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ENVIRONMENT

Mr. Pete Quackenbush
Michigan Department of Environmental Quality
525 West Allegan Street
Constitution Hall, Atrium North
Lansing, MI 48909-7741

Subject:
Revised Interim Groundwater Monitoring Work Plan
RACER Trust, Plants 2, 3, & 6, Lansing, Michigan

Date:
November 14, 2014

Contact:
Patrick Curry

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810.225.1926

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Our ref:
B0064479.0014
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Dear Mr. Quackenbush:

In support of the RCRA Facility Investigation and Corrective Measures Study (CMS) prepared for the RACER Trust Plants 2, 3 and 6 located in Lansing, Michigan (Site; Figure 1), ARCADIS is providing this Revised Interim Groundwater Monitoring Work Plan (plan) to outline continued interim groundwater monitoring activities at the Site. As proposed in the CMS (June 2014), interim groundwater monitoring will continue at the Site through 2018 to verify the results of the Preliminary Geochemical and Plume Stability Assessment Report submitted to the Michigan Department of Environmental Quality (MDEQ) on April 24, 2014.

The objectives of the interim sampling activities are to:

- Continue to evaluate the stability of the perched 1,4-dioxane plume, limited volatile organic compound (VOC) impacts, and areas where metals may be of concern including:
    - areas with increasing metals concentrations in perched groundwater near the site boundary (Plant 2, Area 1; Plant 6, Area 5-7 and Area 5-8);
    - areas with metals known to be site-related (Plant 3, former plating area); and
    - areas identified in the Preliminary Geochemical and Plume Stability Assessment Report as requiring further evaluation (Plant 6, MW-12-12; Plant 4, Area 16; Plant 6, Area 5-8; Plant 6, Area 7).

- Evaluate the stability of the deep overburden/weathered bedrock 1,4-dioxane plume (lower 1,4-dioxane plume).
- Detect vertical or horizontal migration of constituents of concern (COCs) via a network of sentinel wells.
- Monitor light non-aqueous phase liquid (LNAPL) thicknesses in monitoring wells to verify LNAPL is stable and not migrating.
- Monitor stormsewer discharge during dry weather flow at the Site to verify COCs leaving the Site will not exceed surface water quality standards at the Grand River.

Data collected as part of the interim groundwater monitoring will be evaluated after each event and used to propose changes to the monitoring program as necessary. Annual summary reports will be submitted to MDEQ beginning in February 2015. A five-year review (2013 through 2018), will be completed subsequent to interim monitoring to verify the effectiveness of the corrective measures implemented at the Site and will include recommendations for further monitoring, as necessary. The tentative target date for submittal of this review is second quarter 2018.

SCOPE OF WORK

Groundwater Gauging and Sampling

Interim monitoring will be completed as outlined in Table 1 and will include semi-annual groundwater elevation and LNAPL thickness gauging. Figures 2A through 2C present all monitoring well locations broken down by plant. Figure 3 presents wells included in the semi-annual site-wide groundwater elevation gauging event and Figure 4 indicates wells to be gauged for LNAPL thickness. Figures 5 through 10 present wells planned for groundwater sampling, the proposed sampling frequency, and spatial relationships to identified groundwater impacts.

This plan is based on the Interim Groundwater Sampling Plan (ARCADIS 2013) modified per conclusions presented in the Preliminary Geochemistry and Plume Stability Assessment (ARCADIS 2014) and communication with MDEQ. The current plan consists of sampling 35 existing perched wells, 27 existing deep overburden and weathered bedrock wells, and 14 existing consolidated bedrock wells. Additional monitoring wells were installed at the Site in August 2014 near Site boundaries and

adjacent to known source areas to improve the integrity of the monitoring network. The locations for these new monitoring wells are indicated on Figure 11. New monitoring wells will be incorporated into the permanent plan as additional data is collected. The sampling frequency and analytical suite for existing and proposed monitoring wells is presented in Table 1.

In general, Site-wide sampling will be conducted on a semi-annual basis. Quarterly sampling will continue at new wells and wells that require additional data for stability analysis (e.g., wells that have been sampled less than four times). Once a minimum of four samples have been collected at a monitoring well, appropriate sampling frequency will be determined based on observed concentrations and preliminary data trend analyses. Unless the well functions as a sentinel well (Table 1), it seems reasonable and therefore likely that a request to discontinue analyzing for certain COCs; for example, if VOCs or 1,4-dioxane fall below detection for one year (e.g., four quarterly or two semi-annual events) or if metals concentrations are below criteria for one year (e.g., four quarterly or two semi-annual events) and do not exhibit an increasing trend. MDEQ will be contacted for approval prior to the removal or addition of wells to the monitoring plan and prior to any changes in the analytical suite.

Field sampling and gauging methods as well as quality assurance/quality control procedures will be consistent with the 2013 Interim Groundwater Monitoring Plan (ARCADIS 2013) approved by the MDEQ on June 6, 2013, which builds on procedures outlined in the Field Sampling Plan (ARCADIS 2011a). The 2013 Interim Groundwater Monitoring Plan (ARCADIS 2013) is included as Attachment 1 for reference. Groundwater samples will be collected utilizing low-flow sampling methods using a submersible pump and submitted under chain of custody protocol to the laboratory (Merit Laboratories [Merit] of Lansing is currently providing laboratory services but another equally qualified laboratory may be used in the future). Field parameters, including dissolved oxygen, oxidation-reduction potential, turbidity and conductivity will be collected from each monitoring well sampled. In addition, groundwater samples will be submitted to the laboratory for the following analyses:

- 1,4-dioxane by USEPA Method 8260B selected-ion monitoring (SIM).
- Target Compound List (TCL) VOCs, as defined in Table 3 of the Quality Assurance Project Plan (QAPP; ARCADIS 2011b), by USEPA Method 8260B.

- Select total metals with consistent drinking water criteria exceedances detected at the Site (arsenic, nickel, lead, vanadium, chromium, and copper) by USEPA Method 6020, and, at discrete locations, metals associated with known impacts (e.g., hexavalent chromium in Area 14 at Plant 3).
- Filtered metals by USEPA Method 6020 in the event that turbidity below 10 nephelometric turbidity units (NTU) cannot be achieved during purging.
- Although phthalates have been consistently detected at concentrations slightly above drinking water criteria sporadically across the Site, these detections are considered ubiquitous laboratory contaminants.

  Correspondence with Merit has indicated a history of issues with phthalate cross-contamination and review of laboratory QA/QC reporting has indicated phthalate detections in method blanks. Non-phthalate semi-volatile organic compounds (SVOC) groundwater criteria exceedances have been detected in only 4 of 761 groundwater samples over the sampling record at four different locations. Exceedances have been sporadic, and have not been observed more than once at any location. Although routine groundwater samples will not be submitted for analysis of SVOCs, as discussed below, select source area and key perimeter monitoring wells will be sampled for SVOCs every two years to monitor for potential changes in Site conditions and COC distribution over time. Monitoring wells selected for bi-annual sampling are indicated on Figure 12.

- Geochemical sampling will be completed on an annual basis for sulfate, nitrate, methane, dissolved and total iron and manganese and field parameters (pH, dissolved oxygen and oxidation-reduction potential) to assess long term stability of geochemical conditions at the Site.

  A broader suit of geochemical parameters, which may, at less complex Sites, assist in elucidating transport pathways (e.g. chloride, sodium, calcium, potassium, magnesium and alkalinity), will not be analyzed. Due to the complex flow pathways and the inherent variability in fill material across the Site, as well as changing recharge pathways, it is believed that this data will not provide meaningful evidence to support plume stability. The verification of plume stability will be COC trends with the limited geochemical parameters, sampled on an annual basis, used to determine deviations from historical trends if they occur.

Additional details regarding interim monitoring of each groundwater bearing unit are provided below.

Perched Groundwater

- Samples from select wells within the 1,4-dioxane plume at Plants 2 and 6, at the fringes of the plume, and outside the plume will be analyzed for 1,4-dioxane. Wells outside the plume will serve as sentinel wells, as shown on Figure 5.
- Samples from select wells located at all three plants within VOC-impacted areas and from sentinel wells just outside impacted areas will be analyzed for VOCs, as shown on Figure 6. Additional wells will be installed in select impacted areas (such as Plant 2, Area 2) to improve the integrity of the monitoring network as described below.
- Sample analysis for metals will be limited to select wells located at Site boundaries where 1) trend analysis suggests metals concentrations are increasing, 2) in areas of Site-related metals impacts (e.g., Plant 3, Area 14), or 3) in wells internal to the Site and located near discrete VOC-impacted areas that may locally mobilize metals. Analysis for hexavalent chromium will be limited to the former plating area at Plant 3 (CH-14-RO). Wells located near Site boundaries with increasing metals trends will be sampled on a quarterly basis until data has been collected from eight quarterly events. At that time, trends will be reevaluated and sampling adjusted. Wells proposed for metals sampling in the perched zone are shown on Figure 6.

Deep Overburden and Weathered Bedrock

- Wells located within the lower 1,4-dioxane plume originating at Plant 3 and extending onto Plant 2 will be sampled semi-annually and submitted for 1,4-dioxane and VOC analysis (Figures 7 and 8). This sampling frequency correlates to the potential 1,4-dioxane migration of approximately 12.5 to 40 feet between sampling events. Wells with increasing concentrations (e.g., MW-13-22) or fewer than four completed sampling events will be sampled quarterly. In addition, monitoring in the vicinity of MW-13-41 on the north central portion of Plant 3 will be conducted semi-annually to evaluate the stability of 1,4-dioxane recently detected in this area.
- Analysis for metals will be limited to samples from wells with less than four data points and concentrations at or near criteria (e.g., MW-13-40 and MW-

13-41), wells serving as sentinels for vertical migration of perched impacts (e.g., hexavalent chromium at MW-91-2) and wells located near the site boundary with apparent increasing trends (e.g., MW-22), as shown on Figure 8.

Bedrock

- Analysis for 1,4-dioxane and VOCs will be completed on samples collected from sentinel wells in the vicinity of the lower 1,4-dioxane plume to verify vertical delineation. In addition, well MW-04-01(6) located on Plant 6 will be monitored for 1,4-dioxane and VOCs as a sentinel for vertical migration from the perched zone. Bedrock sentinel wells will be monitored semi-annually. The proposed sampling plans for 1,4-dioxane and VOCs are shown on Figure 9 and Figure 10, respectively.
- Sampling for metals analysis will be limited to wells with less than four data points (MW-13-39B, MW-04-04R, and MW-04-06R) and will occur quarterly, as shown on Figure 10.

Additional Monitoring Wells

There are several areas of site that required additional monitoring wells for better source zone or sentinel monitoring. Additional wells were installed at the Site in August 2014. The locations for the additional wells are shown on Figure 11. The results from these and existing monitoring locations will be used to asses plume stability and inform the need, location and sampling frequency for any additional monitoring wells that may be required in the future. The areas for additional monitoring well installation included:

- Area 2 – monitoring wells interior to the Site to monitor tetrachloroethene, benzene, toluene, ethylbenzene, and xylenes impacts associated with the former waste storage area. These wells complement MW-12-18 located at the property boundary and can be used together to assess plume stability.
- Area 5-2 – Additional wells around the Plant 2 LNAPL to complement the plume stability assessment by providing monitoring points near the perched 1,4-dioxane source mass.
- Area 5-8 – Additional monitoring wells at the eastern toe of the 1,4-dioxane plume to bolster the sentinel monitoring network.

- Lower 1,4-dioxane plume – Three additional monitoring along the western edge of the lower 1,4-dioxane plume to supplement the monitoring network between the lower 1,4-dioxane plume and the Lansing Township municipal water supply wells.
- Area 17 – A monitoring well south of the Plant 3 LNAPL area to provide better delineation and monitoring for potential dissolved phase impacts.

Table 1 of this plan includes the new monitoring wells. The new wells, as well as any monitoring wells added to the network in the future, will be sampled for VOCs, 1,4-dioxane, SVOCs, and TAL Metals for a period of four quarters. After four quarters of data are collected the specific COC list for the new wells are established, RACER will work with the MDEQ to determine an appropriate sampling interval for new wells going forward.

Additional Source Area and Perimeter Monitoring

In addition to the routine groundwater sampling and gauging described above, groundwater sampling will also be completed for a more comprehensive analytical suite in and around source zones in the perched zone, at perimeter sentinel wells in the perched zone, and in select monitoring wells in the deep overburden and weathered bedrock. This sampling will be completed to confirm that COCs previously below detection or criteria (e.g. SVOCs and some metals) are not migrating due to changing hydraulic conditions at the Site. The selected monitoring locations will be sampled and analyzed every two years for SVOCs and a broader suite of metals, as indicated on Table 1 and Figure 12.

Storm Sewer Sampling

Historical storm sewer sampling is summarized in the RCRA Facility Investigation Supplemental Phase 2 Activities Summary Report (ARCADIS, 2014b). Under the current site configuration, only the southern outfall of Plant 6 has indicated sporadic detections of selenium and xylenes slightly above the Groundwater Surface Water Interface (GSI) Criteria. On the way to the discharge point into the Grand River, the storm sewer was expected to receive additional groundwater discharge from the surrounding area that serves to dilute the COCs to concentrations below the GSI criteria (ARCADIS, 2014b). However, modifications to the storm water system and degradation of existing surface cover are anticipated, which may result in a change in patterns of infiltration to the storm sewer. To verify concentrations of COCs will not

exceed GSI criteria in the storm sewer at the Site boundary, interim monitoring includes annual storm sewer sampling. Sample locations are provided on Figures 13 through 15 and include two locations at Plant 2, three locations at Plant 3, and three locations at Plant 6 (Table 1).

At each location a grab sample will be collected using a peristaltic pump. Water samples will only be collected from the structures after an extended period (5 days or more) of less than ¼-inch of cumulative precipitation. Samples will be submitted to the laboratory for analysis of TCL VOCs, 1,4-dioxane, and total analyte list (TAL) metals as specified in Table 3 of the QAPP (ARCADIS 2011b).

In the event of significant Site redevelopment, the storm sewer sampling plan will be discussed with the property buyers and the MDEQ to determine the level of continued monitoring, as well as the appropriate responsible party.

REPORTING

Following each sampling event, the analytical results will be reviewed to evaluate if adjustments need to be made to the sampling plan. An electronic summary of each quarterly or semi-annual sampling event will be provided to the MDEQ following receipt of data, which will include:

- A brief summary of the sampling activities, including a bulleted list that highlights unanticipated results (e.g. data that indicates off-site migration) or data in contrast to the current conceptual site model;
- Tabular summaries of analytical data;
- Tabular summaries of groundwater elevation data/LNAPL thickness;
- Copies of the laboratory analytical reports (including QA/QC results);
- Copies of the groundwater sampling field logs, and
- Figures illustrating the data including a figure(s) summarizing analytical results.

In addition, an annual groundwater monitoring report will be submitted to the MDEQ in the second quarter of each year in both hard copy and electronic formats. In addition to the above, the annual report will provide a detailed summary of the groundwater and storm sewer sampling, including:

- Objective and scope of the sampling events and a brief summary the procedures used to complete the sampling;

- A summary of groundwater elevation and LNAPL gauging data. The summary will include representative trend plots for LNAPL thickness and groundwater elevation and a discussion of groundwater elevation trends and contour maps, as appropriate;

- A description and summary of the updated statistical concentration trend and plume stability analysis for the Site; and

- Recommendations for revisions to the interim monitoring plan, as necessary.

Should you need further information, or have any questions, please contact Dave Favero of RACER Trust at 217.741.6235 (dfavero@racertrust.org), or Patrick Curry at 810.225.1926 (patrick.curry@arcadis-us.com).

Sincerely,

ARCADIS of Michigan, LLC

Patrick Curry, CPG
Senior Geologist

Copies:
Grant Trigger, RACER Trust
Dave Favero, RACER Trust
File

Attachments:

Table 1 – Revised Interim Groundwater Monitoring Summary

Figure 1 – Site Location
Figure 2A – Monitoring Well Location Map Plant 2 and West Plant 6
Figure 2B – Monitoring Well Location Map Plant 3
Figure 2C – Monitoring Well Location Map East Plant 6
Figure 3 – Semi-Annual Groundwater Gauging Plan
Figure 4 – LNAPL Gauging Plan
Figure 5 – 1,4-Dioxane Monitoring Plan for Perched Wells
Figure 6 – VOCs and Metals Monitoring Plan for Perched Wells
Figure 7 – 1,4-Dioxane Monitoring Plan for Deep Overburden and Weathered Bedrock Wells
Figure 8 – VOCs and Metals Monitoring Plan for Deep Overburden and Weathered Bedrock Wells
Figure 9 – 1,4-Dioxane Monitoring Plan for Bedrock Wells
Figure 10– VOCs and Metals Monitoring Plan for Bedrock Wells
Figure 11 – New Monitoring Wells 2014
Figure 12 – Bi-Annual Monitoring Locations
Figure 13 – Plant 2 Storm Sewers and Sampling Locations
Figure 14 – Plant 3 Storm Sewers and Sampling Locations
Figure 15 – Plant 6 Storm Sewers and Sampling Locations

Attachment 1: 2013 Interim Groundwater Sampling Work Plan

References

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

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

ARCADIS 2013. Interim Groundwater Sampling Work Plan. RACER Trust, Plants 2, 3, &6, Lansing, Michigan. May 31.

ARCADIS 2014a. Preliminary Groundwater Geochemistry and Plume Stability Assessment. RACER Trust, Plants 2, 3, and 6, Industrial Land, Lansing, Michigan. April.

ARCADIS 2014b. RCRA Facility Investigation Supplemental Phase 2 Activities Summary Report, RACER Trust, Plants 2, 3 & 6, Lansing, Michigan, February 26.

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Tables

Table 1
Revised Interim Groundwater Monitoring Summary

Revised Interim Monitoring Plan
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Well	Frequency	Analyte							Annual Geochem Sampling****	Biannual Sampling*****	Function
		VOCs	1,4-Dioxane	SVOCs	Select Metals*	Hexavalent Chromium	Metals**	TAL Metals***			
Plant 2											
Perched											
MW-01(2)	SA	X			X				X	X	sentinel
MW-03(2)	Q	X			X				X	X	boundary, increasing arsenic†
MW-12-09	SA	X	X							X	sentinel
MW-12-18	SA	X								X	sentinel
P2-MW-04	SA	X	X		X				X		1,4-dioxane plume
P2-SB-20	SA	X	X								sentinel
LMW-12-01	SA	Gauge only									LNAPL
LMW-12-02	SA	Gauge only									LNAPL
LMW-12-03D	SA	Gauge only									LNAPL
LMW-12-03S	SA	Gauge only									LNAPL
LMW-12-04	SA	Gauge only									LNAPL
LMW-12-05	SA	Gauge only									LNAPL
LMW-12-06	SA	Gauge only									LNAPL
LMW-12-07	SA	Gauge only									LNAPL
LMW-12-08	SA	Gauge only									LNAPL
PMW-01	SA	Gauge only									LNAPL
PMW-02	SA	Gauge only									LNAPL
PMW-03	SA	Gauge only									LNAPL
P2-SB-37	SA	Gauge only									LNAPL
MW-02(2)	SA	Gauge only									groundwater elevation monitoring
MW-12-07	SA	Gauge only								X	groundwater elevation monitoring
MW-12-08	SA	Gauge only								X	groundwater elevation monitoring
MW-12-17	SA	Gauge only							X		groundwater elevation monitoring
P2-MW-01	SA	Gauge only								X	groundwater elevation monitoring
P2-MW-02	SA	Gauge only								X	groundwater elevation monitoring
P2-MW-03	SA	Gauge only								X	groundwater elevation monitoring
P2-SB-03	SA	Gauge only							X	X	groundwater elevation monitoring
P2-SB-06	SA	Gauge only									groundwater elevation monitoring
MW-14-54	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-55	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-57	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-58	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-59	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-60	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-62	Q	X	X	X			X				<4 data points‡ (New well 2014)
Deep Overburden and Weathered Bedrock											
MW-13-42	Q	X	X							X	<4 data points‡
MW-13-43	Q	X	X						X		<4 data points‡
MW-13-45	Q	X	X								<4 data points‡
MW-13-51	Q	X	X							X	<4 data points‡
MW-14-56	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-61	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-63	Q	X	X	X			X				<4 data points‡ (New well 2014)
PW-14-01	Q	X	X				Iron Only				<4 data points‡
PW-14-02	Q	X	X				Iron Only				<4 data points‡
Bedrock											
MW-12-01	SA	X	X						X	X	sentinel for vertical migration
MW-12-02	SA	X	X						X		sentinel for vertical migration
MW-12-05	SA	X	X						X		sentinel for vertical migration
MW-13-44	SA	X	X								sentinel for vertical migration
MW-12-06	SA	X	X						X	X	sentinel for vertical migration
Storm Sewer											
P2-MH-NW	A	X	X					X			
P2-MH-W	A	X	X					X			

Notes:

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

**Metals include Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chromium VI, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Vanadium, and Zinc.

***TAL metals defined in Table 3 of the Quality Assurance Project Plan (ARCADIS 2011b).

****Monitoring wells indicated will be sampled annually for geochemical parameters including nitrate, sulfate, total and dissolved iron and manganese and methane

*****Monitoring wells indicated will be sampled biannually, commencing the 2nd Quarter 2016 event for VOCs, 1,4-Dioxane, SVOCs and an extended metals analytical suite comprising, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Vanadium, and Zinc

† Well to be sampled quarterly until sampling frequency is reevaluated after collection of eight quarters of data.

‡ Well to be sampled quarterly until sampling frequency is reevaluated after collection of four data points.

New wells will be added to the figures and incorporated into the semi-annual monitoring once 4 samples are collected and a COC list is determined

SA = semi-annual
Q = quarterly
A = annual

VOCs = volatile organic compounds
LNAPL = light non-aqueous phase liquid

Table 1
Revised Interim Groundwater Monitoring Summary

Revised Interim Monitoring Plan
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Well	Frequency	Analyte							Annual Geochem Sampling****	Biannual Sampling*****	Function
		VOCs	1,4-Dioxane	SVOCs	Select Metals*	Hexavalent Chromium	Metals**	TAL Metals***			
Plant 3											
Perched											
CH-14-RO	SA				X	X			X	X	former plating area (hexavalent chromium)
MW-05(3)	SA	X			X						sentinel
MW-06(3)	SA	X									sentinel
MW-13-31	Q				X				X	X	<4 data points‡
MW-13-32	Q				X						<4 data points‡
MW-13-33	Q				X				X		<4 data points‡
UNK-09	Q				X					X	boundary, increasing arsenic†
UNK-10	SA	X			X						sentinel
UNK-11	SA	X									sentinel
LMW-12-09	SA	Gauge only									LNAPL
LMW-12-10	SA	Gauge only									LNAPL
LMW-12-11	SA	Gauge only									LNAPL
UNK-13	SA	Gauge only									LNAPL
UNK-14	SA	Gauge only									LNAPL
MW-04(3)	SA	Gauge only									groundwater elevation monitoring
MW-12-19	SA	Gauge only								X	groundwater elevation monitoring
P3-SB-07	SA	Gauge only							X		groundwater elevation monitoring
P3-SB-28	SA	Gauge only							X		groundwater elevation monitoring
UNK-15	SA	Gauge only									groundwater elevation monitoring
MW-14-65	Q	X	X	X			X				<4 data points‡ (New well 2014)
Deep Overburden and Weathered Bedrock											
MW-12-20	SA	X	X							X	sentinel
MW-12-21	SA	X	X						X	X	1,4-dioxane plume
MW-13-22	SA	X	X						X		1,4-dioxane plume
MW-13-23	SA	X	X						X		sentinel
MW-13-24	SA	X	X						X		sentinel
MW-13-25	SA	X	X						X		1,4-dioxane plume
MW-13-26	SA	X	X							X	sentinel
MW-13-29	SA	X	X						X		1,4-dioxane plume
MW-13-30	SA	X	X								sentinel
MW-13-34	Q	X	X						X		<4 data points‡
MW-13-40	Q	X	X		X						<4 data points‡
MW-13-41	Q	X	X		X					X	<4 data points‡
MW-13-46	Q	X	X							X	<4 data points‡
MW-13-48	Q	X	X						X		<4 data points‡
MW-13-49	Q	X	X								<4 data points‡
MW-19	SA	X	X								sentinel
MW-22	SA				X				X	X	boundary
MW-23	SA	X	X						X		sentinel
MW-91-2	SA	X	X		X	X			X		sentinel
MW-02-02(3)	SA	X	X						X	X	sentinel
MW-02-04(3)	SA	X	X							X	sentinel
MW-02-01(3)	SA	Gauge only							X		groundwater elevation monitoring
MW-02-03(3)	SA	Gauge only								X	groundwater elevation monitoring
MW-04-03(3)	SA	Gauge only								X	groundwater elevation monitoring
MW-04-04(3)	SA	Gauge only							X		groundwater elevation monitoring
MW-13-27	SA	Gauge only									groundwater elevation monitoring
MW-14-64	Q	X	X	X			X				<4 data points‡ (New well 2014)
PW-14-03	Q	X	X				Iron Only				<4 data points‡
Bedrock											
MW-91-5	SA	X	X							X	sentinel for vertical migration
MW-91-6	SA	X	X								sentinel for vertical migration
MW-13-28	SA	X	X							X	sentinel for vertical migration
MW-13-38	SA	X	X								sentinel for vertical migration
MW-13-39B	Q				X						boundary, <4 data points‡
MW-13-47	SA	X	X								sentinel for vertical migration
MW-04-01(3)	SA	Gauge only							X	X	groundwater elevation monitoring
MW-04-02(3)	SA	Gauge only									groundwater elevation monitoring
MW-12-04	SA	Gauge only									groundwater elevation monitoring
MW-13-37	SA	Gauge only									groundwater elevation monitoring
MW-88-1	SA	Gauge only									groundwater elevation monitoring
MW-91-3	SA	Gauge only								X	groundwater elevation monitoring
MW-91-4	SA	Gauge only							X		groundwater elevation monitoring
Storm Sewer											
P3-MH-NE	A	X	X					X			
P3-MH-S	A	X	X					X			
P2 Outfall at P3	A	X	X					X			

Notes:

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

**Metals include Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chromium VI, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Vanadium, and Zinc.

***TAL metals defined in Table 3 of the Quality Assurance Project Plan (ARCADIS 2011b).

****Monitoring wells indicated will be sampled annually for geochemical parameters including nitrate, sulfate, total and dissolved iron and manganese and methane

*****Monitoring wells indicated will be sampled biannually, commencing the 2nd Quarter 2016 event for VOCs, 1,4-Dioxane, SVOCs and an extended metals analytical suite comprising, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Vanadium, and Zinc

† Well to be sampled quarterly until sampling frequency is reevaluated after collection of eight quarters of data.

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New wells will be added to the figures and incorporated into the semi-annual monitoring once 4 samples are collected and a COC list is determined

SA = semi-annual
Q = quarterly
A = annual

VOCs = volatile organic compounds
LNAPL = light non-aqueous phase liquid

Table 1
Revised Interim Groundwater Monitoring Summary

Revised Interim Monitoring Plan
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Well	Frequency	Analyte							Annual Geochem Sampling****	Biannual Sampling*****	Function
		VOCs	1,4-Dioxane	SVOCs	Select Metals*	Hexavalent Chromium	Metals**	TAL Metals***			
Plant 6											
Perched											
MW-02-03(6)	SA	X	X		X				X		1,4-dioxane plume
MW-03-01	Q	X	X		X				X		boundary, increasing arsenic†
MW-03-04	SA	X	X						X		1,4-dioxane plume
MW-03-06	SA	X	X		X					X	1,4-dioxane plume, increasing metals
MW-03-08	SA	X	X						X	X	sentinel
MW-04-05(6)	SA	X			X				X	X	boundary
MW-12-11	SA	X			X				X	X	boundary
MW-12-12	Q	X			X				X		boundary, increasing nickel‡
MW-12-13	SA	X	X		X				X	X	Area 5-8: vanadium; sentinel
MW-12-16	SA	X			X				X	X	boundary
MW-13-35	Q				X						<4 data points‡
MW-13-36R	Q				X						<4 data points‡
MWBP-10-UST5-6	SA	X			X						boundary
MWBP-11-UST1-4	SA	X			X						boundary
MWBP-12A-UST1-4	SA	X			X				X	X	boundary
MWBP-12-UST1-4	SA	X			X					X	boundary
P6-SB-18	SA				X				X		Area 5-8: vanadium
P6-SB-32	Q	X			X				X	X	increasing VOCs†
P6-SB-35	SA				X				X		Area 5-8: vanadium
P6-SB-37	SA				X						Area 5-8: vanadium
MW-02-01(6)	SA	Gauge only							X		groundwater elevation monitoring
MW-02-02(6)	SA	Gauge only							X		groundwater elevation monitoring
MW-03-02	SA	Gauge only									groundwater elevation monitoring
MW-03-05	SA	Gauge only									groundwater elevation monitoring
MW-03-07	SA	Gauge only							X		groundwater elevation monitoring
MW-12-09	SA	Gauge only									groundwater elevation monitoring
MW-12-10	SA	Gauge only							X		groundwater elevation monitoring
MW-12-14	SA	Gauge only							X	X	groundwater elevation monitoring
MW-12-15	SA	Gauge only							X		groundwater elevation monitoring
MWBP-12-UST5-6	SA	Gauge only							X		groundwater elevation monitoring
MWBP-13A-UST1-4	SA	Gauge only									groundwater elevation monitoring
P6-MW-01	SA	Gauge only							X		groundwater elevation monitoring
P6-SB-07	SA	Gauge only								X	groundwater elevation monitoring
P6-SB-21	SA	Gauge only									groundwater elevation monitoring
SME-MW-02	SA	Gauge only							X		groundwater elevation monitoring
MW-14-66	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-67	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-68	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-69	Q	X	X	X			X				<4 data points‡ (New well 2014)
MW-14-70	Q	X	X	X			X				<4 data points‡ (New well 2014)
Deep Overburden and Weathered Bedrock											
MW-13-52	Q	X	X						X		<4 data points‡
MW-13-53	Q	X	X								<4 data points‡
Bedrock											
MW-04-01(6)	SA	X	X						X	X	sentinel for vertical migration
MW-04-04R	Q				X				X		<4 data points‡
MW-04-06R	Q				X				X	X	<4 data points‡
MW-13-50	SA	X	X								sentinel for vertical migration
Storm Sewer											
P6-MH2-NE	A	X	X					X			
P6-MH2-SW	A	X	X					X			
ESC-1	A	X	X					X			

Notes:

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

**Metals include Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chromium VI, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Vanadium, and Zinc.

***TAL metals defined in Table 3 of the Quality Assurance Project Plan (ARCADIS 2011b).

****Monitoring wells indicated will be sampled annually for geochemical parameters including nitrate, sulfate, total and dissolved iron and manganese and methane

*****Monitoring wells indicated will be sampled biannually, commencing the 2nd Quarter 2016 event for VOCs, 1,4-Dioxane, SVOCs and an extended metals analytical suite comprising, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Vanadium, and Zinc

† Well to be sampled quarterly until sampling frequency is reevaluated after collection of eight quarters of data.

‡ Well to be sampled quarterly until sampling frequency is reevaluated after collection of four data points.

New wells will be added to the figures and incorporated into the semi-annual monitoring once 4 samples are collected and a COC list is determined

SA = semi-annual
Q = quarterly
A = annual

VOCs = volatile organic compounds
LNAPL = light non-aqueous phase liquid

ARCADIS

Figures

CITY: BRIGHTON DIV: ENV DB: D. OLEXA PIC: CHRIS PETERS PM: AMY HOEKSEMA TM: RANDY CHRISTENSEN TR: JACKIE SALING PROJECT NUMBER: B0064479.2013 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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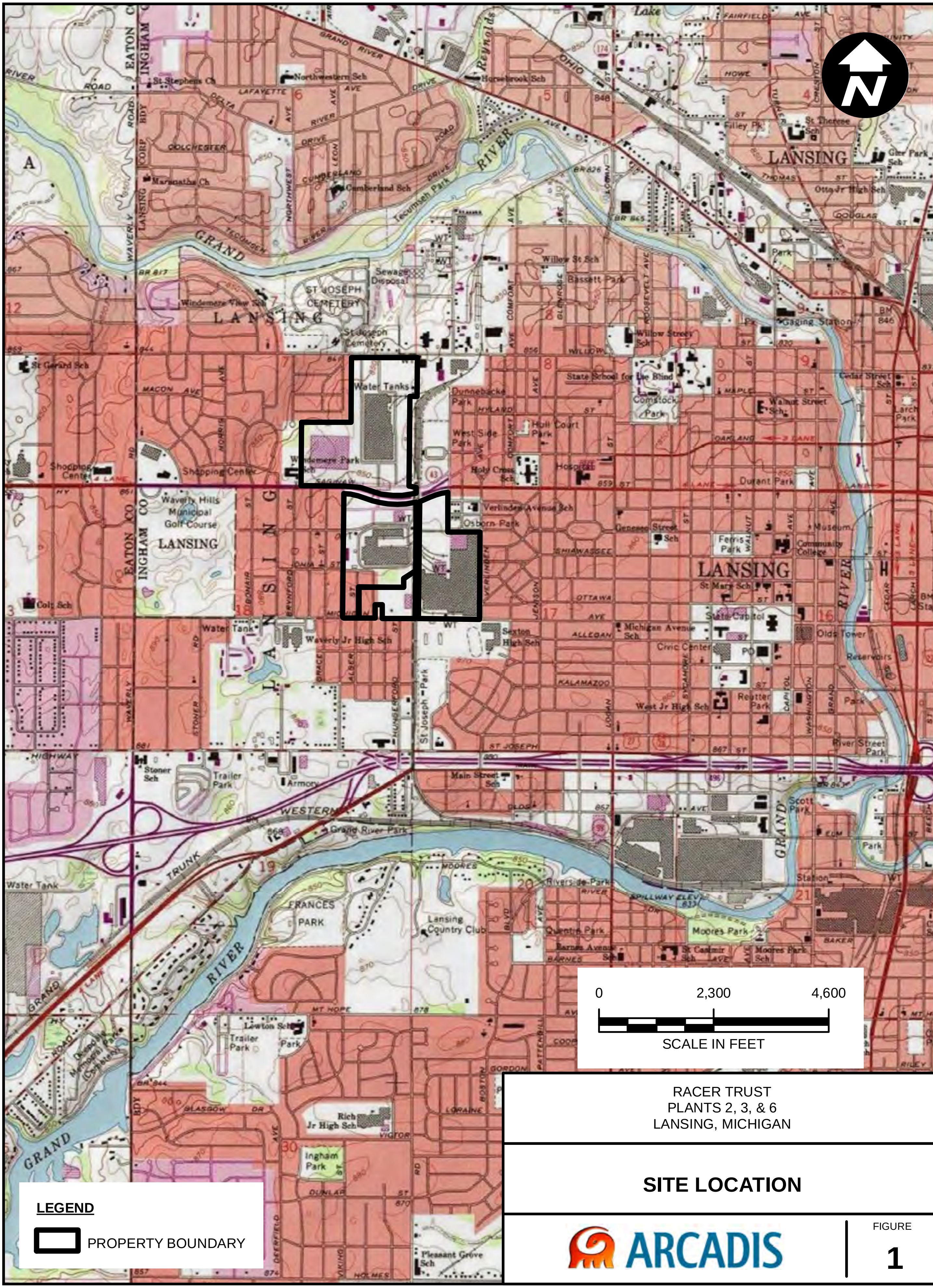

RACER TRUST
PLANTS 2, 3, & 6
LANSING, MICHIGAN

SITE LOCATION

ARCADIS

FIGURE
1

MW-14-63
MW-12-02
P2-MW-01
P2-MW-03
MW-13-44
MW-13-43
MW-13-42
P2-SB-20
MW-13-45
P2-SB-03
PW-14-02
MW-14-59
MW-14-58
MW-14-60
LMW-12-02
LMW-12-08
P2-MW-04
MW-12-05
PMW-02
LMW-12-07
MW-12-06
LMW-12-03S/03D
PMW-01
MW-14-61
LMW-12-01
PMW-03
LMW-12-06
MW-14-57
MW-12-09
LMW-12-04
LMW-12-05
P2-SB-06
MW-14-56
MW-14-62
MW-12-18
MW-14-55
MW-14-54
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
MW-02(2)
MW-01(2)
MWBP-12-UST5-6
MWBP-10-UST5-6

0 190 380
SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- PROPERTY BOUNDARY

NOTES:

NAPL: NON-AQUEOUS PHASE LIQUID

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

MONITORING WELL LOCATION MAP
PLANT 2 AND WEST PLANT 6

ARCADIS

FIGURE
2A

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\working\MONITORING WELL SUMMARY 07-14.mxd PLOTTED: 8/6/2014 12:10:45 PM BY: dolexa

MW-04-04
MW-91-4
MW-13-39B
MW-88-1
MW-02-03(3)
MW-02-04
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-13
CH-14-RO
MW-23
MW-13-37
LMW-12-09
MW-06
UNK-09
MW-22
LMW-12-11
MW-12-19
LMW-12-10
P3-SB-28
MW-14-65
MW-13-26
MW-12-20
MW-02-01(3)
MW-04-01(3)
MW-13-30
MW-91-5
MW-13-24
MW-13-22
MW-13-23
MW-12-21
MW-13-28
MW-13-27
MW-14-64
PW-14-03
MW-13-25
MW-13-29
MW-13-31
MW-13-32
MW-13-33
MW-13-46
MW-91-6
MW-13-48
MW-13-34
MW-13-47
MW-13-49

0 250 500

SCALE IN FEET

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- PROPERTY BOUNDARY

NOTES:

NAPL: NON-AQUEOUS PHASE LIQUID

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

MONITORING WELL LOCATION MAP
PLANT 3

ARCADIS

FIGURE
2B

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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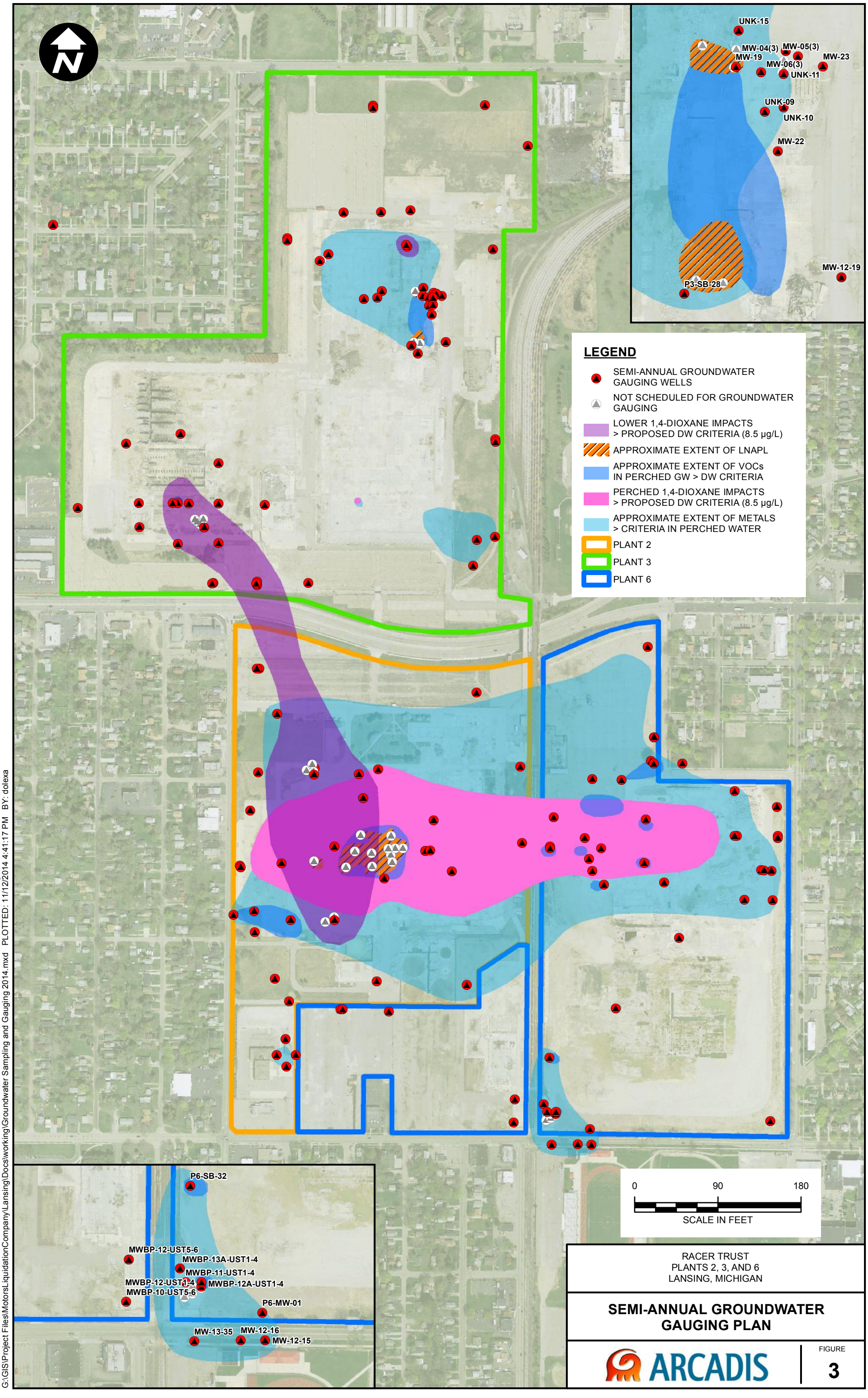
CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\working\MONITORING WELL SUMMARY 07-14.mxd PLOTTED: 8/6/2014 12:10:45 PM BY: dolexa

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

MONITORING WELL LOCATION MAP
EAST PLANT 6

ARCADIS

FIGURE
2C



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

SEMI-ANNUAL GROUNDWATER GAUGING PLAN

ARCADIS

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
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\working\Groundwater Sampling and Gauging 2014.mxd PLOTTED: 11/12/2014 4:41:17 PM BY: dolexa

PLANT 3

UNK-15

UNK-13

LMW-12-09

UNK-14

MW-04(3)

MW-05(3)

MW-06(3)

MW-02(3)

UNK-11

UNK-09

UNK-10

AREA 17

AREA 14

LMW-12-10

LMW-12-11

P3-SB-28

MW-12-19

0 20 40 80 Feet

PLANT 2

NOTES

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

LMW-12-02

LMW-12-08

PMW-02

PMW-01

LMW-12-07

LMW-12-01

LMW-12-03S/D

P2-SB-37

LMW-12-06

PMW-03

LMW-12-05

LMW-12-04

0 25 50 100 Feet

AREA 5-2

LEGEND

- SCHEDULED FOR GW GAUGING
- SCHEDULED FOR LNAPL GAUGING
- NOT SCHEDULED FOR GAUGING
- APPROXIMATE EXTENT OF LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- WORK PLAN AREAS
- PLANT 2
- PLANT 3
- PLANT 6

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

LNAPL GAUGING PLAN

ARCADIS

FIGURE
4

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\working\2014 Monitoring Plan LNAPL.mxd PLOTTED: 11/3/2014 12:04:59 PM BY: PCurry

AREA 18
AREA 13
AREA 12
AREA 14
AREA 18
AREA 17
AREA 20
AREA 21
AREA 11
AREA 16
AREA 15
AREA 19
AREA 3
AREA 8
AREA 5-1
AREA 5-4
AREA 4
AREA 5-5
AREA 5-2
AREA 2
AREA 5-3
AREA 5-7
AREA 5-6
AREA 10
AREA 5-8
AREA 1
AREA 9
AREA 6
AREA 7

UNK-15
LMW-12-09
UNK-13
UNK-14
MW-05(3)
MW-02(3)
MW-06(3)
UNK-11
UNK-10
UNK-09
P3-SB-07
CH-14-RO
MW-03(3)
LMW-12-11
P3-SB-28
LMW-12-10
MW-14-65
MW-12-19
MW-13-31
MW-13-32
MW-13-33
P2-MW-01
P2-MW-03
P2-SB-20
MW-14-59
MW-14-58
MW-14-60
LMW-12-02
LMW-12-08
LMW-12-01
PMW-01
LMW-12-07
PMW-02
P2-SB-37
LMW-12-03S/D
LMW-12-06
LMW-12-05
LMW-12-04
P2-SB-06
PMW-03
MW-14-62
MW-14-57
MW-12-09
MW-12-18
MW-14-55
MW-14-54
P2-MW-04
MW-12-10
MW-12-10R
MW-04-05(6)
MW-12-11
MW-03-01
P2-SB-03
MW-03-02
MW-12-12
MW-14-70
MW-03-04
MW-03-05
MW-02-01(6)
MW-03-07
MW-02-03(6)
MW-03-06
MW-02-02(6)
SME-MW-02
MW-03-08
P6-SB-18
MW-14-66
MW-12-13
MW-14-69
MW-14-68
MW-14-67
P6-SB-37
P6-SB-35
MW-13-36R
P6-SB-21
MW-12-07
MW-12-08
P2-MW-02
P6-SB-07
MW-03(2)
MW-12-17
MW-02(2)
MW-01(2)
P6-SB-32
MWBP-12-UST3-6
MW-12-14
P6-MW-01
MW-12-15
MWBP-13A-UST1-4
MWBP-11-UST1-4
MWBP-12-UST1-4
UNK-03
MWBP-12A-UST1-4
B-BP-16
MWBP-10-UST1-4
MWBP-10A-UST1-4
MWBP-10-UST5-6
MW-13-35
MW-12-16

SENTINEL
BOUNDARY

LEGEND

- MONITORING FOR OTHER CONSTITUENTS
- QUARTERLY MONITORING
- SEMI-ANNUAL MONITORING
- NOT SCHEDULED FOR SAMPLING
- 1,4-DIOXANE SAMPLING
- WORK PLAN AREAS
- APPROXIMATE EXTENT OF LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- APPROXIMATE EXTENT OF 1,4-DIOXANE IN PERCHED GW > DW CRITERIA
- PLANT 2
- PLANT 3
- PLANT 6

NOTES

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

0 400 800
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

1,4-DIOXANE MONITORING PLAN FOR PERCHED WELLS

ARCADIS

FIGURE
5

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\working\2014 Monitoring Plan.mxd PLOTTED: 11/13/2014 12:52:25 PM BY: dolexa

AREA 18
AREA 13
AREA 12
AREA 14
AREA 18
AREA 17
AREA 20
AREA 21
AREA 11
AREA 15
AREA 16
AREA 19
AREA 8
AREA 3
AREA 5-1
AREA 5-4
AREA 4
AREA 5-5
AREA 5-2
AREA 2
AREA 5-3
AREA 5-7
AREA 5-6
AREA 10
AREA 5-8
AREA 1
AREA 9
AREA 6
AREA 7

UNK-15
LMW-12-09
UNK-13
UNK-14
MW-05(3)
MW-02(3)
MW-06(3)
UNK-11
UNK-09
UNK-10
SENTINEL
BOUNDARY, INCREASING As
P3-SB-07
CH-14-RO
MW-03(3)
LMW-12-11
P3-SB-28
LMW-12-10
MW-14-65
MW-12-19
<4 DATA POINTS
MW-13-31
MW-13-32
MW-13-33
P2-MW-01
P2-MW-03
P2-SB-20
MW-14-59
MW-14-58
MW-14-60
LMW-12-02
LMW-12-08
LMW-12-01
PMW-01
LMW-12-07
PMW-02
P2-SB-37
LMW-12-03S/D
LMW-12-05
LMW-12-04
PMW-03
P2-SB-06
MW-14-62
MW-14-57
LMW-12-06
MW-12-09
MW-12-18
MW-14-55
MW-14-54
P2-MW-04
MW-12-07
MW-12-08
P2-MW-02
P2-SB-03
MW-03-02
MW-12-10R
MW-12-10
BOUNDARY
MW-04-05(6)
MW-03-01
MW-12-11
MW-12-12
BOUNDARY, INCREASING Ni
MW-14-70
MW-03-04
MW-03-05
MW-02-01(6)
MW-03-07
MW-02-03(6)
MW-03-06
MW-14-66
P6-SB-18
MW-12-13
MW-14-69
MW-02-02(6)
SME-MW-02
MW-03-08
P6-SB-37
MW-14-68
MW-14-67
P6-SB-35
MW-13-36R
P6-SB-21
P6-SB-07
MW-03(2)
MW-12-17
MW-02(2)
MW-01(2)
BOUNDARY, INCREASING As
P6-SB-32
INCREASING VOCs
MWBP-12-UST5-6
MW-12-14
P6-MW-01
MW-12-15
MWBP-13A-UST1-4
MWBP-11-UST1-4
MWBP-12-UST1-4
MWBP-12A-UST1-4
MWBP-10-UST1-4
MWBP-10A-UST1-4
MWBP-10-UST5-6
MW-13-35
MW-12-16

LEGEND

- MONITORING FOR OTHER CONSTITUENTS
- QUARTERLY MONITORING
- SEMI-ANNUAL MONITORING
- NOT SCHEDULED FOR SAMPLING
- HEXAVALENT CHROMIUM SAMPLING
- VOC SAMPLING
- METALS SAMPLING
- WORK PLAN AREAS
- APPROXIMATE EXTENT OF LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- APPROXIMATE EXTENT OF 1,4-DIOXANE IN PERCHED GW > DW CRITERIA
- PLANT 2
- PLANT 3
- PLANT 6

NOTES

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

0 400 800
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

VOCs AND METALS MONITORING PLAN FOR PERCHED WELLS

ARCADIS

FIGURE 6

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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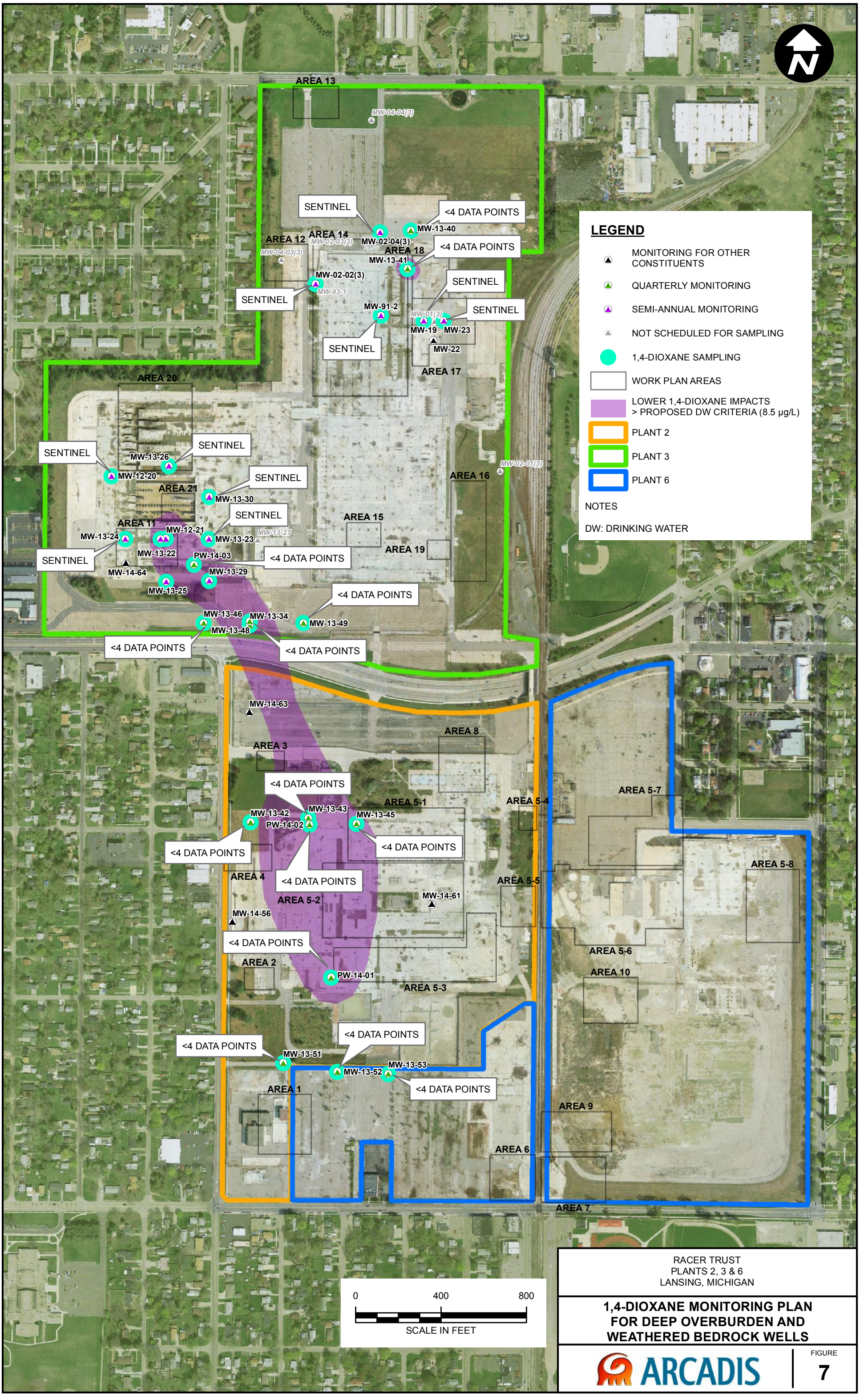

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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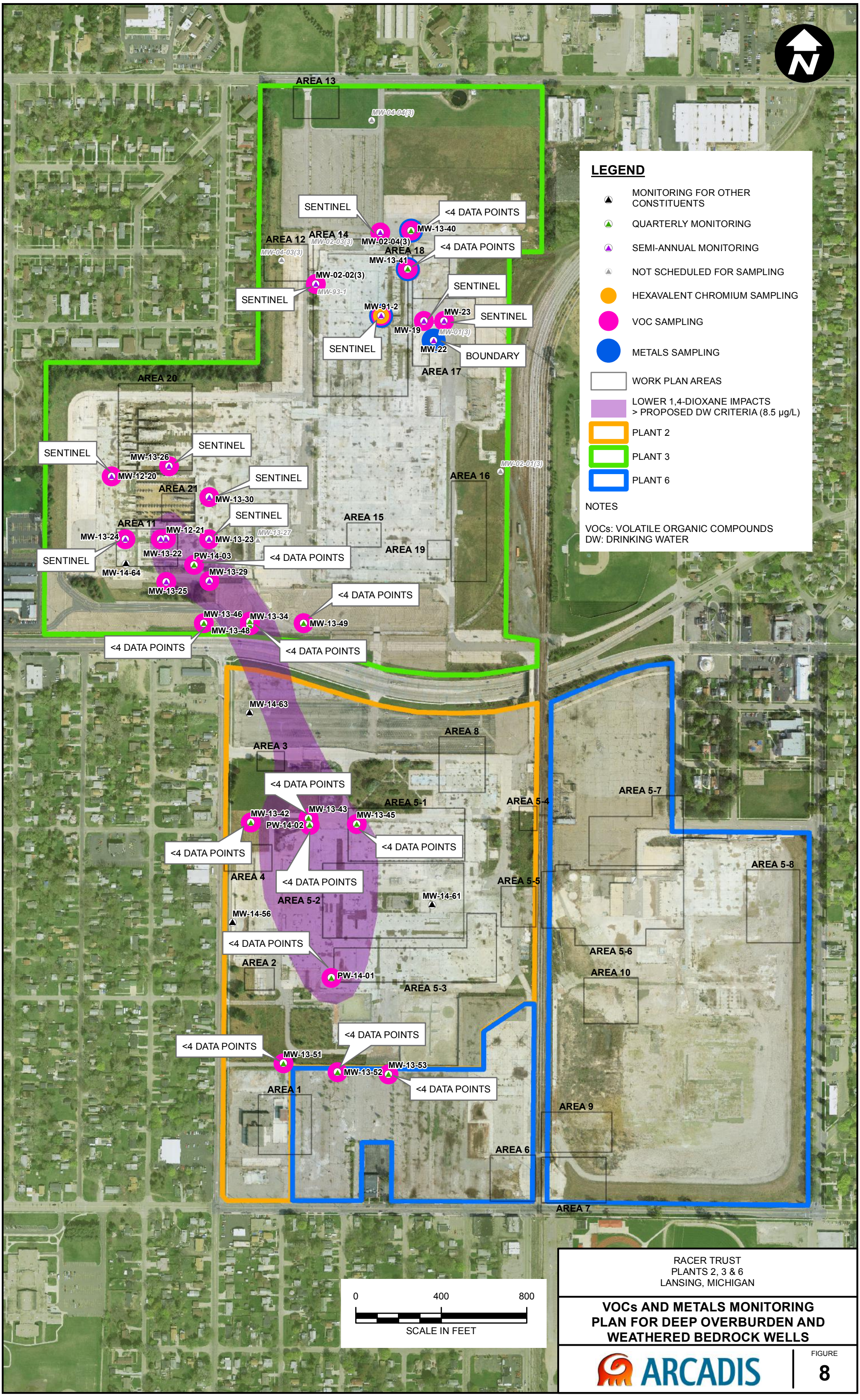

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\working\2014 Monitoring Plan.mxd PLOTTED: 11/13/2014 11:12:43 AM BY: dolexa

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

VOCs AND METALS MONITORING PLAN FOR DEEP OVERBURDEN AND WEATHERED BEDROCK WELLS

ARCADIS

FIGURE
8

AREA 13
MW-91-4
MW-13-39B
MW-88-1
MW-12-04
AREA 12
MW-04-02(3)
AREA 14
AREA 18
MW-13-38
SENTINEL
MW-91-3
MW-13-37
AREA 17
AREA 20
AREA 21
SENTINEL
SENTINEL
AREA 11
MW-91-5
MW-13-28
AREA 15
AREA 19
AREA 16
MW-04-01(3)
SENTINEL
SENTINEL
MW-91-6
MW-13-47
SENTINEL
MW-12-02
MW-12-03
AREA 8
AREA 3
SENTINEL
MW-13-44
AREA 5-1
AREA 5-4
AREA 5-7
MW-04-06R
AREA 4
AREA 5-8
AREA 5-5
MW-12-05
AREA 5-2
MW-12-06
MW-04-01(6)
SENTINEL
SENTINEL
MW-04-04R
AREA 5-6
AREA 2
SENTINEL
AREA 10
MW-12-01
AREA 5-3
SENTINEL
MW-13-50
AREA 1
AREA 9
AREA 6
AREA 7

LEGEND

- MONITORING FOR OTHER CONSTITUENTS
- SEMI-ANNUAL MONITORING
- NOT SCHEDULED FOR SAMPLING
- 1,4-DIOXANE SAMPLING
- WORK PLAN AREAS
- PLANT 2
- PLANT 3
- PLANT 6

0 400 800

SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

1,4-DIOXANE MONITORING PLAN FOR BEDROCK WELLS

ARCADIS

FIGURE
9

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docsworking\2014 Monitoring Plan.mxd PLOTTED: 11/13/2014 11:12:43 AM BY: dolexa

AREA 13
MW-91-4
MW-13-39B
<4 DATA POINTS
MW-88-1
MW-12-04
AREA 12
AREA 14
MW-04-02(3)
AREA 18
MW-13-38
MW-91-3
SENTINEL
MW-13-37
AREA 17
AREA 20
AREA 21
SENTINEL
SENTINEL
AREA 11
MW-91-5
MW-13-28
AREA 15
AREA 16
MW-04-01(3)
AREA 19
SENTINEL
SENTINEL
MW-91-6
MW-13-47
SENTINEL
MW-12-02
MW-12-03
AREA 8
AREA 3
SENTINEL
AREA 5-1
AREA 5-4
AREA 5-7
MW-13-44
MW-04-06R
AREA 4
<4 DATA POINTS
SENTINEL
AREA 5-8
AREA 5-5
MW-12-05
MW-12-06
MW-04-01(6)
AREA 5-2
SENTINEL
SENTINEL
MW-04-04R
AREA 5-6
AREA 2
SENTINEL
AREA 10
<4 DATA POINTS
MW-12-01
AREA 5-3
SENTINEL
MW-13-50
AREA 1
AREA 9
AREA 6
AREA 7

LEGEND

- QUARTERLY MONITORING
- SEMI-ANNUAL MONITORING
- NOT SCHEDULED FOR SAMPLING
- VOC SAMPLING
- METALS SAMPLING
- WORK PLAN AREAS
- PLANT 2
- PLANT 3
- PLANT 6

NOTES

VOCs: VOLATILE ORGANIC COMPOUNDS

0 400 800
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

VOCs AND METALS MONITORING PLAN FOR BEDROCK WELLS

ARCADIS

FIGURE
10

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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MW-14-65
MW-14-64
PW-14-03
MW-14-63
PW-14-02
MW-14-59
MW-14-58
MW-14-60
MW-14-61
MW-14-56
MW-14-57
MW-14-62
MW-14-55
MW-14-54
PW-14-01
MW-12-10R
MW-14-70
MW-14-66
MW-14-69
MW-14-68
MW-14-67

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- 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:

LABELED MONITORING WELLS WERE INSTALLED IN AUGUST OF 2014. THESE NEW WELLS WILL BE SAMPLED FOR FOUR QUARTERS, THEN RE-EVALUATED AND ADDED TO THE MONITORING PLAN AS APPROPRIATE.

VOCs: VOLATILE ORGANIC COMPOUNDS
SVOCs: SEMI-VOLATILE ORGANIC COMPOUNDS
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

0 400 800
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

NEW MONITORING WELLS 2014

ARCADIS

FIGURE
11

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docsworking\MONITORING WELL SUMMARY 11-14.mxd PLOTTED: 11/12/2014 5:44:58 PM BY: dolexa

MW-02-03(3)
MW-02-04(3)
MW-04-03
MW-13-41
MW-91-3
MW-02-02(3)
CH-14-RO
UNK-09
MW-22
MW-12-19
MW-13-26
MW-12-20
MW-04-01(3)
MW-91-5
MW-13-28
MW-12-21
MW-13-31
MW-13-46
P2-MW-01
P2-MW-03
MW-04-06R
P2-SB-03
MW-13-42
MW-04-05
MW-12-11
MW-12-13
MW-12-06
MW-04-01(6)
MW-12-09
MW-03-06
MW-03-08
MW-12-18
MW-12-01
MW-12-07
MW-12-08
P2-MW-02
MW-13-51
P6-SB-07
MW-03(2)
P6-SB-32
MW-01(2)
MWBP-12A-UST1-4
MWBP-12-UST1-4
MW-12-14
MW-12-16

LEGEND

EXISTING MONITORING WELLS

- NAPL MONITORING WELL
- PERCHED MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- APPROXIMATE EXTENT OF VOCs IN PERCHED GW > DW CRITERIA
- 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:

LABELED MONITORING WELLS WILL BE SAMPLED AS ADDITIONAL WELLS, OR FOR ADDITIONAL PARAMETERS, ON A BI-ANNUAL BASIS. BI-ANNUAL WELLS WILL BE SAMPLED FOR VOCs, 1,4-DIOXANE, SVOCs, AND ADDITIONAL METALS.

VOCs: VOLATILE ORGANIC COMPOUNDS
SVOCs: SEMI-VOLATILE ORGANIC COMPOUNDS
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

0 400 800
SCALE IN FEET

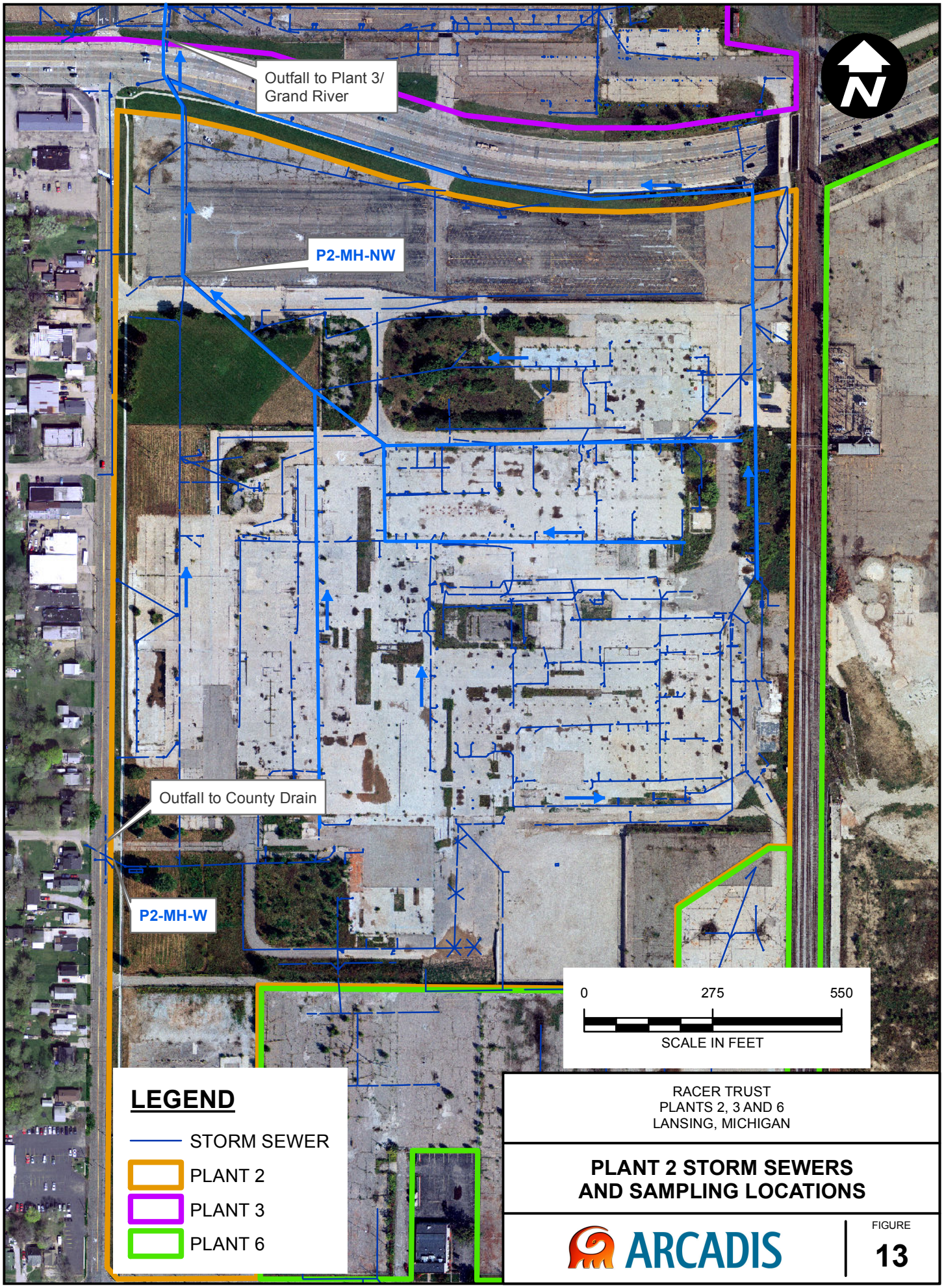
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

BI-ANNUAL VOC, 1,4-DIOXANE, SVOC, AND METALS MONITORING LOCATIONS

ARCADIS

FIGURE
12

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docsworking\MONITORING WELL SUMMARY 07-14.mxd PLOTTED: 11/12/2014 2:21:50 PM BY: dolexa



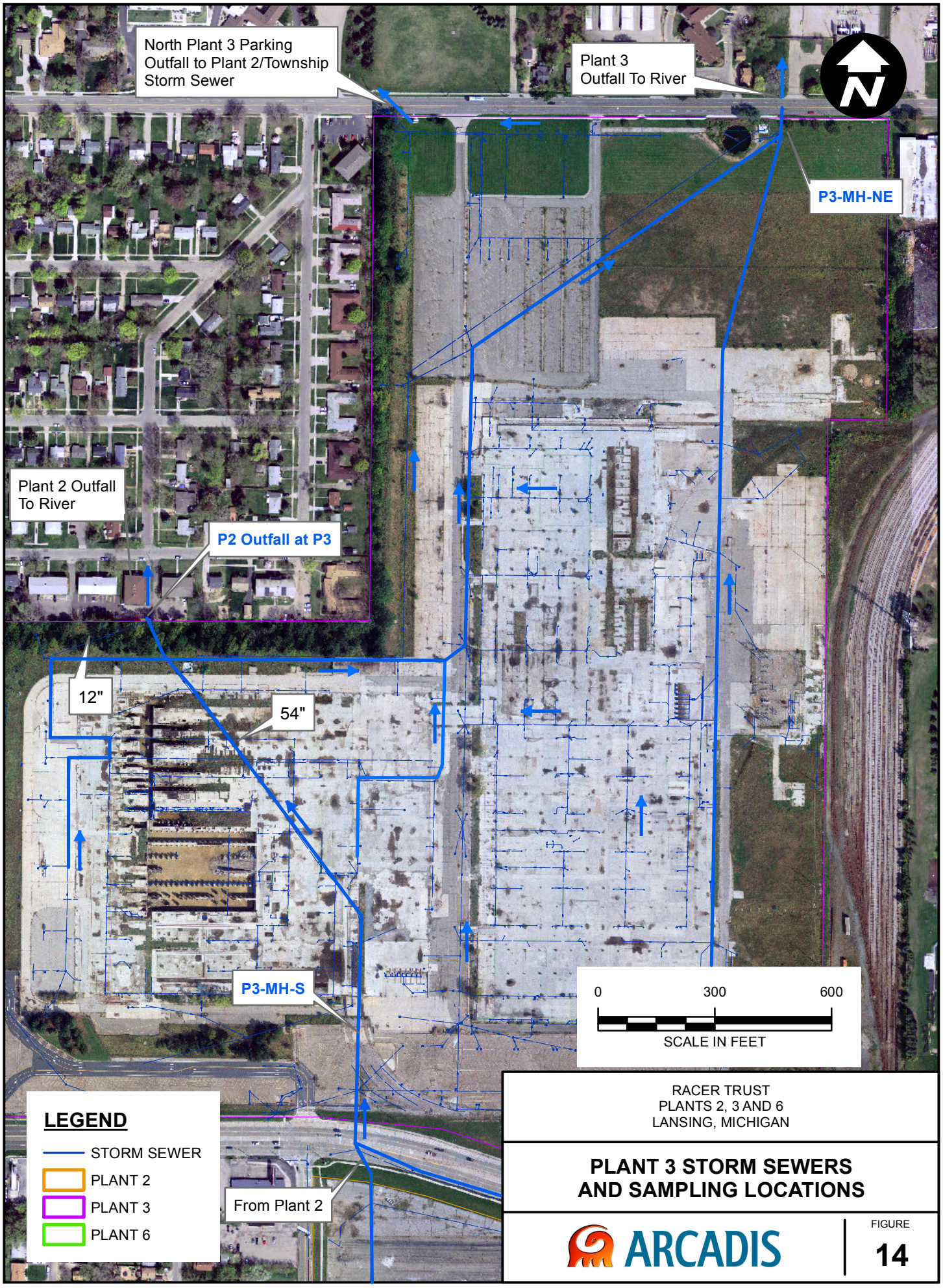
RACER TRUST
PLANTS 2, 3 AND 6
LANSING, MICHIGAN

PLANT 2 STORM SEWERS AND SAMPLING LOCATIONS

ARCADIS

FIGURE
13

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\RFI Supplement\Fig 19 - Plant 2 SW.mxd PLOTTED: 1/21/2014 5:00:03 PM BY: PCurry



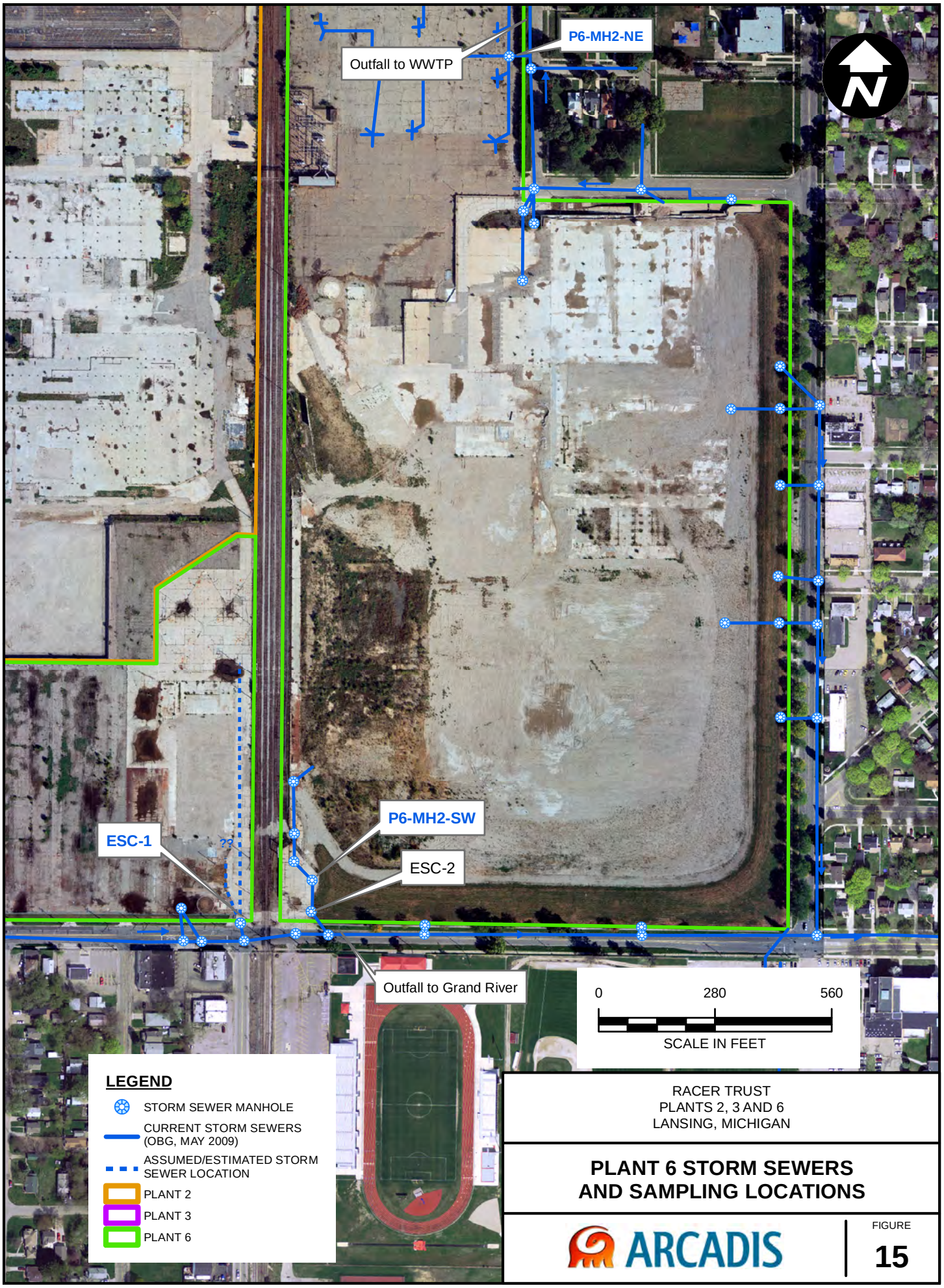
CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\RFI Supplement\Fig 20 - Plant 3 SW.mxd PLOTTED: 2/10/2014 10:14:52 AM BY: PCurry

RACER TRUST
PLANTS 2, 3 AND 6
LANSING, MICHIGAN

PLANT 3 STORM SEWERS AND SAMPLING LOCATIONS

ARCADIS

FIGURE
14



CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
G:\GIS\Project Files\MotorsLiquidationCompany\Lansing\Docs\RFI Supplement\Fig 21 - Plant 6 SW.mxd PLOTTED: 4/30/2014 5:21:59 PM BY: dolexa

RACER TRUST
PLANTS 2, 3 AND 6
LANSING, MICHIGAN

PLANT 6 STORM SEWERS AND SAMPLING LOCATIONS

ARCADIS

FIGURE
15