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	NA	<1	NA	NA	<1	<1	<1	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	NA	<1	NA	NA	<1	<1	<1	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	NA	<10	NA	NA	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	NA	<10	NA	NA	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	5	230	NA	<1	NA	NA	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	NA	<1	NA	NA	<1	<1	<1	<1	<1
Cyclohexane	ug/L	- -	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Methyl cyclohexane	ug/L	- -	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Dibromochloromethane	ug/L	80	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
Isopropyl benzene	ug/L	800	28	NA	<1	NA	NA	<1	<1	<1	<1	<1
o-Xylene	ug/L	- -	- -	NA	<1	NA	NA	<1	<1	<1	<1	<1
m&p-Xylene	ug/L	- -	- -	NA	<2	NA	NA	<2	<2	<2	<2	<2
Total Xylene	ug/L	280	41	NA	<3	NA	NA	<3	<3	<3	<3	<3

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-33 12/04/15 MW-13-33_120415	MW-13-34 12/01/15 MW-13-34_120115	MW-13-35 12/02/15 MW-13-35_120215	MW-13-36R 12/02/15 MW-13-36R_120215	MW-13-38 12/02/15 MW-13-38_120215	MW-13-40 12/02/15 MW-13-40_120215	MW-13-41 12/02/15 MW-13-41_120215	MW-13-43 12/03/15 MW-13-43_120315	MW-13-44 12/03/15 MW-13-44_120315
Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-33 12/04/15 MW-13-33_120415	MW-13-34 12/01/15 MW-13-34_120115	MW-13-35 12/02/15 MW-13-35_120215	MW-13-36R 12/02/15 MW-13-36R_120215	MW-13-38 12/02/15 MW-13-38_120215	MW-13-40 12/02/15 MW-13-40_120215	MW-13-41 12/02/15 MW-13-41_120215	MW-13-43 12/03/15 MW-13-43_120315	MW-13-44 12/03/15 MW-13-44_120315
Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	576	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	162	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	7.51	NA
Sodium	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	**569** [a]	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	<0.002 [<0.002]	NA	0.003	0.002	NA	**0.028** [ab]	**0.014** [ab]	NA	NA
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	0.032 [0.034]	NA	<0.005	<0.005	NA	<0.005	<0.005	NA	NA
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	**0.084 [0.081]** [b]	NA	<0.005	<0.005	NA	<0.005	<0.005	NA	NA
Lead	mg/L	0.004	0.044	**0.022 [0.022]** [a]	NA	<0.003	<0.003	NA	<0.003	<0.003	NA	NA
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	0.061 [0.06]	NA	0.005	0.009	NA	0.026	0.028	NA	NA
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	**0.008 [0.008]** [a]	NA	<0.005	**0.009** [a]	NA	<0.005	<0.005	NA	NA
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	<0.002 [<0.002]	NA	NA	NA	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	0.005 [0.005]	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	0.010 [0.009]	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	<0.003 [<0.003]	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	0.012 [0.011]	NA	NA	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	<0.005 [<0.005]	NA	NA	NA	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	654	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	**529** [a]	NA
Sulfate	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	**1,780** [a]	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-45 12/03/15 MW-13-45_120315	MW-13-46 12/01/15 MW-13-46_120115	MW-13-47 12/01/15 MW-13-47_120115	MW-13-48 12/01/15 MW-13-48_120115	MW-13-49 12/01/15 MW-13-49_120115	MW-13-50 12/09/15 MW-13-50_120915	MW-13-51 12/09/15 MW-13-51_120915	MW-13-52 12/09/15 MW-13-52_120915	MW-13-53 12/09/15 MW-13-53_120915
Field												
Conductance, specific	mS/cm	- -	- -	1.247	2,046	1,750	2,105	1,608	1.069	1.536	1.302	1.367
Dissolved oxygen (DO)	mg/L	- -	- -	0.99	1.02	0.67	0.81	3.64	0.42	0.32	0.86	1.21
Oxidation reduction potential (ORP), field	millivolts	- -	- -	-24.40	-3.90	-55.60	-42.60	-30.90	-41.50	-18.40	-50.90	-12.90
pH	s.u.	- -	- -	6.98	6.44	6.79	6.58	6.77	7.03	6.80	6.95	6.82
Temperature, field	Deg C	- -	- -	5.28	9.77	11.45	11.10	8.88	11.64	10.48	11.01	12.42
Turbidity (field)	NTU	- -	- -	5.48	574	16.6	5.30	2.52	14.6	11.00	18.7	42.8
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	**50** [a]	<3	<3	**380 Y** [a]	<3	<3	<3	<3	<3
1,1,1-Trichloroethane	ug/L	200	89	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	ug/L	1,000	- -	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acetone	ug/L	730	1,700	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	880	740	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	7	130	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	5	360	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	800	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	5	45	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	100	25	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	5	60	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	ug/L	2	13	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ug/L	430	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	ug/L	- -	- -	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	ug/L	74	18	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	ug/L	5	1,500	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	ug/L	100	80	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	ug/L	790	270	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	5	230	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropyl benzene	ug/L	800	28	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	<1
m&p-Xylene	ug/L	- -	- -	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Xylene	ug/L	280	41	<3	<3	<3	<3	<3	<3	<3	<3	<3

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-45 12/03/15 MW-13-45_120315	MW-13-46 12/01/15 MW-13-46_120115	MW-13-47 12/01/15 MW-13-47_120115	MW-13-48 12/01/15 MW-13-48_120115	MW-13-49 12/01/15 MW-13-49_120115	MW-13-50 12/09/15 MW-13-50_120915	MW-13-51 12/09/15 MW-13-51_120915	MW-13-52 12/09/15 MW-13-52_120915	MW-13-53 12/09/15 MW-13-53_120915
Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-13-45 12/03/15 MW-13-45_120315	MW-13-46 12/01/15 MW-13-46_120115	MW-13-47 12/01/15 MW-13-47_120115	MW-13-48 12/01/15 MW-13-48_120115	MW-13-49 12/01/15 MW-13-49_120115	MW-13-50 12/09/15 MW-13-50_120915	MW-13-51 12/09/15 MW-13-51_120915	MW-13-52 12/09/15 MW-13-52_120915	MW-13-53 12/09/15 MW-13-53_120915
Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-14-54 12/08/15 MW-14-54_120815	MW-14-55 12/04/15 MW-14-55_120415	MW-14-56 12/02/15 MW-14-56_120215	MW-14-57 12/04/15 MW-14-57_120415	MW-14-58 12/03/15 MW-14-58_120315	MW-14-59 12/04/15 MW-14-59_120415	MW-14-60 12/07/15 MW-14-60_120715	MW-14-61 12/07/15 MW-14-61_120715	MW-14-62 12/09/15 MW-14-62_120915
Field												
Conductance, specific	mS/cm	- -	- -	1,921	2.356	5.120	1.043	3.819	1.053	1.207	1.015	0.769
Dissolved oxygen (DO)	mg/L	- -	- -	0.33	1.93	1.16	0.34	0.38	0.33	0.46	0.97	0.06
Oxidation reduction potential (ORP), field	millivolts	- -	- -	-9.00	-11.10	83.1	53.1	-31.20	-16.40	-73.80	-17.80	89.4
pH	s.u.	- -	- -	7.50	6.99	6.63	7.19	6.65	7.07	7.26	6.97	11.47
Temperature, field	Deg C	- -	- -	12.99	11.41	8.02	11.90	10.97	13.33	9.07	3.86	13.40
Turbidity (field)	NTU	- -	- -	5.49	8.65	5.91	4.39	4.98	9.38	4.10	15.9	2.29
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	NA	NA	7	<3 [<3]	**24** [a]	**200 Y** [a]	**150** [a]	7	**67** [a]
1,1,1-Trichloroethane	ug/L	200	89	<1	4	<1	16 [17]	<1	<1	<1	<1	<1
2-Hexanone	ug/L	1,000	- -	<10	<10	<10	<10 [<10]	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Acetone	ug/L	730	1,700	<10	<10	<10	<10 [<10]	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	80	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	880	740	<1	<1	<1	1 [1]	<1	12	<1	<1	66
Bromoform	ug/L	80	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	7	130	<1	<1	<1	<1 [<1]	<1	**39** [a]	<1	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	5	360	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	800	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	5	45	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	100	25	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Trichloroethene	ug/L	5	200	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	5	60	<1	**100** [ab]	<1	<1 [<1]	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Vinyl chloride	ug/L	2	13	<1	<1	<1	<1 [<1]	<1	<1	2	<1	<1
Chloroethane	ug/L	430	1,100	<1	<1	<1	<1 [<1]	<1	<1	5	<1	4
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Benzene	ug/L	5	200	2	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Methyl acetate	ug/L	- -	- -	<10	<10	<10	<10 [<10]	<10	<10	<10	<10	<10
Ethylbenzene	ug/L	74	18	2	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Methylene chloride	ug/L	5	1,500	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Styrene	ug/L	100	80	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Toluene	ug/L	790	270	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10	<10	<10	<10 [<10]	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10	<10	<10	<10 [<10]	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	5	230	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Cyclohexane	ug/L	- -	- -	2	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Methyl cyclohexane	ug/L	- -	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Dibromochloromethane	ug/L	80	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
Isopropyl benzene	ug/L	800	28	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
o-Xylene	ug/L	- -	- -	<1	<1	<1	<1 [<1]	<1	<1	<1	<1	<1
m&p-Xylene	ug/L	- -	- -	<2	<2	<2	<2 [<2]	<2	<2	<2	<2	<2
Total Xylene	ug/L	280	41	<3	<3	<3	<3 [<3]	<3	<3	<3	<3	<3

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-14-54 12/08/15 MW-14-54_120815	MW-14-55 12/04/15 MW-14-55_120415	MW-14-56 12/02/15 MW-14-56_120215	MW-14-57 12/04/15 MW-14-57_120415	MW-14-58 12/03/15 MW-14-58_120315	MW-14-59 12/04/15 MW-14-59_120415	MW-14-60 12/07/15 MW-14-60_120715	MW-14-61 12/07/15 MW-14-61_120715	MW-14-62 12/09/15 MW-14-62_120915
Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-14-54 12/08/15 MW-14-54_120815	MW-14-55 12/04/15 MW-14-55_120415	MW-14-56 12/02/15 MW-14-56_120215	MW-14-57 12/04/15 MW-14-57_120415	MW-14-58 12/03/15 MW-14-58_120315	MW-14-59 12/04/15 MW-14-59_120415	MW-14-60 12/07/15 MW-14-60_120715	MW-14-61 12/07/15 MW-14-61_120715	MW-14-62 12/09/15 MW-14-62_120915
Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	8.98	NA	623	NA	546	83.4	116	124	39.3
Magnesium	mg/L	400	- -	1.35	NA	257	NA	137	30.7	33.0	52.1	NA
Potassium	mg/L	- -	- -	0.63	NA	4.99	NA	3.36	0.96	8.97	2.37	11.1
Sodium	mg/L	230	- -	**446** [a]	NA	**322** [a]	NA	**362** [a]	139	105	22.5	53.6
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	0.003	<0.002	NA	<0.002 [<0.002]	0.008	NA	NA	NA	NA
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	<0.005	<0.005	NA	<0.005 [<0.005]	<0.005	NA	NA	NA	NA
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	<0.005	<0.005	NA	<0.005 [<0.005]	<0.005	NA	NA	NA	NA
Lead	mg/L	0.004	0.044	<0.003	<0.003	NA	<0.003 [<0.003]	<0.003	NA	NA	NA	NA
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	**0.331** [a]	NA	<0.005
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	<0.005	**0.518** [ab]	NA	0.011 [0.011]	0.014	NA	NA	NA	NA
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	<0.005	<0.005	NA	<0.005 [<0.005]	<0.005	NA	NA	NA	NA
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	122	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	51.8	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	2.35	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	22.3	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	704	NA	396	NA	438	430	368	402	162
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	99	NA	**818** [a]	NA	**1,160** [a]	46	162	60	25
Sulfate	mg/L	250	- -	47	NA	**1,500** [a]	NA	**434** [a]	91	12	54	31

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-14-63 12/01/15 MW-14-63_120115	MW-14-64 12/02/15 MW-14-64_120215	MW-14-65 12/07/15 MW-14-65_120715	MW-14-66 12/07/15 MW-14-66_120715	MW-14-67 12/03/15 MW-14-67_120315	MW-14-70 12/07/15 MW-14-70_120715	MW-15-71 12/01/15 MW-15-71_120115	MW-19 12/03/15 MW-19_120315	MW-22 12/07/15 MW-22_120715
Field												
Conductance, specific	mS/cm	- -	- -	1.190	1.536	804	1.312	1.715	1.586	1.468	2,789	2,425
Dissolved oxygen (DO)	mg/L	- -	- -	0.52	0.34	2.45	0.28	0.4	0.53	0.39	1.92	0.58
Oxidation reduction potential (ORP), field	millivolts	- -	- -	136.5	-11.60	148.6	151.8	174.7	174.4	-46.60	142.9	31.3
pH	s.u.	- -	- -	6.68	6.77	6.32	7.32	7.39	7.19	6.93	6.76	6.54
Temperature, field	Deg C	- -	- -	10.44	12.63	7.47	9.46	12.22	9.04	11.88	10.50	11.74
Turbidity (field)	NTU	- -	- -	24.3	10.1	9.98	1.82	3.65	8.81	52.4	164	139
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,2-Dichlorobenzene	ug/L	600	13	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,4-Dichlorobenzene	ug/L	75	17	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,4-Dioxane	ug/L	8.5	2,800	<3	<3	NA	3	<3	<3	<3	8	NA
1,1,1-Trichloroethane	ug/L	200	89	<1	<1	<1	<1	<1	<1	<1	<1	NA
2-Hexanone	ug/L	1,000	- -	<10	<10	<10	<10	<10	<10	<10	<10	NA
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1	<1	<1	<1	<1	<1	<1	<1	NA
Acetone	ug/L	730	1,700	<10	<10	<10	<10	<10	<10	<10	<10	NA
1,1,2-Trichloroethane	ug/L	5	330	<1	<1	<1	<1	<1	<1	<1	<1	NA
Bromodichloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,1-Dichloroethane	ug/L	880	740	<1	<1	<1	2	<1	<1	<1	<1	NA
Bromoform	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,1-Dichloroethene	ug/L	7	130	<1	<1	<1	<1	<1	<1	<1	<1	NA
Bromomethane (Methyl bromide)	ug/L	10	35	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,2-Dichloroethane	ug/L	5	360	<1	<1	<1	<1	<1	<1	<1	<1	NA
Carbon disulfide	ug/L	800	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Carbon tetrachloride	ug/L	5	45	<1	<1	<1	<1	<1	<1	<1	<1	NA
cis-1,2-Dichloroethene	ug/L	70	620	<1	<1	<1	<1	<1	<1	<1	<1	NA
Chlorobenzene	ug/L	100	25	<1	<1	<1	<1	<1	<1	<1	<1	NA
trans-1,2-Dichloroethene	ug/L	100	1,500	<1	<1	<1	<1	<1	<1	<1	<1	NA
Chloroform (Trichloromethane)	ug/L	80	350	<1	<1	<1	<1	<1	<1	<1	<1	NA
Trichloroethene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	<1	NA
Chloromethane (Methyl chloride)	ug/L	260	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Tetrachloroethene	ug/L	5	60	<1	<1	<1	<1	<1	<1	<1	<1	NA
cis-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Vinyl chloride	ug/L	2	13	<1	<1	<1	<1	<1	<1	<1	<1	NA
Chloroethane	ug/L	430	1,100	<1	<1	<1	<1	<1	<1	<1	<1	NA
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Benzene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	<1	NA
Methyl acetate	ug/L	- -	- -	<10	<10	<10	<10	<10	<10	<10	<10	NA
Ethylbenzene	ug/L	74	18	<1	<1	<1	<1	<1	<1	<1	<1	NA
Methylene chloride	ug/L	5	1,500	<1	<1	<1	<1	<1	<1	<1	<1	NA
Styrene	ug/L	100	80	<1	<1	<1	<1	<1	<1	<1	<1	NA
Toluene	ug/L	790	270	<1	<1	<1	<1	<1	<1	<1	<1	NA
trans-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1	<1	<1	<1	<1	<1	<1	<1	NA
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1	<1	<1	<1	<1	<1	<1	<1	NA
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10	<10	<10	<10	<10	<10	<10	<10	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10	<10	<10	<10	<10	<10	<10	<10	NA
1,2,4-Trichlorobenzene	ug/L	70	99	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,2-Dichloropropane	ug/L	5	230	<1	<1	<1	<1	<1	<1	<1	<1	NA
1,3-Dichlorobenzene	ug/L	6.6	28	<1	<1	<1	<1	<1	<1	<1	<1	NA
Cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Methyl cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Dibromochloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
Isopropyl benzene	ug/L	800	28	<1	<1	<1	<1	<1	<1	<1	<1	NA
o-Xylene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	<1	NA
m&p-Xylene	ug/L	- -	- -	<2	<2	<2	<2	<2	<2	<2	<2	NA
Total Xylene	ug/L	280	41	<3	<3	<3	<3	<3	<3	<3	<3	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-14-63 12/01/15 MW-14-63_120115	MW-14-64 12/02/15 MW-14-64_120215	MW-14-65 12/07/15 MW-14-65_120715	MW-14-66 12/07/15 MW-14-66_120715	MW-14-67 12/03/15 MW-14-67_120315	MW-14-70 12/07/15 MW-14-70_120715	MW-15-71 12/01/15 MW-15-71_120115	MW-19 12/03/15 MW-19_120315	MW-22 12/07/15 MW-22_120715
Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	<1	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	<1	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	<1	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	<1	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	<1	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	<1	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	<1	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	3 B	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	<1	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	<1	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	<2	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	<1	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	<1	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	<2	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	<1	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	<1	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	<1	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	<1	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	<1	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	<1	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	<1	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	<1	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-14-63 12/01/15 MW-14-63_120115	MW-14-64 12/02/15 MW-14-64_120215	MW-14-65 12/07/15 MW-14-65_120715	MW-14-66 12/07/15 MW-14-66_120715	MW-14-67 12/03/15 MW-14-67_120315	MW-14-70 12/07/15 MW-14-70_120715	MW-15-71 12/01/15 MW-15-71_120115	MW-19 12/03/15 MW-19_120315	MW-22 12/07/15 MW-22_120715
Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	<1	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	<1	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	<1	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	<1	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Arsenic	mg/L	0.01	0.01	NA	NA	0.002	0.003	<0.002	<0.002	0.008	NA	0.005
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	0.265	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	0.11	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	<0.0005	NA	NA
Chromium	mg/L	- -	0.16	NA	NA	0.006	<0.005	<0.005	<0.005	<0.005	NA	<0.005
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Copper	mg/L	1	0.02	NA	NA	0.006	<0.005	0.009	<0.005	<0.005	NA	<0.005
Lead	mg/L	0.004	0.044	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.003	NA	<0.003
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	**0.143** [a]	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	<0.0002	NA	NA
Nickel	mg/L	0.1	0.12	NA	NA	0.051	0.010	0.010	0.009	0.008	NA	0.012
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	<0.0005	NA	NA
Vanadium	mg/L	0.0045	0.027	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	0.005	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	0.007	NA	0.005
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	0.263	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	0.11	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	<0.0005	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	<0.005	NA	<0.005
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	<0.005	NA	<0.005
Lead (dissolved)	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	<0.003	NA	<0.003
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	**0.106** [a]	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	<0.0001	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	0.007	NA	0.014
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	<0.005	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	<0.0005	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	<0.005	NA	<0.005
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	0.008	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-23 12/03/15 MW-23_120315	MW-91-2 12/02/15 MW-91-2_120215	MW-91-5 12/02/15 MW-91-5_120215	MW-91-6 12/01/15 MW-91-6_120115	MWBP-10-UST5-6 12/01/15 MWBP-10-UST5-6_120115	MWBP-11-UST1-4 12/01/15 MWBP-11-UST1-4_120115	MWBP-12A-UST1-4 12/02/15 MWBP-12A-UST1-4_120215	MWBP-12-UST1-4 12/01/15 MWBP-12-UST1-4_120115
Field											
Conductance, specific	mS/cm	- -	- -	1,304	1,020	0.264	1,402	3.774	0.96	3.979	3.076
Dissolved oxygen (DO)	mg/L	- -	- -	0.44	0.41	0.33	0.56	0.26	3.51	0.34	0.31
Oxidation reduction potential (ORP), field	millivolts	- -	- -	-48.60	58.3	126.0	-3.20	-23.50	117.6	88.6	-35.20
pH	s.u.	- -	- -	6.71	6.48	6.50	6.70	6.91	9.52	6.63	7.19
Temperature, field	Deg C	- -	- -	11.80	12.70	11.34	10.57	11.61	12.72	9.89	12.99
Turbidity (field)	NTU	- -	- -	79.1	5.70	17.9	16.4	4.25	7.72	3.61	0.95
Volatile Organics											
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	<1	<1	<1	<1	<1	<1	<1	NA
1,4-Dichlorobenzene	ug/L	75	17	<1	<1	<1	<1	<1	<1	<1	NA
1,4-Dioxane	ug/L	8.5	2,800	<3	<3	<3	<3	<3	NA	NA	NA
1,1,1-Trichloroethane	ug/L	200	89	<1	<1	<1	<1	<1	<1	<1	NA
2-Hexanone	ug/L	1,000	- -	<10	<10	<10	<10	<10	<10	<10	NA
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1	<1	<1	<1	<1	<1	<1	NA
Acetone	ug/L	730	1,700	<10	<10	<10	<10	<10	<10	<10	NA
1,1,2-Trichloroethane	ug/L	5	330	<1	<1	<1	<1	<1	<1	<1	NA
Bromodichloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	NA
1,1-Dichloroethane	ug/L	880	740	<1	<1	<1	<1	<1	<1	<1	NA
Bromoform	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	NA
1,1-Dichloroethene	ug/L	7	130	<1	<1	<1	<1	<1	<1	<1	NA
Bromomethane (Methyl bromide)	ug/L	10	35	<1	<1	<1	<1	<1	<1	<1	NA
1,2-Dichloroethane	ug/L	5	360	<1	<1	<1	<1	<1	<1	<1	NA
Carbon disulfide	ug/L	800	- -	<1	<1	<1	<1	<1	<1	<1	NA
Carbon tetrachloride	ug/L	5	45	<1	<1	<1	<1	<1	<1	<1	NA
cis-1,2-Dichloroethene	ug/L	70	620	<1	<1	<1	<1	<1	<1	<1	NA
Chlorobenzene	ug/L	100	25	<1	<1	<1	<1	<1	<1	<1	NA
trans-1,2-Dichloroethene	ug/L	100	1,500	<1	<1	<1	<1	<1	<1	<1	NA
Chloroform (Trichloromethane)	ug/L	80	350	<1	<1	<1	<1	<1	<1	<1	NA
Trichloroethene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	NA
Chloromethane (Methyl chloride)	ug/L	260	- -	<1	<1	<1	<1	<1	<1	<1	NA
Tetrachloroethene	ug/L	5	60	<1	<1	<1	<1	<1	<1	<1	NA
cis-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA
Vinyl chloride	ug/L	2	13	<1	<1	<1	<1	<1	<1	<1	NA
Chloroethane	ug/L	430	1,100	<1	<1	<1	<1	<1	<1	<1	NA
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1	<1	<1	<1	<1	<1	<1	NA
Benzene	ug/L	5	200	<1	<1	<1	<1	<1	<1	<1	NA
Methyl acetate	ug/L	- -	- -	<10	<10	<10	<10	<10	<10	<10	NA
Ethylbenzene	ug/L	74	18	<1	<1	<1	<1	<1	<1	<1	NA
Methylene chloride	ug/L	5	1,500	<1	<1	<1	<1	<1	<1	<1	NA
Styrene	ug/L	100	80	<1	<1	<1	<1	<1	<1	<1	NA
Toluene	ug/L	790	270	<1	<1	<1	<1	<1	<1	<1	NA
trans-1,3-Dichloropropene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1	<1	<1	<1	2	<1	<1	NA
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1	<1	<1	<1	<1	<1	<1	NA
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1	<1	<1	<1	<1	<1	<1	NA
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10	<10	<10	<10	<10	<10	<10	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10	<10	<10	<10	<10	<10	<10	NA
1,2,4-Trichlorobenzene	ug/L	70	99	<1	<1	<1	<1	<1	<1	<1	NA
1,2-Dichloropropane	ug/L	5	230	<1	<1	<1	<1	<1	<1	<1	NA
1,3-Dichlorobenzene	ug/L	6.6	28	<1	<1	<1	<1	<1	<1	<1	NA
Cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA
Methyl cyclohexane	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA
Dibromochloromethane	ug/L	80	- -	<1	<1	<1	<1	<1	<1	<1	NA
Isopropyl benzene	ug/L	800	28	<1	<1	<1	<1	<1	<1	<1	NA
o-Xylene	ug/L	- -	- -	<1	<1	<1	<1	<1	<1	<1	NA
m&p-Xylene	ug/L	- -	- -	<2	<2	<2	<2	<2	<2	<2	NA
Total Xylene	ug/L	280	41	<3	<3	<3	<3	<3	<3	<3	NA

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Semivolatile Organics											
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
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November-December 2015
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RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	MW-23 12/03/15 MW-23_120315	MW-91-2 12/02/15 MW-91-2_120215	MW-91-5 12/02/15 MW-91-5_120215	MW-91-6 12/01/15 MW-91-6_120115	MWBP-10-UST5-6 12/01/15 MWBP-10-UST5-6_120115	MWBP-11-UST1-4 12/01/15 MWBP-11-UST1-4_120115	MWBP-12A-UST1-4 12/02/15 MWBP-12A-UST1-4_120215	MWBP-12-UST1-4 12/01/15 MWBP-12-UST1-4_120115
Semivolatile Organics (cont.)											
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics											
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	NA	0.009	NA	NA	**0.014** [ab]	**0.022** [ab]	**0.012** [ab]	**0.017** [ab]
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	NA	0.008	NA	NA	<0.005	<0.005	<0.005	<0.005
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	<0.01	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	NA	<0.005	NA	NA	<0.005	0.012	<0.005	<0.005
Lead	mg/L	0.004	0.044	NA	<0.003	NA	NA	<0.003	<0.003	<0.003	<0.003
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	NA	0.006	NA	NA	<0.005	<0.005	0.015	0.006
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	NA	<0.005	NA	NA	<0.005	<0.005	<0.005	**0.008** [a]
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered											
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	NA	NA	NA	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	NA	NA	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	NA	NA	NA	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry											
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	250	- -	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4
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Field												
Conductance, specific	mS/cm	- -	- -	1.931	0.400	0.368	1.952	0.358	0.919	1.677	NA	3.272
Dissolved oxygen (DO)	mg/L	- -	- -	0.40	1.66	2.8	0.30	4.83	8.07	0.53	NA	0.33
Oxidation reduction potential (ORP), field	millivolts	- -	- -	-35.10	42.9	179.4	69.8	157.8	156.6	-10.70	NA	-13.50
pH	s.u.	- -	- -	7.01	9.04	10.6	6.78	10.27	11.15	6.91	NA	6.59
Temperature, field	Deg C	- -	- -	10.52	7.95	8.14	13	10.05	7.01	8.98	NA	12.55
Turbidity (field)	NTU	- -	- -	29.6	17.7	9.6	5.33	1.32	NA	18.2	NA	10.3
Volatile Organics												
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	**49[a] [53][a]**	<3	NA	NA	NA	NA	**510 Y[a]**	**470 Y[a]**	**420 Y[a]**
1,1,1-Trichloroethane	ug/L	200	89	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
2-Hexanone	ug/L	1,000	- -	<10 [<10]	<10	NA	<500 Y	NA	NA	<10	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Acetone	ug/L	730	1,700	<10 [<10]	<10	NA	<500 Y	NA	NA	<10	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Bromodichloromethane	ug/L	80	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,1-Dichloroethane	ug/L	880	740	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Bromoform	ug/L	80	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,1-Dichloroethene	ug/L	7	130	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,2-Dichloroethane	ug/L	5	360	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Carbon disulfide	ug/L	800	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Carbon tetrachloride	ug/L	5	45	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Chlorobenzene	ug/L	100	25	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Trichloroethene	ug/L	5	200	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Tetrachloroethene	ug/L	5	60	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Vinyl chloride	ug/L	2	13	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Chloroethane	ug/L	430	1,100	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Benzene	ug/L	5	200	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Methyl acetate	ug/L	- -	- -	<10 [<10]	<10	NA	<500 Y	NA	NA	<10	<10	<10
Ethylbenzene	ug/L	74	18	<1 [<1]	<1	NA	**580 Y[ab]**	NA	NA	<1	<1	<1
Methylene chloride	ug/L	5	1,500	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Styrene	ug/L	100	80	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Toluene	ug/L	790	270	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10 [<10]	<10	NA	<500 Y	NA	NA	<10	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10 [<10]	<10	NA	<500 Y	NA	NA	<10	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,2-Dichloropropane	ug/L	5	230	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Cyclohexane	ug/L	- -	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Methyl cyclohexane	ug/L	- -	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Dibromochloromethane	ug/L	80	- -	<1 [<1]	<1	NA	<50 Y	NA	NA	<1	<1	<1
Isopropyl benzene	ug/L	800	28	<1 [<1]	<1	NA	**150 Y[bh]**	NA	NA	<1	<1	<1
o-Xylene	ug/L	- -	- -	<1 [<1]	<1	NA	1,740 Y	NA	NA	<1	<1	<1
m&p-Xylene	ug/L	- -	- -	<2 [<2]	<2	NA	4,900 Y	NA	NA	<2	<2	<2
Total Xylene	ug/L	280	41	<3 [<3]	<3	NA	**6,640 Y[ab]**	NA	NA	<3	<3	<3

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Semivolatile Organics												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ug/L	45	18	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	520	11	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	43	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	1,300	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	52	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/L	1,500	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	ug/L	3	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	ug/L	5,800	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/L	85	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	1.6	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/L	- -	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	210	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	880	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	ug/L	770	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Semivolatile Organics (cont.)												
N-Nitrosodi-n-propylamine	ug/L	5	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	52	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	ug/L	4,400	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	140	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics												
Calcium	mg/L	- -	- -	208	NA	NA	NA	NA	NA	NA	279	NA
Magnesium	mg/L	400	- -	2.44	NA	NA	NA	NA	NA	NA	100	NA
Potassium	mg/L	- -	- -	58.5	NA	NA	NA	NA	NA	NA	3.32	NA
Sodium	mg/L	230	- -	155	NA	NA	NA	NA	NA	NA	191	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	0.002 [0.003]	NA	0.004	NA	0.008	0.003	NA	NA	NA
Barium	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	<0.005 [<0.005]	NA	<0.005	NA	0.013	0.025	NA	NA	NA
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	1	0.02	<0.005 [<0.005]	NA	0.018	NA	<0.005	0.006	NA	NA	NA
Lead	mg/L	0.004	0.044	<0.003 [<0.003]	NA	**0.016** [a]	NA	<0.003	<0.003	NA	NA	NA
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	0.010 [0.01]	NA	<0.005	NA	<0.005	<0.005	NA	NA	NA
Selenium	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	<0.005 [<0.005]	NA	**0.017** [a]	NA	**0.020** [a]	**0.013** [a]	NA	NA	NA
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered												
Calcium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	400	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	0.002 [0.002]	NA	NA	NA	NA	NA	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	<0.005 [<0.005]	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	<0.005 [<0.005]	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	<0.003 [<0.003]	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	0.012 [0.011]	NA	NA	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	<0.005 [<0.005]	NA	NA	NA	NA	NA	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity, carbonate	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	330	NA	NA	NA	NA	NA	NA	230	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/L	250	- -	**262 [262]** [a]	NA	NA	NA	NA	NA	NA	**500** [a]	NA
Sulfate	mg/L	250	- -	**354 [353]** [a]	NA	NA	NA	NA	NA	NA	**301** [a]	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	TW-14-02 12/09/15 TW-14-02_120915	UNK-09 12/03/15 UNK-09_120315	UNK-10 12/03/15 UNK-10_120315	UNK-11 12/03/15 UNK-11_120315
Field							
Conductance, specific	mS/cm	- -	- -	3,527	525	769	834
Dissolved oxygen (DO)	mg/L	- -	- -	2.26	0.21	0.21	0.32
Oxidation reduction potential (ORP), field	millivolts	- -	- -	-26.70	137.2	111.4	46.6
pH	s.u.	- -	- -	6.58	7.12	7.03	6.76
Temperature, field	Deg C	- -	- -	9.44	10.86	11.15	11.22
Turbidity (field)	NTU	- -	- -	154	7.71	9.09	34.5
Volatile Organics							
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	- -	<1 [<1]	NA	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	5.7	<1 [<1]	NA	<1	<1
1,2-Dichlorobenzene	ug/L	600	13	<1 [<1]	NA	<1	<1
1,4-Dichlorobenzene	ug/L	75	17	<1 [<1]	NA	<1	<1
1,4-Dioxane	ug/L	8.5	2,800	**2,500 Y [2,600 Y]** [a]	NA	NA	NA
1,1,1-Trichloroethane	ug/L	200	89	<1 [<1]	NA	<1	<1
2-Hexanone	ug/L	1,000	- -	<10 [<10]	NA	<10	<10
1,1,2,2-Tetrachloroethane	ug/L	8.5	78	<1 [<1]	NA	<1	<1
Acetone	ug/L	730	1,700	<10 [<10]	NA	<10	<10
1,1,2-Trichloroethane	ug/L	5	330	<1 [<1]	NA	<1	<1
Bromodichloromethane	ug/L	80	- -	<1 [<1]	NA	<1	<1
1,1-Dichloroethane	ug/L	880	740	<1 [<1]	NA	<1	1
Bromoform	ug/L	80	- -	<1 [<1]	NA	<1	<1
1,1-Dichloroethene	ug/L	7	130	<1 [<1]	NA	<1	<1
Bromomethane (Methyl bromide)	ug/L	10	35	<1 [<1]	NA	<1	<1
1,2-Dichloroethane	ug/L	5	360	<1 [<1]	NA	<1	<1
Carbon disulfide	ug/L	800	- -	<1 [<1]	NA	<1	<1
Carbon tetrachloride	ug/L	5	45	<1 [<1]	NA	<1	<1
cis-1,2-Dichloroethene	ug/L	70	620	<1 [<1]	NA	<1	<1
Chlorobenzene	ug/L	100	25	<1 [<1]	NA	<1	<1
trans-1,2-Dichloroethene	ug/L	100	1,500	<1 [<1]	NA	<1	<1
Chloroform (Trichloromethane)	ug/L	80	350	<1 [<1]	NA	<1	<1
Trichloroethene	ug/L	5	200	<1 [<1]	NA	<1	<1
Chloromethane (Methyl chloride)	ug/L	260	- -	<1 [<1]	NA	<1	<1
Tetrachloroethene	ug/L	5	60	<1 [<1]	NA	<1	<1
cis-1,3-Dichloropropene	ug/L	- -	- -	<1 [<1]	NA	<1	<1
Vinyl chloride	ug/L	2	13	<1 [<1]	NA	<1	<1
Chloroethane	ug/L	430	1,100	<1 [<1]	NA	<1	<1
Dichlorodifluoromethane (CFC-12)	ug/L	1,700	- -	<1 [<1]	NA	<1	<1
Benzene	ug/L	5	200	<1 [<1]	NA	<1	<1
Methyl acetate	ug/L	- -	- -	<10 [<10]	NA	<10	<10
Ethylbenzene	ug/L	74	18	<1 [<1]	NA	<1	<1
Methylene chloride	ug/L	5	1,500	<1 [<1]	NA	<1	<1
Styrene	ug/L	100	80	<1 [<1]	NA	<1	<1
Toluene	ug/L	790	270	<1 [<1]	NA	<1	<1
trans-1,3-Dichloropropene	ug/L	- -	- -	<1 [<1]	NA	<1	<1
Methyl tert butyl ether (MTBE)	ug/L	40	7,100	<1 [<1]	NA	<1	<1
Trichlorofluoromethane (CFC-11)	ug/L	2,600	- -	<1 [<1]	NA	<1	<1
Trifluorotrichloroethane (Freon 113)	ug/L	170,000	32	<1 [<1]	NA	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13,000	2,200	<10 [<10]	NA	<10	<10
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1,800	- -	<10 [<10]	NA	<10	<10
1,2,4-Trichlorobenzene	ug/L	70	99	<1 [<1]	NA	<1	<1
1,2-Dichloropropane	ug/L	5	230	<1 [<1]	NA	<1	<1
1,3-Dichlorobenzene	ug/L	6.6	28	<1 [<1]	NA	<1	<1
Cyclohexane	ug/L	- -	- -	<1 [<1]	NA	<1	<1
Methyl cyclohexane	ug/L	- -	- -	<1 [<1]	NA	<1	<1
Dibromochloromethane	ug/L	80	- -	<1 [<1]	NA	<1	<1
Isopropyl benzene	ug/L	800	28	<1 [<1]	NA	<1	<1
o-Xylene	ug/L	- -	- -	<1 [<1]	NA	<1	<1
m&p-Xylene	ug/L	- -	- -	<2 [<2]	NA	<2	<2
Total Xylene	ug/L	280	41	<3 [<3]	NA	<3	<3

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	TW-14-02 12/09/15 TW-14-02_120915	UNK-09 12/03/15 UNK-09_120315	UNK-10 12/03/15 UNK-10_120315	UNK-11 12/03/15 UNK-11_120315
Semivolatile Organics							
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	- -	- -	<1 [<1]	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	120	5	<1 [<1]	NA	NA	NA
2,4-Dichlorophenol	ug/L	73	11	<1 [<1]	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	730	- -	<1 [<1]	NA	NA	NA
2,4-Dimethylphenol	ug/L	370	380	<1 [<1]	NA	NA	NA
2,4-Dinitrophenol	ug/L	- -	- -	<1 [<1]	NA	NA	NA
2,4-Dinitrotoluene	ug/L	7.7	- -	<1 [<1]	NA	NA	NA
2,6-Dinitrotoluene	ug/L	- -	- -	<1 [<1]	NA	NA	NA
2-Chloronaphthalene	ug/L	1,800	- -	<1 [<1]	NA	NA	NA
2-Chlorophenol	ug/L	45	18	<1 [<1]	NA	NA	NA
2-Methylnaphthalene	ug/L	260	19	<1 [<1]	NA	NA	NA
2-Methylphenol	ug/L	- -	- -	<1 [<1]	NA	NA	NA
2-Nitroaniline	ug/L	- -	- -	<1 [<1]	NA	NA	NA
2-Nitrophenol	ug/L	20	- -	<1 [<1]	NA	NA	NA
3&4-Methylphenol	ug/L	- -	- -	<1 [<1]	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	1.1	0.3	<1 [<1]	NA	NA	NA
Naphthalene	ug/L	520	11	<1 [<1]	NA	NA	NA
3-Nitroaniline	ug/L	- -	- -	<1 [<1]	NA	NA	NA
4,6-Dinitro-2-methylphenol	ug/L	- -	- -	<1 [<1]	NA	NA	NA
4-Bromophenyl phenyl ether	ug/L	- -	- -	<1 [<1]	NA	NA	NA
4-Chloro-3-methylphenol	ug/L	150	7.4	<1 [<1]	NA	NA	NA
4-Chloroaniline	ug/L	- -	- -	<1 [<1]	NA	NA	NA
4-Chlorophenyl phenyl ether	ug/L	- -	- -	<1 [<1]	NA	NA	NA
4-Nitroaniline	ug/L	- -	- -	<1 [<1]	NA	NA	NA
4-Nitrophenol	ug/L	- -	- -	<1 [<1]	NA	NA	NA
Anthracene	ug/L	43	- -	<1 [<1]	NA	NA	NA
Acenaphthene	ug/L	1,300	38	<1 [<1]	NA	NA	NA
Acenaphthylene	ug/L	52	- -	<1 [<1]	NA	NA	NA
Acetophenone	ug/L	1,500	- -	<1 [<1]	NA	NA	NA
Atrazine	ug/L	3	7.3	<1 [<1]	NA	NA	NA
Benzaldehyde	ug/L	- -	- -	<1 [<1]	NA	NA	NA
Benzo(a)anthracene	ug/L	2.1	- -	<1 [<1]	NA	NA	NA
Benzo(a)pyrene	ug/L	5	- -	<1 [<1]	NA	NA	NA
Benzo(b)fluoranthene	ug/L	1.5	- -	<1 [<1]	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	1	- -	<1 [<1]	NA	NA	NA
Benzo(k)fluoranthene	ug/L	1	- -	<1 [<1]	NA	NA	NA
Biphenyl (1,1-Biphenyl)	ug/L	- -	- -	<1 [<1]	NA	NA	NA
bis(2-Chloroethoxy)methane	ug/L	- -	- -	<1 [<1]	NA	NA	NA
bis(2-Chloroethyl)ether	ug/L	2	1	<1 [<1]	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	25	<2 [<2]	NA	NA	NA
Butyl benzylphthalate (BBP)	ug/L	1,200	67	<1 [<1]	NA	NA	NA
Caprolactam	ug/L	5,800	- -	<1 [<1]	NA	NA	NA
Carbazole	ug/L	85	10	<1 [<1]	NA	NA	NA
Chrysene	ug/L	1.6	- -	<1 [<1]	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	2	- -	<2 [<2]	NA	NA	NA
Dibenzofuran	ug/L	- -	4	<1 [<1]	NA	NA	NA
Diethyl phthalate	ug/L	5,500	110	<1 [<1]	NA	NA	NA
Dimethyl phthalate	ug/L	73,000	- -	<2 [<2]	NA	NA	NA
Di-n-butylphthalate (DBP)	ug/L	880	9.7	<1 [<1]	NA	NA	NA
Di-n-octyl phthalate (DnOP)	ug/L	130	- -	<1 [<1]	NA	NA	NA
Fluoranthene	ug/L	210	1.6	<1 [<1]	NA	NA	NA
Fluorene	ug/L	880	12	<1 [<1]	NA	NA	NA
Hexachlorobenzene	ug/L	1	0.2	<1 [<1]	NA	NA	NA
Hexachlorobutadiene	ug/L	15	0.053	<1 [<1]	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	50	- -	<1 [<1]	NA	NA	NA
Hexachloroethane	ug/L	7.3	6.7	<1 [<1]	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	2	- -	<1 [<1]	NA	NA	NA
Isophorone	ug/L	770	1,300	<1 [<1]	NA	NA	NA
Nitrobenzene	ug/L	3.4	180	<1 [<1]	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Location ID: Date Collected: Sample Name:	Units	MI GW (DEQ2013) RES DW	MI GW (DEQ2013) GSI	TW-14-02 12/09/15 TW-14-02_120915	UNK-09 12/03/15 UNK-09_120315	UNK-10 12/03/15 UNK-10_120315	UNK-11 12/03/15 UNK-11_120315
Semivolatile Organics (cont.)							
N-Nitrosodi-n-propylamine	ug/L	5	- -	<1 [<1]	NA	NA	NA
N-Nitrosodiphenylamine	ug/L	270	- -	<1 [<1]	NA	NA	NA
Pentachlorophenol	ug/L	1	2.8	<1 [<1]	NA	NA	NA
Phenanthrene	ug/L	52	2	<1 [<1]	NA	NA	NA
Phenol	ug/L	4,400	450	<1 [<1]	NA	NA	NA
Pyrene	ug/L	140	- -	<1 [<1]	NA	NA	NA
Inorganics							
Calcium	mg/L	- -	- -	346 [349]	NA	NA	NA
Magnesium	mg/L	400	- -	118 [118]	NA	NA	NA
Potassium	mg/L	- -	- -	3.69 [3.7]	NA	NA	NA
Sodium	mg/L	230	- -	210 [213]	NA	NA	NA
Antimony	mg/L	0.006	0.13	NA	NA	NA	NA
Arsenic	mg/L	0.01	0.01	0.010 [0.01]	0.004	0.005	NA
Barium	mg/L	2	1.2	NA	NA	NA	NA
Boron	mg/L	0.5	7.2	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.0045	NA	NA	NA	NA
Chromium	mg/L	- -	0.16	0.008 [0.008]	<0.005	<0.005	NA
Chromium VI (hexavalent)	mg/L	0.1	0.011	NA	NA	NA	NA
Cobalt	mg/L	0.04	0.1	NA	NA	NA	NA
Copper	mg/L	1	0.02	<0.005 [<0.005]	<0.005	<0.005	NA
Lead	mg/L	0.004	0.044	<0.003 [<0.003]	<0.003	<0.003	NA
Manganese	mg/L	0.05	4.5	NA	NA	NA	NA
Mercury	mg/L	0.002	0.0000013	NA	NA	NA	NA
Nickel	mg/L	0.1	0.12	0.019 [0.019]	<0.005	<0.005	NA
Selenium	mg/L	0.05	- -	NA	NA	NA	NA
Silver	mg/L	0.034	0.0002	NA	NA	NA	NA
Vanadium	mg/L	0.0045	0.027	<0.005 [<0.005]	<0.005	<0.005	NA
Zinc	mg/L	2.4	0.26	NA	NA	NA	NA
Inorganics-Filtered							
Calcium	mg/L	- -	- -	353 [349]	NA	NA	NA
Magnesium	mg/L	400	- -	117 [117]	NA	NA	NA
Potassium	mg/L	- -	- -	3.68 [3.72]	NA	NA	NA
Sodium (dissolved)	mg/L	230	- -	217 [211]	NA	NA	NA
Antimony (dissolved)	mg/L	0.006	0.13	NA	NA	NA	NA
Arsenic (dissolved)	mg/L	0.01	0.01	0.008 [0.009]	NA	NA	NA
Barium (dissolved)	mg/L	2	1.2	NA	NA	NA	NA
Boron (Dissolved)	mg/L	0.5	7.2	NA	NA	NA	NA
Cadmium (dissolved)	mg/L	0.005	0.0045	NA	NA	NA	NA
Chromium (dissolved)	mg/L	- -	0.16	<0.005 [<0.005]	NA	NA	NA
Cobalt (dissolved)	mg/L	0.04	0.1	NA	NA	NA	NA
Copper (dissolved)	mg/L	1	0.02	<0.005 [<0.005]	NA	NA	NA
Lead (dissolved)	mg/L	0.004	0.044	<0.003 [<0.003]	NA	NA	NA
Manganese (dissolved)	mg/L	0.05	4.5	NA	NA	NA	NA
Mercury (dissolved)	mg/L	- -	- -	NA	NA	NA	NA
Nickel (dissolved)	mg/L	0.1	0.12	0.020 [0.019]	NA	NA	NA
Selenium (dissolved)	mg/L	0.05	- -	NA	NA	NA	NA
Silver (dissolved)	mg/L	0.034	0.0002	NA	NA	NA	NA
Vanadium (dissolved)	mg/L	0.0045	0.027	<0.005 [<0.005]	NA	NA	NA
Zinc (dissolved)	mg/L	2.4	0.26	NA	NA	NA	NA
General Chemistry							
Alkalinity, carbonate	mg/L	- -	- -	<10 [<10]	NA	NA	NA
Alkalinity, total (as CaCO3)	mg/L	- -	- -	432 [432]	NA	NA	NA
Bicarbonate (as CaCO3)	mg/L	- -	- -	580 [560]	NA	NA	NA
Chloride	mg/L	250	- -	**966 [969]** [a]	NA	NA	NA
Sulfate	mg/L	250	- -	22 [22]	NA	NA	NA

TABLE 4
SUMMARY OF 4th QUARTER 2015 GROUNDWATER ANALYTICAL DATA
November-December 2015
Fourth Quarter 2015 Groundwater Report
RACER Trust Plants 2,3,and 6 - Lansing, Michigan

Table Notes:
-- Shading indicates result exceeding one or more MDEQ Part 201 Generic Cleanup Criteria and Screening Levels, Dated December 30, 2013.
-- Bold fonts represent data where detections were noted above the MDL but below MDEQ Part 201 Generic Cleanup Criteria.
-- Data shown in [ ] represent duplicate sample analytical results.
- - = Not listed in the MDEQ Criteria Tables.
mS/cm - milli Siemans per centimeter
mg/L - milligrams per liter
s.u. - standard unit
Deg. C. - degrees celcius
NTU - Nephelometric Turbidity Unit
ug/L - micrograms per liter
a - Sample exceeds Residential Drinking Water Criteria. 1,4-Dioxane includes the proposed drinking water criteria of 8.5 ug/L.
b - Sample exceeds Groundwater Surface Water Interface Criteria
NA - Not Analyzed during the 2nd Quarter 2015 Sampling Event

Lab and Validation Data Qualifiers:
B = Compounds also found in associated method blank.
X = Elevated reporting limit due to matrix interference.
Y = Elevated reporting limit due to high target concentration.
O = Analysis performed by outside laboratory.

FIGURES

MW-12-02
MW-14-63
P2-MW-01
P2-MW-03
MW-13-44
MW-13-43
PW-14-02
MW-13-42
MW-15-73
MW-13-45
P2-SB-20
P2-SB-03
MW-14-59
MW-14-58
MW-14-60
LMW-12-02
LMW-12-08
LMW-14-14D
MW-15-72
MW-12-05
PMW-02
LMW-12-07
LMW-12-01
PMW-01
P2-SB-37
MW-12-06
MW-14-61
P2-MW-04
LMW-14-13D
LMW-12-03S/D
LMW-12-06
LMW-14-15D
LMW-15-17D
MW-12-09
MW-14-56
MW-14-57
LMW-12-04
LMW-15-16D
PMW-03
P2-SB-06
LMW-12-05
LMW-14-12D
MW-14-62
MW-12-18
MW-14-55
MW-14-54
TW-14-02
PW-14-01
MW-12-01
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

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL; TEST MW
- BEDROCK MONITORING WELL
- 4Q15 SAMPLED MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- APPROX. EXTENT VOCs IN PERCHED ZONE
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (8.5 µg/L)
- LOWER 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (8.5 µg/L)
- PROPERTY BOUNDARY

NOTES:

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

DW: DRINKING WATER
VOCs: VOLATILE ORGANIC COMPOUNDS
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

0 200 400
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

FOURTH QUARTER 2015 SAMPLING LOCATIONS PLANT 2 AND W. PLANT 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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MW-04-04
MW-91-4
MW-13-39B
MW-88-1
MW-02-03(3)
MW-02-04(3)
MW-13-40
MW-12-04
MW-04-03
MW-04-02
MW-13-38
MW-13-41
MW-91-3
P3-SB-07
MW-02-02(3)
MW-93-1
MW-91-2
UNK-15
MW-04
MW-13-37
CH-14-RO
MW-06
MW-05
LMW-12-09
UNK-11
MW-19
MW-23
UNK-09
UNK-10
MW-22
LMW-12-11
MW-12-19
LMW-12-10
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-12-21
MW-14-64
PW-14-03
MW-13-31
MW-13-32
MW-13-25
MW-13-29
MW-13-33
MW-91-6
MW-13-46
MW-13-48
MW-13-34
MW-13-47
MW-13-49

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL; TEST MW
- BEDROCK MONITORING WELL
- 4Q15 SAMPLED MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- APPROX. EXTENT VOCs IN PERCHED ZONE
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (8.5 µg/L)
- LOWER 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (8.5 µg/L)
- PROPERTY BOUNDARY

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DW: DRINKING WATER
VOCs: VOLATILE ORGANIC COMPOUNDS
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

0 250 500
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

FOURTH QUARTER 2015 SAMPLING LOCATIONS PLANT 3

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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MW-12-03
MW-12-10R
MW-04-06R
MW-04-05
MW-12-11
MW-03-02
MW-03-01
MW-12-12
MW-14-70
MW-03-04
MW-03-05
MW-02-01(6)
P6-SB-18
MW-14-66
MW-12-13
MW-14-69
MW-03-07
MW-04-01(6)
MW-02-03(6)
MW-02-02(6)
MW-03-06
SME-MW-02
P6-SB-37
MW-14-67
MW-14-68
MW-03-08
MW-04-04R
P6-SB-35
MW-13-36R
P6-SB-21
P6-SB-07
P6-SB-32
MWBP-13A-UST1-4
MWBP-11-UST1-4
MWBP-12-UST1-4
B-BP-16
MWBP-12A-UST1-4
MWBP-10-UST1-4
UNK-03
MWBP-10A-UST1-4
P6-MW-01
MW-12-14
MW-13-35
MW-12-16
MW-12-15

0 200 400
SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- 4Q15 SAMPLED MONITORING WELL
- APPROX. EXTENT VOCs IN PERCHED ZONE
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (8.5 µg/L)
- PROPERTY BOUNDARY

NOTES:

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DW: DRINKING WATER
VOCs: VOLATILE ORGANIC COMPOUNDS

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

FOURTH QUARTER 2015 SAMPLING LOCATIONS E. PLANT 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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MW-13-45	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	50

MW-13-43	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	350

PW-14-02	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	470

MW-14-58	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	24

MW-14-55	Res DW	Concentration
Tetrachloroethene	5 µg/L	100
Nickel	0.1 mg/L	0.518

MW-14-59	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	200
1,1-Dichloroethene	7 µg/L	39

MW-14-60	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	150

P2-MW-04	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	49

MW-14-62	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	67

TW-14-02	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	2,500

PW-14-01	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	510

MWBP-10-UST5-6	Res DW	Concentration
Arsenic	0.01 mg/L	0.014

MW-12-02
MW-14-63
P2-MW-01
P2-MW-03
MW-13-44
MW-13-43
PW-14-02
MW-13-42
P2-SB-20
MW-13-45
P2-SB-03
MW-14-59
MW-14-58
MW-14-60
LMW-12-02
LMW-12-08
LMW-14-14D
MW-12-05
PMW-02
LMW-12-07
LMW-12-01
PMW-01
P2-SB-37
MW-12-06
MW-14-61
LMW-14-13D
LMW-12-03S/D
LMW-12-06
LMW-15-17D
LMW-14-15D
MW-12-09
MW-14-56
MW-14-57
LMW-12-04
LMW-15-16D
PMW-03
LMW-12-05
LMW-14-12D
MW-14-62
P2-SB-06
P2-MW-04
MW-14-55
MW-12-18
MW-14-54
TW-14-02
PW-14-01
MW-12-01
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

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL; TEST MW
- BEDROCK MONITORING WELL
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- APPROXIMATE EXTENT LNAPL
- APPROX. EXTENT VOCs IN PERCHED ZONE
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VOCs: VOLATILE ORGANIC COMPOUNDS
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

0 200 400
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

FOURTH QUARTER 2015
DRINKING WATER EXCEEDANCES
PLANT 2 AND W. PLANT 6

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
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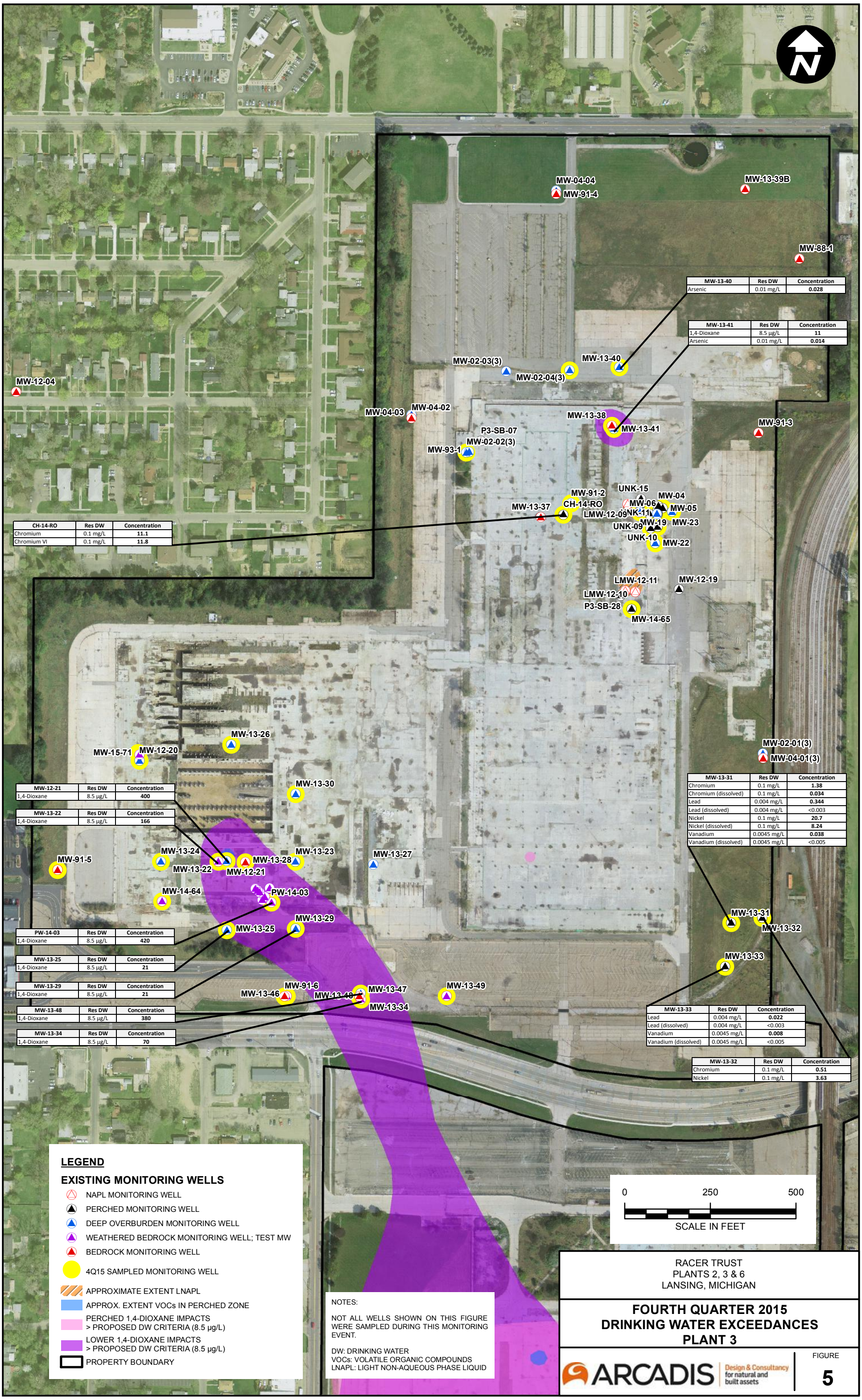

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompanyLansing\Docsworking\Quarterly GW Monitoring Report DRAFT.mxd PLOTTED: 2/11/2016 11:49:17 AM BY: dolexa

MW-12-11	Res DW	Concentration
Nickel	0.1 mg/L	**0.137**
Nickel (dissolved)	0.1 mg/L	**0.14**

MW-03-01	Res DW	Concentration
Arsenic	0.01 mg/L	**0.035**

MW-03-06	Res DW	Concentration
Arsenic	0.01 mg/L	**0.025**

MW-03-04	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	**42**

P6-SB-18	Res DW	Concentration
Lead	0.004 mg/L	**0.016**
Vanadium	0.0045 mg/L	**0.017**

MW-04-01(6)	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	**28**

P6-SB-37	Res DW	Concentration
Vanadium	0.0045 mg/L	**0.013**

MW-02-03(6)	Res DW	Concentration
1,4-Dioxane	8.5 µg/L	**14**
Arsenic	0.01 mg/L	**0.059**
Arsenic (dissolved)	0.01 mg/L	**0.055**
Lead	0.004 mg/L	**0.005**
Lead (dissolved)	0.004 mg/L	<0.003
Vanadium	0.0045 mg/L	**0.005**
Vanadium (dissolved)	0.0045 mg/L	<0.005

MW-13-36R	Res DW	Concentration
Vanadium	0.0045 mg/L	**0.009**

P6-SB-35	Res DW	Concentration
Vanadium	0.0045 mg/L	**0.02**

P6-SB-32	Res DW	Concentration
Ethylbenzene	74 µg/L	**580**
Total Xylene	280 µg/L	**6,640**

MWBP-12-UST1-4	Res DW	Concentration
Arsenic	0.01 mg/L	**0.017**
Vanadium	0.0045 mg/L	**0.008**

MWBP-11-UST1-4	Res DW	Concentration
Arsenic	0.01 mg/L	**0.022**

MW-12-16	Res DW	Concentration
Arsenic	0.01 mg/L	**0.027**

MWBP-12A-UST1-4	Res DW	Concentration
Arsenic	0.01 mg/L	**0.012**

MW-12-03
MW-12-10R
MW-04-06R
MW-04-05
MW-12-11
MW-03-02
MW-03-01
MW-12-12
MW-14-70
MW-03-04
MW-03-05
P6-SB-18
MW-14-66
MW-12-13
MW-14-69
MW-02-01(6)
MW-03-07
MW-04-01(6)
MW-02-03(6)
MW-02-02(6)
MW-03-06
P6-SB-37
MW-14-68
MW-14-67
SME-MW-02
MW-03-08
MW-04-04R
P6-SB-35
MW-13-36R
P6-SB-21
P6-SB-07
P6-SB-32
MWBP-13A-UST1-4
MWBP-12-UST1-4
MWBP-11-UST1-4
B-BP-16
MWBP-10-UST1-4
MWBP-12A-UST1-4
MWBP-10A-UST1-4
UNK-03
P6-MW-01
MW-12-14
MW-13-35
MW-12-16
MW-12-15

0 200 400
SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- 4Q15 SAMPLED MONITORING WELL
- APPROX. EXTENT VOCs IN PERCHED ZONE
- PERCHED 1,4-DIOXANE IMPACTS > PROPOSED DW CRITERIA (8.5 µg/L)
- PROPERTY BOUNDARY

NOTES:

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

DW: DRINKING WATER
VOCs: VOLATILE ORGANIC COMPOUNDS

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

FOURTH QUARTER 2015
DRINKING WATER EXCEEDANCES
E. PLANT 6

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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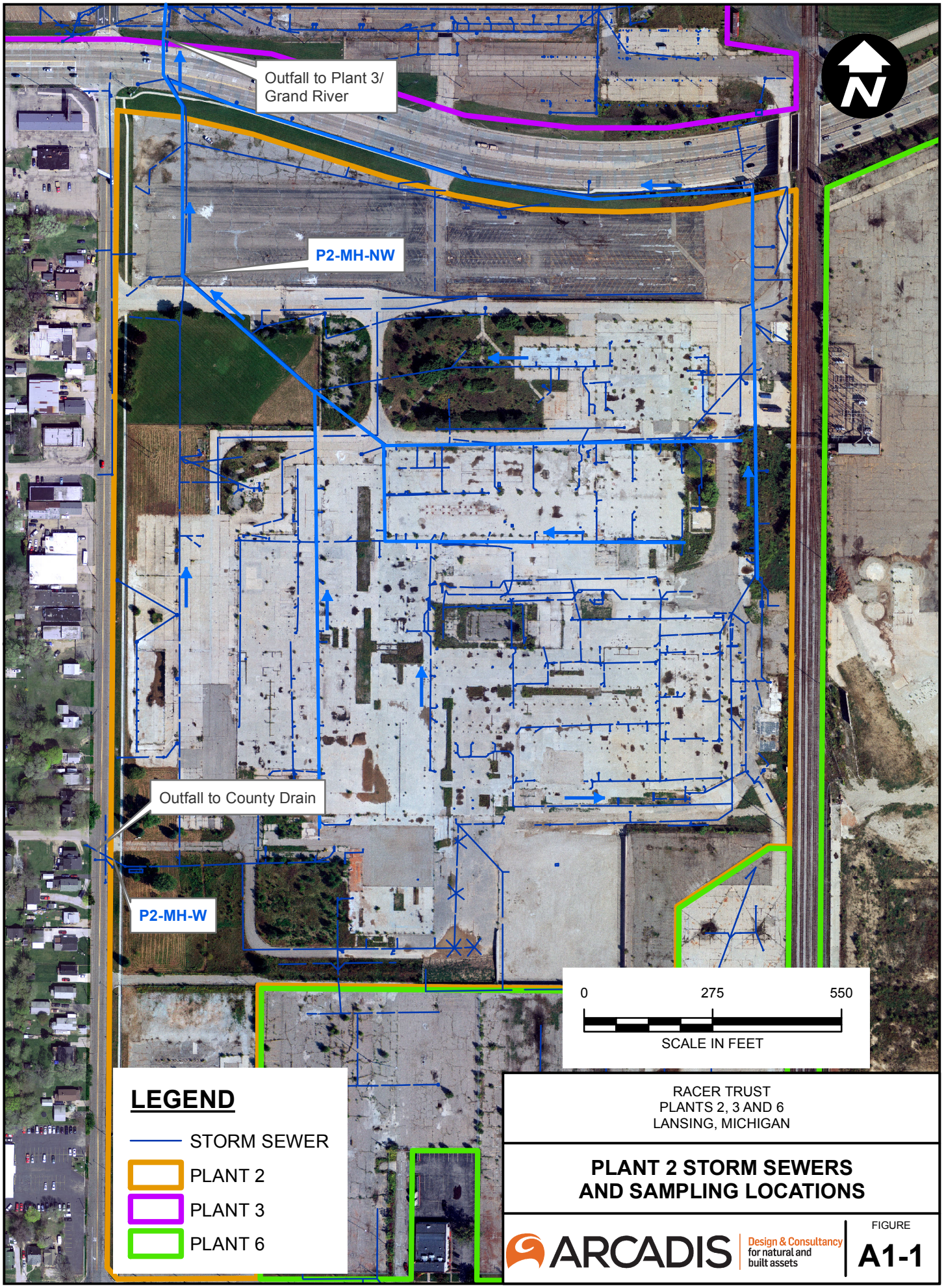
ATTACHMENT 1

Fourth Quarter 2015 Storm Sewer Locations and Analytical Results



RACER TRUST
PLANTS 2, 3 AND 6
LANSING, MICHIGAN

PLANT 2 STORM SEWERS AND SAMPLING LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A1-1

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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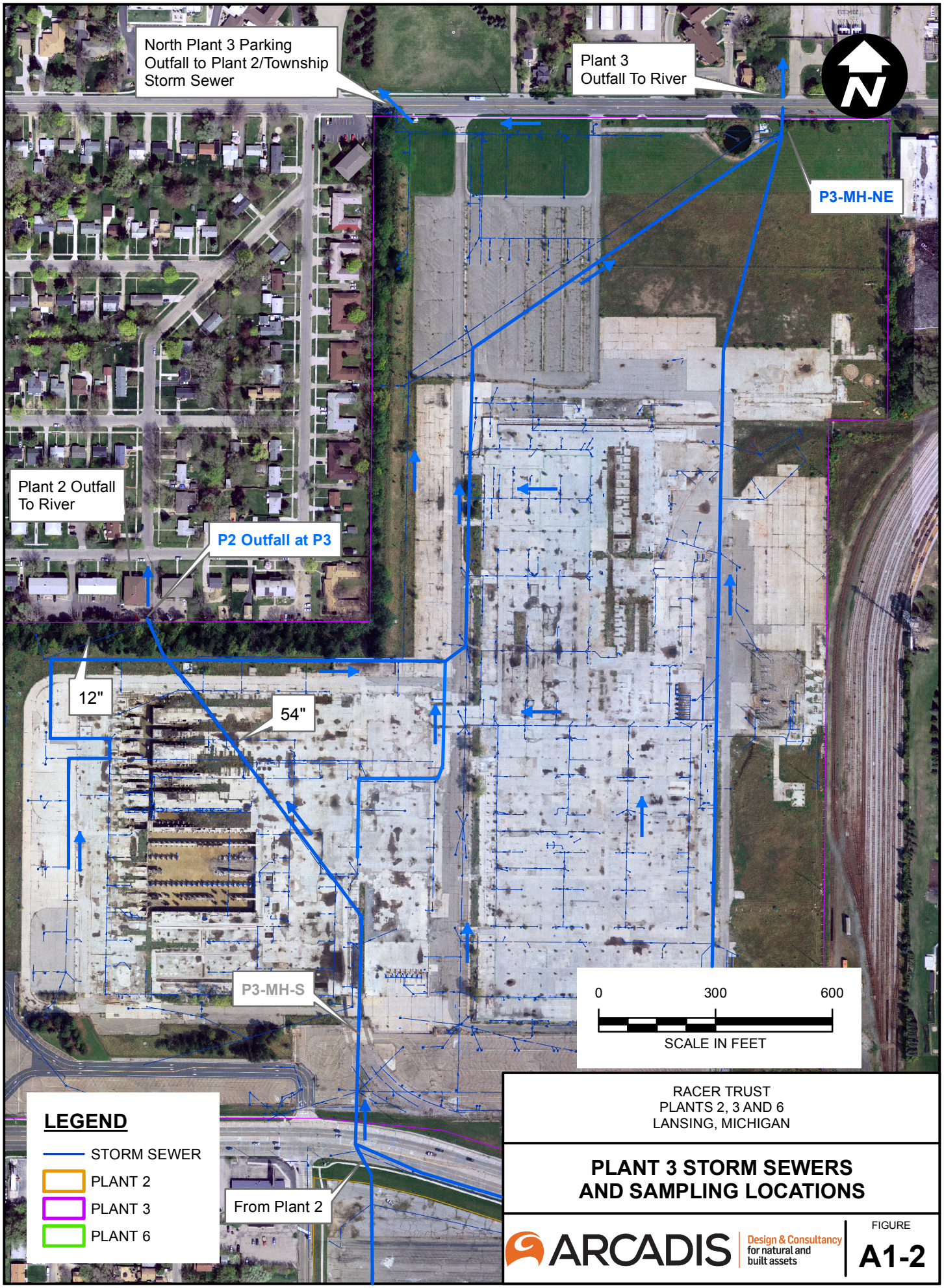

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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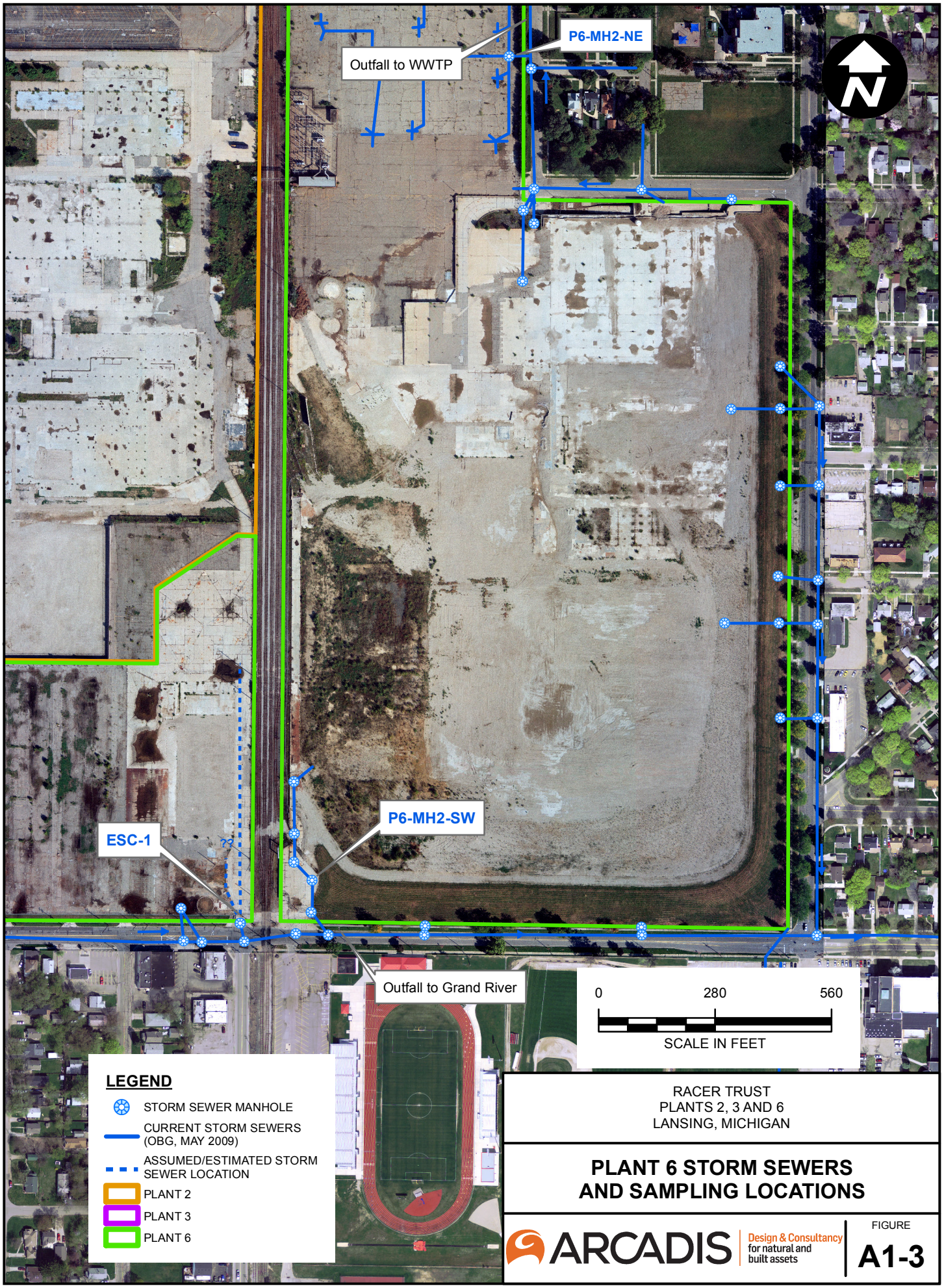
RACER TRUST
PLANTS 2, 3 AND 6
LANSING, MICHIGAN

PLANT 3 STORM SEWERS AND SAMPLING LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A1-2



RACER TRUST
PLANTS 2, 3 AND 6
LANSING, MICHIGAN

PLANT 6 STORM SEWERS AND SAMPLING LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A1-3

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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Attachment 1
Summary of Storm Sewer Groundwater Sampling Results
RACER Plants 2, 3 and 6
Lansing, Michigan

Location ID:		Groundwater Surface Water Interface	Plant 2		Plant 3		Plant 6		
Date Collected:	Units	(DEQ 2012)	P2-MH-NW 11/20/15	P2-MH-W 11/20/15	P2 Outfall @ P3 11/20/15	P3-MH-NE 11/20/15	P6-MH2-SW 11/20/15	P6-MH2-NE 11/20/15	ESC-1 11/20/15
Volatile Organics									
Acetone	ug/L	1,700	<10	<10	<10	<10	<10	<10	<10
1,4-Dioxane (X)	ug/L	2,800	25	<3	8	5	<3	<3	<3
1,1-Dichloroethane	ug/L	740	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	ug/L	89	<1	<1	<1	<1	<1	<1	<1
Benzene (X)	ug/L	200	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	620	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	18	<1	<1	<1	<1	<1	<1	<1
Methyl cyclohexane	ug/L	- -	<1	<1	<1	<1	<1	<1	<1
Toluene	ug/L	270	<1	<1	<1	<1	<1	<1	<1
Xylene (total)	ug/L	41	<2	<2	<2	<2	<2	<2	<2
Inorganics									
Antimony (X)	mg/L	0.13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic	mg/L	0.01	0.005	<0.002	0.008	<0.002	0.005	<0.002	0.003
Barium (G)	mg/L	1.2	0.064	0.067	0.125	0.057	0.045	0.039	0.035
Boron (X)	mg/L	7.2	0.22	0.08	0.14	0.23	0.16	0.08	0.08
Cadmium (G, X)	mg/L	0.0045	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium (See Note 2.)	mg/L	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper (G)	mg/L	0.02	<0.005	0.006	<0.005	0.006	<0.005	<0.005	<0.005
Lead (G, X)	mg/L	0.044	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Manganese (G, X)	mg/L	4.5	0.104	0.126	0.246	0.019	0.08	<0.005	0.005
Mercury	mg/L	0.0000013	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel (G)	mg/L	0.12	<0.005	0.011	0.005	0.010	<0.005	<0.005	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vanadium	mg/L	0.027	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Zinc (G)	mg/L	0.26	0.038	0.006	0.053	<0.005	<0.005	<0.005	0.005

Notes:

1. Only those constituents of concern (COCs) with detections are listed. If a COC is not listed then the lab results showed non-detect.
2. GSI Criteria obtained from the MDEQ Part 201 generic cleanup Table 1, dated September 28, 2012.
3. The total chromium data is compared to the cleanup criteria for Chromium VI.
4. **Bold** and gray shading denotes a result above of the Groundwater Surface Water Interface Criteria.
5. - - indicates criteria is not developed.

MDEQ Criteria Footnotes: (as revised September 28, 2012)

(G) Groundwater surface water interface (GSI) criterion depends on the water hardness of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life was calculated based on the average of readily available published hardness values calculated to be 257 mg/L. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human nondrinking water value (HNDV).

(X) The GSI criterion is not protective for surface water that is used as a drinking water source. ID = Insufficient data to develop a criterion.

- - = Not listed in the MDEQ Criteria Tables.

Acronyms and Abbreviations:

GSI = Groundwater Surface Water Interface NA = Not analyzed

ATTACHMENT 2

Fourth Quarter 2015 Groundwater Sampling Logs

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-01(2)	**Sample ID:**	MW-01(2)_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:15 AM	**Weather:**	Cold|Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	10.0 to 20.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 12.5 ft bmp	Final: 12.5 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	8:55 AM to	10:10 AM
Depth to Water:	9.25 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
8:55 AM	0	100	0.1	10.41	6.65	5032	48.2	2.39	35.60	9.50
9:00 AM	5	100	0.2	10.44	6.65	5031	49.4	2.77	34.10	9.52
9:05 AM	10	100	0.3	10.82	6.64	4965	59.6	1.05	39.90	9.70
9:10 AM	15	100	0.4	11.12	6.65	4856	63.5	1.02	44.30	9.80
9:15 AM	20	N/A	N/A	11.13	6.66	4730	65.9	1.31	47.90	9.90
9:20 AM	25	100	0.6	11.15	6.67	4649	58.6	1.80	44.50	10.00
9:25 AM	30	100	0.7	10.96	6.69	4595	50.3	2.24	32.90	10.15
9:30 AM	35	100	0.8	11.03	6.69	4568	47.2	2.44	27.20	10.25
9:35 AM	40	100	0.9	10.95	6.70	4564	42.8	2.74	N/A	10.35
9:40 AM	45	100	1.0	11.23	6.71	4589	39.5	2.80	12.10	10.45
9:45 AM	50	100	1.1	11.27	6.71	4672	37.1	2.64	8.16	10.55
9:50 AM	55	100	1.2	11.28	6.71	4720	35.5	2.52	6.09	10.60
9:55 AM	60	100	1.3	11.22	6.71	4839	32.6	2.19	4.64	10.70
10:00 AM	65	100	1.4	11.08	6.70	4907	30.4	2.00	4.36	10.75
10:05 AM	70	100	1.5	11.17	6.70	4998	27.5	1.82	4.65	10.75
10:10 AM	75	100	1.6	11.25	6.70	5006	27.6	1.80	3.62	10.80

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-03(2)	**Sample ID:**	MW-03(2)_120815
Sample Date:	12/8/2015	**Duplicate:**	DUP_0_120815	**Other QC:**	N/A
Sample Time:	11:50 AM	**Weather:**	Cold|Cloudy 38 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	12.0 to 22.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 15.0 ft bmp	Final: 15.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	10:50 AM to	11:45 AM
Depth to Water:	9.9 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:50 AM	0	100	0.1	10.46	6.63	8435	77.9	2.61	151.00	9.94
10:55 AM	5	100	0.2	10.48	6.63	8455	86.5	2.29	83.60	9.95
11:00 AM	10	100	0.3	10.51	6.63	8414	90.9	1.96	30.00	9.94
11:05 AM	15	100	0.4	10.54	6.64	8280	94.5	1.75	22.00	9.94
11:10 AM	20	100	0.5	10.55	6.65	8150	96.7	1.67	15.10	9.94
11:15 AM	25	100	0.6	10.47	6.65	7959	99.1	1.50	12.00	9.94
11:20 AM	30	100	0.7	10.55	6.66	7806	100.3	1.39	9.01	9.94
11:25 AM	35	100	0.8	10.70	6.66	7600	102.2	1.31	8.32	9.93
11:30 AM	40	100	0.9	10.80	6.67	7469	103.3	1.21	7.64	9.94
11:35 AM	45	100	1.0	10.74	6.67	7351	104.2	1.17	6.35	9.94
11:40 AM	50	100	1.1	10.70	6.68	7225	104.7	1.11	5.89	9.94
11:45 AM	55	100	1.2	10.66	6.68	7201	105.2	1.07	5.28	9.94

Collected Sample Condition

Color: clear **Odor:** Yes **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	6	HCL	N/A
Select Metals	125 mL PE	2	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-12-01	**Sample ID:**	MW-12-01_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:00 PM	**Weather:**	Sunny|Cold 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	108	GT #3181
Casing Material:	Welded Steel	**Screen Interval:**	87.0 to 110.0 ft	
Casing Diameter:	4 in	**Pump Intake Depth:**	Initial: 108.5 ft bmp	Final: 108.5 ft bmp
Measured Well Depth:	111.2 ft bmp	**Purge Time:**	1:50 PM	to 2:55 PM
Depth to Water:	82.03 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:05 PM	0	150	0.1	9.16	7.16	1964	36.9	3.55	855.00	82.03
2:10 PM	5	150	0.2	9.15	7.00	1962	32.9	1.39	429.00	82.14
2:15 PM	10	150	0.2	8.94	6.97	1962	27.2	1.12	356.00	82.14
2:20 PM	15	150	0.3	9.10	6.94	1954	22.1	0.89	309.00	82.14
2:25 PM	21	150	0.3	9.12	6.96	1955	19.9	0.77	298.00	82.14
2:30 PM	26	150	0.4	9.16	6.99	1956	15.6	0.68	282.00	82.14
2:35 PM	31	150	0.4	8.98	6.99	1958	12.6	0.64	279.00	82.14
2:40 PM	35	150	0.5	8.87	7.00	1957	11.0	0.58	271.00	82.14
2:45 PM	41	150	0.5	8.72	6.99	1954	9.4	0.50	264.00	82.14
2:50 PM	45	150	0.7	8.57	6.99	1954	6.5	0.46	261.00	82.14
2:55 PM	50	150	0.7	8.59	6.99	1951	6.0	0.47	250.00	82.14

Collected Sample Condition

Color: yellow **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: NA

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft	feet	gal	gallons	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units
CG	clear glass	ft bgs	feet below ground surface	HCL	hydrochloric acid	mL/min	milliliters per minute	N/A	not available	ppm	parts per million
F	degrees Fahrenheit	ft bmp	feet below measuring point							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-12-02	**Sample ID:**	MW-12-02_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:35 AM	**Weather:**	Cold|Cloudy|Windy 41 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Welded Steel	**Screen Interval:**	87.0 to 110.0 ft	
Casing Diameter:	4 in	**Pump Intake Depth:**	Initial: 95.0 ft bmp	Final: 95.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	10:38 AM to	11:30 AM
Depth to Water:	73 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:45 AM	0	115	0.1	9.50	6.53	1208	16.1	1.63	12.70	73.00
10:50 AM	5	115	0.2	9.54	6.54	1194	4.1	2.23	13.80	73.00
10:55 AM	10	115	0.3	9.44	6.54	1193	2.6	1.68	11.90	73.00
11:00 AM	15	115	0.4	9.50	6.55	1190	-1.6	1.36	10.10	73.00
11:05 AM	20	115	0.5	9.55	6.64	1189	-6.8	0.86	11.60	73.00
11:10 AM	25	115	0.6	9.52	6.67	1188	-4.4	0.70	14.30	73.00
11:15 AM	30	115	0.7	9.57	6.70	1187	-12.4	0.66	9.51	73.00
11:20 AM	35	115	0.8	9.48	6.73	1188	-17.5	0.61	8.35	73.00
11:25 AM	40	115	0.9	9.44	6.75	1187	-20.5	0.53	8.96	73.00
11:30 AM	45	115	0.1	9.39	6.75	1187	-23.4	0.51	7.69	73.00

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft	feet	gal	gallons	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units
CG	clear glass	ft bgs	feet below ground surface	HCL	hydrochloric acid	mL/min	milliliters per minute	N/A	not available	ppm	parts per million
F	degrees Fahrenheit	ft bmp	feet below measuring point							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-12-05	**Sample ID:**	MW-12-05_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:30 PM	**Weather:**	Cold|Sunny 41 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Welded Steel	**Screen Interval:**	75.0 to 99.0 ft	
Casing Diameter:	4 in	**Pump Intake Depth:**	Initial: 95.0 ft bmp	Final: 95.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	2:45 PM to	3:25 PM
Depth to Water:	77.84 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:45 PM	0	100	0.1	11.20	6.94	3804	-10.8	1.40	36.50	77.75
2:50 PM	5	100	0.2	11.39	6.91	3656	-10.7	1.20	25.40	77.95
2:55 PM	10	100	0.3	11.55	6.90	3573	-11.5	0.88	29.30	78.10
3:00 PM	15	100	0.4	11.66	6.89	3536	-11.5	0.75	30.90	78.15
3:05 PM	20	100	0.5	11.75	6.89	3516	-11.6	0.65	30.40	78.20
3:10 PM	25	100	0.6	11.97	6.89	3495	-11.4	0.64	35.00	78.25
3:15 PM	30	100	0.7	12.18	6.89	3494	-12.0	0.56	28.10	78.27
3:20 PM	35	100	0.8	12.04	6.89	3499	-11.9	0.52	30.60	78.30
3:25 PM	40	100	0.9	11.98	6.88	3499	-11.6	0.56	29.60	78.32

Collected Sample Condition

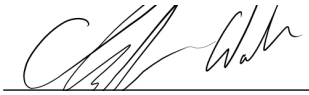
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-12-06	**Sample ID:**	MW-12-06_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:35 PM	**Weather:**	Cold|Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter	
Measuring Point:	TOC	**Serial #:**	N/A	N/A	
Casing Material:		**Screen Interval:**	80.6 to 99.5 ft		
Casing Diameter:		**Pump Intake Depth:**	Initial: 95.0 ft bmp	Final: 95.0 ft bmp	
Measured Well Depth:	N/A	**Purge Time:**	3:05 PM	to	3:30 PM
Depth to Water:	79.35 ft bmp	**PID Reading:**	0.0 ppm		

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:05 PM	0	100	0.1	5.85	7.21	899	-85.9	1.73	6.07	79.40
3:10 PM	5	100	0.2	5.94	7.27	897	-88.0	1.56	4.35	79.40
3:15 PM	10	100	0.3	5.87	7.24	897	-88.5	1.44	3.25	79.40
3:20 PM	15	100	0.4	5.89	7.24	896	-88.7	1.39	3.69	79.40
3:25 PM	20	100	0.5	5.87	7.23	896	-90.0	1.31	2.98	79.40
3:30 PM	25	100	0.6	5.95	7.24	894	-90.8	1.26	3.02	79.40

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-12-09	**Sample ID:**	MW-12-09_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:00 PM	**Weather:**	Cold|Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	14.0 to 19.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 19.0 ft bmp	Final: 19.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	1:45 PM	to 2:50 PM
Depth to Water:	14.59 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:45 PM	0	95	0.1	9.18	6.81	3316	21.3	1.08	141.00	14.59
1:50 PM	5	95	0.2	9.22	6.79	3272	18.5	1.02	150.00	14.59
1:55 PM	10	95	0.3	9.18	6.77	3196	14.5	0.70	134.00	14.59
2:00 PM	15	95	0.4	9.19	6.75	3145	12.1	0.70	131.00	14.59
2:05 PM	20	95	0.5	8.88	6.75	3124	10.0	0.51	125.00	14.59
2:10 PM	25	95	0.6	8.82	6.74	3092	8.3	0.41	78.90	14.59
2:15 PM	30	95	0.7	8.87	6.74	3085	7.4	0.36	55.30	14.59
2:20 PM	35	95	0.8	8.93	6.73	3080	6.1	0.38	48.30	14.59
2:25 PM	40	95	0.9	8.89	6.73	3082	5.7	0.34	42.10	14.59
2:30 PM	45	95	1.0	8.83	6.73	3078	5.4	0.37	33.60	14.59
2:35 PM	50	95	1.1	8.83	6.73	3078	4.5	0.34	29.60	14.59
2:40 PM	55	95	1.2	8.85	6.73	3073	3.9	0.34	23.10	14.59
2:45 PM	60	95	1.3	8.91	6.74	3070	3.5	0.35	23.60	14.59
2:50 PM	65	95	1.4	8.94	6.73	3070	3.3	0.32	23.20	14.59

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-12-18	**Sample ID:**	MW-12-18_120915
Sample Date:	12/9/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:30 AM	**Weather:**	Cloudy|Cold 44 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	108	GT#3181
Casing Material:	PVC sch 40	**Screen Interval:**	28.0 to 33.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 32.0 ft bmp	Final: 32.0 ft bmp
Measured Well Depth:	34.80 ft bmp	**Purge Time:**	9:45 AM to	10:25 AM
Depth to Water:	23.04 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:50 AM	0	150	0.1	11.87	6.96	2719	18.0	1.17	94.70	26.25
9:55 AM	6	150	0.2	11.63	6.97	2716	12.1	0.61	51.60	26.39
10:00 AM	11	150	0.3	11.61	6.98	2714	12.9	0.46	34.80	26.60
10:05 AM	15	150	0.5	11.59	6.98	2758	14.7	0.38	23.10	26.68
10:10 AM	21	150	0.8	11.62	6.98	2767	16.3	0.32	16.30	26.80
10:15 AM	25	150	0.9	11.58	6.98	2772	18.3	0.28	11.00	26.91
10:20 AM	31	150	1.1	11.57	6.98	2774	19.2	0.23	9.23	26.95
10:25 AM	36	150	1.3	11.61	6.98	2772	20.0	0.21	7.93	26.98

Collected Sample Condition

Color: orange **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	NA

Comments

General Comments: N/A
Sampling Remarks: NA

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-13-43	**Sample ID:**	MW-13-43_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:55 AM	**Weather:**	Cold 38 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Sch 40 PVC	**Screen Interval:**	72.0 to 77.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 75.0 ft bmp	Final: 75.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	10:05 AM to	10:50 AM
Depth to Water:	71.45 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:05 AM	0	100	0.1	8.13	6.19	4448	16.5	2.03	64.30	71.60
10:10 AM	5	100	0.2	8.22	6.19	4533	17.5	1.61	73.90	71.60
10:15 AM	10	100	0.3	8.48	6.19	4860	23.6	1.16	64.90	71.62
10:20 AM	15	100	0.4	8.59	6.19	5138	29.7	0.85	35.50	71.63
10:25 AM	20	100	0.5	8.71	6.19	5264	34.4	0.62	34.50	71.66
10:30 AM	25	100	0.6	8.61	6.19	5297	37.0	0.54	22.80	71.64
10:35 AM	30	100	0.7	8.62	6.20	5289	39.7	0.50	12.30	71.62
10:40 AM	35	100	0.8	8.47	6.19	5280	43.0	0.45	9.98	71.62
10:45 AM	40	100	0.9	8.39	6.20	5235	44.9	0.46	9.43	71.63
10:50 AM	45	100	1.0	8.37	6.21	5196	45.7	0.45	7.99	71.63

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Deuturium Oxide	60 mL PE	1	None	N/A
Chloride, Alkalinity and Sulfate	250 mL PE	1	None	N/A
MI 10 Metals and Na	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	HNO3	nitric acid	mV	millivolts	PE	polyethylene	SU	standard units
CG	clear glass	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	TOC	top of casing
F	degrees Fahrenheit	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-13-44	**Sample ID:**	MW-13-44_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:40 PM	**Weather:**	Cold|Sunny 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Welded Steel	**Screen Interval:**	96.0 to 115.0 ft bgs	
Casing Diameter:	4 in	**Pump Intake Depth:**	Initial: N/A	Final: 110 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	12:10 PM	to 12:35 PM
Depth to Water:	83.35 ft bmp	**PID Reading:**	110 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:10 PM	0	110	0.1	5.30	7.04	1492	-30.9	1.71	11.00	83.60
12:15 PM	5	110	0.2	5.69	7.04	1469	-34.4	1.55	6.26	83.65
12:20 PM	10	110	0.3	5.88	7.05	1454	-32.3	1.46	5.26	83.63
12:25 PM	15	110	0.4	5.97	7.06	1443	-33.6	1.18	4.28	83.70
12:30 PM	20	110	0.5	6.05	7.06	1435	-38.8	1.17	3.96	83.72
12:35 PM	25	110	0.6	6.20	7.07	1426	-42.6	1.02	6.34	83.75

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-13-45	**Sample ID:**	MW-13-45_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	MS/MSD
Sample Time:	9:25 AM	**Weather:**	Cold|Cloudy|Scattered Showers 35 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Sch. 40 PVC	**Screen Interval:**	72.0 to 77.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 75.0 ft bmp	Final: 75.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	8:35 AM to	9:20 AM
Depth to Water:	70.6 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
8:35 AM	0	80	0.1	5.76	6.60	1232	10.5	4.79	25.10	70.70
8:40 AM	4	80	0.2	5.66	6.41	1235	15.7	3.92	26.80	70.72
8:45 AM	9	80	0.3	5.51	6.45	1239	10.1	2.43	22.90	70.75
8:50 AM	14	80	0.4	5.39	6.57	1241	1.2	1.90	19.80	70.77
8:55 AM	19	80	0.5	5.43	6.68	1210	-4.2	1.65	16.40	70.78
9:00 AM	24	80	0.6	5.33	6.78	1242	-12.5	1.25	13.90	70.79
9:05 AM	29	80	0.7	5.32	6.86	1242	-16.5	1.12	10.00	70.79
9:10 AM	34	80	0.8	5.34	6.91	1243	-19.8	1.06	9.36	70.80
9:15 AM	39	80	0.9	5.34	6.95	1245	-22.2	1.03	5.96	70.80
9:20 AM	44	80	1.0	5.28	6.98	1247	-24.4	0.99	5.48	70.80

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	9	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-13-51	**Sample ID:**	MW-13-51_120915
Sample Date:	12/9/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:00 AM	**Weather:**	Cold|Cloudy 38 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Sch. 40 PVC	**Screen Interval:**	77.0 to 87.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 85.0 ft bmp	Final: 85.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	9:20 AM to	10:55 AM
Depth to Water:	75.43 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:20 AM	0	100	0.1	10.04	6.90	1737	-12.3	1.77	88.20	76.12
9:25 AM	5	100	0.2	9.89	6.84	1663	-11.9	1.77	101.00	76.20
9:30 AM	10	100	0.3	9.86	6.79	1593	-10.9	1.41	130.00	76.30
9:35 AM	15	100	0.4	9.85	6.78	1556	-11.2	1.06	128.00	76.30
9:40 AM	20	100	0.5	9.85	6.74	1540	-11.2	0.86	117.00	76.30
9:45 AM	25	100	0.6	9.93	6.77	1525	-11.7	0.65	104.00	76.40
9:50 AM	30	100	0.7	10.03	6.77	1518	-12.6	0.55	96.40	76.45
9:55 AM	35	100	0.8	10.05	6.78	1519	-12.9	0.53	81.20	76.45
10:00 AM	40	100	0.9	10.07	6.78	1519	-13.0	0.49	70.30	76.47
10:05 AM	45	100	1.0	10.08	6.78	1519	-13.8	0.50	55.10	76.51
10:10 AM	50	100	1.1	10.13	6.78	1521	-15.0	0.45	42.00	76.51
10:15 AM	55	100	1.2	10.17	6.79	1524	-15.3	0.41	34.30	76.51
10:20 AM	60	100	1.3	10.21	6.79	1527	-15.7	0.42	28.00	76.60
10:25 AM	65	100	1.4	10.25	6.78	1530	-16.5	0.40	21.90	76.60
10:30 AM	70	100	1.5	10.29	6.79	1531	-16.8	0.37	18.10	76.61
10:35 AM	75	100	1.6	10.35	6.79	1532	-17.3	0.35	15.30	76.63
10:40 AM	80	100	1.7	10.35	6.80	1534	-17.6	0.35	14.20	76.65
10:45 AM	85	100	1.8	10.40	6.79	1535	-17.8	0.33	12.20	76.67
10:50 AM	90	100	1.9	10.39	6.80	1537	-17.7	0.33	11.00	76.70
10:55 AM	95	100	2.0	10.48	6.80	1536	-18.4	0.32	11.00	76.71

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-54	**Sample ID:**	MW-14-54_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	Field Blank
Sample Time:	2:48 PM	**Weather:**	Cloudy 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	1921	4448
Casing Material:	PVC Sch 40	**Screen Interval:**	12.0 to 17.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 17.5 ft bmp	Final: 17.5 ft bmp
Measured Well Depth:	19.05 ft bmp	**Purge Time:**	2:15 PM to	2:45 PM
Depth to Water:	15.35 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:15 PM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	15.35
2:20 PM	5	100	0.1	13.16	7.55	1917000	79.5	0.59	73.50	15.45
2:25 PM	10	100	0.2	13.10	7.55	1924000	59.6	0.46	20.50	15.45
2:30 PM	15	100	0.3	1317.00	7.52	1923000	29.5	0.40	6.27	15.45
2:35 PM	19	100	0.4	1305.00	7.48	1920000	-5.3	0.32	5.95	15.45
2:40 PM	24	100	0.5	1304.00	7.47	1921000	-8.3	0.32	5.61	15.45
2:45 PM	30	100	0.6	12.99	7.50	1921000	-9.0	0.33	5.49	15.45

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: Field Blank FB0004_120815 collected after sampling

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-55	**Sample ID:**	MW-14-55_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:10 PM	**Weather:**	Cold|Cloudy 38 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	13.0 to 18.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 20.1 ft bmp	Final: 20.1 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	10:30 AM to	12:05 PM
Depth to Water:	18.4 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:30 AM	0	50	0.1	7.20	6.57	3325	-24.7	0.72	N/A	N/A
10:35 AM	5	50	0.2	7.37	6.55	3137	-25.2	0.72	N/A	N/A
10:40 AM	10	50	0.3	7.60	6.73	2979	-29.2	0.87	913.00	N/A
10:45 AM	15	100	0.4	8.28	6.73	2807	-32.6	0.79	900.00	N/A
10:50 AM	20	50	0.5	8.50	6.80	2679	-36.3	0.88	523.00	N/A
10:55 AM	25	50	0.6	8.79	6.82	2616	-36.0	0.99	381.00	N/A
11:00 AM	30	50	0.7	8.87	6.85	2586	-34.9	0.99	252.00	N/A
11:05 AM	35	50	0.8	9.33	6.92	2499	-33.4	1.10	195.00	N/A
11:10 AM	40	50	0.9	9.63	6.93	2477	-32.7	1.19	155.00	N/A
11:15 AM	45	50	0.9	10.17	6.95	2426	-31.4	1.27	122.00	N/A
11:20 AM	50	50	1.0	10.37	6.91	2397	-28.6	1.26	94.90	N/A
11:25 AM	55	50	1.1	10.58	6.97	2374	-25.5	1.35	75.50	N/A
11:30 AM	60	50	1.2	10.53	6.98	2370	-23.2	1.42	68.60	N/A
11:35 AM	65	50	1.3	10.49	6.98	2355	-20.1	1.50	55.20	N/A
11:40 AM	70	N/A	1.4	10.40	6.97	2357	-18.5	1.54	37.80	N/A
11:45 AM	75	50	1.5	10.81	6.98	2351	-17.3	1.50	29.50	N/A
11:50 AM	80	50	1.6	10.86	6.99	2362	-15.8	1.59	24.20	N/A
11:55 AM	85	50	1.7	11.08	6.99	2356	-13.3	1.82	9.30	N/A
12:00 PM	90	50	1.8	11.08	6.99	2358	-12.2	1.86	9.15	N/A
12:05 PM	95	50	1.9	11.41	6.99	2356	-11.1	1.93	8.65	N/A

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: dtw below pump. blank turbidity readings implies above range error

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	HNO3	nitric acid	mV	millivolts	PE	polyethylene	SU	standard units
CG	clear glass	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	TOC	top of casing
F	degrees Fahrenheit	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-56	**Sample ID:**	MW-14-56_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:05 PM	**Weather:**	Cold|Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	71.0 to 76.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 78.5 ft bmp	Final: 78.5 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	12:35 PM to	1:00 PM
Depth to Water:	75.9 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:35 PM	0	65	0.1	5.11	6.73	5106	76.9	1.72	22.90	73.32
12:40 PM	5	65	0.2	8.32	6.64	5120	84.0	1.19	14.80	76.39
12:45 PM	10	65	0.3	8.27	6.60	5117	91.2	1.01	11.60	76.45
12:50 PM	15	65	0.4	8.19	6.60	5122	91.8	1.01	7.47	76.52
12:55 PM	20	65	0.5	8.02	6.63	5127	87.1	1.12	6.36	76.55
1:00 PM	25	65	0.6	8.02	6.63	5120	83.1	1.16	5.91	76.57

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-57	**Sample ID:**	MW-14-57_120415
Sample Date:	12/4/2015	**Duplicate:**	DUP_0_120415	**Other QC:**	N/A
Sample Time:	9:35 AM	**Weather:**	Cold|Cloudy 37 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	15.0 to 20.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 18.5 ft bmp	Final: 18.5 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	8:55 AM to	9:30 AM
Depth to Water:	14.74 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
8:55 AM	0	100	0.1	11.37	7.23	1136	55.8	1.56	12.90	14.74
9:00 AM	5	100	0.2	11.43	7.22	1123	55.9	0.84	10.30	14.74
9:05 AM	10	100	0.3	11.73	7.19	1098	55.0	0.55	8.33	14.74
9:10 AM	15	100	0.4	11.81	7.19	1083	56.7	0.46	7.34	14.74
9:15 AM	20	100	0.5	11.88	7.18	1071	54.4	0.43	5.39	14.74
9:20 AM	25	100	0.6	11.95	7.19	1060	54.9	0.38	6.32	14.74
9:25 AM	30	100	0.7	11.94	7.19	1048	53.9	0.34	4.39	14.74
9:30 AM	35	100	0.8	11.90	7.19	1043	53.1	0.34	4.39	14.74

Collected Sample Condition

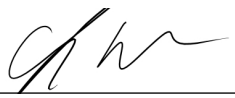
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	6	HCL	N/A
Select Metals	125 mL PE	2	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC	polyvinyl chloride
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	sch 40	Schedule 40
ft	feet	gal	gallons							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-58	**Sample ID:**	MW-14-58_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:05 PM	**Weather:**	Cold|Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	22.0 to 27.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 20.0 ft bmp	Final: 20.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	2:35 PM	to 3:00 PM
Depth to Water:	14.98 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:35 PM	0	100	0.1	10.76	6.65	3727	-9.7	0.90	20.60	15.00
2:40 PM	5	100	0.2	10.77	6.65	3735	-10.1	0.82	19.50	15.00
2:45 PM	10	N/A	0.3	10.90	6.65	3765	-17.0	0.78	11.90	15.00
2:50 PM	15	100	0.4	11.08	6.65	3783	-23.9	0.51	9.35	15.00
2:55 PM	20	100	0.5	11.06	6.65	3811	-31.3	0.41	6.28	15.00
3:00 PM	25	100	0.6	10.97	6.65	3819	-31.2	0.38	4.98	15.00

Collected Sample Condition

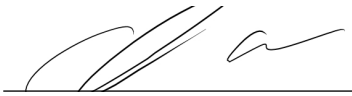
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-59	**Sample ID:**	MW-14-59_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:20 PM	**Weather:**	Cold|Cloudy 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	N/A	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	12.0 to 17.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 15.5 ft bmp	Final: 15.5 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	1:05 PM	to 2:15 PM
Depth to Water:	8.55 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:05 PM	0	100	0.1	12.55	7.04	1048	3.0	0.62	60.40	8.80
1:10 PM	5	100	0.2	12.61	7.05	1049	3.2	0.51	44.30	8.90
1:15 PM	10	100	0.3	12.98	7.07	1052	3.4	0.75	34.70	8.91
1:20 PM	15	100	0.4	13.00	7.06	1055	1.7	0.52	25.40	8.91
1:25 PM	20	100	0.5	13.08	7.05	1057	-0.9	0.45	21.20	8.91
1:30 PM	25	100	0.6	13.10	7.07	1058	-3.1	0.41	18.00	8.91
1:35 PM	30	100	0.7	13.24	7.07	1059	-5.5	0.35	20.30	8.91
1:40 PM	35	100	0.8	13.03	7.08	1061	-7.9	0.33	16.40	8.91
1:45 PM	40	100	0.9	13.13	7.07	1059	-9.5	0.32	17.60	8.91
1:50 PM	45	100	1.0	13.16	7.07	1059	-10.5	0.30	14.70	8.91
1:55 PM	50	100	1.1	13.33	7.07	1058	-12.1	0.31	13.40	8.91
2:00 PM	55	100	1.2	13.29	7.12	1060	-13.4	0.31	14.20	8.91
2:05 PM	60	100	1.3	13.31	7.07	1058	-13.8	0.32	9.34	8.91
2:10 PM	65	100	1.4	13.29	7.07	1059	-14.9	0.32	8.32	8.91
2:15 PM	70	100	1.5	13.33	7.07	1053	-16.4	0.33	9.38	8.91

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-60	**Sample ID:**	MW-14-60_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:10 AM	**Weather:**	Cloudy|Cold 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	15.0 to 20.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 20.0 ft bmp	Final: 20.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	10:25 AM to	11:05 AM
Depth to Water:	14.0 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:25 AM	0	100	0.1	9.09	7.32	1212	-67.9	1.09	10.80	14.01
10:30 AM	5	100	0.2	8.77	7.30	1214	-68.6	0.87	6.62	14.01
10:35 AM	10	100	0.3	8.53	7.27	1211	-68.8	1.00	5.32	14.04
10:40 AM	15	100	0.4	8.41	7.26	1209	-70.0	1.28	4.95	14.05
10:45 AM	20	100	0.5	8.75	7.25	1202	-72.2	1.13	5.39	14.07
10:50 AM	25	100	0.6	8.90	7.25	1206	-74.1	0.73	4.28	14.08
10:55 AM	30	100	0.7	8.94	7.25	1210	-74.3	0.58	4.21	14.09
11:00 AM	35	100	0.8	9.16	7.25	1205	-74.3	0.52	4.85	14.09
11:05 AM	40	100	0.9	9.07	7.26	1207	-73.8	0.46	4.10	14.10

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-61	**Sample ID:**	MW-14-61_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:30 PM	**Weather:**	Cold|Cloudy 38 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	69.0 to 74.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 75.0 ft bmp	Final: 75.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	12:05 PM to	1:25 PM
Depth to Water:	73.5 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:05 PM	0	75	0.1	3.67	6.28	1027	19.1	2.80	32.80	73.40
12:10 PM	5	75	0.2	3.57	6.32	1024	18.0	2.42	28.30	73.40
12:15 PM	10	75	0.3	3.48	6.44	1022	11.4	2.03	30.30	73.40
12:20 PM	15	75	0.4	3.61	6.51	1018	8.2	1.81	26.50	73.40
12:25 PM	20	75	0.5	3.53	6.63	1020	1.9	2.00	25.20	73.40
12:30 PM	25	75	0.6	3.97	6.67	1010	-2.0	1.68	23.90	73.40
12:35 PM	30	75	0.7	4.11	6.77	1012	-5.4	1.43	22.00	73.40
12:40 PM	35	75	0.8	4.29	6.82	1013	-7.6	1.36	21.50	73.40
12:45 PM	40	75	0.9	4.30	6.85	1015	-11.4	1.25	22.30	73.40
12:50 PM	45	75	1.0	4.11	6.86	1019	-12.7	1.16	22.60	73.40
12:55 PM	50	75	1.1	3.98	6.87	1018	-14.4	1.12	18.90	73.40
1:00 PM	55	75	1.2	3.86	6.86	1018	-14.0	1.11	18.00	73.40
1:05 PM	60	75	1.3	3.81	6.88	1018	-15.1	1.07	17.10	73.40
1:10 PM	65	75	1.4	3.85	6.89	1016	-15.6	1.04	16.60	73.40
1:15 PM	70	75	1.5	3.99	6.90	1013	-16.3	1.00	15.20	73.40
1:20 PM	75	75	1.6	3.93	6.90	1014	-16.7	1.00	14.10	73.40
1:25 PM	80	75	1.7	3.86	6.97	1015	-17.8	0.97	15.90	73.40

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-62	**Sample ID:**	MW-14-62_120915
Sample Date:	12/9/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:50 AM	**Weather:**	Cloudy|Cold 44 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	108	GT#3181
Casing Material:	PVC Sch 40	**Screen Interval:**	12.0 to 17.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 17.0 ft bmp	Final: 17.0 ft bmp
Measured Well Depth:	19.64 ft bmp	**Purge Time:**	11:15 AM to	11:45 AM
Depth to Water:	6.92 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:15 AM	0	150	0.1	14.03	11.51	767	77.1	0.47	30.40	7.06
11:20 AM	6	150	0.2	13.45	11.68	812	77.2	0.27	14.40	7.06
11:25 AM	11	150	0.2	13.29	11.62	810	81.5	0.17	7.64	7.06
11:30 AM	15	150	0.3	13.29	11.55	794	85.4	0.13	4.18	7.06
11:35 AM	21	150	0.3	13.39	11.51	785	86.7	0.10	3.09	7.06
11:40 AM	25	150	0.4	13.76	11.48	776	88.4	0.08	2.85	7.06
11:45 AM	31	150	0.4	13.40	11.47	769	89.4	0.06	2.29	7.06

Collected Sample Condition

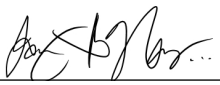
Color: clear **Odor:** Yes **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	Geochem Analysis

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	MW-14-63	**Sample ID:**	MW-14-63_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:15 PM	**Weather:**	Cloudy|Cold 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	N/A	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 74 ft bmp	Final: 74 ft bmp
Measured Well Depth:	76.73 ft bmp	**Purge Time:**	11:00 AM to	12:08 PM
Depth to Water:	72.06 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:58 AM	0	75	0.1	9.61	6.20	1195	261.3	2.82	325.00	72.59
10:58 AM	1	75	0.2	10.33	6.40	1196	243.6	3.82	194.00	72.85
11:10 AM	13	75	0.3	10.41	6.47	1196	229.2	1.67	143.00	73.01
11:18 AM	21	75	0.4	9.71	6.53	1204	214.0	1.03	126.00	72.96
11:22 AM	25	75	0.6	9.56	6.44	1202	210.0	0.92	95.10	72.97
11:32 AM	35	75	0.7	9.73	6.52	1197	197.1	0.82	78.90	72.99
11:37 AM	39	75	0.8	9.88	6.53	1197	185.0	0.69	59.10	72.99
11:43 AM	46	75	0.9	10.06	6.57	1194	173.1	0.61	46.00	78.99
11:51 AM	53	75	1.1	10.52	6.67	1192	158.1	0.53	35.40	73.02
11:53 AM	55	75	1.2	10.68	6.81	1191	147.2	0.53	30.60	73.04
11:56 AM	59	75	1.3	10.54	6.69	1195	137.5	0.54	27.20	72.96
12:02 PM	65	75	1.3	10.42	6.67	1192	136.9	0.53	25.80	72.94
12:08 PM	70	75	1.5	10.44	6.68	1190	136.5	0.52	24.30	72.94

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

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Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	P2-MW-04	**Sample ID:**	P2-MW-04_120115
Sample Date:	12/1/2015	**Duplicate:**	DUP_2_120115	**Other QC:**	N/A
Sample Time:	2:20 PM	**Weather:**	Cold|Cloudy|Windy 41 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	26.0 to 36.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 30.0 ft bmp	Final: 30.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	12:55 PM to	2:15 PM
Depth to Water:	11.55 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:55 PM	0	80	0.1	11.13	7.02	1936	-33.2	0.83	635.00	11.54
1:00 PM	5	80	0.2	10.94	7.01	1938	-35.1	0.72	677.00	11.54
1:05 PM	10	80	0.3	10.38	7.01	1937	-37.3	0.85	686.00	11.54
1:10 PM	15	80	0.4	10.87	7.02	1935	-35.2	0.77	603.00	11.54
1:15 PM	20	80	0.5	10.77	7.02	1931	-34.0	0.67	598.00	11.54
1:20 PM	25	80	0.6	10.72	7.02	1918	-31.6	0.59	511.00	11.54
1:25 PM	30	80	0.7	10.77	7.02	1912	-30.0	0.59	366.00	11.54
1:30 PM	35	80	0.8	10.79	7.02	1912	-31.1	0.59	302.00	11.54
1:35 PM	40	80	0.9	10.87	7.02	1913	-29.5	0.46	213.00	11.54
1:40 PM	45	80	1.0	10.97	7.02	1917	-33.8	0.43	139.00	11.54
1:45 PM	50	80	1.1	10.99	7.02	1921	-34.2	0.47	98.00	11.54
1:50 PM	55	80	1.2	10.97	7.01	1924	-35.2	0.46	56.60	11.54
1:55 PM	60	80	1.3	10.88	7.02	1928	-33.4	0.44	45.30	11.54
2:00 PM	65	80	1.4	10.81	6.99	1928	-30.5	0.54	39.60	11.54
2:05 PM	70	80	1.5	10.72	7.00	1930	-34.5	0.41	34.90	11.54
2:10 PM	75	80	1.6	10.68	7.00	1930	-34.2	0.45	31.00	11.54
2:15 PM	80	80	1.7	10.52	7.01	1931	-35.1	0.40	29.60	11.54

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	6	HCL	N/A
Select Metals	125 mL PE	2	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	HNO3	nitric acid	mV	millivolts	PE	polyethylene	SU	standard units
CG	clear glass	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	TOC	top of casing
F	degrees Fahrenheit	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	P2-SB-20	**Sample ID:**	P2-SB-20_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	4:35 PM	**Weather:**	Cold|Cloudy|Scattered Showers 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	8.0 to 13.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 14 ft bmp	Final: 14 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	3:45 PM to	4:25 PM
Depth to Water:	9.83 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:45 PM	0	110	0.1	7.72	8.65	531	52.4	3.54	40.20	10.54
3:50 PM	5	110	0.2	7.91	8.67	505	50.8	3.33	29.80	10.80
3:55 PM	10	110	0.3	7.49	8.66	496	51.7	3.08	19.60	11.00
4:00 PM	15	110	0.4	7.06	8.64	486	54.7	2.75	17.30	11.20
4:05 PM	20	110	0.5	7.10	8.58	466	55.7	2.31	15.20	11.20
4:10 PM	25	110	0.6	7.41	8.70	437	53.9	1.87	15.90	11.30
4:15 PM	30	110	0.7	7.74	8.87	413	47.6	1.80	16.10	11.40
4:20 PM	35	110	0.8	7.85	8.94	407	44.4	1.74	17.20	11.45
4:25 PM	40	110	0.9	7.95	9.04	400	42.9	1.66	17.70	11.50

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	PW-14-01	**Sample ID:**	PW-14-01_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	Field Blank, Equipment Blank
Sample Time:	11:05 AM	**Weather:**	Cloudy|Cold 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	108	GT# 3181
Casing Material:	PVC Sch 40	**Screen Interval:**	70.0 to 75.0 ft BTOC	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 82.5 ft bmp	Final: 82.5 ft bmp
Measured Well Depth:	85.5 ft bmp	**Purge Time:**	10:00 AM to	11:00 AM
Depth to Water:	67.95 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:00 AM	0	150	0.1	10.26	6.44	1630	10.6	2.86	81.90	68.18
10:05 AM	4	150	0.2	10.02	6.67	1660	-21.0	1.47	60.70	68.20
10:10 AM	9	150	0.2	10.08	6.79	1664	-28.5	1.20	48.90	68.31
10:15 AM	15	150	0.3	10.14	6.82	1668	-29.7	1.05	46.70	68.33
10:20 AM	20	150	0.3	10.18	6.91	1675	-28.8	0.98	35.60	68.44
10:25 AM	24	150	0.4	10.14	6.92	1675	-28.5	0.88	34.70	68.48
10:30 AM	29	150	0.4	10.04	6.92	1676	-26.9	0.77	31.40	68.48
10:35 AM	34	150	0.5	10.08	6.92	1674	-25.5	1.15	26.90	68.52
10:40 AM	39	150	0.5	10.07	6.92	1674	-22.7	0.70	28.80	68.55
10:45 AM	45	150	0.6	10.12	6.92	1674	-20.6	0.84	25.50	68.58
10:50 AM	49	150	0.6	9.49	6.93	1680	-15.0	0.50	22.50	68.61
10:55 AM	55	150	0.7	9.23	6.92	1678	-13.1	0.50	19.10	68.65
11:00 AM	59	150	0.7	8.98	6.91	1677	-10.7	0.53	18.20	68.65

Collected Sample Condition

Color: white **Odor:** Yes **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	Geochem collected

Comments

General Comments: N/A
Sampling Remarks: NA

Technician: James Ness

Signature:

Abbreviations:

C	degrees Celsius	ft	feet	gal	gallons	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units
CG	clear glass	ft bgs	feet below ground surface	HCL	hydrochloric acid	mL/min	milliliters per minute	N/A	not available	ppm	parts per million
F	degrees Fahrenheit	ft bmp	feet below measuring point							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

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Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 2	**Site Location:**	Lansing, MI		
Project No:	B0064479.2015.00603	**Well ID:**	TW-14-02	**Sample ID:**	TW-14-02_120915
Sample Date:	12/9/2015	**Duplicate:**	DUP_4_120915	**Other QC:**	N/A
Sample Time:	10:16 AM	**Weather:**	Cloudy 43 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	1921	4448
Casing Material:		**Screen Interval:**	N/A	
Casing Diameter:		**Pump Intake Depth:**	Initial: 72.0 ft bmp	Final: 72.0 ft bmp
Measured Well Depth:	74.7 ft bmp	**Purge Time:**	9:15 AM to	10:15 AM
Depth to Water:	66.36 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:15 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	66.36
9:20 AM	5	50	0.1	9.71	6.60	3713000	-32.4	3.71	37.90	66.69
9:25 AM	10	50	0.1	9.72	6.60	3694000	-32.7	3.19	326.00	66.79
9:30 AM	16	50	0.2	9.90	6.62	3646000	-32.9	2.95	330.00	66.92
9:35 AM	20	50	0.2	9.93	6.57	3603000	-31.8	2.53	172.00	67.05
9:40 AM	26	50	0.3	9.96	6.57	3586000	-31.0	2.92	170.00	67.11
9:45 AM	30	50	0.3	9.82	6.59	3588000	-30.9	2.43	165.00	67.15
9:50 AM	35	50	0.4	9.82	6.60	3578000	-30.6	2.37	164.00	67.16
9:55 AM	40	50	0.4	9.29	6.57	3577000	-29.2	2.26	159.00	67.15
10:00 AM	46	50	0.5	9.32	6.59	3536000	-27.5	2.12	158.00	67.15
10:05 AM	50	50	0.5	9.40	6.51	3528000	-26.8	2.16	157.00	67.15
10:10 AM	55	50	0.6	9.42	6.56	3526000	-26.8	2.31	155.00	67.15
10:15 AM	61	50	0.6	9.44	6.58	3527000	-26.7	2.26	154.00	67.15

Low-Flow Groundwater Sampling Log

Collected Sample Condition

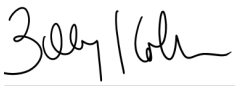
Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	6	HCL	N/A
SVOCs	1 L AG	4	None	N/A
Metals	125 mL PE	2	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized at a flow rate of50 ml/min, but at a depth greater than the maximum allowable drawdown, turbidity stabilized at a value greater than 10 ntu's, therefore both total and dissolved metals were collected

Technician: Bill Cobern

Signature: 

Abbreviations:

AG	amber glass	ft	feet	HNO3	nitric acid	mV	millivolts	PE	polyethylene	TOC	top of casing
C	degrees Celsius	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	uS/cm	microsiemens per centimeter
CG	clear glass	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	CH-14-RO	**Sample ID:**	CH-14-RO_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	4:02 PM	**Weather:**	Cloudy|Raining|Windy|Snowing 37 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	7.0 to 12.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 12.0 ft bmp	Final: 12.0 ft bmp
Measured Well Depth:	14.85 ft bmp	**Purge Time:**	3:30 PM to	4:00 PM
Depth to Water:	9.19 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:30 PM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	9.19
3:35 PM	6	100	0.1	11.50	6.83	1087000	72.5	0.28	9.74	9.35
3:40 PM	11	100	0.2	11.47	6.86	1086000	73.0	0.29	7.17	9.35
3:45 PM	16	100	0.3	11.47	6.87	1086000	73.6	0.30	6.36	9.35
3:50 PM	20	100	0.4	11.44	6.87	1087000	74.3	0.28	6.47	9.35
3:55 PM	25	100	0.5	11.48	6.87	1087000	74.9	0.28	6.56	9.35
4:00 PM	31	100	0.6	11.48	6.87	1087000	75.8	0.27	6.13	9.35

Collected Sample Condition

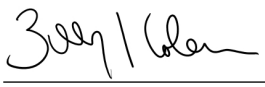
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A
Hexavalent Chromium	125 mL PE	1	None	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-02-02(3)	**Sample ID:**	MW-02-02(3)_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	8:58 AM	**Weather:**	Sunny 31 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	74.0 to 84.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 80.0 ft bmp	Final: 80.0 ft bmp
Measured Well Depth:	83.75 ft bmp	**Purge Time:**	8:20 AM to	8:55 AM
Depth to Water:	68.30 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
8:20 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	68.30
8:25 AM	4	50	0.1	7.52	6.11	6277000	88.9	1.03	25.00	68.63
8:30 AM	10	50	0.1	6.92	6.18	6341000	82.0	0.96	17.80	68.63
8:35 AM	14	50	0.2	6.41	6.18	6329000	78.2	0.88	15.80	68.63
8:40 AM	20	50	0.2	6.14	6.18	6331000	75.2	0.85	15.80	68.63
8:45 AM	24	50	0.3	5.91	6.18	6326000	72.3	0.84	9.95	68.63
8:50 AM	29	50	0.3	5.68	6.18	6331000	70.1	0.83	9.68	68.63
8:55 AM	34	50	0.4	5.62	6.18	6318000	68.2	0.85	9.21	68.63

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized within required level at 50 ml/l

Technician: Bill Cobern

Signature: Billy Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-02-04(3)	**Sample ID:**	MW-02-04(3)_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:37 AM	**Weather:**	Cloudy 33 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	76.0 to 86.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 82.0 ft bmp	Final: 82.0 ft bmp
Measured Well Depth:	84.32 ft bmp	**Purge Time:**	9:30 AM to	10:35 AM
Depth to Water:	66.50 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:30 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	66.50
9:35 AM	5	50	0.1	11.54	6.79	3346000	35.6	0.94	56.40	66.75
9:40 AM	10	50	0.1	11.52	6.69	3347000	31.1	0.88	45.90	66.75
9:45 AM	14	50	0.2	11.69	6.68	3343000	29.3	0.84	47.30	66.75
9:50 AM	19	50	0.2	11.73	6.68	3348000	26.5	0.83	44.60	66.75
9:55 AM	24	50	0.3	11.68	6.68	3367000	23.9	0.77	40.70	66.75
10:00 AM	29	50	0.3	11.91	6.64	3417000	18.8	0.70	39.40	66.75
10:05 AM	35	50	0.4	11.73	6.68	3465000	13.8	0.67	34.30	66.75
10:10 AM	39	50	0.4	11.91	6.68	3517000	11.1	0.65	29.50	66.75
10:15 AM	44	50	0.5	11.92	6.69	3556000	8.8	0.60	19.70	66.75
10:20 AM	50	50	0.5	12.00	6.69	3576000	5.9	0.58	13.80	66.75
10:25 AM	55	50	0.6	11.89	6.70	3619000	3.7	0.59	9.92	66.75
10:30 AM	59	50	0.6	12.01	6.70	3658000	1.9	0.59	9.15	66.75
10:35 AM	64	50	0.7	12.04	6.70	3704000	0.3	0.58	9.48	66.75

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized within allowable levels at 50 ml/min

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-05(3)	**Sample ID:**	MW-05(3)_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:11 AM	**Weather:**	Cloudy 35 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	10.0 to 15.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 12.0 ft bmp	Final: 12.0 ft bmp
Measured Well Depth:	15.25 ft bmp	**Purge Time:**	9:35 AM to	10:10 AM
Depth to Water:	4.70 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:35 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	4.70
9:40 AM	5	50	0.1	12.38	6.89	2134000	44.3	4.36	26.40	5.02
9:45 AM	10	50	0.1	12.36	6.92	2135000	44.5	4.35	19.30	5.02
9:50 AM	16	50	0.2	12.36	6.93	2135000	44.9	4.37	14.20	5.02
9:55 AM	20	50	0.2	12.32	6.93	2132000	45.2	4.26	10.20	5.02
10:00 AM	26	50	0.3	12.57	6.92	2127000	45.9	4.23	9.31	5.02
10:05 AM	31	50	0.3	12.61	6.92	2133000	46.6	4.20	8.95	5.02
10:10 AM	36	50	0.4	12.60	6.92	2133000	47.4	4.18	9.23	5.02

Collected Sample Condition

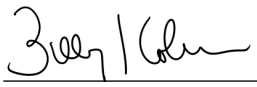
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: deawdown stabilized within allowable levels at a flow rate of 50 ml/min

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-06(3)	**Sample ID:**	MW-06(3)_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:00 PM	**Weather:**	Sunny 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	6.5 to 11.5 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 8.0 ft bmp	Final: 8.0 ft bmp
Measured Well Depth:	11.55 ft bmp	**Purge Time:**	11:25 AM to	11:55 AM
Depth to Water:	3.88 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:25 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	4.12
11:30 AM	5	50	0.1	11.40	7.00	537000	76.4	2.83	30.80	4.12
11:35 AM	11	50	0.1	11.28	7.04	537000	76.1	2.85	18.90	4.12
11:40 AM	16	50	0.2	11.36	7.05	536000	76.2	2.80	17.70	4.12
11:45 AM	20	50	0.2	11.29	7.06	537000	76.2	2.82	17.70	4.12
11:50 AM	25	50	0.3	11.38	7.06	536000	76.2	2.82	17.10	4.12
11:55 AM	31	50	0.3	11.46	7.06	535000	76.4	2.78	18.10	4.12

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized at a flow rate of 50 ml/min

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-12-20	**Sample ID:**	MW-12-20_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	8:30 AM	**Weather:**	Cold|Sunny 42 F		

Instrument Identification

Purge Method:	Other Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	75.0 to 80.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 70.0 ft bmp	Final: 70.0 ft bmp
Measured Well Depth:	79.50 ft bmp	**Purge Time:**	2:35 PM to	3:10 PM
Depth to Water:	70.31 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:45 PM	0	150	0.1	12.40	6.91	1113	-13.2	3.07	390.00	71.05
2:50 PM	6	150	0.2	12.46	6.91	1126	-13.3	2.42	327.00	72.78
2:55 PM	11	150	0.4	12.57	6.90	1130	-8.7	2.95	413.00	74.11
3:00 PM	16	150	0.8	12.62	6.83	1205	-16.1	2.48	999.00	76.91
3:05 PM	20	150	1.1	12.64	6.83	1220	-25.6	1.18	849.00	77.54
3:10 PM	26	150	1.4	12.47	6.83	1180	-26.1	1.20	830.00	79.48

Collected Sample Condition

Color: brown **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: Sampled via bailer.

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-12-21	**Sample ID:**	MW-12-21_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:35 AM	**Weather:**	Cloudy|Cold 33.0 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	70.0 to 75.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 72 ft bmp	Final: 76 ft bmp
Measured Well Depth:	78.10 ft bmp	**Purge Time:**	10:30 AM to	11:35 AM
Depth to Water:	68.57 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:30 AM	0	150	0.1	11.70	6.72	1951	36.0	1.64	272.00	70.59
10:35 AM	5	150	0.2	11.83	6.77	1946	28.1	1.21	186.00	71.02
10:40 AM	11	150	0.3	11.38	6.76	1951	29.7	1.27	127.00	71.28
10:45 AM	15	150	0.4	10.65	6.74	1953	35.5	1.33	97.40	71.46
10:50 AM	20	150	0.5	10.49	6.71	1939	39.8	1.21	101.00	72.15
10:55 AM	26	150	0.6	10.82	6.70	1936	39.8	1.26	96.20	72.50
11:00 AM	30	150	0.7	10.79	6.71	1937	40.3	1.33	93.60	72.96
11:05 AM	35	150	0.9	10.94	6.71	1943	40.5	1.36	134.00	73.05
11:10 AM	41	150	1.0	11.09	6.70	1962	37.7	1.05	195.00	73.65
11:15 AM	46	150	1.1	11.21	6.70	1984	32.2	0.71	218.00	74.02
11:20 AM	51	150	1.2	10.98	6.69	1997	26.6	0.63	209.00	74.75
11:25 AM	55	150	1.3	10.43	6.68	1994	26.3	0.61	206.00	74.75
11:30 AM	60	150	1.4	10.13	6.65	1996	27.5	0.65	209.00	74.75
11:35 AM	66	150	1.5	9.86	6.65	2002	29.3	0.62	199.00	74.75

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: Samed at high turbudity level.

Technician: James Ness

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-22	**Sample ID:**	MW-13-22_120315
Sample Date:	12/3/2015	**Duplicate:**	DUP_8_120315	**Other QC:**	Equipment Blank
Sample Time:	9:40 AM	**Weather:**	Cloudy|Cold 33 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter	
Measuring Point:	TOC	**Serial #:**	05J2007	1329	
Casing Material:	PVC sch 40	**Screen Interval:**	89.0 to 94.0 ft bgs		
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 93.5 ft bmp	Final: 93.5 ft bmp	
Measured Well Depth:	96.25 ft bmp	**Purge Time:**	8:30 AM	to	9:35 AM
Depth to Water:	73.52 ft bmp	**PID Reading:**	0.0 ppm		

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
8:40 AM	0	150	0.1	11.35	6.85	1854	75.5	1.14	206.00	73.52
8:45 AM	4	150	0.2	11.56	6.81	1886	60.5	0.99	181.00	73.57
8:50 AM	9	150	0.4	11.19	6.79	1195	49.4	1.09	N/A	73.57
8:55 AM	14	150	0.5	11.00	6.77	1924	45.2	0.85	117.00	73.57
9:00 AM	20	150	0.6	10.85	6.75	1940	39.3	0.57	85.10	73.57
9:05 AM	25	150	0.7	10.93	6.74	1950	35.2	0.41	49.30	73.57
9:10 AM	30	150	0.8	10.94	6.74	1953	32.2	0.36	40.80	73.57
9:15 AM	35	150	1.1	10.92	6.73	1954	31.2	0.33	25.50	73.57
9:20 AM	40	150	1.3	10.75	6.73	1951	28.9	0.32	19.10	73.57
9:26 AM	45	150	1.4	10.73	6.73	1945	28.8	0.29	18.10	73.57
9:30 AM	50	150	2.5	10.77	6.74	1940	28.8	0.28	11.30	73.57
9:35 AM	54	150	2.7	10.69	6.71	1935	28.6	0.26	8.38	73.57

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	6	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: EB-0003_120315

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-23	**Sample ID:**	MW-13-23_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:00 PM	**Weather:**	Cloudy|Cold 33.0 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	69.0 to 74.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 76 ft bmp	Final: 76 ft bmp
Measured Well Depth:	77.55 ft bmp	**Purge Time:**	2:01 PM to	3:01 PM
Depth to Water:	74.05 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:05 PM	0	150	0.1	11.92	6.54	2209	156.8	5.68	999.00	74.50
2:10 PM	6	150	0.1	11.85	6.54	2233	139.3	1.33	999.00	74.58
2:15 PM	10	150	0.2	11.06	6.59	2245	133.6	1.34	999.00	74.63
2:20 PM	15	150	0.3	10.36	6.57	2218	135.7	1.18	812.00	74.73
2:25 PM	20	150	0.3	10.06	6.57	2213	137.1	1.24	646.00	74.75
2:30 PM	25	150	0.4	9.44	6.55	2198	141.0	1.29	515.00	74.77
2:35 PM	31	150	0.4	9.07	6.53	2187	142.2	1.36	503.00	74.36
2:40 PM	36	150	0.5	9.20	6.50	2169	142.9	1.42	466.00	74.90
2:45 PM	41	150	0.6	9.16	6.50	2168	144.2	1.44	518.00	74.96
2:50 PM	45	150	0.7	9.18	6.50	2167	144.4	1.37	470.00	75.05
2:55 PM	50	150	0.7	9.07	6.51	2167	144.2	1.36	428.00	75.05
3:01 PM	56	150	0.9	8.97	6.51	2165	144.5	1.32	402.00	75.05

Collected Sample Condition

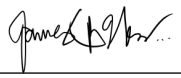
Color: brown **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: High turbidity.

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-24	**Sample ID:**	MW-13-24_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:35 AM	**Weather:**	Cold|Cloudy 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	69.0 to 74.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 72 ft bmp	Final: 72 ft bmp
Measured Well Depth:	77.35 ft bmp	**Purge Time:**	10:35 AM to	11:35 AM
Depth to Water:	69.25 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:45 AM	0	150	0.1	11.90	5.77	1690	28.8	8.30	83.60	69.18
10:50 AM	4	150	0.1	12.30	6.23	1807	20.0	1.95	72.10	69.65
10:55 AM	9	150	0.2	12.70	6.42	1797	13.7	1.42	65.50	69.68
11:00 AM	14	150	0.2	12.82	6.53	1737	10.3	1.21	50.30	69.68
11:05 AM	20	150	0.3	12.97	6.56	1743	10.6	1.15	42.60	70.35
11:10 AM	25	150	0.3	12.95	6.58	1741	11.1	1.22	38.40	70.35
11:15 AM	29	150	0.4	12.83	6.58	1776	13.5	1.26	40.30	70.35
11:20 AM	35	150	0.4	12.82	6.56	1839	14.3	1.09	37.60	70.35
11:25 AM	40	150	0.5	12.75	6.53	1882	14.7	0.95	35.90	70.35
11:30 AM	45	150	0.6	12.76	6.54	1895	14.1	0.87	34.50	70.35
11:35 AM	49	150	0.7	12.70	6.55	1923	15.5	0.85	30.40	70.35

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-25	**Sample ID:**	MW-13-25_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:30 PM	**Weather:**	Cloudy|Cold 37 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	67.0 to 72.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 72.0 ft bmp	Final: 72.0 ft bmp
Measured Well Depth:	75.0 ft bmp	**Purge Time:**	11:25 AM to	12:30 PM
Depth to Water:	70.24 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:35 AM	0	150	0.1	11.23	6.58	2175	71.9	1.85	186.00	70.28
11:40 AM	6	150	0.1	10.96	6.61	2231	66.1	1.30	146.00	70.28
11:45 AM	11	150	0.2	10.62	6.61	2232	63.5	1.04	117.00	70.28
11:50 AM	15	150	0.3	10.44	6.60	2181	63.4	0.74	130.00	70.28
11:55 AM	20	150	0.4	10.25	6.57	2130	64.8	0.75	103.00	70.28
12:00 PM	26	150	0.4	10.32	6.57	2109	65.2	0.78	87.50	70.28
12:05 PM	30	150	0.5	10.38	6.56	2093	65.3	0.83	74.60	70.28
12:10 PM	36	150	0.5	10.11	6.56	2072	66.6	0.93	55.70	70.28
12:16 PM	41	150	0.7	10.16	6.56	2067	67.7	1.00	56.00	70.28
12:20 PM	45	150	0.7	10.25	6.55	2049	68.3	1.04	47.10	70.28
12:25 PM	50	150	0.8	10.00	6.55	2035	69.9	1.11	42.20	70.28
12:30 PM	55	0	0.9	10.00	6.54	2028	71.3	1.10	36.70	70.28

Collected Sample Condition

Color: black **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-26	**Sample ID:**	MW-13-26_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:35 AM	**Weather:**	Cloudy|Cold 32.0 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	72.0 to 77.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 75 ft bmp	Final: 75 ft bmp
Measured Well Depth:	79.20 ft bmp	**Purge Time:**	8:55 AM to	10:30 AM
Depth to Water:	69.54 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:10 AM	0	150	0.1	9.47	6.84	487	87.4	7.25	137.00	69.66
9:15 AM	6	150	0.1	9.91	6.57	486	94.8	6.01	113.00	69.61
9:20 AM	11	150	0.2	9.66	6.47	642	82.3	5.02	112.00	69.61
9:50 AM	40	150	0.2	8.24	6.34	844	72.6	6.48	100.00	69.75
9:55 AM	46	150	0.3	9.73	6.26	1076	67.7	4.92	71.10	69.75
10:00 AM	51	150	0.3	10.24	6.33	1362	48.5	1.62	23.30	69.75
10:05 AM	56	150	0.4	10.28	6.41	1434	38.2	1.14	15.90	69.75
10:10 AM	60	150	0.4	10.19	6.49	1451	31.8	0.92	13.40	69.75
10:15 AM	65	150	0.5	10.00	6.58	1463	27.6	0.76	13.10	69.75
10:20 AM	70	150	0.6	9.65	6.60	1470	26.5	0.81	12.00	69.75
10:25 AM	76	150	0.6	9.61	6.60	1467	29.0	0.82	9.61	69.75
10:30 AM	81	150	0.7	10.09	6.60	1440	29.1	0.85	8.25	69.75

Collected Sample Condition

Color: yellow-brown **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-28	**Sample ID:**	MW-13-28_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:25 PM	**Weather:**	Cloudy|Cold 33 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	Welded Steel	**Screen Interval:**	99.0 to 115.5 ft bgs	
Casing Diameter:	4 in	**Pump Intake Depth:**	Initial: 112.0 ft bmp	Final: 112.0 ft bmp
Measured Well Depth:	115.20 ft bmp	**Purge Time:**	12:35 PM to	1:25 PM
Depth to Water:	74.31 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:35 PM	0	150	0.1	11.12	9.69	625	113.3	9.26	178.00	74.35
12:40 PM	4	150	0.2	10.78	8.73	867	133.0	6.54	186.00	74.35
12:45 PM	10	150	0.2	11.70	8.26	975	138.9	2.25	138.00	74.35
12:50 PM	14	150	0.3	11.95	8.19	988	139.8	1.30	83.10	74.35
12:55 PM	19	150	0.3	12.25	8.13	994	139.7	0.84	60.30	74.35
1:00 PM	25	150	0.4	12.33	8.11	994	139.5	0.63	43.30	74.35
1:05 PM	29	150	0.5	12.26	8.12	993	139.4	0.59	36.50	74.35
1:10 PM	35	150	0.6	12.22	8.11	989	141.0	0.54	32.10	74.35
1:15 PM	39	150	0.8	12.17	8.11	986	142.2	0.53	25.90	74.35
1:20 PM	45	150	1.0	12.04	8.11	974	144.9	0.58	28.70	74.35
1:25 PM	50	150	1.2	12.13	8.14	966	146.3	0.60	34.70	74.35

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft	feet	gal	gallons	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units
CG	clear glass	ft bgs	feet below ground surface	HCL	hydrochloric acid	mL/min	milliliters per minute	N/A	not available	ppm	parts per million
F	degrees Fahrenheit	ft bmp	feet below measuring point							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-29	**Sample ID:**	MW-13-29_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:05 PM	**Weather:**	Sunny|Cold 37 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	68.0 to 73.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 74.0 ft bmp	Final: 74.0 ft bmp
Measured Well Depth:	76.30 ft bmp	**Purge Time:**	1:05 PM to	2:00 PM
Depth to Water:	70.20 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:10 PM	0	150	0.1	11.51	6.37	2245	122.6	3.79	199.00	70.20
1:15 PM	4	150	0.1	11.15	6.46	2321	111.2	3.14	198.00	70.20
1:20 PM	10	150	0.2	10.58	6.51	2403	103.9	1.02	159.00	70.20
1:25 PM	14	150	0.3	10.53	6.49	2405	103.7	0.98	135.00	70.20
1:30 PM	20	150	0.3	10.29	6.49	2409	104.0	0.89	106.00	70.20
1:35 PM	24	150	0.4	10.00	6.47	2423	104.8	0.91	87.90	70.20
1:40 PM	29	150	0.4	10.08	6.47	2433	105.7	1.12	76.60	70.20
1:45 PM	35	150	0.5	10.19	6.47	2448	105.4	1.14	64.80	70.20
1:50 PM	39	150	0.6	9.97	6.47	2481	105.6	1.03	53.50	70.20
1:55 PM	44	150	0.7	10.05	6.47	2485	105.5	0.96	42.60	70.20
2:00 PM	50	150	0.8	10.05	6.47	2491	105.5	0.97	35.00	70.20

Collected Sample Condition

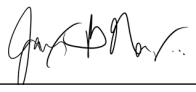
Color: white **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-30	**Sample ID:**	MW-13-30_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	4:40 PM	**Weather:**	Cloudy|Cold 33.0 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	72.0 to 77.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 76.0 ft bmp	Final: 76.0 ft bmp
Measured Well Depth:	79.80 ft bmp	**Purge Time:**	3:40 PM to	4:40 PM
Depth to Water:	71.53 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:45 PM	0	150	0.1	10.72	6.44	1330	43.0	5.69	999.00	72.54
3:50 PM	4	150	0.1	10.44	6.67	1427	12.5	1.77	895.00	72.54
3:55 PM	9	150	0.2	10.34	6.68	1435	9.7	1.46	651.00	72.54
4:00 PM	15	150	0.2	10.17	6.66	1460	10.6	1.17	432.00	72.54
4:05 PM	19	150	0.3	10.05	6.64	1470	11.6	1.08	334.00	72.54
4:10 PM	25	150	0.3	10.47	6.64	1480	12.7	0.84	214.00	72.54
4:15 PM	30	150	0.4	10.34	6.65	1489	12.2	0.73	149.00	72.54
4:20 PM	35	150	0.4	10.36	6.65	1488	13.4	0.90	121.00	72.54
4:25 PM	39	150	0.6	10.07	6.65	1494	16.1	0.99	89.70	72.54
4:30 PM	44	150	0.7	9.59	6.64	1500	18.4	1.05	81.10	72.54
4:35 PM	49	150	0.8	9.50	6.63	1493	21.7	1.05	55.00	72.54
4:40 PM	54	150	1.2	9.64	6.62	1492	24.1	1.06	52.70	72.54

Collected Sample Condition

Color: black **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-31	**Sample ID:**	MW-13-31_120415
Sample Date:	12/4/2015	**Duplicate:**	DUP_6_120415	**Other QC:**	N/A
Sample Time:	12:31 PM	**Weather:**	Cloudy 38 F		

Instrument Identification

Purge Method:	Other Pump	**Water Quality Meters:**	Turbidity Meter	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	5.0 to 10.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 0 ft bmp	Final: 0 ft bmp
Measured Well Depth:	12.80 ft bmp	**Purge Time:**	8:44 AM to	8:44 AM
Depth to Water:	11.90 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
8:44 AM	0	0	0.2	N/A	N/A	N/A	N/A	N/A	999.00	11.90

Collected Sample Condition

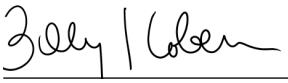
Color: brown **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	2	HNO3	N/A
				N/A

Comments

General Comments: N/A
Sampling Remarks: well bailed dry, sampled after recharge, collected both total and dissolved select metals

Technician: Bill Cobern

Signature: 

Abbreviations:

F	degrees Fahrenheit	ft bgs	feet below ground surface	gal	gallons	mL/min	milliliters per minute	N/A	not available	NTU	nephelometric turbidity units
ft	feet	ft bmp	feet below measuring point							ppm	parts per million
										PVC sch 40	polyvinyl chloride Schedule 40
										TOC	top of casing

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-32	**Sample ID:**	MW-13-32_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:42 AM	**Weather:**	Sunny 41 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	5.0 to 10.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 11.0 ft bmp	Final: 11.0 ft bmp
Measured Well Depth:	12.65 ft bmp	**Purge Time:**	10:45 AM to	11:40 AM
Depth to Water:	8.62 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:45 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	8.62
10:50 AM	6	50	0.1	9.44	6.10	1411000	48.0	3.13	663.00	8.92
10:55 AM	10	50	0.1	9.43	5.99	1468000	36.1	0.79	289.00	8.92
11:00 AM	16	50	0.2	8.86	6.01	1482000	40.1	0.77	136.00	8.92
11:05 AM	20	50	0.2	8.85	6.07	1478000	45.1	0.92	81.70	8.92
11:10 AM	25	50	0.3	8.59	6.14	1483000	47.7	0.97	63.30	8.92
11:15 AM	31	50	0.3	8.39	6.07	1486000	48.9	1.05	41.70	8.92
11:20 AM	35	50	0.4	8.19	6.06	1486000	50.1	1.23	32.60	8.92
11:25 AM	40	50	0.4	7.97	5.91	1488000	51.8	1.26	24.10	8.92
11:30 AM	46	50	0.5	7.79	6.05	1490000	53.0	1.29	16.70	8.92
11:35 AM	51	50	0.5	7.59	6.06	1488000	54.8	1.28	10.80	8.92
11:40 AM	56	50	0.6	7.56	6.06	1486000	55.6	1.29	9.89	8.92

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A
				N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized within allowable levels at a flow rate of 50 ml/min

Technician: Bill Cobern

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-33	**Sample ID:**	MW-13-33_120415
Sample Date:	12/4/2015	**Duplicate:**	DUP_7_120415	**Other QC:**	N/A
Sample Time:	10:01 AM	**Weather:**	Cloudy 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	12.0 to 17.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 19.0 ft bmp	Final: 19.0 ft bmp
Measured Well Depth:	19.20 ft bmp	**Purge Time:**	9:20 AM to	10:00 AM
Depth to Water:	17.43 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:20 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	17.43
9:25 AM	4	50	0.1	9.60	6.50	862000	110.0	2.03	999.00	0.00
9:30 AM	10	50	0.1	9.62	6.51	861000	110.0	1.12	999.00	0.00
9:35 AM	14	50	0.2	9.63	6.51	861000	110.1	1.32	999.00	0.00
9:40 AM	19	50	0.2	9.62	6.51	862000	110.2	1.45	999.00	0.00
9:45 AM	25	50	0.3	9.61	6.50	862000	110.3	1.56	999.00	0.00
9:50 AM	29	50	0.3	9.65	6.49	862000	110.5	1.78	999.00	0.00
9:55 AM	35	50	0.4	9.68	6.48	861000	110.7	1.61	999.00	0.00
10:00 AM	39	50	0.4	9.67	6.47	862000	111.0	1.67	999.00	0.00

Collected Sample Condition

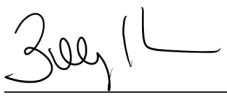
Color: brown **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	2	HNO3	N/A
				N/A

Comments

General Comments: N/A
Sampling Remarks: could not measure drawdown due to pump placement, collected both total and dissolved select metals due to high turbidity

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-34	**Sample ID:**	MW-13-34_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:57 PM	**Weather:**	Cloudy|Raining 44 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	74.0 to 79.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 75.0 ft bmp	Final: 75.0 ft bmp
Measured Well Depth:	79.90 ft bmp	**Purge Time:**	1:20 PM to	1:55 PM
Depth to Water:	70.45 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:20 PM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	70.45
1:25 PM	5	50	0.1	11.41	7.10	1808000	-11.9	2.04	71.30	70.80
1:30 PM	9	50	0.1	11.39	7.09	1809000	-14.3	1.99	63.60	70.75
1:35 PM	15	50	0.2	11.45	7.03	1813000	-22.5	1.64	64.50	70.75
1:40 PM	20	50	0.2	11.47	7.01	1816000	-25.8	1.49	63.60	70.75
1:45 PM	24	50	0.3	11.50	6.99	1819000	-28.6	1.15	63.60	70.75
1:50 PM	29	50	0.3	11.54	6.98	1821000	-31.3	1.09	60.80	70.75
1:55 PM	35	50	0.4	11.57	6.95	1827000	-34.6	1.06	59.00	70.75

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized at a flow rate of 50 ml/l

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-38	**Sample ID:**	MW-13-38_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:56 PM	**Weather:**	Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	Welded Steel	**Screen Interval:**	107.0 to 124.0 ft bgs	
Casing Diameter:	4 in	**Pump Intake Depth:**	Initial: 120.0 ft bmp	Final: 120.0 ft bmp
Measured Well Depth:	127.30 ft bmp	**Purge Time:**	12:25 PM to	12:55 PM
Depth to Water:	75.80 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:25 PM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	75.80
12:30 PM	4	100	0.1	9.15	7.60	1962000	-173.1	0.65	15.40	75.95
12:35 PM	10	100	0.2	9.25	7.61	1962000	-179.2	0.56	13.60	75.95
12:40 PM	15	100	0.3	9.14	7.63	1966000	-190.2	0.52	12.00	75.95
12:45 PM	19	100	0.4	9.06	7.64	1963000	-196.4	0.44	9.85	75.95
12:50 PM	25	100	0.5	9.01	7.65	1964000	-200.5	0.43	9.92	75.95
12:55 PM	30	100	0.6	9.07	7.65	1960000	-203.3	0.40	9.65	75.95

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: Billy Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-40	**Sample ID:**	MW-13-40_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:57 AM	**Weather:**	Cloudy 35 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	Sch 40 PVC	**Screen Interval:**	72.0 to 77.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 75.0 ft bmp	Final: 75.0 ft bmp
Measured Well Depth:	78.65 ft bmp	**Purge Time:**	11:05 AM to	11:55 AM
Depth to Water:	66.26 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:05 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	66.26
11:10 AM	5	50	0.1	9.88	6.76	6916000	-10.8	0.68	29.50	66.85
11:15 AM	9	50	0.1	10.13	6.74	6873000	-13.2	0.61	26.10	67.09
11:20 AM	15	50	0.2	10.45	6.73	6922000	18.3	0.54	22.80	67.21
11:25 AM	20	50	0.2	10.52	6.73	6905000	-18.5	0.54	19.20	67.33
11:30 AM	25	50	0.3	10.47	6.73	6941000	-18.6	0.56	17.50	67.41
11:35 AM	29	50	0.3	10.42	6.73	6947000	-18.8	0.55	14.30	67.49
11:40 AM	34	50	0.4	10.44	6.73	6949000	-18.9	0.52	12.20	67.55
11:45 AM	40	50	0.4	10.35	6.73	6959000	-19.1	0.53	9.91	67.59
11:50 AM	45	50	0.5	10.35	6.73	6956000	-19.2	0.51	9.24	67.62
11:55 AM	49	50	0.5	10.23	6.73	6972000	-19.3	0.53	9.02	67.64

Collected Sample Condition

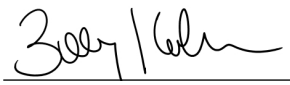
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requirement at 50 ml/min, drawdown didn't stabilize at 50 ml/min

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-41	**Sample ID:**	MW-13-41_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:52 PM	**Weather:**	Cloudy|Windy 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	Sch 40 PVC	**Screen Interval:**	77.0 to 82.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 82.0 ft bmp	Final: 82.0 ft bmp
Measured Well Depth:	84.80 ft bmp	**Purge Time:**	1:20 PM to	1:50 PM
Depth to Water:	65.97 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:20 PM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	65.97
1:25 PM	5	100	0.1	9.46	6.84	5318000	1.1	0.82	8.70	66.06
1:30 PM	11	100	0.2	9.76	6.90	5314000	-0.4	0.70	7.74	66.06
1:35 PM	16	100	0.3	9.77	6.90	5336000	-0.8	0.62	7.74	66.06
1:40 PM	21	100	0.4	9.63	6.91	5345000	-1.0	0.54	7.54	66.06
1:45 PM	26	100	0.5	9.40	6.91	5343000	-0.9	0.51	7.30	66.06
1:50 PM	30	100	0.6	9.52	6.91	5335000	-1.1	0.49	7.29	66.06

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-46	**Sample ID:**	MW-13-46_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	MS/MSD
Sample Time:	3:57 PM	**Weather:**	Cloudy 45 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:		**Screen Interval:**	68.0 to 73.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: 73.0 ft bmp	Final: 73.0 ft bmp
Measured Well Depth:	74.65 ft bmp	**Purge Time:**	3:20 PM to	3:55 PM
Depth to Water:	68.72 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:20 PM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	68.72
3:25 PM	5	50	0.1	10.08	6.43	2050000	-2.5	1.34	214.00	69.25
3:30 PM	10	50	0.1	9.50	6.40	2043000	-3.2	0.94	220.00	69.40
3:35 PM	14	50	0.2	9.85	6.42	2044000	-3.4	1.01	568.00	69.40
3:40 PM	19	50	0.2	9.86	6.43	2044000	-3.6	1.10	575.00	69.40
3:45 PM	24	50	0.3	9.86	6.44	2044000	-3.7	1.08	575.00	69.40
3:50 PM	29	50	0.3	9.85	6.44	2044000	-3.8	1.06	573.00	69.40
3:55 PM	35	50	0.4	9.77	6.44	2046000	-3.9	1.02	574.00	69.40

Collected Sample Condition

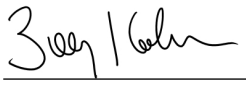
Color: brown **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	6	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requirement at 50 ml/min, drawdown did stabilize at 69.40

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-47	**Sample ID:**	MW-13-47_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:03 PM	**Weather:**	Cloudy|Raining 43 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	Welded Steel	**Screen Interval:**	99.0 to 119.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: 105.0 ft bmp	Final: 105.0 ft bmp
Measured Well Depth:	113.70 ft bmp	**Purge Time:**	12:25 PM to	1:00 PM
Depth to Water:	69.82 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:25 PM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	69.82
12:30 PM	5	100	0.1	11.40	6.81	1738000	-51.4	0.89	19.60	69.95
12:35 PM	10	100	0.2	11.38	6.80	1741000	-52.2	0.82	20.20	69.95
12:40 PM	16	100	0.3	11.50	6.79	1740000	-52.9	0.79	20.10	69.95
12:45 PM	21	100	0.4	11.53	6.80	1742000	-53.6	0.76	23.10	69.95
12:50 PM	25	100	0.5	11.44	6.79	1749000	-54.8	0.72	16.40	69.95
12:55 PM	31	100	0.6	11.44	6.79	1749000	-55.2	0.69	15.90	69.95
1:00 PM	36	100	0.7	11.45	6.79	1750000	-55.6	0.67	16.60	69.95

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-48	**Sample ID:**	MW-13-48_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:59 AM	**Weather:**	Cloudy|Raining 42 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:		**Screen Interval:**	65.0 to 70.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: 66.0 ft bmp	Final: 66.0 ft bmp
Measured Well Depth:	73.10 ft bmp	**Purge Time:**	11:15 AM to	11:55 AM
Depth to Water:	61.27 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:15 AM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	61.27
11:20 AM	5	100	0.1	11.04	6.59	2108000	-39.2	2.79	5.44	61.30
11:25 AM	10	100	0.2	11.05	6.60	2108000	-40.2	1.77	5.34	61.30
11:30 AM	16	100	0.3	10.98	6.59	2110000	-41.0	1.31	5.17	61.30
11:35 AM	20	100	0.4	11.03	6.59	2106000	-41.5	1.10	5.38	61.30
11:40 AM	25	100	0.5	11.09	6.59	2106000	-42.0	0.97	5.11	61.30
11:45 AM	31	100	0.6	11.08	6.58	2109000	-42.3	0.89	5.22	61.30
11:50 AM	36	100	0.7	10.91	6.58	2108000	-42.5	0.87	5.25	61.30
11:55 AM	40	100	0.8	11.10	6.58	2105000	-42.6	0.81	5.30	61.30

Collected Sample Condition

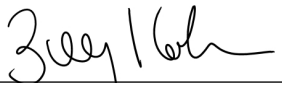
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-13-49	**Sample ID:**	MW-13-49_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:43 AM	**Weather:**	Cloudy|Raining 40 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:		**Screen Interval:**	73.0 to 78.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: 75.0 ft bmp	Final: 75.0 ft bmp
Measured Well Depth:	81.65 ft bmp	**Purge Time:**	10:05 AM to	10:40 AM
Depth to Water:	70.75 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:05 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	70.75
10:10 AM	4	50	0.1	9.18	6.77	1627000	-19.1	4.57	2.66	71.35
10:15 AM	10	50	0.1	9.03	6.77	1622000	-22.9	4.29	3.06	71.44
10:20 AM	15	50	0.2	9.01	6.77	1616000	-25.3	4.26	3.16	71.50
10:25 AM	20	50	0.2	8.97	6.77	1612000	-27.6	4.01	4.04	71.50
10:30 AM	24	50	0.3	8.94	6.78	1610000	-29.2	4.01	4.08	71.50
10:35 AM	29	50	0.3	8.99	6.78	1605000	-30.3	3.95	2.98	71.50
10:40 AM	34	50	0.4	8.88	6.77	1608000	-30.9	3.64	2.52	71.50

Collected Sample Condition

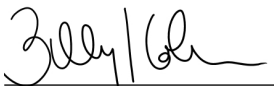
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requiremet at flow rate of 50 ml/l, however, drawdown did stabilize at 71.50

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft	feet	gal	gallons	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units
CG	clear glass	ft bgs	feet below ground surface	HCL	hydrochloric acid	mL/min	milliliters per minute	N/A	not available	ppm	parts per million
F	degrees Fahrenheit	ft bmp	feet below measuring point							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-14-64	**Sample ID:**	MW-14-64_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:25 PM	**Weather:**	Cold|Sunny 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC Sch 40	**Screen Interval:**	N/A	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 103 ft bmp	Final: 103 ft bmp
Measured Well Depth:	106.30 ft bmp	**Purge Time:**	12:15 PM to	1:25 PM
Depth to Water:	73.22 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:30 PM	0	150	0.1	12.34	6.66	1359	15.1	3.08	399.00	73.48
12:35 PM	5	150	0.2	12.48	6.70	1406	6.8	1.87	309.00	73.48
12:40 PM	11	150	0.3	12.62	6.70	1480	-4.4	0.84	154.00	73.48
12:45 PM	15	150	0.4	12.69	6.71	1499	-8.0	0.54	99.60	73.48
12:50 PM	21	150	0.6	12.74	6.79	1519	-9.6	0.40	66.40	73.74
12:55 PM	26	150	0.7	12.78	6.79	1529	-12.1	0.32	48.40	73.74
1:00 PM	31	150	0.8	12.45	6.77	1533	-11.8	0.29	46.60	73.74
1:05 PM	36	150	0.9	12.54	6.78	1539	-10.9	0.60	33.20	73.74
1:10 PM	40	150	1.0	12.66	6.78	4534	-10.4	0.60	30.30	73.74
1:15 PM	46	150	1.2	12.54	6.77	1533	-10.9	0.44	24.60	73.74
1:20 PM	51	150	1.5	12.71	6.76	1533	-11.3	0.36	19.60	73.74
1:25 PM	56	150	1.8	12.63	6.77	1536	-11.6	0.34	10.10	73.74

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-14-65	**Sample ID:**	MW-14-65_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	Equipment Blank
Sample Time:	11:12 AM	**Weather:**	Cloudy 30 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC Sch 40	**Screen Interval:**	N/A	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 10.0 ft bmp	Final: 10.0 ft bmp
Measured Well Depth:	13.25 ft bmp	**Purge Time:**	9:50 AM to	11:10 AM
Depth to Water:	7.05 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:05 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	7.05
9:55 AM	49	50	0.1	8.31	6.29	796000	152.3	2.63	999.00	7.38
10:00 AM	54	50	0.1	8.08	6.28	803000	152.1	2.62	596.00	7.49
10:05 AM	60	50	0.2	8.25	6.28	796000	151.8	2.49	259.00	7.68
10:10 AM	65	50	0.2	8.37	6.33	799000	150.7	2.50	124.00	7.85
10:15 AM	69	50	0.3	8.28	6.31	798000	149.7	2.44	101.10	8.04
10:20 AM	75	50	0.3	8.22	6.31	800000	149.6	2.45	89.50	8.21
10:25 AM	80	50	0.4	8.22	6.30	799000	149.6	2.45	76.10	8.36
10:30 AM	84	50	0.4	8.22	6.30	799000	149.5	2.44	54.10	8.49
10:35 AM	89	50	0.5	8.24	6.30	798000	149.4	2.43	49.10	8.56
10:40 AM	95	50	0.5	8.26	6.30	799000	149.3	2.45	42.20	9.02
10:45 AM	100	50	0.6	8.27	6.30	799000	149.1	2.36	32.10	9.07
10:50 AM	105	50	0.6	8.14	6.30	801000	149.0	2.48	28.40	9.14
10:55 AM	110	50	0.7	8.11	6.31	801000	149.0	2.44	15.60	9.17
11:00 AM	114	50	0.7	7.97	6.31	801000	148.8	2.46	9.52	9.20
11:05 AM	120	50	0.8	7.77	6.32	802000	148.7	2.46	9.67	9.23
11:10 AM	125	50	0.8	7.47	6.32	804000	148.6	2.45	9.98	9.25

Low-Flow Groundwater Sampling Log

Collected Sample Condition

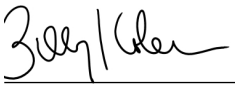
Color: clear **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requirement at 50 ml/min, drawdown didn't stabilize

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-15-71	**Sample ID:**	MW-15-71_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:59 PM	**Weather:**	Cloudy|Cold|Raining 42 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:		**Screen Interval:**	N/A	
Casing Diameter:		**Pump Intake Depth:**	Initial: 113.0 ft bmp	Final: 113.0 ft bmp
Measured Well Depth:	118.30 ft bmp	**Purge Time:**	11:08 AM to	12:55 PM
Depth to Water:	70.95 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:25 AM	0	150	0.3	11.50	7.04	1071	49.9	2.58	62.80	70.93
11:30 AM	4	150	0.4	11.58	7.16	1124	44.2	1.79	53.10	70.93
11:35 AM	9	150	0.5	11.68	7.18	1149	40.6	1.56	69.90	70.93
11:40 AM	15	150	0.6	11.69	7.17	1162	-19.7	1.57	80.40	70.93
11:45 AM	20	150	0.8	11.69	7.18	1172	-19.8	1.55	91.20	70.93
11:49 AM	24	150	0.9	11.75	7.17	1184	-16.6	1.46	107.00	70.93
11:55 AM	29	150	1.1	11.86	7.15	1206	-16.0	1.22	123.00	70.93
11:59 AM	34	150	1.4	11.84	7.10	1237	-35.2	1.21	121.00	70.93
12:05 PM	39	150	1.5	11.85	7.02	1315	-53.4	0.98	108.00	70.93
12:10 PM	44	150	1.8	11.87	6.98	1346	-55.2	0.98	101.00	70.93
12:15 PM	50	150	2.1	11.85	6.96	1393	-55.1	0.81	91.40	70.93
12:20 PM	54	150	2.6	11.95	6.94	1483	-52.7	0.62	90.50	70.93
12:25 PM	60	150	2.8	11.92	6.94	1450	-51.3	0.51	79.40	70.93
12:30 PM	64	150	3.0	11.89	6.94	1455	-50.2	0.46	73.20	70.93
12:35 PM	69	150	3.3	11.90	6.92	1462	-51.0	0.42	64.20	70.93
12:40 PM	74	150	3.6	11.88	6.91	1465	-50.3	0.34	61.60	70.93
12:45 PM	79	150	3.8	11.93	6.91	1465	-49.5	0.39	59.30	70.93
12:51 PM	85	150	4.0	11.91	6.91	1466	-48.1	0.38	55.70	70.93
12:55 PM	90	150	4.2	11.88	6.93	1468	-46.6	0.39	52.40	70.93

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
SVOCs	1 L AG	2	None	N/A
Metals	125 mL PE	1	HNO3	Dissolved metals collected due to high turbidity levels.

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

AG	amber glass	ft	feet	HNO3	nitric acid	mV	millivolts	PE	polyethylene	TOC	top of casing
C	degrees Celsius	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	uS/cm	microsiemens per centimeter
CG	clear glass	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-19	**Sample ID:**	MW-19_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:56 PM	**Weather:**	Cloudy 37 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	55.0 to 65.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 61.0 ft bmp	Final: 61.0 ft bmp
Measured Well Depth:	64.35 ft bmp	**Purge Time:**	12:45 PM to	1:55 PM
Depth to Water:	54.87 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:45 PM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	54.87
12:50 PM	5	50	0.1	10.53	6.68	3379000	147.5	1.18	999.00	55.16
12:55 PM	9	50	0.1	10.57	6.71	3334000	146.8	1.24	999.00	55.16
1:00 PM	14	50	0.2	10.50	6.72	3291000	146.6	1.27	999.00	55.16
1:05 PM	19	50	0.2	10.46	6.72	3253000	146.0	1.34	999.00	55.16
1:10 PM	25	50	0.3	10.46	6.73	3201000	145.8	1.38	902.00	55.16
1:15 PM	30	50	0.3	10.49	6.73	3166000	145.3	1.43	769.00	55.16
1:20 PM	35	50	0.4	10.53	6.73	3116000	145.0	1.51	420.00	55.16
1:25 PM	39	50	0.4	10.65	6.73	3085000	144.5	1.58	309.00	55.16
1:30 PM	44	50	0.5	10.69	6.73	3060000	144.5	1.65	218.00	55.16
1:35 PM	49	50	0.5	10.64	6.74	2994000	145.1	1.69	198.00	55.16
1:40 PM	55	50	0.6	10.67	6.75	2898000	144.4	1.75	186.00	55.16
1:45 PM	59	50	0.6	10.58	6.76	2849000	143.6	1.80	178.00	55.16
1:50 PM	64	50	0.7	10.62	6.75	2814000	143.2	1.85	167.00	55.16
1:55 PM	70	50	0.7	10.50	6.76	2789000	142.9	1.92	164.00	55.16

Collected Sample Condition

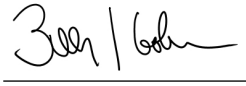
Color: brown **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized within allowable level at a flow rate of 50 ml/min

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-22	**Sample ID:**	MW-22_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:36 PM	**Weather:**	Cloudy 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	52.5 to 62.5 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 60.0 ft bmp	Final: 60.0 ft bmp
Measured Well Depth:	63.45 ft bmp	**Purge Time:**	11:35 AM to	12:35 PM
Depth to Water:	53.89 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:35 AM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	53.89
11:40 AM	6	100	0.1	10.58	6.30	2463000	132.2	1.31	999.00	53.99
11:45 AM	10	100	0.2	11.05	6.39	2505000	111.2	0.75	717.00	53.99
11:50 AM	16	100	0.3	11.11	6.41	2488000	78.6	0.65	523.00	53.99
11:55 AM	21	100	0.4	11.21	6.44	2473000	63.6	0.61	371.00	53.99
12:00 PM	25	100	0.5	11.63	6.52	2438000	36.4	0.62	306.00	53.99
12:05 PM	30	100	0.6	11.70	6.53	2433000	35.4	0.61	285.00	53.99
12:10 PM	35	100	0.7	11.61	6.53	2439000	34.7	0.61	261.00	53.99
12:15 PM	40	100	0.8	11.63	6.53	2436000	33.9	0.60	212.00	53.99
12:20 PM	46	100	0.9	11.66	6.53	2432000	33.0	0.60	184.00	53.99
12:25 PM	51	100	1.0	11.65	6.53	2431000	32.5	0.59	153.00	53.99
12:30 PM	55	100	1.1	11.66	6.54	2430000	31.9	0.59	145.00	53.99
12:35 PM	60	100	1.2	11.74	6.54	2425000	31.3	0.58	139.00	53.99

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-23	**Sample ID:**	MW-23_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	9:16 AM	**Weather:**	Cloudy 34 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:		**Screen Interval:**	52.0 to 62.0 ft	
Casing Diameter:		**Pump Intake Depth:**	Initial: 58.0 ft bmp	Final: 58.0 ft bmp
Measured Well Depth:	61.40 ft bmp	**Purge Time:**	8:15 AM to	9:15 AM
Depth to Water:	52.87 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
8:15 AM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	52.87
8:20 AM	4	100	0.1	11.23	6.62	1267000	-9.5	2.37	85.50	52.95
8:25 AM	10	100	0.2	11.61	6.58	1274000	-20.2	1.42	79.60	52.95
8:30 AM	14	100	0.3	11.71	6.60	1281000	-26.6	1.02	66.60	52.95
8:35 AM	19	100	0.4	11.66	6.60	1282000	-31.8	0.79	61.60	52.95
8:40 AM	24	100	0.5	11.73	6.64	1283000	-35.3	0.68	52.10	52.95
8:45 AM	29	100	0.6	11.77	6.67	1288000	40.1	0.57	59.70	52.95
8:50 AM	34	100	0.7	11.60	6.70	1292000	-43.2	0.54	65.40	52.95
8:55 AM	40	100	0.8	11.32	6.68	1296000	-43.3	0.52	69.40	52.95
9:00 AM	45	100	0.9	11.62	6.66	1295000	-45.0	0.50	83.50	52.95
9:05 AM	50	100	1.0	11.70	6.69	1299000	-46.2	0.48	80.30	52.95
9:10 AM	54	100	1.1	11.70	6.70	1301000	-47.5	0.46	80.40	52.95
9:15 AM	60	100	1.2	11.80	6.71	1304000	-48.6	0.44	79.10	52.95

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** cloudy

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-91-2	**Sample ID:**	MW-91-2_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:56 PM	**Weather:**	Cloudy|Windy 38 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	68.0 to 78.0 ft	
Casing Diameter:	4 in	**Pump Intake Depth:**	Initial: 73.0 ft bmp	Final: 73.0 ft bmp
Measured Well Depth:	76.60 ft bmp	**Purge Time:**	2:25 PM to	2:55 PM
Depth to Water:	62.25 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:25 PM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	62.25
2:30 PM	4	100	0.1	12.68	6.39	759000	52.8	0.72	12.10	62.34
2:35 PM	10	100	0.2	12.54	6.44	923000	61.1	0.47	6.44	62.34
2:40 PM	15	100	0.3	12.59	6.45	937000	60.8	0.45	7.10	62.34
2:45 PM	19	100	0.4	12.58	6.46	992000	60.3	0.44	6.87	62.34
2:50 PM	24	100	0.5	12.56	6.47	1001000	59.3	0.43	6.15	62.34
2:55 PM	29	100	0.6	12.70	6.48	1020000	58.3	0.41	5.70	62.34

Collected Sample Condition

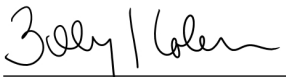
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A
Hexavalent Chromium	125 mL PE	1	None	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-91-5	**Sample ID:**	MW-91-5_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	9:55 AM	**Weather:**	Cold|Sunny 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	112.5 to 128.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 120 ft bmp	Final: 120 ft bmp
Measured Well Depth:	126.55 ft bmp	**Purge Time:**	9:00 AM to	9:55 AM
Depth to Water:	67.11 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:00 AM	0	150	0.1	11.76	6.76	268	97.6	4.32	16.60	67.11
9:05 AM	5	150	0.2	11.88	6.57	267	271.1	1.31	17.10	67.24
9:10 AM	9	150	0.3	11.78	6.52	267	309.1	0.90	17.10	67.24
9:15 AM	15	150	0.4	11.82	6.56	268	206.2	0.68	17.50	67.24
9:20 AM	19	150	0.5	11.56	6.55	267	170.9	0.78	18.10	67.24
9:25 AM	24	150	0.6	11.50	6.51	267	157.6	0.61	18.10	67.24
9:30 AM	29	150	0.7	11.41	6.48	266	147.6	0.59	19.40	67.24
9:35 AM	34	150	0.8	11.36	6.47	265	137.4	0.37	18.30	67.24
9:40 AM	40	150	1.0	11.32	6.47	265	134.0	0.42	18.60	67.24
9:45 AM	44	150	1.1	11.31	6.48	265	130.8	0.37	17.90	67.24
9:50 AM	50	150	1.2	11.31	6.49	264	128.1	0.32	18.40	64.27
9:55 AM	54	150	1.4	11.34	6.50	264	126.0	0.33	17.90	67.24

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	N/A	not available	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
CG	clear glass	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	SU	standard units		
F	degrees Fahrenheit	gal	gallons	mV	millivolts	ppm	parts per million	TOC	top of casing		
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	MW-91-6	**Sample ID:**	MW-91-6_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:58 PM	**Weather:**	Cloudy 45 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	82.0 to 98.0 ft bgs	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 76.0 ft bmp	Final: 76.0 ft bmp
Measured Well Depth:	80.80 ft bmp	**Purge Time:**	2:25 PM to	2:55 PM
Depth to Water:	66.16 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:25 PM	0	100	0.0	N/A	N/A	N/A	N/A	N/A	N/A	66.16
2:30 PM	6	100	0.1	10.37	6.72	1385000	2.7	0.81	28.90	66.20
2:35 PM	10	100	0.2	10.39	6.72	1386000	1.9	0.75	19.20	66.20
2:40 PM	15	100	0.3	10.50	6.71	1389000	0.6	0.70	17.10	66.20
2:45 PM	20	100	0.4	10.55	6.71	1394000	-0.8	0.61	16.90	66.20
2:50 PM	26	100	0.5	10.54	6.70	1399000	-2.0	0.59	16.40	66.20
2:55 PM	31	100	0.6	10.57	6.70	1402000	-3.2	0.56	16.40	66.20

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	PW-14-03	**Sample ID:**	PW-14-03_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:45 PM	**Weather:**	Cloudy|Cold 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC Sch 40	**Screen Interval:**	N/A	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 92.0 ft bmp	Final: 92.0 ft bmp
Measured Well Depth:	94.35 ft bmp	**Purge Time:**	3:00 PM to	3:45 PM
Depth to Water:	75.72 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:10 PM	0	0	0.1	11.57	6.41	3142	-3.1	3.95	55.60	75.92
3:15 PM	5	150	0.1	12.40	6.51	3185	-9.1	2.02	53.80	75.95
3:20 PM	10	150	0.2	12.74	6.58	3215	-13.1	1.21	35.60	75.95
3:25 PM	14	150	0.3	12.92	6.60	3247	-14.7	0.62	23.50	75.95
3:30 PM	19	150	0.3	12.90	6.59	3254	-15.5	0.63	19.20	75.95
3:35 PM	24	150	0.4	12.85	6.58	3262	-15.2	0.35	16.60	75.95
3:40 PM	30	150	0.5	12.72	6.60	3268	-14.0	0.33	13.50	75.95
3:45 PM	34	150	0.7	12.55	6.59	3272	-13.5	0.33	10.30	75.95

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: James Ness

Signature: 

Abbreviations:

C	degrees Celsius	ft	feet	gal	gallons	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units
CG	clear glass	ft bgs	feet below ground surface	HCL	hydrochloric acid	mL/min	milliliters per minute	N/A	not available	ppm	parts per million
F	degrees Fahrenheit	ft bmp	feet below measuring point							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	UNK-09	**Sample ID:**	UNK-09_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	MS/MSD
Sample Time:	2:56 PM	**Weather:**	Cloudy 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	11.0 to 16.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 12.0 ft bmp	Final: 12.0 ft bmp
Measured Well Depth:	15.29 ft bmp	**Purge Time:**	2:20 PM to	2:55 PM
Depth to Water:	2.98 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:20 PM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	2.98
2:25 PM	5	50	0.1	10.89	7.12	525000	140.7	0.23	42.90	3.21
2:30 PM	11	50	0.1	10.87	7.13	525000	140.3	0.23	25.50	3.21
2:35 PM	16	50	0.2	10.87	7.13	525000	139.7	0.21	15.90	3.21
2:40 PM	20	50	0.2	10.88	7.13	525000	138.9	0.23	11.10	3.21
2:45 PM	25	50	0.3	10.88	7.13	525000	138.4	0.22	9.08	3.21
2:50 PM	31	50	0.3	10.90	7.12	525000	137.3	0.21	8.68	3.21
2:55 PM	36	50	0.4	10.86	7.12	525000	137.2	0.21	7.71	3.21

Collected Sample Condition

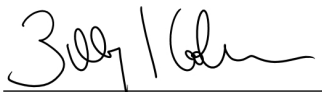
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	3	HNO3	N/A
				N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized within allowable level at a flow rate of 50 ml/min

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC	polyvinyl chloride
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	sch 40	Schedule 40
ft	feet	gal	gallons							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	UNK-10	**Sample ID:**	UNK-10_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:46 PM	**Weather:**	Cloudy 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	11.0 to 16.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 12.0 ft bmp	Final: 12.0 ft bmp
Measured Well Depth:	15.35 ft bmp	**Purge Time:**	3:20 PM to	3:45 PM
Depth to Water:	3.47 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:20 PM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	3.47
3:25 PM	5	50	0.1	11.05	6.98	771000	115.3	0.22	10.80	3.75
3:30 PM	11	50	0.1	11.05	7.00	771000	114.4	0.22	9.06	3.75
3:35 PM	16	50	0.2	11.05	7.01	771000	113.4	0.20	8.37	3.75
3:40 PM	21	50	0.2	11.10	7.02	771000	112.5	0.21	8.92	3.75
3:45 PM	25	50	0.3	11.15	7.03	769000	111.4	0.21	9.09	3.75

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized within allowable levels at 50 ml/min

Technician: Bill Cobern

Signature: Bill Cobern

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 3	**Site Location:**	Lansing, MI		
Project No:	B0064480.0015.00603	**Well ID:**	UNK-11	**Sample ID:**	UNK-11_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:01 AM	**Weather:**	Sunny 35 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	05J2007	1329
Casing Material:	PVC sch 40	**Screen Interval:**	6.5 to 11.5 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 9.0 ft bmp	Final: 9.0 ft bmp
Measured Well Depth:	11.75 ft bmp	**Purge Time:**	10:30 AM to	11:00 AM
Depth to Water:	5.20 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:30 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	5.20
10:35 AM	5	50	0.1	11.19	6.69	836000	47.7	0.35	49.10	5.35
10:40 AM	10	50	0.1	11.02	6.73	837000	47.2	0.35	36.50	5.45
10:45 AM	16	50	0.2	11.14	6.75	835000	46.9	0.33	36.50	5.54
10:50 AM	21	50	0.2	11.28	6.76	833000	46.8	0.32	35.20	5.64
10:55 AM	26	50	0.3	11.10	6.75	836000	46.8	0.33	34.30	5.73
11:00 AM	30	50	0.3	11.22	6.76	834000	46.6	0.32	34.50	5.84

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requirement, drawdown didn't stabilize at 50 ml/min

Technician: Bill Cobern

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-02-03(6)	**Sample ID:**	MW-02-03(6)_120915
Sample Date:	12/9/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:57 AM	**Weather:**	Cold 47 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	79.0 to 89.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 42.5 ft bmp	Final: 42.5 ft bmp
Measured Well Depth:	44.67 ft bmp	**Purge Time:**	9:40 AM to	10:43 AM
Depth to Water:	30.68 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:44 AM	0	70	0.1	11.55	6.78	8460	167.2	1.23	47.90	32.35
9:44 AM	0	70	0.2	11.40	6.77	8484	153.0	0.91	31.00	32.86
9:45 AM	0	70	0.3	11.85	6.77	8503	138.9	0.63	23.60	33.66
9:45 AM	0	60	0.4	11.59	6.78	8525	131.5	0.55	23.30	33.97
9:45 AM	0	60	0.5	11.20	6.77	8532	122.5	0.48	20.60	34.34
10:11 AM	27	60	0.6	11.11	6.77	8522	126.5	0.46	24.80	34.60
10:11 AM	27	60	0.7	11.07	6.76	8520	111.5	0.48	23.60	34.80
10:21 AM	36	60	0.8	10.93	6.75	8511	105.2	0.50	27.30	34.98
10:22 AM	37	60	0.9	11.23	6.76	8519	97.3	0.50	26.80	34.98
10:36 AM	52	60	1.0	11.04	6.75	8514	91.4	0.43	20.90	34.96
10:36 AM	52	60	1.1	10.98	6.75	8508	86.4	0.47	20.90	35.13
10:43 AM	59	60	1.2	10.96	6.76	8504	83.1	0.49	21.60	35.26
10:43 AM	59	60	1.3	10.92	6.78	8507	80.5	0.45	20.80	35.48

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: turbidity stabilized in 20's. waited the hour.

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	HNO3	nitric acid	mV	millivolts	PE	polyethylene	SU	standard units
CG	clear glass	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	TOC	top of casing
F	degrees Fahrenheit	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-03-01	**Sample ID:**	MW-03-01_120715
Sample Date:	12/7/2015	**Duplicate:**	DUP_9_120715	**Other QC:**	N/A
Sample Time:	3:22 PM	**Weather:**	Cloudy 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	1921	4448
Casing Material:	PVC sch 40	**Screen Interval:**	28.0 to 33.0 ft BGS	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 30.0 ft bmp	Final: 30.0 ft bmp
Measured Well Depth:	23.56 ft bmp	**Purge Time:**	2:50 PM	to 3:20 PM
Depth to Water:	N/A	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:50 PM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	23.56
2:55 PM	6	50	0.1	11.74	6.56	13878000	-7.5	0.48	17.10	23.86
3:00 PM	11	50	0.1	11.14	6.58	13949000	-10.8	0.40	15.80	23.89
3:05 PM	16	50	0.2	11.31	6.59	13906000	-12.2	0.38	13.60	23.94
3:10 PM	21	50	0.2	11.26	6.58	13994000	-14.4	0.38	9.53	23.99
3:15 PM	26	50	0.3	11.08	6.59	14044000	-15.2	0.38	7.99	24.01
3:20 PM	31	50	0.3	10.82	6.59	14065000	-15.8	0.37	7.81	24.06

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	6	HCL	N/A
Select Metals	125 mL PE	2	HNO3	N/A
Select Metals, Fe & Mn	125 mL PE	2	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requirement at 50 ml/min, drawdown didn't stabiize

Technician: Bill Cobern

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-03-04	**Sample ID:**	MW-03-04_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	MS/MSD
Sample Time:	10:01 AM	**Weather:**	Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	1921	4448
Casing Material:	PVC sch 40	**Screen Interval:**	33.0 to 43.0 ft BGS	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 40.0 ft bmp	Final: 40.0 ft bmp
Measured Well Depth:	42.7 ft bmp	**Purge Time:**	9:00 AM to	10:00 AM
Depth to Water:	23.14 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:00 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	23.14
9:05 AM	6	50	0.1	11.02	7.16	725000	98.0	5.18	11.00	23.40
9:10 AM	11	50	0.1	10.16	7.07	754000	102.4	4.78	8.63	23.40
9:15 AM	16	50	0.2	9.90	6.92	793000	105.5	4.46	8.95	23.40
9:20 AM	20	50	0.2	9.90	6.83	843000	108.2	4.06	8.32	23.40
9:25 AM	25	50	0.3	9.89	6.82	900000	109.8	3.70	8.94	23.40
9:30 AM	30	50	0.3	9.87	6.76	955000	110.0	3.56	8.46	23.40
9:35 AM	35	50	0.4	9.85	6.82	980000	110.8	3.41	8.73	23.40
9:40 AM	41	50	0.4	9.87	6.70	1022000	111.2	3.35	8.17	23.40
9:45 AM	46	50	0.5	9.78	6.75	1156000	112.5	2.96	7.96	23.40
9:50 AM	51	50	0.5	9.74	6.64	1295000	113.1	2.06	7.61	23.40
9:55 AM	56	50	0.6	9.81	6.65	1302000	113.9	1.91	7.64	23.40
10:00 AM	60	50	0.6	9.73	6.68	1330000	113.8	1.86	7.45	23.40

Collected Sample Condition

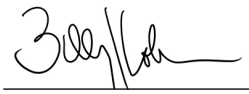
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	9	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: drawdown stabilized at a flow rate of 50 ml/min

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-03-06	**Sample ID:**	MW-03-06_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:35 AM	**Weather:**	Cold|Cloudy 37 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	30.0 to 40.0 ft BGS	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 38.5 ft bmp	Final: 38.5 ft bmp
Measured Well Depth:	40.6 ft bmp	**Purge Time:**	9:15 AM to	10:30 AM
Depth to Water:	36.3 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:20 AM	0	130	0.1	11.01	6.95	11951	216.3	0.87	22.40	36.72
9:20 AM	0	130	0.2	10.99	6.98	12057	199.0	0.79	13.20	36.80
9:20 AM	0	130	0.3	11.18	7.00	12049	187.4	0.44	9.77	36.88
9:21 AM	0	130	0.4	11.08	6.99	12064	172.5	0.31	5.88	37.00
9:21 AM	0	130	0.5	10.88	7.00	12097	161.9	0.29	3.99	37.08
9:42 AM	21	130	0.6	10.87	6.98	12098	158.6	0.30	3.39	36.96
10:30 AM	70	60	1.0	11.04	6.97	12072	142.9	0.98	18.00	37.41
10:30 AM	70	60	1.1	11.06	6.95	12070	129.8	0.43	10.20	37.42
10:30 AM	70	60	1.2	10.87	6.96	12070	129.2	0.41	8.38	37.47
10:30 AM	70	60	1.3	10.74	6.95	12077	121.5	0.38	5.72	37.51

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: Went to sample at 09:50 after disconnecting YSI, pump began to labor and would spordically discharge groundwater. Turbidity was stable before disconnecting but noticed cloudyness after issues. Took turbidity, reading was 70.7 ntu. Will hook YSI back up

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-03-08	**Sample ID:**	MW-03-08_120815
Sample Date:	12/8/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:50 PM	**Weather:**	Cold|Cloudy 41 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	35.0 to 45.0 ft BGS	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 43 ft bmp	Final: 43 ft bmp
Measured Well Depth:	44.96 ft bmp	**Purge Time:**	1:35 PM to	3:06 PM
Depth to Water:	33.59 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:44 PM	0	100	0.1	11.28	7.23	2092	82.3	0.56	246.00	33.92
1:44 PM	-1	100	0.2	12.18	7.26	2041	36.7	0.71	142.00	33.67
1:44 PM	-1	100	0.3	10.93	7.17	1999	36.8	0.77	155.00	33.78
1:44 PM	-1	100	0.4	10.66	7.17	1996	37.3	0.66	103.00	33.88
1:44 PM	-1	100	0.5	10.78	7.18	1993	36.4	0.62	83.20	33.98
1:44 PM	-1	100	0.6	10.93	7.19	1989	36.5	0.56	62.30	34.05
1:46 PM	1	100	0.7	10.96	7.17	1994	36.2	0.52	47.30	34.12
2:01 PM	17	100	0.8	11.01	7.16	1999	36.3	0.45	34.10	34.17
2:15 PM	31	100	0.9	11.06	7.16	2005	34.5	0.42	27.70	34.19
2:32 PM	48	100	1.0	10.97	7.16	2007	33.4	0.43	23.80	34.24
2:39 PM	54	100	1.1	10.94	7.15	2008	33.0	0.40	20.50	34.26
2:47 PM	63	100	1.2	10.93	7.12	2006	31.3	0.35	15.30	34.30
2:57 PM	73	100	1.3	11.00	7.15	2002	30.5	0.36	14.70	34.33
3:06 PM	81	100	1.5	11.07	7.15	2000	29.9	0.35	13.80	34.36

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-04-01(6)	**Sample ID:**	MW-04-01(6)_120815
Sample Date:	12/8/2015	**Duplicate:**	DUP_10_120815	**Other QC:**	N/A
Sample Time:	11:06 AM	**Weather:**	Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	1921	4448
Casing Material:	PVC sch 40	**Screen Interval:**	78.0 to 88.0 ft BGS	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 37.0 ft bmp	Final: 37.0 ft bmp
Measured Well Depth:	40.48 ft bmp	**Purge Time:**	10:30 AM to	11:05 AM
Depth to Water:	26.59 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:30 AM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	26.59
10:35 AM	4	50	0.1	9.78	6.72	1106000	-42.6	0.53	21.00	26.89
10:40 AM	10	50	0.1	9.96	6.79	1102000	-43.6	0.49	19.30	26.95
10:45 AM	15	50	0.2	9.90	6.75	1101000	-44.1	0.50	17.70	27.02
10:50 AM	19	50	0.2	9.89	6.74	1101000	-44.5	0.49	14.80	27.08
10:55 AM	25	50	0.3	9.88	6.76	1102000	-44.9	0.47	12.30	27.11
11:00 AM	30	50	0.3	9.91	6.81	1099000	-45.8	0.46	12.00	27.15
11:05 AM	35	50	0.4	9.96	6.79	1097000	-46.4	0.46	11.50	27.15

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	6	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requirement at a flow rate of 50 ml/min, drawdown didn't stabilize

Technician: Bill Cobern

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-04-05(6)	**Sample ID:**	MW-04-05(6)_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:26 PM	**Weather:**	Cloudy 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	1921	4448
Casing Material:	PVC sch 40	**Screen Interval:**	20.0 to 30.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 27.0 ft bmp	Final: 27.0 ft bmp
Measured Well Depth:	29.68 ft bmp	**Purge Time:**	1:45 PM to	2:25 PM
Depth to Water:	10.15 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:45 PM	0	50	0.0	N/A	N/A	N/A	N/A	N/A	N/A	10.15
1:50 PM	5	50	0.1	12.99	6.81	8702000	24.3	2.65	25.00	10.50
1:55 PM	11	50	0.1	12.41	6.81	8705000	17.3	1.64	19.60	10.55
2:00 PM	16	50	0.2	11.72	6.82	8714000	14.2	0.99	15.30	10.61
2:05 PM	20	50	0.2	11.36	6.82	8703000	12.6	0.80	12.60	10.69
2:10 PM	25	50	0.3	11.17	6.82	8688000	11.3	0.65	11.80	10.72
2:15 PM	30	50	0.3	11.01	6.82	8689000	9.9	0.56	9.38	10.78
2:20 PM	35	50	0.4	10.84	6.82	8682000	8.0	0.55	9.21	10.83
2:25 PM	41	50	0.4	10.79	6.81	8675000	6.0	0.51	9.57	10.85

Collected Sample Condition

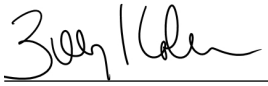
Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: didn't meet maximum drawdown requirement, drawown didn't stabilize at 50 ml/min

Technician: Bill Cobern

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-12-11	**Sample ID:**	MW-12-11_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:05 AM	**Weather:**	Cloudy|Cold 40 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	2056	4088
Casing Material:	PVC sch 40	**Screen Interval:**	13.0 to 18.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 12 ft bmp	Final: 12 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	9:07 AM	to 11:05 AM
Depth to Water:	N/A	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:07 AM	0	0	0.0	N/A	N/A	N/A	N/A	N/A	N/A	5.90
9:10 AM	3	100	0.0	8.85	6.64	6628	225.3	4.19	1000.00	6.50
9:20 AM	13	100	0.0	8.86	6.56	6701	222.8	1.45	1000.00	6.39
9:26 AM	19	100	0.3	8.27	6.54	6685	220.3	0.89	1000.00	6.37
9:30 AM	23	100	0.3	7.85	6.53	6673	216.9	0.74	550.00	6.38
9:35 AM	29	100	0.3	7.78	6.52	6667	211.6	0.56	412.00	6.37
9:40 AM	33	100	0.5	7.84	6.52	6666	210.0	0.60	401.00	6.38
9:45 AM	38	100	0.5	7.93	6.53	6669	204.0	0.52	211.00	6.38
9:50 AM	43	100	0.5	8.10	6.53	6666	200.8	0.52	147.00	6.39
9:55 AM	49	100	0.8	8.19	6.53	6656	195.3	0.45	113.00	6.40
10:01 AM	55	100	0.8	8.34	6.54	6653	189.4	0.41	101.00	6.45
10:06 AM	60	100	0.8	8.57	6.55	6623	1.8	0.40	90.00	6.47
10:10 AM	63	100	0.8	8.82	6.55	6600	177.6	0.37	48.00	6.50
10:15 AM	68	100	1.0	8.99	6.56	6590	175.9	0.37	41.00	6.51
10:20 AM	73	100	1.0	9.25	6.56	6570	169.0	0.37	32.00	6.51
10:25 AM	78	100	1.0	9.17	6.56	6553	184.0	0.38	25.00	6.53
10:30 AM	83	100	1.3	9.33	6.55	6528	160.3	0.36	33.60	6.53
10:35 AM	88	100	1.3	9.58	6.56	6503	155.4	0.34	21.00	6.53
10:40 AM	93	100	1.5	9.87	6.56	6484	150.1	0.36	18.00	6.53
10:45 AM	99	100	1.5	10.19	6.57	6469	146.3	0.37	20.70	6.53
10:50 AM	103	100	1.5	10.00	6.57	6540	141.9	0.41	14.30	6.54
10:55 AM	109	100	1.5	10.02	6.57	6455	139.4	0.42	17.30	6.54
11:00 AM	114	100	1.5	9.85	6.57	6473	136.9	0.42	15.60	6.53
11:05 AM	118	100	2.0	9.52	6.56	6451	133.8	0.47	16.40	6.54

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: FILTER METALS

Technician: Steve Stelter

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	HNO3	nitric acid	mV	millivolts	PE	polyethylene	SU	standard units
CG	clear glass	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	TOC	top of casing
F	degrees Fahrenheit	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-12-12	**Sample ID:**	MW-12-12_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:35 PM	**Weather:**	Cold|Sunny|Windy 40 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	2056	4088
Casing Material:	PVC sch 40	**Screen Interval:**	13.0 to 18.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 16 ft bmp	Final: 16 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	11:48 AM	to 1:35 PM
Depth to Water:	N/A	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:49 AM	0	0	0.0	N/A	N/A	N/A	N/A	N/A	N/A	8.16
11:51 AM	2	50	0.0	13.20	7.06	1645	145.3	10.73	1000.00	8.16
11:55 AM	6	50	0.0	13.21	6.77	4023	147.8	9.63	1000.00	7.95
12:00 PM	12	50	0.0	13.20	6.75	4816	140.6	1.50	1000.00	8.15
12:05 PM	16	50	0.3	13.25	6.77	4801	127.2	0.86	1000.00	8.55
12:10 PM	21	50	0.3	13.20	6.77	4768	120.6	0.67	854.00	8.73
12:15 PM	26	50	0.3	13.10	6.82	4607	113.4	0.59	658.00	8.96
12:20 PM	31	50	0.3	13.00	6.87	4092	108.3	0.56	552.00	9.11
12:25 PM	36	50	0.3	12.86	6.92	3655	101.8	0.53	479.00	9.36
12:30 PM	41	50	0.3	12.88	6.97	3260	95.0	0.49	411.00	9.56
12:36 PM	47	50	0.5	12.82	7.05	2841	90.5	0.52	254.00	9.66
12:40 PM	51	50	0.5	12.65	7.09	2454	81.3	0.52	241.00	9.66
12:45 PM	56	50	0.5	12.66	7.14	2192	81.4	0.50	214.00	9.88
12:50 PM	61	50	0.5	12.75	7.17	1992	76.9	0.48	213.00	9.97
12:55 PM	66	50	0.5	12.71	7.19	1843	75.0	0.47	201.00	10.02
1:00 PM	71	50	0.5	12.64	7.18	1806	74.4	0.47	169.00	10.02
1:05 PM	76	0.5	0.8	12.50	7.19	1768	73.1	0.47	122.00	10.12
1:10 PM	81	0.5	0.8	12.10	7.17	1766	72.7	0.49	185.00	9.98
1:15 PM	86	0.5	0.8	12.08	7.16	1767	72.7	0.47	147.00	9.98
1:21 PM	92	0.5	0.8	12.20	7.15	1778	73.1	0.47	69.70	9.97
1:25 PM	96	0.5	1.0	12.23	7.15	1799	73.9	0.47	48.00	9.97
1:30 PM	101	0.5	1.0	12.09	7.14	1827	74.8	0.45	56.60	9.96
1:35 PM	106	0.5	1.0	12.24	7.13	1838	76.0	0.45	58.00	9.97

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: FILTER METALS

Technician: Steve Stelter

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	HNO3	nitric acid	mV	millivolts	PE	polyethylene	SU	standard units
CG	clear glass	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	TOC	top of casing
F	degrees Fahrenheit	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-12-13	**Sample ID:**	MW-12-13_120415
Sample Date:	12/4/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	4:20 PM	**Weather:**	Cold|Sunny|Windy 40 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	2056	4088
Casing Material:	PVC sch 40	**Screen Interval:**	13.0 to 18.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 18 ft bmp	Final: 18.00 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	2:07 PM to	4:20 PM
Depth to Water:	N/A	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:07 PM	0	0	0.0	N/A	N/A	N/A	N/A	N/A	N/A	10.77
2:40 PM	34	70	0.0	11.01	7.33	1483	132.6	4.79	453.00	10.05
2:45 PM	38	100	0.0	11.06	7.19	1465	133.5	2.60	416.00	11.30
2:51 PM	45	100	0.0	11.03	7.17	1460	132.1	1.96	533.00	11.26
2:55 PM	48	100	0.3	10.93	7.19	1460	132.3	1.44	413.00	11.25
3:00 PM	53	100	0.3	10.79	7.18	1459	131.6	1.38	378.00	11.22
3:05 PM	58	100	0.3	10.76	7.18	1456	131.6	1.34	331.00	11.25
3:10 PM	63	100	0.5	10.73	7.18	1452	131.5	1.32	305.00	11.31
3:15 PM	69	100	0.5	10.70	7.18	1447	131.2	1.20	274.00	11.35
3:20 PM	74	100	0.5	10.65	7.18	1441	130.6	1.04	210.00	11.37
3:25 PM	79	100	0.8	10.69	7.18	1439	130.2	1.04	158.00	11.35
3:30 PM	83	100	0.8	10.71	7.19	1437	129.3	1.02	125.00	11.38
3:35 PM	88	100	0.8	10.74	7.19	1435	129.3	1.07	115.00	11.40
3:40 PM	93	100	1.0	10.73	7.19	1433	131.4	1.11	107.00	11.39
3:45 PM	98	100	1.0	10.65	7.18	1427	131.0	1.13	71.00	11.41
3:50 PM	103	100	1.0	10.63	7.18	1421	131.2	1.11	48.00	11.41
3:55 PM	108	100	1.0	10.70	131.20	1417	131.2	1.11	54.00	11.43
4:00 PM	113	100	1.3	10.61	7.18	1416	130.8	1.08	38.00	11.42
4:05 PM	118	100	1.3	10.63	7.18	1415	130.1	1.06	42.00	11.45
4:10 PM	123	100	1.3	10.66	7.19	1414	128.5	1.04	48.00	11.44
4:15 PM	128	100	1.5	10.68	7.19	1413	129.0	1.02	41.00	11.47
4:20 PM	133	100	1.5	10.70	7.19	1413	128.7	1.03	44.00	11.47

Low-Flow Groundwater Sampling Log

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** turbid

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: EQUIPMENT ISSUES, SLOWED START SAMPLING

Technician: Steve Stelter

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-12-16	**Sample ID:**	MW-12-16_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:03 PM	**Weather:**	Cold|Cloudy 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	28.0 to 33.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 30 ft bmp	Final: 30 ft bmp
Measured Well Depth:	32.2 ft bmp	**Purge Time:**	11:20 AM to	12:00 PM
Depth to Water:	22.95 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:22 AM	0	110	0.1	11.20	6.83	2440	86.7	2.61	25.80	22.95
11:24 AM	3	110	0.2	11.38	6.83	2384	81.5	0.94	35.30	22.95
11:30 AM	8	110	0.3	11.38	6.92	2347	74.9	0.73	37.90	22.95
11:39 AM	18	110	0.4	11.59	7.08	2284	67.8	0.52	25.40	22.96
11:39 AM	17	110	0.5	11.73	6.88	2239	63.6	0.46	15.30	22.96
11:42 AM	21	110	0.6	11.79	6.89	2194	57.3	0.43	7.79	22.96
11:46 AM	25	110	0.7	11.87	6.87	2168	52.0	0.40	4.80	22.96
12:00 PM	38	110	0.8	11.89	6.85	2155	49.5	0.38	3.77	22.96

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-13-35	**Sample ID:**	MW-13-35_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:27 AM	**Weather:**	Cold|Cloudy 32 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:		**Screen Interval:**	25.0 to 30.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: 27.5 ft bmp	Final: 27.5 ft bmp
Measured Well Depth:	29.52 ft bmp	**Purge Time:**	9:20 AM to	10:21 AM
Depth to Water:	23.72 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:15 AM	0	110	0.1	11.06	6.94	2168	197.6	1.23	3.87	23.70
9:23 AM	9	110	0.2	11.19	6.86	2134	166.2	1.04	2.89	23.70
9:23 AM	9	110	0.3	11.29	6.96	2170	144.2	0.66	2.63	23.71
9:28 AM	14	110	0.4	11.30	6.94	2106	127.9	0.48	2.84	23.71
9:36 AM	22	110	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:42 AM	27	110	0.6	11.36	6.95	2094	110.9	0.38	2.35	23.71
9:49 AM	34	110	0.7	11.43	6.92	2081	90.4	0.36	2.79	23.71
10:00 AM	46	110	0.8	11.43	6.93	2074	83.2	0.35	2.20	23.71
10:05 AM	51	110	0.9	11.37	6.94	2063	75.3	0.32	1.86	23.71
10:11 AM	57	110	1.0	11.36	6.97	2050	68.9	0.33	1.89	23.71
10:15 AM	60	110	1.1	11.40	6.93	2038	63.8	0.32	1.70	23.71
10:21 AM	66	110	1.2	11.43	6.93	2023	61.7	0.30	1.47	23.71

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-13-36R	**Sample ID:**	MW-13-36R_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:53 PM	**Weather:**	Cloudy|Cold 40 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:		**Screen Interval:**	5.5 to 10.5 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: 10.5 ft bmp	Final: 10.5 ft bmp
Measured Well Depth:	12.92 ft bmp	**Purge Time:**	3:00 PM to	3:41 PM
Depth to Water:	6.03 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:59 PM	0	110	0.1	10.83	11.53	1491	57.9	0.58	29.20	6.05
3:02 PM	3	110	0.2	10.92	11.70	1573	54.0	0.41	22.60	6.04
3:03 PM	5	110	0.3	10.99	11.68	1626	50.6	0.33	20.40	6.04
3:03 PM	5	110	0.4	10.93	11.58	1652	50.0	0.31	18.10	6.04
3:23 PM	25	110	0.5	10.92	11.62	1667	47.8	0.25	15.50	6.04
3:24 PM	25	110	0.6	10.97	11.66	1688	45.4	0.23	13.30	6.04
3:28 PM	30	110	0.7	10.94	11.68	1701	44.3	0.24	12.80	6.04
3:34 PM	36	110	0.8	10.96	11.69	1713	43.1	0.20	11.60	6.04
3:41 PM	42	110	0.9	10.88	11.70	1738	40.6	0.23	9.21	6.04

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-13-50	**Sample ID:**	MW-13-50_120915
Sample Date:	12/9/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:40 PM	**Weather:**	Cloudy 45 F		

Instrument Identification

Purge Method:	Submersible Electric Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Welded Steel	**Screen Interval:**	85.0 to 107.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: N/A	Final: N/A
Measured Well Depth:	N/A	**Purge Time:**	11:55 AM	to 12:30 PM
Depth to Water:	85.82 ft bmp	**PID Reading:**	N/A	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:00 PM	0	60	0.2	11.84	7.08	1260	31.7	1.53	38.10	86.01
12:05 PM	5	60	N/A	11.70	7.03	1146	17.2	0.93	24.20	86.11
12:10 PM	10	60	N/A	11.73	7.04	1083	-4.7	0.71	16.70	86.29
12:15 PM	15	60	N/A	11.70	7.06	1076	-19.3	0.53	14.90	86.38
12:20 PM	20	60	N/A	11.62	7.08	1069	-27.1	0.54	14.90	86.41
12:25 PM	25	60	N/A	11.64	7.02	1070	-41.3	0.43	15.20	86.40
12:30 PM	30	60	N/A	11.64	7.03	1069	-41.5	0.42	14.60	86.40

Collected Sample Condition

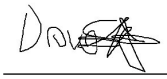
Color: N/A **Odor:** N/A **Appearance:** N/A

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: Entered from handwritten notes

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	TOC	top of casing
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	SU	standard units	uS/cm	microsiemens per centimeter
ft	feet	gal	gallons								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-13-52	**Sample ID:**	MW-13-52_120915
Sample Date:	12/9/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:50 PM	**Weather:**	Cloudy 45 F		

Instrument Identification

Purge Method:	Submersible Electric Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:		**Screen Interval:**	70.0 to 80.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: N/A	Final: N/A
Measured Well Depth:	ft bmp	**Purge Time:**	11:50 AM to	12:30 PM
Depth to Water:	70.9 ft bmp	**PID Reading:**	N/A	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:55 AM	0	N/A	N/A	11.19	6.93	1372	-51.1	1.07	119.00	70.90
12:00 PM	5	N/A	N/A	11.24	6.94	1367	-51.4	0.86	126.00	70.90
12:05 PM	10	N/A	N/A	11.27	6.95	1357	-53.7	1.00	102.00	70.90
12:10 PM	15	N/A	N/A	11.26	6.96	1351	-54.6	0.85	92.10	70.90
12:15 PM	20	N/A	N/A	11.26	6.95	1339	-54.2	0.97	75.10	70.90
12:20 PM	25	N/A	N/A	11.25	6.96	1333	-53.9	0.97	58.60	70.90
12:25 PM	30	N/A	N/A	11.28	6.97	1321	-53.2	0.98	43.40	70.90
12:30 PM	40355	N/A	N/A	11.20	6.97	1317	-52.1	0.94	33.20	70.90
12:35 PM	40	N/A	N/A	11.01	6.96	1311	-51.6	0.90	20.50	70.90
12:40 PM	45	N/A	N/A	10.99	6.95	1304	-50.9	0.86	19.50	70.90
12:45 PM	50	N/A	N/A	11.01	6.95	1302	-50.9	0.86	18.70	70.90

Collected Sample Condition

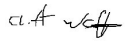
Color: N/A **Odor:** N/A **Appearance:** N/A

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: Entered from handwritten notes.

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mV	millivolts	NTU	nephelometric turbidity units	TOC	top of casing
F	degrees Fahrenheit	ft bmp	feet below measuring point	N/A	not available	SU	standard units	uS/cm	microsiemens per centimeter
ft	feet	mg/L	milligrams per liter						

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-13-53	**Sample ID:**	MW-13-53_120915
Sample Date:	12/9/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:45 PM	**Weather:**	Cold|Cloudy 48 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:		**Screen Interval:**	73.0 to 83.0 ft bgs	
Casing Diameter:		**Pump Intake Depth:**	Initial: 82.0 ft bmp	Final: 82.0 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	2:22 PM to	2:40 PM
Depth to Water:	78.25 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:25 PM	0	100	0.1	12.37	6.82	1364	-11.9	2.71	44.50	77.85
2:30 PM	5	100	0.2	12.40	6.83	1367	-12.5	1.32	47.20	77.87
2:35 PM	10	100	0.3	12.44	6.82	1367	-12.7	1.24	47.50	77.87
2:40 PM	15	100	0.4	12.42	6.82	1367	-12.9	1.21	42.80	77.87

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	SU	standard units
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	TOC	top of casing
ft	feet	gal	gallons							uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-14-66	**Sample ID:**	MW-14-66_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:55 PM	**Weather:**	Cold|Cloudy 37 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	N/A	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 20 ft bmp	Final: 20 ft bmp
Measured Well Depth:	22.25 ft bmp	**Purge Time:**	2:15 PM to	2:06 PM
Depth to Water:	5.02 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:06 PM	0	110	0.1	9.42	7.57	1244	192.5	0.79	10.70	5.79
2:06 PM	1	110	0.2	9.19	7.49	1217	183.4	0.49	5.66	5.76
2:06 PM	1	110	0.3	9.55	7.40	1267	170.4	0.41	3.37	5.82
2:06 PM	1	110	0.4	9.83	7.36	1294	161.7	0.31	2.42	5.85
2:06 PM	1	110	0.5	9.62	7.35	1305	156.3	0.29	2.26	5.88
2:06 PM	1	110	0.6	9.46	7.32	1312	151.8	0.28	1.82	5.89

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-14-67	**Sample ID:**	MW-14-67_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:29 PM	**Weather:**	Cold|Cloudy|Windy 40 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	N/A	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 18.5 ft bmp	Final: 18.5 ft bmp
Measured Well Depth:	20.84 ft bmp	**Purge Time:**	12:55 PM to	1:21 PM
Depth to Water:	6.02 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:52 PM	0	110	0.1	11.67	7.73	1556	174.1	0.85	10.40	6.48
12:53 PM	0	110	0.2	12.16	7.42	1589	133.2	0.49	8.71	6.55
12:53 PM	1	110	0.3	12.31	7.48	1612	152.3	0.48	7.45	6.56
1:13 PM	21	110	0.4	12.57	7.54	1639	174.0	0.45	6.21	6.57
1:14 PM	21	110	0.5	12.38	7.32	1688	174.5	0.43	4.70	6.50
1:21 PM	29	110	0.6	12.22	7.39	1715	174.7	0.40	3.65	6.50

Collected Sample Condition

Color: dark orange **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MW-14-70	**Sample ID:**	MW-14-70_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	11:16 AM	**Weather:**	Cloudy|Cold 34 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC Sch 40	**Screen Interval:**	N/A	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 21 ft bmp	Final: 21 ft bmp
Measured Well Depth:	23.14 ft bmp	**Purge Time:**	10:15 AM to	11:07 AM
Depth to Water:	10.94 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
10:12 AM	0	100	0.1	10.90	7.39	1418	177.1	2.18	23.80	11.12
10:12 AM	0	100	0.2	10.52	7.35	1444	172.8	0.98	19.20	11.62
10:12 AM	0	100	0.3	9.54	7.25	1461	177.5	0.77	15.90	11.63
10:12 AM	0	100	0.4	9.41	7.20	1470	176.7	0.68	14.60	11.68
10:12 AM	0	100	0.5	9.20	7.20	1488	175.7	0.59	11.90	11.73
10:37 AM	26	100	0.6	9.12	7.19	1504	175.6	0.57	11.40	11.78
10:37 AM	26	100	0.7	9.10	7.20	1526	174.8	0.56	13.60	11.81
10:55 AM	43	100	0.8	9.18	7.20	1540	174.5	0.57	15.60	11.84
10:55 AM	43	100	0.9	9.18	7.20	1564	174.1	0.56	11.40	11.87
11:07 AM	56	100	1.0	9.04	7.19	1586	174.4	0.53	8.81	11.90

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs; 1,4-Dioxane	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MWBP-10-UST5-6	**Sample ID:**	MWBP-10-UST5-6_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	4:10 PM	**Weather:**	Cold|Cloudy 45 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	28.0 to 38.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 33.5 ft bmp	Final: 33.5 ft bmp
Measured Well Depth:	N/A	**Purge Time:**	3:35 PM to	4:05 PM
Depth to Water:	31.35 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
3:35 PM	0	100	0.1	11.42	6.92	3696	-10.7	0.48	11.90	31.35
3:40 PM	5	100	0.2	11.48	6.92	3706	-13.2	0.46	9.69	31.36
3:45 PM	10	100	0.3	11.73	6.92	3719	-16.6	0.37	8.32	31.35
3:50 PM	15	100	0.4	11.65	6.92	3733	-17.6	0.30	5.96	31.35
3:55 PM	20	100	0.5	11.67	6.92	3745	-21.3	0.25	5.25	31.35
4:00 PM	25	100	0.6	11.63	6.92	3760	-22.9	0.26	5.36	31.35
4:05 PM	30	100	0.7	11.61	6.91	3774	-23.5	0.26	4.25	31.35

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Cliff Walls

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	HNO3	nitric acid	mV	millivolts	PE	polyethylene	SU	standard units
CG	clear glass	ft bmp	feet below measuring point	mg/L	milligrams per liter	N/A	not available	ppm	parts per million	TOC	top of casing
F	degrees Fahrenheit	gal	gallons	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
ft	feet	HCL	hydrochloric acid								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MWBP-11-UST1-4	**Sample ID:**	MWBP-11-UST1-4_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	3:20 PM	**Weather:**	Cloudy|Cold|Sunny 45 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	7.0 to 12.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 9 ft bmp	Final: 9 ft bmp
Measured Well Depth:	11.25 ft bmp	**Purge Time:**	2:50 PM to	3:14 PM
Depth to Water:	2.35 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
2:50 PM	0	100	0.1	13.01	9.54	914	114.5	4.56	11.10	2.51
2:53 PM	3	100	0.2	12.85	9.47	908	116.9	4.13	9.85	2.60
2:57 PM	7	100	0.3	12.81	9.50	908	113.3	4.01	9.80	2.65
3:03 PM	12	100	0.4	12.84	9.55	928	116.5	3.74	8.73	2.73
3:09 PM	19	100	0.5	12.84	9.52	950	116.9	3.59	8.58	2.78
3:14 PM	24	100	0.6	12.72	9.52	960	117.6	3.51	7.72	2.78

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MWBP-12A-UST1-4	**Sample ID:**	MWBP-12A-UST1-4_120215
Sample Date:	12/2/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	2:05 PM	**Weather:**	Cold|Cloudy|Sunny 45 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	28.0 to 38.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 34 ft bmp	Final: 34 ft bmp
Measured Well Depth:	36.65 ft bmp	**Purge Time:**	1:25 PM to	2:00 PM
Depth to Water:	29.35 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:21 PM	0	120	0.1	9.97	6.68	4245	111.8	1.27	68.00	29.23
1:25 PM	3	120	0.2	9.97	6.65	4173	107.3	0.81	36.50	29.24
1:26 PM	4	120	0.3	10.27	6.65	4092	107.5	0.47	24.20	29.24
1:35 PM	13	120	0.4	10.55	6.69	4058	102.5	0.41	13.50	29.25
1:34 PM	12	120	0.5	10.49	6.78	4001	97.3	0.38	7.52	29.25
1:44 PM	22	120	0.6	10.30	6.72	3983	91.2	0.32	5.87	29.25
1:54 PM	32	120	0.7	10.03	6.74	3977	89.1	0.33	4.92	29.25
2:00 PM	38	120	0.8	9.89	6.63	3979	88.6	0.34	3.61	29.25

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch	polyvinyl chloride
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	40	Schedule 40
ft	feet	gal	gallons							SU	standard units
										TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	MWBP-12-UST1-4	**Sample ID:**	MWBP-12-UST1-4_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	4:43 PM	**Weather:**	Cold|Cloudy 43 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	7.0 to 12.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 9 ft bmp	Final: 9 ft bmp
Measured Well Depth:	11.3 ft bmp	**Purge Time:**	4:10 PM	to 4:37 PM
Depth to Water:	7.17 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
4:09 PM	0	90	0.1	12.35	7.06	2850	117.5	1.60	7.06	7.27
4:11 PM	3	90	0.2	12.76	7.10	3001	61.7	0.54	2.66	7.38
4:17 PM	8	90	0.3	12.92	7.16	3061	18.4	0.53	1.47	7.47
4:21 PM	12	90	0.4	13.12	7.19	3078	-16.7	0.41	1.36	7.58
4:27 PM	18	90	0.5	12.98	7.19	3075	-38.9	0.33	0.99	7.62
4:32 PM	24	90	0.6	13.07	7.19	3078	-19.8	0.34	0.82	7.67
4:37 PM	29	90	0.7	12.99	7.19	3076	-35.2	0.31	0.95	7.73

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	P6-SB-18	**Sample ID:**	P6-SB-18_120715
Sample Date:	12/7/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:19 PM	**Weather:**	Cold|Cloudy 34 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	3.0 to 8.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 10 ft bmp	Final: 10 ft bmp
Measured Well Depth:	12.16 ft bmp	**Purge Time:**	12:15 PM to	1:12 PM
Depth to Water:	4.72 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
12:11 PM	0	90	0.1	8.28	9.86	320	178.0	4.57	50.10	4.93
12:11 PM	0	90	0.2	7.85	9.85	310	183.7	4.39	35.70	4.90
12:11 PM	0	90	0.3	7.71	10.05	309	179.2	3.63	29.90	4.89
12:11 PM	0	90	0.4	7.94	10.15	314	179.9	3.31	26.10	4.90
12:11 PM	0	90	0.5	7.98	10.23	323	182.1	3.03	22.10	4.90
12:36 PM	25	90	0.6	8.09	10.51	335	181.5	2.80	16.30	4.90
12:36 PM	26	90	0.7	8.18	10.91	342	171.9	2.78	16.30	4.90
12:53 PM	42	90	0.8	8.29	10.60	350	175.7	2.72	14.20	4.90
12:53 PM	42	90	0.9	8.32	10.60	357	182.2	2.78	12.80	4.90
1:12 PM	62	90	1.0	8.13	10.60	365	178.7	2.82	11.70	4.90
1:12 PM	62	90	1.1	8.14	10.60	368	179.4	2.80	9.60	4.90

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature:

Abbreviations:

C	degrees Celsius	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
F	degrees Fahrenheit	gal	gallons	mV	millivolts	PE	polyethylene	SU	standard units		
ft	feet	HNO3	nitric acid	N/A	not available	ppm	parts per million	TOC	top of casing		
ft bgs	feet below ground surface	mg/L	milligrams per liter								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	P6-SB-32	**Sample ID:**	P6-SB-32_120115
Sample Date:	12/1/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	1:59 PM	**Weather:**	Cloudy|Cold 45 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	PVC sch 40	**Screen Interval:**	7.0 to 12.0 ft	
Casing Diameter:	2 in	**Pump Intake Depth:**	Initial: 14.5 ft bmp	Final: 14.5 ft bmp
Measured Well Depth:	16.48 ft bmp	**Purge Time:**	1:25 PM to	1:51 PM
Depth to Water:	10.03 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
1:25 PM	0	100	0.1	12.54	6.63	1881	113.4	1.05	17.10	10.76
1:28 PM	2	100	0.2	12.81	6.82	1909	117.2	0.52	11.50	11.22
1:34 PM	9	100	0.3	12.82	6.76	1916	102.9	0.34	9.75	11.48
1:38 PM	12	100	0.4	12.90	6.85	1927	89.1	0.32	7.94	11.76
1:42 PM	17	100	0.5	12.94	6.77	1936	74.8	0.31	7.56	11.95
1:47 PM	21	100	0.6	12.96	6.81	1944	70.3	0.31	6.32	11.97
1:51 PM	25	100	0.8	13.00	6.78	1952	69.8	0.30	5.33	12.46

Collected Sample Condition

Color: clear **Odor:** Yes **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
VOCs	40 mL CG	3	HCL	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature:

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	P6-SB-35	**Sample ID:**	P6-SB-35_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	10:20 AM	**Weather:**	Cold|Sunny 36 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Sch. 40 PVC	**Screen Interval:**	3.0 to 8.0 ft	
Casing Diameter:		**Pump Intake Depth:**	Initial: 10 ft bmp	Final: 10 ft bmp
Measured Well Depth:	11.98 ft bmp	**Purge Time:**	9:50 AM to	10:06 AM
Depth to Water:	4.3 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
9:48 AM	0	110	0.1	9.98	10.47	370	154.7	5.46	2.45	4.85
9:51 AM	3	110	0.2	9.74	10.09	359	164.8	4.82	1.94	5.04
9:52 AM	3	110	0.3	9.71	10.16	357	163.5	4.80	1.13	5.10
9:53 AM	4	110	0.4	9.99	10.26	357	157.9	4.88	1.29	5.31
10:06 AM	17	110	0.5	10.05	10.27	358	157.8	4.83	1.32	5.35

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bmp	feet below measuring point	mL/min	milliliters per minute	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40	uS/cm	microsiemens per centimeter
F	degrees Fahrenheit	gal	gallons	mV	millivolts	PE	polyethylene	SU	standard units		
ft	feet	HNO3	nitric acid	N/A	not available	ppm	parts per million	TOC	top of casing		
ft bgs	feet below ground surface	mg/L	milligrams per liter								

Low-Flow Groundwater Sampling Log

Project:	Lansing-Plant 6	**Site Location:**	Lansing, MI		
Project No:	B0064481.0015.00603	**Well ID:**	P6-SB-37	**Sample ID:**	P6-SB-37_120315
Sample Date:	12/3/2015	**Duplicate:**	N/A	**Other QC:**	N/A
Sample Time:	12:12 PM	**Weather:**	Cold|Cloudy|Sunny 39 F		

Instrument Identification

Purge Method:	Bladder Pump	**Water Quality Meters:**	YSI	Turbidity Meter
Measuring Point:	TOC	**Serial #:**	N/A	N/A
Casing Material:	Sch. 40 PVC	**Screen Interval:**	5.0 to 10.0 ft	
Casing Diameter:		**Pump Intake Depth:**	Initial: 12 ft bmp	Final: 12 ft bmp
Measured Well Depth:	13.93 ft bmp	**Purge Time:**	11:35 AM to	12:03 PM
Depth to Water:	5.26 ft bmp	**PID Reading:**	0.0 ppm	

Field Parameter Measurements During Purging

Time	Cuml Time (min)	Flow Rate (mL/min)	Cuml Vol Purged (gal)	Temp (C)	pH (SU)	Spec Cond (uS/cm)	ORP (mV)	DO (mg/L)	Turb (NTU)	DTW (ft)
11:22 AM	0	100	0.1	8.85	11.18	840	169.5	7.80	3.18	5.96
11:22 AM	0	100	0.1	8.10	11.15	901	167.2	7.86	2.93	6.10
11:21 AM	0	100	0.3	7.58	11.13	916	164.5	7.97	2.52	6.22
11:21 AM	0	100	0.4	7.30	11.14	918	163.5	7.90	2.14	6.23
11:21 AM	0	100	0.5	7.09	11.16	921	162.4	7.81	1.58	6.25
12:03 PM	42	100	0.6	7.01	11.15	919	156.6	8.07	N/A	6.26

Collected Sample Condition

Color: clear **Odor:** No **Appearance:** clear

Parameter	Container	# of Containers	Preservative	Comments
Select Metals	125 mL PE	1	HNO3	N/A

Comments

General Comments: N/A
Sampling Remarks: N/A

Technician: Doug Spencer

Signature: 

Abbreviations:

C	degrees Celsius	ft bgs	feet below ground surface	mg/L	milligrams per liter	mV	millivolts	NTU	nephelometric turbidity units	PVC sch 40	polyvinyl chloride Schedule 40
F	degrees Fahrenheit	ft bmp	feet below measuring point	mL/min	milliliters per minute	N/A	not available	ppm	parts per million	SU	standard units
ft	feet	gal	gallons							TOC	top of casing
										uS/cm	microsiemens per centimeter