Revitalizing Auto Communities Environmental Response (RACER) Trust

DRAFT - RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION SUMMARY REPORT

Plants 2, 3, and 6, Industrial Land Lansing, Michigan

January 6, 2022

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Prepared By:
Arcadis of Michigan, LLC
28550 Cabot Drive, Suite 500
Novi
Michigan 48377
Phone: 248 994 2240

Prepared For:
Revitalizing Auto Communities Environmental Response (RACER) Trust

Our Ref:
30075941

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Patrick J. Curry, P.G., C.P.G.
Technical Expert / Associate Vice President

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Alex Villhauer
Project Geologist

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Tiffany A. Linder
Certified Project Manager

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1 Introduction

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Summary Report (Report) has been prepared on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust. This document has been prepared at the request of the Michigan Department of Environment, Great Lakes, and Energy (EGLE), formerly the Michigan Department of Environmental Quality (MDEQ) to summarize all RFI activities completed to date at Plants 2, 3, and 6 located in Lansing, Michigan (Site) within a single report. EGLE will be used in this report to refer to MDEQ or EGLE. The location of the Site is provided on **Figure 1**.

The RFI Phase 1 Activities Summary Report (Arcadis 2012a), the RFI Phase 2 Report (Arcadis 2013a), and the RFI Supplemental Phase 2 Report (Arcadis 2014b) summarized the results of the initial RFI site activities completed in 2011 to 2013. Additional investigations have been completed following the RFI Supplemental Phase 2 Report to further characterize the nature and extent of impacts, and to evaluate relevant exposure pathways associated with the Site. Additional investigations were primarily focused on contaminants of emerging concern such as 1,4-dioxane and per- and poly-fluoroalkyl substances (PFAS), remedy design investigations for the lower 1,4-dioxane plume, further characterization of the light non-aqueous phase liquids (LNAPL) at Plant 2, and evaluation of the vapor intrusion pathway. This report provides a summary of the subsequent site investigation activities completed since the RFI Phase 1 and 2 reports, references all key report submittals, and provides a summary of the key findings.

1.1 RFI Reports

Given the large and adaptive scope of work, as well as the expedited nature of the investigation, RFI activities have been reported in numerous submittals in parallel with the development of a Corrective Measures Study (CMS) and interim measure activities. A complete list of major report submittals and correspondence with EGLE is included in **Table 1**. The key correspondence includes all recorded EGLE comments and approvals. The key components of the RFI and supporting documents are summarized as follows:

- Current Conditions Report (Arcadis 2008): Describes the current conditions and historical waste management practices at the former General Motors Corporation Plants 2, 3 and 6. Provides basis for Areas of Interest (AOIs) investigated as part of the initial RFI activities.
- Updated Draft RFI Activities Matrix (Arcadis 2011a): Several iterations of the matrix were provided for comment to EGLE beginning in 2009. The final version of the activity matrix outlines the AOIs agreed upon as requiring characterization and provides the basis for the RFI Work Plan (Phase 1).
- RFI Work Plan, RACER Lansing Plants 2, 3, and 6 (Phase 1; Arcadis 2011b): Outlines the initial investigation to evaluate if constituents of concern (COCs) were released to the subsurface and are present in soil and groundwater within the identified AOIs.
- Quality Assurance Project Plan (Arcadis 2011c): Outlines the organization, objectives, and specific quality assurance/quality control (QA/QC) procedures associated with the Site.
- RACER RFI Phase 1 Activities Summary Report (Arcadis 2012a): Provides a summary of the RFI Phase 1 results organized by Plant and AOI.
- RFI Work Plan, Phase 2 (Arcadis 2012b): Based on the results of the RFI Phase 1, outlines an adaptive investigation to delineate all soil and groundwater impacts identified at the Site.

- Storm Sewer Investigation Work Plan (Arcadis 2012c): Outlines the work plan for assessment of the on-site storm sewer collection system as well as a sampling plan to assess the potential for Groundwater-Surface Water Interface (GSI) Criteria exceedances in groundwater discharge via storm sewer.
- Utility Corridor Assessment (Arcadis 2012d): Review the locations of utility corridors at the Site and evaluate utility corridors that could potentially serve as pathways for off-site migration of COCs in groundwater. The assessment focused on areas with groundwater impacts that are located near property boundaries.
- RFI Phase 2 Activities Summary Report (Arcadis 2013a): Provides a summary of the RFI Phase 2 results, primarily focused on delineation and characterization of impacts identified within the shallow "perched" groundwater zone. The RFI Phase 2 also identifies several remaining data gaps, including the presence of 1,4-dioxane identified within the deep overburden beneath the "coliseum" in the southwestern portion of Plant 3.
- Interim Groundwater Monitoring Work Plan (IGMP) (Arcadis 2013b, revised 2013d, 2014d, 2017a, 2019h): Provides a work plan to perform quarterly groundwater sampling at the Site through 2021. Revisions to the Interim Groundwater Sampling Work Plan addressed changes to counter turbidity issues, revisions to the monitoring well network and revisions to the frequency of sampling consistent with the plume stability and geochemical conditions evaluations.
- Plant 3 1,4-Dioxane Investigation (Arcadis 2013c): Provides a summary of the initial lower 1,4-dioxane investigation results followed by a plan for additional borings across the southern portion of Plant 3.
- Conceptual 1,4-Dioxane Investigation Work Plan – Plants 2 and 3 (Arcadis 2013e): Outlines the final and most significant phase of the lower 1,4-dioxane investigation extending from southern Plant 3 and extending to the southern portion of Plant 2.
- RFI Supplemental Phase 2 Activities Summary Report (Arcadis 2014b): Provides a summary of additional work completed to address the data gaps outlined at the conclusion of the RFI Phase 2 Activities Summary Report. Includes a summary of the lower 1,4-dioxane investigation results as of the date of the report.
- Preliminary Geochemical and Plume Stability Assessment (Arcadis 2014c): Provides a preliminary assessment of the site geochemical conditions and plume stability.
- Passive Flux Meter (PFM) and Transducer Study Summary (Arcadis 2014e): Provides a summary of the PFM and municipal well transducer studies completed to further characterize the hydraulic characteristics surrounding the lower 1,4-dioxane plume and assist with remedy pre-design.
- Area 16 Metals Summary (Arcadis 2014f): Provides a summary of soil and groundwater sampling completed to characterize metals (primarily nickel) in soil and groundwater associated with Area 16 in the southeastern portion of Plant 3.
- 2014 Additional AOI Investigation (Arcadis 2014g): Provides a summary of soil and groundwater sampling completed to characterize two additional AOIs identified by EGLE on Plants 2 and 3.
- Resource Conservation and Recovery Act Facility Investigation (RFI) Summary Report (Arcadis 2014h): Outlines the components of the RFI through 2014.
- Corrective Measure Pre-Design Report – Lower 1,4-Dioxane Source Evaluation (Arcadis 2014i): Presents the results of the Plant 3 source characterization investigation for the lower 1,4-dioxane plume.
- Area 16 Soil Risk Evaluation (Arcadis 2015a): Describes additional work performed to assess the risk posed by metals and semi-volatile organic compounds (SVOCs) in soil at Area 16 in the southeastern portion of Plant 3.

- Area 16 Evaluation of Nickel in Groundwater (Arcadis 2015b): Describes additional work performed to characterize metals in groundwater at Area 16 in the southeastern portion of Plant 3.
- 2014-2015 Annual Groundwater Monitoring Report (Arcadis 2015c): Provides a summary of all groundwater monitoring results from the second quarter of 2014 through the first quarter of 2015. This report also includes an updated plume stability and geochemical conditions evaluation as well as a summary of the BioTrap® and dissolved gas sampling completed in 2015.
- Compound Specific Isotope Analysis Memo (Arcadis 2015d): Provides a summary of compound-specific isotope analysis (CSIA) completed to evaluate potential sources of 1,4-dioxane.
- Lower 1,4-Dioxane Plume Toe Investigation Report (Arcadis 2016a): Describes activities conducted to further evaluate potential sources of the elevated 1,4-dioxane concentration noted at the toe of the lower 1,4-dioxane plume. Focused on potential leakage of 1,4-dioxane from the perched Plant 2 light non-aqueous phase liquid (LNAPL) area to the weathered bedrock and potential for weathered bedrock impacts associated with the former Adams Plating Site.
- 2015-2016 Annual Groundwater Monitoring Report (Arcadis 2016b): Provides a summary of all groundwater monitoring results from the second quarter of 2015 through the first quarter of 2016. This report also includes an updated plume stability and geochemical conditions evaluation, as well as a geochemical signature evaluation comparing water from the perched zone to the weathered bedrock.
- Supplemental Lower 1,4-Dioxane Plume Toe Investigation Report (Arcadis 2016c): Describes activities conducted to further evaluate leakage of 1,4-dioxane from the perched Plant 2 LNAPL area to the weathered bedrock, and the installation of a more robust sentinel monitoring network around the toe of the lower 1,4-dioxane plume.
- Southern Plant 6 Off-Site Metals (Arcadis 2017b): An email and summary slide deck detailing the conceptual site model associated with elevated metals concentrations off site to the south of Area 7, located on the southern portion of Plant 6.
- Lower 1,4-Dioxane Plume Northeast Lobe Investigation Report (Arcadis 2017c): Follow-up to the lower 1,4-dioxane plume toe Investigations. This report describes activities completed to define the “northeast lobe” of the lower 1,4-dioxane plume and evaluate whether the plume sub-lobe is a result of leakage from the perched zone or bifurcation of the lower 1,4-dioxane plume that migrates south from Plant 3.
- Annual Groundwater Monitoring Reports (Arcadis 2017d, 2018a, 2019a, 2020a, 2021a): Provide a summary of groundwater sampling completed for each year consistent with the IGMP, as revised. These reports also include an updated geochemical conditions evaluation, updates on the plume stability analysis, and summaries of municipal well sampling. Plant 2 LNAPL Area 1,4-Dioxane Investigation Summary (Arcadis 2017e): Summarizes the activities completed to evaluate the potential presence and leachability of 1,4-dioxane within the Plant 2 LNAPL Area.
- RFI Pathway Analysis Response to Comments (Arcadis 2018b): Provides a response to comments on the exposure pathway analysis provided as Appendix F of the RFI Phase 2 Activities Summary Report (Arcadis 2013a).
- Plant 3 PFAS Investigation Summary Report (Arcadis 2018c): Summarizes the nature and extent of PFAS impacts associated with the former Plant 3 plating area.
- Plant 2 LNAPL Composition Summary (Arcadis 2018d): Provides a comprehensive summary of LNAPL composition and an evaluation of leachability and risk to the bedrock aquifer.

- Plant 3 PFAS Report Addendums (Arcadis 2019b, 2019c): Summaries of Plant 3 PFAS monitoring well installation and sampling.
- Plant 6 PFAS Investigation Phase 1 (Arcadis 2019d): Summary of the initial PFAS investigation activities completed at Plant 6.
- Vapor Intrusion (VI) Evaluation and Work Plan (Arcadis 2019e): Evaluation of perimeter vapor intrusion pathway and scope of work outlining additional VI investigation activities.
- Plant 2 NAPL Area NSZD Report (Arcadis 2019f): Summary of the natural source zone depletion (NSZD) evaluation for the Plant 2 LNAPL. Includes a summary of several lines of evidence and an estimate of LNAPL degradation rate.
- Plant 6 PFAS Investigation Phase 2 (Arcadis 2019g): Summary of follow-up Plant 6 PFAS investigation activities, including the installation of perimeter monitoring wells based on the results of the Phase 1 activities.
- Plant 2 PFAS Investigation Summary Memo (Arcadis 2020b): Summary of PFAS investigation activities in the southeast portion of Plant 2. The area was identified as a potential source based on storm water sampling and evaluation.
- Plant 2 LNAPL Conceptual Site Model DRAFT (Arcadis 2020c): A comprehensive summary of the Plant 2 LNAPL including composition, mobility, and overall risk to the drinking water aquifer.
- Deep Bedrock Well Update (Arcadis 2020d): Summary of the deep bedrock well installation and sampling completed along the Plant 2 west boundary to verify the lower 1,4-dioxane CSM.
- Biosparge Installation Data Package (Arcadis 2020e): Data package that includes the geologic and analytical data collected during the installation of the lower 1,4-dioxane biosparge system.
- Plant 6 VI Investigation and Work Plan Memo (revised) (Arcadis 2020f): Summary of groundwater and vapor sampling activities and results at the Plant 6 east entrance area. Includes a workplan for additional off-site activities.
- Lower 1,4-Dioxane Conceptual Site Model (Arcadis 2021b): Comprehensive summary of data that has been collected to date for the lower 1,4-dioxane plume. Provides interpretation based on best available data and provides the basis for the biosparge remedy design.
- Plants 2,3, & 6 VI Summary Report (Arcadis 2021c): Final summary of vapor intrusion evaluation completed for Plants 2, 3, & 6. Final monitoring at Plant 6 pending.
- Plant 6 Off-site PFAS Investigation (Arcadis 2022c): Summary of Plant 6 off-site VAP boring results and PFAS delineation activities. Includes proposed off-site monitoring well installation for sentinel groundwater monitoring.
- Plant 2 Lower 1,4-Dioxane Additional Investigation Report (Arcadis, 2022b, in review): Provides a summary of additional investigation completed the characterize weathered bedrock for 1,4-dioxane, beneath the Plant 2 PFAS source area, and in the northern Plant 2 parking lot along the lower 1,4-dioane plume. The results in the northern Plant 2 parking lot were used to install an additional biosparge performance monitoring well.

The site layout with completed borings and monitoring wells are provided as **Figure 2** and **Figure 3** (Plant 3 and Plants 2 and 6, respectively). All the summary reports described above can be found on the RACER Trust public website located here: https://www.racertrust.org/properties/51876, or available upon request.

2 Summary of Hydrogeologic Conditions

The geology of the Site is complex, consisting of an interbedded series of glacially derived sediments overlying weathered bedrock consisting of either fine grained sandstone (Grand River Formation) or interbedded sandstone and shale (Saginaw Formation), both of Pennsylvanian age. The Grand River Formation is younger and occupies erosional valleys within the Saginaw Formation.

The geology of the Site is divided into six general hydrostratigraphic units (from shallow to deep). A conceptual geologic section is provided as **Figure 4**:

- Shallow fill – Typically 1 to 10 feet thick consisting of sand and gravel mixtures brought to the Site as part of construction activities. The shallow fill can be saturated when present below ~ 5 feet and above a clay layer.
- Interbedded Zone (a.k.a., Perched Zone) – At depths generally between 5 and 30 feet below ground surface (ft bgs). Typically composed of interbedded soft clay, glacial tills with isolated lenses of silt and sand. Sand and silt lenses are typically saturated, forming thin discontinuous zones of perched groundwater. Saturated soils within the shallow fill and interbedded zone are generally referred to as "perched water" or collectively as the "perched zone."
- Glacial till – Depth and thickness are highly variable but typically encountered at between approximately 25 and 45 ft bgs. A compact, dense silt/sand/gravel/clay mix that creates a confining unit and barrier to vertical flow. Separates the perched water from the deep overburden and weathered bedrock zone.
- Deep overburden – Consists of a mix of sand and sand-silt-clay till located above the bedrock. The deep overburden is dry and sandy beneath the glacial till but becomes saturated when encountered deeper than approximately 55 to 65 ft bgs. Saturated deep overburden is only observed at Plant 3 where a southwest-northeast trending bedrock valley dips below the regional water table. There is dense till layer overlying the bedrock across much of the area that varies in thickness and composition, consisting primarily of silt, fine sand with varying amounts of clay. Although lower permeability than the overlying vadose zone sand, this "bedrock capping till" appears permeable enough to allow 1,4-dioxane to migrate through it into the weathered bedrock, either gradually or preferentially through areas where the zone is thin, absent, or siltier/sandier. The deeper till can also create a confining unit for the bedrock aquifer creating semi confined aquifer conditions for weathered bedrock groundwater.
- Weathered Bedrock / Bedrock – Encountered anywhere from 100 ft bgs on Plant 3 within a bedrock valley, to 55 ft bgs at locations in the central part of Plant 2 and beneath Plant 6. The bedrock consists of the Grand River Formation in the southwest of Plant 3, transitioning to the Saginaw Formation in the central portion of Plant 2. The Grand River Formation is a fine to medium-grained sandstone that occupies erosional valleys within the Saginaw Formation. The Saginaw Formation consists primarily of fine-grained sandstone with lenses of shale that can vary from 15 feet thick to millimeter thin stringers threaded throughout the sandstone. The transition from weathered to consolidated rock is gradational with the weathered zone typically ranging from 5 to 15 feet thick. The weathered bedrock zone, especially the weathered sandstone, is a preferential pathway for groundwater flow.

Groundwater movement at the Site is complex. Due to the predominance of clay-rich sediment, the perched zone is interbedded and has an overall low permeability characterized by isolated sand zones within layers of silt and clay. The lower conductivity clay and silt that dominate this zone result in high horizontal and vertical gradients. Sand zones are discontinuous and often do not correlate from monitoring well to monitoring well, and minor variations in well screen elevation have a significant impact on the potentiometric surface. Potentiometric surface maps are provided as part of the annual groundwater monitoring reports (Arcadis 2017d, 2018a, 2019a, 2020a, 2021a). Based on the distribution of contaminants within the perched zone, groundwater flow can be radial in

areas of preferential groundwater recharge, such as in areas with gaps in the concrete cover like the north central portion of Plant 3 or around the Plant 2 LNAPL area. The distribution of the perched 1,4-dioxane plume suggests an overall easterly flow component within the perched zone from Plant 2 across Plant 6. Similarly, PFAS impacts within perched groundwater at Plant 6 appear to migrate primarily to the east and northeast.

Saturated deep overburden is present only at Plant 3 where the bedrock surface is deeper in the vicinity of a bedrock valley-oriented northeast-southwest across the northern and western portions of Plant 3. Groundwater present within the deep overburden is hydraulically connected to the weathered bedrock and bedrock zones. In the northern portion of Plant 3, the groundwater gradient in deep overburden is northwesterly toward the bedrock valley. In the southwestern portion of Plant 3, beneath the "coliseum" (former metal stamping area basement) 1,4-dioxane source area, groundwater flow in the deep overburden (and weathered bedrock) is to the southeast, consistent with the lower 1,4-dioxane plume distribution.

Like the perched zone, the depth of a monitoring well within the weathered bedrock or bedrock zones plays a large role in the potentiometric surface observed at that location. Large vertical gradients occur in formations with vertical anisotropy and indicate a lack of vertical groundwater communication. The vertical gradient tends to be limited near the Plant 3 coliseum and increases to the south where it can be as high as 0.4 (feet per foot) in the central portion of Plant 2. This variation in vertical gradient appears to coincide with the transition between bedrock formations. Near the coliseum, where the bedrock encountered consists of the more uniform and permeable Grand River Formation, the vertical gradient is negligible. To the south, within the interbedded sandstone and shale of the Saginaw Formation, there is a significant vertical gradient created by the interbedded shale and sandstone of the Saginaw Formation. Review of the bedrock wells and other deep boring logs suggests an approximate geologic contact between the Grand River and Saginaw Formations oriented roughly southwest to northeast. The bedrock contact based on borings completed at the Site is included on **Figure 2** and **Figure 3.**

For the bedrock (and by extension, the weathered bedrock), the effective head or "corrected" potentiometric surface elevation can be calculated based on the observed vertical gradients (Arcadis 2014b). The bedrock potentiometric surface is variable year-to-year and appears largely dependent on climate trends and shifts in municipal groundwater pumping patterns from regional bedrock water supply wells. Regardless of the variability, the apparent horizontal gradient from the Plant 3 1,4-dioxane coliseum source area is consistently to the southeast toward Plant 2. The bedrock horizontal gradient at Plant 2 is more variable and at times includes an easterly component beneath the central portion of Plant 2, an observation supported by the easterly migration of the lower 1,4-dioxane plume.

Bedrock is generally shallower beneath Plant 6 (~50 ft bgs). Saturated weathered bedrock is typically not encountered with groundwater present below the weathered zone within the more consolidated Saginaw Formation. Additional detail regarding the weathered bedrock, groundwater movement, velocity and aquifer heterogeneity are provided in the *Lower 1,4-Dioxane Conceptual Site Model* report (Arcadis 2021b).

Two factors limit vertical flow and the migration of 1,4-dioxane into the more consolidated bedrock aquifer: vertical anisotropy and overall low bulk hydraulic conductivity. The vertical anisotropy is limited in the relatively homogeneous Grand River Formation but increases dramatically within the Saginaw Formation due to the horizontal layers of shale. The vertical gradient in the Saginaw Formation is discussed above. The hydraulic conductivity of the consolidated bedrock formation is one to two orders of magnitude less than the weathered zone (Arcadis 2015e, 2020d). As a result, the migration of impacts into consolidated bedrock is limited, particularly in the Saginaw Formation, or otherwise where shale is present.

3 Results of the RFI Investigation Activities

Investigations completed following the initial RFI report submittals have been primarily focused on characterizing the nature and extent of the lower 1,4-dioxane plume to support the development and execution of a lower 1,4-dioxane corrective measures, delineation of PFAS on and off-site at Plants 2, 3 and 6, further characterization of the Plant 2 LNAPL, evaluation of metals in groundwater, and a sitewide evaluation of the vapor intrusion pathway.

Lower 1,4-Dioxane: Following the initial delineation of the lower 1,4-dioxane plume in 2013, additional work has been completed to characterize the Plant 3 "coliseum" source area (Arcadis 2014i), to evaluate the potential for contribution to the lower 1,4-dioxane impacts from an off-site source (Arcadis 2015d), and to evaluate potential seepage to the lower plume from the perched LNAPL source area at Plant 2 (Arcadis 2016a, 2016b, 2016c, 2017c, 2017e). A complete summary of the lower 1,4-dioxane characterization was developed as the *RACER Lansing - Lower 1,4-Dioxane CSM* (Arcadis 2021b). The current distribution of 1,4-dioxane, both in the perched and lower zones is shown on **Figure 5**.

Additional work not mentioned above includes several pre-design pilot tests completed to help evaluate treatment technologies for the lower 1,4-dioxane impacts. These pilot tests include:

- Advanced Oxidation Process (AOP) Bench-Scale Test - 2014 - bench test for AOP treatment of 1,4-dioxane in groundwater
- Weathered Bedrock Hydraulic testing - 2014 - pumping, injection, and re-circulation testing from three locations within the lower 1,4-dioxane plume
- In-situ Chemical Oxidation (ISCO) Pilot Test -2015/2016 - ISCO pilot testing at two locations within the core of the lower 1,4-dioxane plume
- In-situ Propane Biosparge Pilot Test - 2016/2017 - pilot test of a biosparge in-situ treatment system at the toe of the lower 1,4-dioxane plume on Plant 2
- Ex-situ Bioreactor Treatment System Pilot Test - 2016/2017- pilot test of an ex-situ bioreactor at Plant 2 for treatment of 1,4-dioxane in groundwater
- In-situ Hydraulic Enhancement Propane Biosparge Pilot Test – 2017/2018 -a follow-up to the 2016/2017 pilot test that uses hydraulic enhancement to enhance propane and nutrient distribution in the weathered bedrock.

Pilot testing results have been summarized under separate cover and will be used as part of interim response activities work plans and/or a revised Corrective Measures Study to validate the corrective measures evaluated for the lower 1,4-dioxane plume. Propane biosparge was selected as the interim remedy for the lower 1,4-dioxane plume and a full-scale system was installed at the Site in 2019 and 2020. Details regarding the installation of the biosparge remedy were provided in the Biosparge Installation Data Package (Arcadis 2020e): and the *Biosparge Construction Completion Report* (Arcadis 2021d).

Per- and Poly-fluoroalkyl Substances (PFAS): Beginning in 2016, PFAS, a group of contaminants of emerging concern associated with many manufacturing processes, was evaluated at existing monitoring well locations. PFAS was identified in perched groundwater at Plant 3, primarily associated with the former chrome plating line, as well as in the central portion of Plant 2, and throughout Plant 6 up to the southern, northern, and eastern property boundaries. Additional detailed investigations were completed at Plant 3 (Arcadis 2018c, 2019b, 2019c), Plant 6 (Arcadis 2019d, 2019g, 2022c) and Plant 2 (Arcadis 2020b). Delineation of PFAS both on and off-site is complete with final off-site monitoring well installation to be completed north and east of Plant 6 in Spring 2022. The distribution of PFAS in the perched zone at Plants 2, 3 and 6 is shown on **Figure 6**.

Plant 2 LNAPL: Although originally characterized as part of the RFI, the Plant 2 LNAPL was further characterized to evaluate leaching of associated contaminants (i.e., VOCs, 1,4-dioxane, PFAS, SVOCs) to the underlying weathered bedrock (Arcadis 2017e, Arcadis 2018d) and a natural source zone depletion (NSZD) evaluation to estimate natural degradation of the LNAPL plume (Arcadis 2019f). A complete summary of the Plant 2 LNAPL data was provided as both a presentation to the EGLE LNAPL TAPs team on April 21, 2020, and as a summary report - *Plant 2 LNAPL CSM* (Arcadis 2020). The Plant 2 and 3 LNAPL plumes are included on **Figure 5**, **Figure 6,** and on **Figure 7** along with the distribution of VOCs**.**

Metals: Metals in groundwater, where present across the majority of the site are stable and generally related to reducing conditions created by the presence of VOCs, or LNAPL. Additional investigation has been completed at the Site to evaluate metals in groundwater near the site perimeter at Plant 3, Area 16 (Arcadis 2014f, 2015a, 2015b) at Plant 6, Area 7 (Arcadis 2017b). In both instances, the metals were shown to not be related to conditions present at the Site. Groundwater monitoring has continued at the Site in accordance with the Interim Groundwater Monitoring Plan, as revised (Arcadis 2013c, revised 2013d, 2014d, 2017a, 2019h). The annual groundwater monitoring reports have expanded on the initial findings of the Preliminary Geochemical and Plume Stability Assessment (Arcadis 2014c) to monitor groundwater plume stability annually.

Vapor Intrusion: Additional evaluation of the vapor intrusion pathway was completed for the perimeter soil and groundwater data relative to the EGLE 2013 VI Guidance and draft 2017 VI Criteria. Based on the initial screening, RACER requested Site Specific Volatilization to Indoor Air Criteria (SSVIAC) on June 21, 2018 and received the SSVIAC from EGLE on August 15, 2018 (EGLE 2018). The screening identified two potential areas of concern associated with the buildings on the southwest portion of Plant 2, and vinyl chloride exceedances in groundwater near the Plant 6 entrance at Stanley and Osborn Streets (Arcadis 2020f). Additional work was completed to characterize the Plant 2 buildings and Plant 6 entrance. A complete summary of the screening and site activities was provided as the *Plants 2, 3 & 6 VI Summary Report* (Arcadis 2021c).

3.1 Key Findings

The following are the key conclusions from additional characterization completed at the Site since the submittal of the RFI summary reports (Arcadis 2012a, 2013a, 2014b).

Lower 1,4-Dioxane Plume:

- *Plant 3 Lower 1,4-Dioxane Coliseum Source Area:* The Plant 3 source area was investigated to evaluate the residual source material potential present within the perched zone and deep overburden overlying bedrock. The results indicated the initial perched 1,4-dioxane source mass was depleted, with the remaining mass sequestered in dry, low-permeability glacial till. Concentrations within the deep overburden and weathered bedrock are like those in the downgradient plume, suggesting that most of the lower 1,4-dioxane mass has migrated downgradient of the source area. Based on continued source area monitoring well data, concentrations of 1,4-dioxane in deep overburden and weathered bedrock are stable to decreasing. These results suggest that a specific remedy for the Plant 3 lower 1,4-dioxane source area is not required (Arcadis 2014i, 2021h).
- *Plant 2 LNAPL Area 1,4-Dioxane Source Area:* Sampling of LNAPL and LNAPL-impacted soils at Plant 2 have shown high concentrations of chlorinated ethanes, including 1,1,1-trichloroethane, suggesting the LNAPL could be an ongoing source of 1,4-dioxane. Additional sampling completed in 2017 show that 1,4-dioxane associated with the LNAPL is depleted and the majority of the 1,4-dioxane mass in the Plant 2 LNAPL area is present as dissolved phase in surrounding perched groundwater (Arcadis 2017e, Arcadis

2020c). This data, coupled with the partitioning characteristics of 1,4-dioxane, show the majority of 1,4-dioxane available for leaching from LNAPL has already moved to the groundwater dissolved phase.

- Additional sampling was completed around the perimeter of the Plant 2 LNAPL plume during the lower 1,4-dioxane plume toe investigations (Arcadis 2016a, 2016c). The results of the investigations, showed that 1,4-dioxane impacts extended through the perched zone, confining glacial till layer, and into the dry deep overburden at several locations. A lobe of the lower 1,4-dioxane plume extends to the northeast from the Plant 2 LNAPL area. Vertical migration of 1,4-dioxane from the Plant 2 LNAPL Area may be aided by preferential recharge through the former courtyard that is currently covered with degraded asphalt and vegetation. Prior to the installation of the biosparge system, routine monitoring showed additional migration to the east and northeast in weathered bedrock; however, further migration to the south and southeast appeared to be limited by the shallower bedrock.
- *1,4-Dioxane Natural Attenuation*: BioTrap® sampling has indicated a mechanism for biodegradation of 1,4-dioxane at the Site under ambient or supplemented groundwater conditions (Appendix H in Arcadis 2015c). The BioTrap study provides a line of evidence for 1,4-dioxane natural attenuation via microbial cometabolism at the Site. In the perched zone in particular, biodegradation, in combination with other natural attenuation mechanisms, has resulted in stable to reducing 1,4-dioxane concentrations downgradient of the Plant 2 LNAPL source area. In the weathered bedrock, the BioTrap study provided some evidence to support biodegradation of 1,4-dioxane. In addition, CSIA sampling along the axis of the lower 1,4-dioxane plume suggests that biodegradation is occurring at several monitoring wells. These results provided the first line of evidence to support a biosparge remedy option for the lower 1,4-dioxane plume.
- *Former Adams Plating Off-site Source*: A Final Remedial Investigation Report for the Adams Plating Superfund Site (APC) was prepared by ch2m (consultant for USEPA) in December 2019. Among other contaminants of concern, the report provides the investigation results for 1,4-dioxane. Based on the results, 1,4-dioxane has not been delineated to EGLE criteria within the perched zone and may extend onto the western portion of Plant 2. Further, 1,4-dioxane has not been defined vertically at the site and impacts to the weathered bedrock have not been characterized. RACER completed vertical aquifer profile (VAP) sampling downgradient of APC in 2016. The results suggests that the facility may contribute 1,4-dioxane to the weathered bedrock zone and potentially impact the weathered bedrock under the west side of the Plant 2 property. Groundwater samples from the weathered bedrock south of the APC site show 1,4-dioxane impacts migrating parallel to the RACER lower 1,4-dioxane plume. Several weathered bedrock monitoring wells along the western Plant 2 property boundary indicate 1,4-dioxane concentrations greater than 7.2 micrograms per liter (µg/L) and it is not clear if these impacts are related to APC or the RACER lower 1,4-dioxane plume (Arcadis 2016a). A summary of the APC RI with regards to 1,4-dioxane was provided to EGLE on October 4, 2021 (Arcadis 2021e).
- *Lower 1,4-Dioxane Biosparge Remedy*: Biosparge was the selected interim measure for the lower 1,4-dioxane plume based on results from two phases of pilot testing completed in 2016 and 2017 (Arcadis 2017f, 2017g) that showed a reduction in 1,4-dioxane concentrations in performance monitoring wells because of biosparge operation. The design of the biosparge system includes transects of wells to reduce the concentrations 1,4-dioxane along the core of the plume migrating south from Plant 3 and provides a perimeter of biosparge wells around the south, east and northeast of the Plant 2 LNAPL area. Each transect includes sparge points designed to deliver propane, oxygen, and nutrients into the weathered bedrock to stimulate microbes that co-metabolically degrade 1,4-dioxane. As groundwater flows through the transects, microbes biodegrade the 1,4-dioxane and clean water flushes downgradient with the natural flow of groundwater. The result is an overall reduction in groundwater concentrations throughout the lower 1,4-dioxane plume. Data

collected during the installation of the biosparge system was included in the Lower 1,4-Dioxane Conceptual Site Model Report (Arcadis, 2021b)

PFAS, Plant 3:

- *Plant 3 PFAS Source Area* – The source of PFAS in north central Plant 3 is related to the former chrome plating operations. The highest concentrations of PFAS are associated with the former plating area with contribution from the former plating waste treatment area. The chrome plating area was demolished in the 1980s and included some excavation, backfill, and operation of a groundwater collection system. The plating line was replaced by a series of press pits, evident today as openings through the concrete slab.
- Analytical results generally show lower PFAS concentrations in the higher-permeability fill and sand seams relative to concentrations detected in the adjacent lower-permeability silty zones. The distribution of mass is consistent with a mature source mass (at least 30 years) with source removal through excavation, groundwater collection, and natural flushing of water through the higher permeability source area.
- *Plant 3 Geologic Conditions and PFAS Migration* - Perched groundwater appears to flow radially away from a groundwater high located in the former plating area. The groundwater high is created by openings in the building slab (former press pits) that allow preferential recharge into the areas of former plating operations. Advection in the native material surrounding the former plating area is dominated by more permeable sand seams that are spatially discontinuous across Plant 3. Estimated groundwater velocity based on the results of hydraulic testing ranges from feet per year to tens of feet per year in a radial pattern away from the former plating area. To the east of Plant 3, transport off site occurs in the well sorted sand seams identified along the eastern Plant 3 boundary, passes beneath the railroad property, and enters the City parks wherein sand seams transition to finer more poorly sorted sediments. PFOS also appears to migrate to the south, north, and west from the source area following preferential pathways created by sand seams and potentially along utility corridors.
- Vertical migration to the deep overburden is limited based on the vertical conductivity of the glacial till and deep overburden beneath the plating area. Initially, two deep overburden wells exhibited sporadic, low concentrations of PFOS (MW-2-04(3) and MW-91-2). Since the replacement of MW-91-2 with a double cased well MW-91-2R, PFOS has only been detected low concentrations at MW-18-97 (Arcadis 2021a), along with sporadic low concentrations of other PFAS in other Plant 3 deep overburden monitoring wells.
- PFAS are delineated to DW and GSI criteria vertically and horizontally both on- and off-site. Off-site migration via stormwater has been addressed through bulkheading detailed in the Plant 3 Storm Sewer Modification Completion Report (Arcadis 2020g).

PFAS, Plant 6

- *Plant 6 Source Areas* - PFAS impacts at Plant 6 are generally associated with the wastewater treatment plant, former paint shop area, former paint mixing room and the rinse water cistern areas. Impacts are ubiquitous throughout Plant 6 and are dominated by PFOA and to a lesser extent, PFOS. The highest PFAS concentrations at Plant 6 were observed near a former rinse water cistern that was associated with a phosphoric acid dip process that may have used PFAS as vapor suppressants.
- *Plant 6 Geologic Conditions and PFAS Migration* - The geology on-site generally consists of up to 8 feet of fill material underlain by interbedded clay with lenses of silt and sand. Perched water was encountered within the more permeable, generally discontinuous sand lenses. The interbedded clays, silts, and sand lenses are underlain by a dense glacial till, generally encountered at depths of 20 to 35 feet bgs. PFOS and PFOA exceed DW Criteria at several locations along the northeastern, eastern, and southern property boundaries of Plant 6. Elevated concentrations of PFOA relative to PFOS, drive DW exceedances on the southern half of

Plant 6, suggesting that PFAS in these locations may be related to the former rinse water cistern source rather than the former paint shop area on the northern portion of the Site where PFOS is more dominant. Concentrations of PFOS in perched groundwater also exceed GSI at most locations containing DW exceedances.

- Advective transport occurs within the discrete permeable zones located at depths that likely interact with storm sewers located to the north, east and south of the Site. Off-site migration of PFAS above GSI and DW Criteria occurs to the northeast, and east of Plant 6. Additional work off-site has been completed and a sentinel monitoring well network has been proposed (Arcadis 2019c, 2022c).
- Off-site migration via groundwater infiltration into storm water lines has been addressed through storm water system modifications detailed in the Plant 6 Storm Sewer Modification Completion Report (Arcadis 2021f, 2021g, 2022a).

PFAS, Plant 2:

- *Southeast Plant 2 PFAS Investigation*: During March 2019, as part of a sitewide evaluation of PFAS impact to storm sewers, concentrations of PFOS were identified at concentrations above the GSI Criteria at manhole P2-MH-96 and P2-MH-97 (1,160 ng/L and 394 ng/L, respectively) located in the southeastern portion of Plant 6 (Arcadis 2019j). These results were elevated relative to the downgradient sample locations and indicated this area of the Site is a primary contributor of PFAS to storm sewers. There are several AOIs associated with this area including:
  - AOI 2-15 – Included eight 10,000-gallon underground storage tanks located in the building 225 tank farm area that held waste process oil, quench oil, cutting oil, and lubrication oil.
  - AOI-6-19 – A tunnel between Plants 2 and 6 that transferred process waste through pipes from Plant 6 to the wastewater treatment plant located on southern Plant 2, including waste from the wash water/phosphoric acid process waste cistern known to be a source area for PFAS on Plant 6.
  - AOI 2-4 – Storage of nonhazardous used oil and oily wastewater generated from equipment maintenance and cleaning at Plant 2.

  An investigation consisting of soil borings and temporary monitoring wells was completed in the southeast portion of Plant 2 (Arcadis 2020b) to identify potential sources of PFAS. The geology in the southeast portion of Plant 2 generally consists of up to 10 feet of fill material underlain by interbedded clay with lenses of silt and sand. Perched water was encountered within the more permeable sand lenses; however, the permeable zones appear discontinuous. The interbedded clays, silts, and sand lenses are underlain by a dense glacial till, encountered at depths of 20 to 35 ft bgs.

  Groundwater samples collected from 13 of the 17 soil borings completed as part of the investigations exceed GSI and/or residential DW criteria for PFOS and/or PFOA. The highest concentrations of PFOS in groundwater were observed in the shallow perched sample intervals located to the west of AOI 2-15 (5,580 ng/L at 5-10 ft bgs), and at AOI 2-4 (5,040 ng/L at 0-5 ft bgs). PFOS concentrations in deeper groundwater samples collected from confined sand/silt seams were 1-2 orders of magnitude lower than concentrations observed within the shallower unconfined samples or were non-detect. Deep groundwater collected from a weathered bedrock well was non-detect for PFOA and PFOS. Low concentrations of PFBS, PFHxA were detected in weathered bedrock at concentrations below the DW Criteria, and low concentrations of other non-regulated PFAS were also detected. The results indicate vertical migration of PFAS to the bedrock aquifer in this area is limited.

  Eight of seventeen soil borings completed as part of the investigations contained detections of total PFOS in soil that exceeded the GSIP Criteria. The highest concentrations of PFOS in soil (16.4 µg/kg) are located at AOI 2-4, which was used for storage of nonhazardous used oil and oily wastewater.

- *Plant 2 LNAPL Area PFAS:* Due to the proximity of PFOS and PFOA impacted groundwater to the LNAPL and lack of known historical sources in the immediate vicinity, an investigation was completed to determine if the LNAPL represents a historical, or perhaps continuing, source of PFAS to perched groundwater (Arcadis 2019i). The investigation of LNAPL included groundwater sampling from wells impacted with LNAPL to evaluate the concentrations of PFAS in groundwater in close proximity to the LNAPL and collection of LNAPL samples to evaluate concentrations of PFAS currently present in LNAPL.
- Comparison of the analytical results for both groundwater and LNAPL does not show a tendency toward a higher concentration in either medium. The highest concentrations of individual PFAS compounds within LNAPL are on the order of hundreds of nanograms per liter (ng/L) and typically less than 100 ng/L for PFOA and PFOS. These concentrations are like those observed in the surrounding perched groundwater. Based on these results, LNAPL is unlikely to represent a substantial ongoing source of PFAS impacts to groundwater, and it is possible that concentrations observed in LNAPL have partitioned from groundwater into LNAPL and are therefore related to a separate source.
- Groundwater samples collected from the weathered bedrock in the vicinity of the Plant 2 LNAPL area have shown only estimated concentrations of PFAS (i.e., PFOS) at two locations, MW-16-81 and TW-14-02 (2.96 and 2.47 ng/L, respectively) (Arcadis 2018e).
- *Former Adams Plating Off-site Source:* A Final Remedial Investigation Report for APC was prepared by Ch2m in December 2019. The report provides the investigation results for perched PFAS impacts. Based on the results, PFAS has not been delineated to EGLE criteria within the perched zone and appears to extend onto the western portion of Plant 2. Storm sewer sampling in the northern Plant 2 parking lot have shown PFAS impacts similar in composition to those detected in the APC monitoring wells. A summary of the APC RI with regards to PFAS was provided to EGLE on October 4, 2021 (Arcadis 2021e).

Plant 2 LNAPL:

The Plant 2 LNAPL area is described in detail in the *Plant 2 LNAPL Composition and Potential Risks* report (Arcadis 2018d) and the *Plant 2 LNAPL Conceptual Site Model* report (Arcadis 2020c).

- *1,4-Dioxane:* Previous evaluations have demonstrated that the LNAPL has been depleted of 1,4-dioxane mass and the majority of the 1,4-dioxane present is dissolved in groundwater. The 1,4-dioxane mass present in weathered bedrock beneath the Plant 2 LNAPL area appears to be primarily related to perched groundwater leakage from the zone beneath and immediately surrounding the LNAPL.
- *VOCs:* Dissolved phase VOC impacts are limited to the immediate vicinity of the LNAPL. The chlorinated ethenes/ethanes and other VOCs detected in groundwater around the LNAPL attenuate rapidly due to the geochemical conditions created by the presence of the LNAPL and do not migrate downgradient or vertically at significant concentrations. VOCs are primarily limited to the perched zone in the LNAPL area and only sporadic low-level detections of VOCs have been detected in weathered bedrock groundwater.
- *TPH:* Fractionation results indicate that the LNAPL consists primarily of heavier (longer-chain) aliphatic hydrocarbons characterized by low mobility and low toxicity. The overall low volatility and solubility of heavier petroleum compounds that make up the majority of the LNAPL mixture suggest that migration of these compounds in dissolved phase or vapor phase is minimal. Target compound list VOCs make up only a small fraction of the LNAPL (<2%).
- *SVOCs:* Analytical results for the LNAPL identified relatively low-toxicity PAHs as the only detectable compounds. Surrounding soil and groundwater samples have indicated limited SVOC impacts. The extent of dissolved-phase SVOC impacts is limited by the lower solubility of these compounds. The LNAPL does not contain detectable concentrations of carcinogenic PAHs or other SVOC compounds associated with

significant health risk. Sampling of the weathered bedrock groundwater has not identified any detections of SVOCs except for bis(2-ethylhexyl) phthalate, which is believed to be a laboratory contaminant.

- *PCBs*: PCBs in LNAPL, although elevated, particularly within the confined LNAPL, do not dissolve readily and do not present a dissolved phase risk to the perched zone or bedrock aquifer. Sampling of LNAPL impacted soils has indicated two locations where PCBs in soil exceed 10 ppm. The near surface sample at both locations indicated relatively low concentrations. Based on these results, the PCBs can be addressed through institutional controls.
- *Degradation/Natural Source Zone Depletion:* NSZD is the dominant contributor to current LNAPL mass reductions, as indicated by the results of the 2019 NSZD investigation (Arcadis 2019f). Each line of evidence evaluated (soil gas screening, subsurface temperature profiling, and soil gas flux measurement) indicates that NSZD is active and ongoing. Using the average NSZD rate calculated from these measurements, the LNAPL area NSZD rate is estimated at 570 gallons of LNAPL depleted per year over an approximate LNAPL footprint of 1.2 acres. The estimated loss rate is substantially larger than LNAPL removal rates achievable via manual LNAPL bailing or via potential automated hydraulic recovery systems.
- *Vapor Intrusion:* Exceedances of vapor inhalation (VI) criteria associated with the elevated VOCs in LNAPL will be addressed by deed restriction that requires a VI evaluation and/or engineered controls prior to construction of any building for human occupation.
- LNAPL remaining in place at Plant 2 is not expected to pose a significant human health risk through direct contact, drinking water, or groundwater surface water interface exposure pathways. Exceedances of vapor inhalation (VI) criteria associated with the elevated VOCs in LNAPL will be addressed by deed restriction that requires a VI evaluation and/or engineered controls prior to construction of any building for human occupation. Impacts to the underlying bedrock drinking water aquifer will be addressed with a biosparge system to reduce the concentrations of 1,4-dioxane. Overall, the LNAPL plume is stable and not migrating, as shown by LNAPL delineation and monitoring conducted from 2012 through present. Testing that shows LNAPL transmissivity is two to three orders of magnitude below the 0.5 ft^2/d criterion established by the EGLE to define LNAPL that can be recovered in a cost effective and efficient manner.

Perimeter Metals:

- *Plant 3, Area 16 Nickel in Groundwater*: Elevated nickel concentrations have been observed in groundwater near the Plant 3 southeast property boundary. Adrian and Blissfield Railroad occupies the adjacent property. Based on the soil and groundwater data, site-specific geology, and hydrogeology, nickel impacts do not appear to be associated with the former operations at RACER Plant 3 (Arcadis 2015b).
- *Plant 3, Area 16 Metals in Soil:* To evaluate potential risks to human health from exposure to concentrations of metals in soil at Area 16, an exposure area (or "decision unit") was identified around Area 16. Based on the results of the screening-level risk assessment, the concentrations of constituents in Area 16 do not pose an unacceptable risk to recreational users at West Side Park. The restrictive covenant for Plant 3 will include the maintenance of a clean soil cap over a portion of Area 16 to reduce exposure risk (Arcadis 2015a).
- *Plant 6, Area 7 Metals:* Persistent arsenic has been identified in a deeper off-site monitoring well south of Area 7. The concentration of arsenic at MW-12-16 (~10-20 µg/L) is consistent with regional arsenic background concentrations. Further, groundwater within the deeper zone is hydraulically isolated from shallow impacts identified in Area 7 on site, and the horizontal gradient within the deeper zone is consistently to the north (off site to on site). These results indicate that the off-site arsenic is related to ambient geochemical conditions and not related to past operations at Plant 6.

Groundwater Plume Stability:

- *Metals:* Elevated concentrations of metals at the Site, in most cases, do not appear to be linked to site-related sources of metals, and there is no discernable metals plume in the perched zone, deep overburden, weathered bedrock, or bedrock zones. Metals impacts in all water-bearing units are spatially limited and, with few exceptions (noted above), are below criteria at the property boundary. Elevated concentrations of metals appear to be a result of minor shifts in site geochemistry associated with reducing conditions, and in some cases noted as a regional issue, particularly in the cases of arsenic and manganese (Arcadis 2014c).
- *VOCs:* Concentrations of VOCs in the perched zone are spatially limited or associated with identified LNAPL. Concentration trends for VOCs in the perched zone are decreasing or do not exhibit a trend. The only apparently increasing VOC in the perched zone are benzene in the southern portion of Plant 6. Soil was excavated from this area in 2016 (PM Environmental, 2016), and benzene concentrations are expected to stabilize.
- *Perched 1,4-Dioxane:* Concentrations of 1,4-dioxane in the perched zone are considered stable based on analysis of the existing dataset, and 1,4-dioxane has not been detected in monitoring wells installed around the perimeter of the perched plume (with one exception - MW-14-58 near Adams Plating). The data support inclusion of Monitored Plume Stability as a component of the recommended corrective measures for the perched 1,4-dioxane plume (Arcadis 2014c, 2017d, 2018a, 2019a, 2020a, 2021a).
- *Lower 1,4-Dioxane:* Concentrations of 1,4-dioxane along the core of the deep overburden and weathered bedrock have stabilized and begun to decrease in areas, particularly following the biosparge system start-up in 2019 and 2020 (Arcadis 2021h).
- *PFAS:* Twenty-four monitoring wells met the criteria for Mann-Kendall analysis for PFOS, PFOA, PFNA, or PFHxS during 2020 (Arcadis 2021a). Statistical trend analysis indicates that, apart from one well (MW-13-36R) at Plant 6, all wells with PFAS concentrations exceeding criteria demonstrate stable to decreasing trends. The increasing trend observed at MW13-36R for PFOA is located near the eastern boundary of Plant 6. Additional off-site work completed east of Plant 6 has delineated PFOA and sentinel monitoring wells will be installed in 2022 (Arcadis 2022c).

Storm Sewers:

- *Storm Sewer Sampling:* Storm sewer samples were collected at regular intervals from eight outfalls at the Site between 2012 and 2015. Results from all samples collected were below Michigan Part 201 Groundwater-Surface Water Interface Criteria apart from those collected from the southern Plant 6 outfall (some metals, xylenes). Xylene impacts were excavated from the southern portion of Plant 6 in 2016. The most recent sampling event completed in December 2016 from the southern Plant 6 outfall was below GSI Criteria for all compounds (Arcadis 2017d).
- *PFAS:* Beginning in 2018, several rounds of storm sewer bulkheading have been completed at Plants 2, 3 and 6 to eliminate or reduce off-site migration of PFAS. The bulkheading has been summarized as a series of construction completion reports (Arcadis 2020g, 2021f, 2021g, 2022a). To date, PFAS discharge has been reduced to below GSI Criteria at Plants 2 and 3. Final measures to address sewers at Plant 6 are planned in 2022.

The additional work described above, in combination with the RFI Phase 1 Activities Summary Report (Arcadis 2012a), the RFI Phase 2 Activities Summary Report (Arcadis 2013a), and the RFI Supplemental Phase 2 Activities Summary Report (Arcadis 2014b), fulfill the requirements of an RFI for the Site. The RFI activities outlined above and more fully described in the documents included on RACER Trust website (https://www.racertrust.org/properties/lansing-plant-2-industrial-land) or are available upon request. RACER Trust Plants 2, 3 and 6 have been adequately characterized consistent with the requirements of RCRA.

The results of the RFI and the RFI implications regarding risk have or will be addressed through implementation of interim measures and/or described more fully as part of the revised Corrective Measures Study being prepared for submittal to EGLE and other stakeholders in the first quarter 2022.

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EGLE. 2018. Transmittal of Site-Specific Volatilization to Indoor Air Criteria, RACER Trust, Lansing Plants 2 & 3, Lansing, Michigan. August 15.

MDEQ. 2016. Correspondence to Mr. Pete Quackenbush, Re: Adams Plating Preliminary PFC data and evaluation. November 15.

PM Environmental. 2016. Excavation Summary Report for the Targeted Excavation for Areas 5-7, 7, and 9 at the RACER Industrial Property Lansing Plant 6 Located at 401 North Verlinden, Lansing, Michigan. September 2016.

Tables

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
August 1, 2008	Arcadis	GMC	Hardcopy	Current Conditions Report for Lansing Plants 2, 3 & 6	CCR Report submitted to MDEQ on 08/01/2008. No response requested from MDEQ.	Submittal
September 1, 2008	Arcadis	GMC and MDEQ	Hardcopy	Draft RFI Activities Matrix and Figures, Lansing Plants 2, 3 & 6	Draft matrix and figures listing AOIs to be investigated submitted to MDEQ for their review and comment.	Submittal
February 1, 2009	Arcadis	GMC and MDEQ	Hardcopy	Updated Draft RFI Activities Matrix and Figures, Lansing Plants 2, 3 & 6	Updated draft matrix and figures listing AOIs to be investigated submitted to MDEQ for their review and comment.	Submittal
August 1, 2010	Arcadis	MLC and MDEQ	Meeting	Meeting with MDEQ to discuss reduced list of AOIs for the Lansing Plants	Updated draft matrix and figures listing AOIs to be investigated submitted to MDEQ for their review and comment.	Meeting
March 1, 2011	Arcadis	RACER and MDEQ	Hardcopy	Updated Draft RFI Activities Matrix and Figures, Lansing Plants 2, 3 & 6	Updated draft matrix and figures listing AOIs to be investigated submitted to MDEQ for their review and comment.	Submittal
June 1, 2011	Arcadis	RACER and MDEQ	Hardcopy	Updated Draft RFI Activities Matrix and Figures, Lansing Plants 2, 3 & 6	Updated draft matrix and figures listing AOIs to be investigated submitted to MDEQ for their review and comment.	Submittal
July 8, 2011	MDEQ	RACER and Arcadis	Letter	Updated Draft RFI Activities Matrix and Figures, Lansing Plants 2, 3 & 6 - Dated June 22, 2011.	MDEQ Approval letter dated July 8, 2011 of the Updated Draft RFI Activities Matrix and Figures dated June 22, 2011.	Approval
August 1, 2011	Arcadis	RACER and MDEQ	Hardcopy	RFI Work plan, RACER Lansing Plants 2, 3 & 6 Quality Assurance Project Plan, RACER Lansing Plants 2, 3 & 6 Field Sampling Plan, RACER Lansing Plants 2,3 & 6	Submitted the RFI Work plan, QAPP and FSP to MDEQ for review and approval.	Request for Approval
September 26, 2011	MDEQ	Arcadis	Hardcopy	RFI Work plan, RACER Lansing Plants 2, 3 & 6 Quality Assurance Project Plan, RACER Lansing Plants 2, 3 & 6 Field Sampling Plan, RACER Lansing Plants 2,3 & 6	Approval with modifications of the RFI Work plan, QAPP and FSP from MDEQ in a letter dated 9/26/2011.	Approval

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October 1, 2011	Arcadis	RACER	Hardcopy	Public Involvement Plan	Provided RACER with a draft copy of the PIP. Because the PIP will be an evolving document the no final copy submitted.	Submittal
December 6, 2011	Arcadis	RACER	Email with file attached	2012 EA Annual Budget Request	Submitted original 2012 EA Budget Request to RACER. Original scope and cost estimates pulled directly from RCES.	Submittal
December 12, 2011	RACER	Arcadis	Email with file attached	2012 EA Annual Budget Request	Original 2012 EA Budget Request approved and signed by RACER on 12/12/11.	Submittal
January 1, 2012	Arcadis	RACER and MDEQ	Hardcopy	RACER RFI Phase 1 Activities Summary Report Lansing Plants 2, 3 & 6	Submitted the RACER RFI Phase 1 Activities Summary Report for Lansing Plants 2, 3 & 6 to RACER and MDEQ on 01/30/12. Report summarizes the investigation activities completed in 2011.	Submittal
February 1, 2012	Arcadis	Arcadis	Email	MDEQ FOIA request for Ashland Chemical Property	Arcadis completed a search of the files MDEQ has on the Ashland Chemical Site in Lansing. File search was completed on 02/14/12.	Request for Information
March 1, 2012	Arcadis	RACER and MDEQ	Hardcopy	RACER RFI Work Plan, Phase 2	Submitted work plan to MDEQ and RACER on 03/12/12. Work Plan to be completed in 3 stages: Assessment Stage (4/16-6/8/12) Characterization Stage (9/5-9/25/2012 Delineation Stage (11/7-11/30/2012)	Request for Approval
March 1, 2012	Arcadis	RACER and MDEQ	Hardcopy	Bedrock Sentinel Monitoring Well Installation Work Plan	Submitted the Bedrock Sentinel Monitoring Well Installation Work Plan to MDEQ for review.	Request for Approval
March 29, 2012	Arcadis	RACER and MDEQ	Email	RACER Drilling Water Question	Request to discharge drilling water onto the ground and MDEQ response agreeing to allow the drilling water to be dispensed onto the ground. Request and response via emails dated 03/29/12.	General Inquiry
April 24, 2012	MDEQ	Arcadis	Email	RACER RFI Work Plan, Phase 2	MDEQ approval of the RFI Work Plan Phase 2 provided via email on 04/24/12.	Approval
July 1, 2012	Arcadis	RACER and MDEQ	Hardcopy	RFI Phase 2 Work Plan - Characterization Stage SOW	RFI Phase 2 Work Plan - Characterization Stage SOW submitted to MDEQ.	Request for Approval
August 1, 2012	Arcadis	RACER	Email with file attached	2012 Annual EA Budget Amendment Request #1	Submitted 2012 BA #1 to RACER on 8/1/12. Requested funds to cover additional investigation of expanded number of AOIs.	Submittal
August 3, 2012	RACER	Arcadis	Email	2012 Annual EA Budget Amendment Request #1	RACER and MDEQ approved (signed) BA #1 on 08/03/12.	Approval

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

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
August 13, 2012	Arcadis	MDEQ	Email	RFI Phase 2 Work Plan - Characterization Stage SOW Comments	PC response to questions from MDEQ related to historical data used in model to develop SOW.	Response to Comments
August 13, 2012	Arcadis	MDEQ	Email	RACER Lansing Sample Parameters	Arcadis request to reduce parameters analyzed during investigation. Specifically request to reduce SVOCs to PNAs, where applicable, and to reduce list of metals.	Request for Approval
August 16, 2012	Arcadis	RACER	Email with file attached	2012 Annual EA Budget Amendment Request #2	Submitted BA #2 to RACER on 8/16/12. Requested funds to cover increased number of borings/samples collected at each AOI. Original estimates based on 3 boring/AOI and 3 samples/boring. Also requested funds to evaluate GSI criteria and complete groundwater sampling	Submittal
August 21, 2012	MDEQ	Arcadis and RACER	Letter	RFI Phase 2 Work Plan - Characterization Stage SOW	Approval letter from MDEQ for the RFI Phase 2 Work Plan - Characterization Stage SOW. Letter dated 08/21/12.	Approval
August 24, 2012	RACER	Arcadis	Email	2012 Annual EA Budget Amendment Request #2	RACER and MDEQ approved (signed) BA #2 on 08/29/12.	Approval
August 29, 2012	Arcadis	MDEQ	Email	Access to Adams Plating Site and to Collect Groundwater Samples from the APC wells	Arcadis requests access to the APC property and for permission to sample the APC wells. MDEQ to coordinate with the APC PM for access.	Request for Information
August 29, 2012	MDEQ	Arcadis	Email	Access to Adams Plating Site for Off-Site Groundwater Samples	update from MDEQ on coordination with APC PMs to get us access to APC property to sample wells.	Response to Request
September 14, 2012	Arcadis	RACER and MDEQ	Email	Adams Plating Company Groundwater Sampling Plan	Submitted Work Plan to MDEQ for sampling the groundwater monitoring wells at Adams Plating. MDEQ responded with questions about methods and pump type.	Request for Approval
September 26, 2012	Arcadis	MDEQ	Email	RACER Updates	Email exchanges updating MDEQ with findings from the Characterization Phase of the investigation and proposing additional contingency VAP borings at select locations. MDEQ approval on contingency boring locations via email dated 09/13/12.	Approval
October 15, 2012	Arcadis	MDEQ	Email with file attached	RACER Lansing - Storm water Sampling Plan	Submitted Storm water Sampling Plan, near the property boundaries, to MDEQ on 10/18/12.	Request for Approval
October 15, 2012	MDEQ	Arcadis	Email	RACER Lansing - Storm water Sampling Plan	MDEQ approval of the Storm water Sampling Plan. Approval via email dated 10/18/12.	Approval

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

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
October 15, 2012	Arcadis	MDEQ	Email	RACER Lansing Pump Test	Discussed completing pump tests on bedrock wells to see if influence on drinking water aquifer present. Also discussed transducer data collected in Oct. 2012.	General Correspondence
November 2, 2012	Arcadis	RACER	Email with file attached	2012 Annual EA Budget Amendment Request #3	Submitted 2012 BA #3 to RACER on 11/2/12. Requested funds to cover additional borings/samples at the AOIs, to conduct a utility corridor investigation near the property boundary, to complete soil gas sampling, to complete pump test and to complete an LNAPL mobility assessment at	Submittal
November 15, 2012	RACER	Arcadis	Email with file attached	2012 Annual EA Budget Amendment Request #3	RACER and MDEQ approved (signed) BA #3 on 11/15/12.	Approval
November 26, 2012	Arcadis	MDEQ	Email with file attached	RACER Lansing Pumping Test Work Plan	Submitted Pump Test Work Plan to MDEQ for review and approval.	Request for Approval
November 27, 2012	Arcadis	MDEQ	Email	RACER Lansing Pumping Test Work Plan	Follow up with MDEQ on review of Work Plan. MDEQ to discuss internally with there experts and get back to us. Follow-up phone conversation confirms test cancellation.	General Correspondence
December 1, 2012	Arcadis	RACER	Email with file attached	2013 EA Annual Budget Request	Submitted final 2013 Annual Budget Request to RACER on 12/18/12. Original budget request to cover PM and routine GWS only.	Submittal
December 3, 2012	Arcadis	MDEQ	Email with file attached	RACER Trust Utility Corridor Assessment Work Plan	Submitted Utility Corridor Assessment Work Plan to the MDEQ, via memo format, on 12/03/12.	Request for Approval
December 21, 2012	MDEQ	Arcadis	Email	Comments on RACER Lansing Storm Sewer Sampling Summary Report	MDEQ comments to the Storm water Sewer Sampling Report. MDEQ thinks Stormceptor should remain in place (interim measure). Metals exceedances, whether total or dissolved, still coming from site and need to be addressed.	Comments
January 1, 2013	RACER	Arcadis	Email	2013 EA Annual Budget Request	RACER and MDEQ approved (signed) the 2013 Annual Budget request on 12/20/12 and 01/2/13 respectively.	Approval
January 12, 2013	Arcadis	MDEQ	Email	RACER Lansing - response to comment related to Soil Gas sampling and Utility Corridor Assessment	Email to MDEQ to inquire if MDEQ has reviewed Arcadis response to MDEQs comments.	General Correspondence
January 24, 2013	MDEQ	RACER and MDEQ	Email	RACER Lansing - response to comments related to soil gas sampling and the utility corridor assessment	Approval from MDEQ related to soil gas sampling and utility corridor assessment work plans.	Approval
February 28, 2013	Arcadis	RACER and MDEQ	meeting	MDEQ Delineation Milestone Meeting	Meeting at MDEQ to discuss the Phase 2 Investigation results and delineation of each AOI.	Meeting

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

ARCADIS

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
February 28, 2013	Arcadis	RACER	Email with file attached	2013 EA Budget Amendment Request #1	Submitted 2013 BA #1 to RACER. BA #1 to cover costs for utility corridor investigation, additional storm sewer sampling, to complete the NAPL mobility assessment and to begin the 1,4-dioxane investigation at Plant 3.	Submittal
March 1, 2013	RACER	Arcadis	Email	2013 EA Budget Amendment Request #1	2013 BA #1 approved by MDEQ on 03/08/2013.	Approval
April 3, 2013	Arcadis	RACER and MDEQ	Hardcopy	RACER Lansing RFI Phase 2 Activities Summary Report	Submitted the RACER Lansing RFI Phase 2 Activities Summary Report to RACER and MDEQ.	Submittal
April 11, 2013	Arcadis	RACER and MDEQ	Email with file attached	Plant 3 1, 4-dioxane Results	Arcadis update to MDEQ on 1,4-dioxane investigation. Results indicate east and vertical delineation incomplete, coliseum recharge affecting plume migration, will continue investigation consistent with approved contingency scope - install 3 overburden wells and 1 overburden well.	Submittal
May 1, 2013	Arcadis	RACER and MDEQ	Hardcopy	RACER Lansing - Revised Interim Groundwater Sampling Work Plan	Submitted Revised Interim Groundwater Sampling Work Plan to MDEQ for review and approval. Work plan addresses the issue of turbidity and how we propose to purge/redevelop high turbidity wells.	Request for Approval
May 2, 2013	Arcadis	RACER and MDEQ	Email with file attached	RACER Lansing - Plant 3 1, 4-Dioxane Investigation	Update to the MDEQ summarizing the Plant 3 1,4-dioxane investigation. The southeast boring, completed as part of the contingency borings, turned up 1,4-dioxane above criteria, 130 ug/L in the deep interval (on top of rock) and 38 ug/L in the monitoring well set a few feet above. Requested MDEQ approval for the conceptual layout for additional borings to define the extent of the 1,4-	Request for Approval
May 13, 2013	MDEQ	RACER and MDEQ	Email	RACER Lansing - Plant 3 1, 4-Dioxane Investigation	MDEQ reviewed info regarding the Plant 3 1, 4-dioxane investigation and concurs with the proposed conceptual layout for additional borings.	Approval
June 1, 2013	Arcadis	RACER	Email with file attached	2013 EA Budget Amendment Request #2	Submitted BA #2 budget request to RACER on 6/12/2013. 2013 BA #2 to cover extended 1,4-dioxane investigation and collection of groundwater geochemical parameters.	Submittal
June 6, 2013	MDEQ	RACER and MDEQ	Email	RACER Lansing - Revised Interim Groundwater Sampling Work Plan	DEQ reviewed the Revised Interim GWS Work Plan and found it acceptable, need to provide DEQ with a hard copy for their records.	Approval
June 13, 2013	Arcadis	RACER, MDEQ and BWL	Meeting	Meeting with BWL	Meeting with BWL to discuss the results of the investigation to date and to get input from BWL.	Meeting

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June 27, 2013	Arcadis	RACER and MDEQ	Email with file attached	RACER Lansing Plants 2,3 and 6 Corrective Measures Study	Submitted Draft RCRA Corrective Action Corrective Measures Study Report (electronically) to MDEQ on 06/27/13.	Submittal
July 1, 2013	MDEQ	Arcadis	Email with file attached	2013 EA Budget Amendment Request #2	2013 BA #2 approved (signed) by MDEQ on 7/1/2013.	Approval
July 10, 2013	Arcadis	RACER, MDEQ, BWL and Lansing Township	Meeting	Corrective Action Meeting with various stakeholders (RACER, MDEQ, BWL and Lansing Township)	Meeting to the various stake holders to discuss the proposed corrective measures. Meeting took place 07/10/13.	Meeting
August 8, 2013	Arcadis	MDEQ	Email with file attached	RACER Lansing - addendum to interim groundwater sampling plan - August 2013	Discussion of elevated turbidity present in the monitoring wells and how it will be addressed during the future sampling events.	General Correspondence
August 8, 2013	MDEQ	Arcadis	Email	RACER Lansing - addendum to interim groundwater sampling plan - August 2013	MDEQ approved addendum to interim GWS which requested not to purge 3 hours on high turbidity wells. If turbidity is elevated AUS will collect total and dissolved metals samples.	Approval
August 15, 2013	BWL	RACER, Arcadis, MDEQ and Lansing Township	Hardcopy	Comments to RFI, CMS and BWL	Letter from BWL, dated 8/19/13, related to comments/concerns to the RFI and proposed corrective measures reports and the stakeholders meeting from 07/10/13.	Response to Submittal
August 19, 2013	Arcadis	RACER, MDEQ, BWL and Lansing Township	Email	RACER Lansing - Municipal Well Sampling	Email to MDEQ summarizing the BWL and Lansing Township request that Arcadis sample municipal wells BWL 10-10 and Twp. Well #4 and Arcadis agreement to grant request.	General Correspondence
September 1, 2013	Arcadis	RACER	Email with file attached	2013 EA Budget Amendment Request #3	Submitted BA #3 request to RACER on 09/18/2013. BA #3 to cover additional 1,4-dioxane investigation, meeting with stake holders and groundwater sampling.	Submittal
September 1, 2013	Arcadis	RACER	Email	2013 EA Budget Amendment Request #3	2013 BA #3 approved (signed) by RACER on 09/23/13.	Approval
September 4, 2013	Arcadis	RACER and MDEQ	Meeting	RACER Lansing RFI-CMS Update	Meeting with MDEQ to discuss RFI activities, surface cover/O&M, BWL comment letter, updated CMS costs and budget amendments.	Meeting
September 12, 2013	Arcadis	RACER, MDEQ and BWL	Meeting	RACER Lansing - BWL Bedrock Summary	Discussion with BWL related to CSM, deep 1,4-dioxane investigation, CVOCs, and regional vinyl chloride.	Meeting

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September 24, 2013	Arcadis	RACER and BWL	Email	RACER Lansing - BWL Plant 3 Vinyl Chloride Bedrock Well Install	Email correspondence with BWLs consultant related to the installation of bedrock monitoring wells at the northern end of Plant 3. Proposed to install 3 bedrock wells to better understand the Vinyl Chloride impacts and to confirm the Vinyl Chloride is related to an off site source. BWL agreed to approach in the email chain and Phone conversation between 0925/13 and 09/25/13.	General Correspondence
September 24, 2013	Arcadis	RACER and MDEQ	Email with file attached	RACER Lansing Plants - Groundwater Restricted Area for City of Lansing	Provided MDEQ with existing language from the City ordinance restricting groundwater use and wells within the City proper.	Submittal
September 25, 2013	Arcadis	RACER and MDEQ	Email with file attached	Plant 2 & 3 Conceptual 1, 4-dioxane investigation	Submitted the Plant 2 & 3 Conceptual 1, 4-dioxane investigation scope of work to MDEQ via an email dated 09/25/13 for their review and approval.	Request for Approval
October 1, 2013	MDEQ	RACER and MDEQ	Email	Plant 2 & 3 Conceptual 1, 4-dioxane investigation	DEQ reviewed the conceptual 1,4 dioxane investigation plans and find them to be acceptable with the following understanding based on phone conversation with Joe Rogers; all wells/borings being installed in areas of known groundwater contamination would be double cased as described in the weathered bedrock VAP sampling bullet of the 1,4-dioxane conceptual work plan.	Approval
November 4, 2013	Arcadis	RACER and MDEQ	Email	2014 EA Annual Budget Request	Submitted final 2014 Annual Budget Request to RACER and MDEQ on 11/4/13.	Request for Approval
November 13, 2013	Arcadis	RACER and MDEQ	Email	Board of Water and Light (BWL) Well Sampling Work Plan	Submitted proposed sampling plan to MDEQ for their review and approval via an email dated	Request for Approval
November 13, 2013	MDEQ	Arcadis	Email	Board of Water and Light (BWL) Well Sampling Work Plan	MDEQ approval of the proposed BWL Well Sampling Plan via an email dated 11/15/2013.	Approval
November 13, 2013	Arcadis	RACER and MDEQ	Email with file attached	Work Plan - Delineation of Excavation Areas at Plant 6	Submitted the Work Plan for delineation of excavation areas at Plant 6 to MDEQ for review and approval.	Request for Approval
November 20, 2013	MDEQ	RACER and Arcadis	Email	2014 EA Annual Budget Request	RACER and MDEQ approved (signed) the 2014 Annual Budget request on 11/12/13 and 11/20/13, respectively.	Approval
November 21, 2013	Arcadis	RACER, HMA and MDEQ	Meeting	RACER Lansing Conceptual Site Model (CSM) Review	Meeting to discuss CSM related to 1,4-Dioxane investigation/treatment.	Meeting

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November 22, 2013	MDEQ	RACER	Email	Work Plan - Delineation of Excavation Areas at Plant 6	MDEQ approval of the Delineation of Excavation Areas Work Plan. Approval via email dated	Approval
January 15, 2014	Arcadis	MDEQ and RACER	Email with file attached	4th Quarter 2013 Quarterly Progress Report	Submitted 4Q13 Quarterly Progress Report to MDEQ.	Submittal
February 7, 2014	Arcadis	MDEQ	Email	RACER Lansing PFM - Transducer Study Work Plan	Submittal of PFM-Transducer study Work Plan to MDEQ.	Request for Approval
February 13, 2014	MDEQ	Arcadis	Email	RE: RACER Lansing PFM - Transducer Study Work Plan	Approval of the PFM/Transducer Study Work Plan as described in the 2/7/2014 email.	Approval
February 26, 2014	Arcadis	MDEQ	Email	Supplemental Phase 2 Activities Summary Report	Submittal of RFI Phase 2 Supplemental Report, dated 1/28/2014.	Submittal
February 27, 2014	Arcadis	MDEQ	Email	RACER - Summary of simulation on the elution of 2-proponal in groundwater from the PFMs	Submittal of PFM simulation summary related to potential elution of 2-propanol into the groundwater from a PFM.	General Correspondence
March 3, 2014	Arcadis	MDEQ	Email	RE: RACER PFM study - pfm_sim_MODFLOW.zip	Correspondence over the PFM study regarding no groundwater discharge permit will be required for their use as proposed in Arcadis's email or 2/7/2014. Arcadis will begin the PFM installation tomorrow, 3/4/2014.	General Correspondence
March 3, 2014	MDEQ	Arcadis	Email	RE: RACER PMF study - pfm_sim_MODFLOW.zip	MDEQ approves the PFM Study after running several simulations and indicates that no groundwater discharge permit will be required for their use as proposed in the PFM study.	Approval
March 17, 2014	Arcadis	MDEQ	Email	RE: FW: Potential Issue with 1,4-Dioxane Sampling	MDEQ internal meme/correspondence related to potential issues with 1,4-Dioxane sampling using alconox/liquinox/dawn as a decontamination	General Correspondence
April 11, 2014	Arcadis	MDEQ	Email	1st Quarter 2014 Quarterly Progress Report	Submittal of First Quarter 2014 Quarterly Progress Report to MDEQ.	Submittal
April 24, 2014	Arcadis	MDEQ	Hard Copy	Preliminary Groundwater Geochemical and Plume Stability Assessment	Submittal of Preliminary Groundwater Geochemical and Plume Stability assessment to MDEQ.	Submittal
May 20, 2014	Arcadis	Booze, Allen and Hamilton	Email	RACER Lansing Sites Follow-up	Response to questions from BAH related to Plant 6 Targeted Excavation Delineation Work Plan.	Correspondence

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ARCADIS

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May 20, 2014	Arcadis	RACER	Email	2014 Budget Amendment No. 1 for Plants 2 & 3 submitted to RACER	2014 Budget Amendment No. 1 for Plants 2 & 3 submitted to RACER.	Submittal
May 20, 2014	Arcadis	MDEQ	Email	RACER Lansing - Draft Storm water Management Plan	Submitted DRAFT RACER Trust Storm Water Evaluation Report to MDEQ. Report prepared by ENG dated 4-28-14.	Submittal
May 22, 2014	RACER	MDEQ	Email	RACER submits 2014 Budget Amendment No. 1 to MDEQ	RACER submits 2014 BA No. 1 to MDEQ.	Submittal
May 23, 2014	Arcadis	MDEQ	Email	RACER Lansing - Revised Interim Groundwater Monitoring Plan	Submitted Revised Interim Groundwater Monitoring Plan, dated 5/23/14, to MDEQ.	Submittal
June 2, 2014	MDEQ	RACER	Email	MDEQ approval of 2014 Budget Amendment No. 1	MDEQ approval of 2014 BA No. 1.	Approval
June 3, 2014	Arcadis	MDEQ	Hard Copy	RACER Lansing PFM - Transducer Summary Memo 06-14	Submittal of Passive Flux Meter and Transducer Study Summary for Racer Trust Plants 2, 3, and 6, Lansing Michigan to MDEQ.	Submittal
June 3, 2014	Arcadis	MDEQ	Email	RACER Lansing - Pressure Transducer and Passive Flux Meter Study Summary Memo	Submitted PFM - Transducer Summary Memo to MDEQ for review.	Submittal
June 4, 2014	Arcadis	MDEQ	Hard Copy	RCRA Corrective Measures Study	Submittal of Draft RCRA Corrective Measures Study to MDEQ.	Submittal
June 4, 2014	MDEQ	Arcadis	Email	Additional Site Drawings	Additional site drawings provided by MDEQ requesting response to two areas represented on figures. One at Plant 2 and one at Plant 3.	Comments
June 11, 2014	MDEQ	RACER	Email	Comments on Groundwater Geotechnical and Plume Stability Assessment and Interim Monitoring Plan	Comments on Groundwater Geotechnical and Plume Stability Assessment and Interim Monitoring Plan.	Comments
June 17, 2014	Arcadis	MDEQ	Email	Proposed Work Plan for Additional AOIs Investigation	Work Plan to investigate additional AOIs per MDEQ figures presented on June 4, 2014.	Request for Approval
June 24, 2014	Arcadis	MDEQ	Memo via email	Area 16 Metals Summary Memo	Summary of investigation activities completed at Area 16.	Submittal
June 24, 2014	Arcadis	MDEQ	Email	1,4-Dioxane Source Investigation Work Plan	Submitted 1,4-Dioxane Source Investigation Work Plan to MDEQ for review.	Request for Approval
July 2, 2014	MDEQ	Arcadis	Email	1,4-Dioxane Source Investigation Work Plan	Approval from MDEQ on 1,4-Dioxane Source Investigation Work Plan.	Approval
July 10, 2014	Arcadis	MDEQ	Email	2nd Quarter 2014 Progress Report	Submittal of Second Quarter 2014 Progress Report to MDEQ.	Submittal

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
July 24, 2014	Arcadis	MDEQ	Memo	Additional AOIs Investigation	Submitted Additional AOIs Investigation Summary to MDEQ for review.	Request for Approval
July 28, 2014	MDEQ	Arcadis	Email	Additional AOIs Investigation	Concurs with findings of July 24 AOI Investigation Summary memo.	Approval
August 6, 2014	Arcadis	MDEQ	Email	CMS Pre-Design Lower 1,4-Dioxane Extraction and Injection Testing Work Plan	Submitted CMS Pre-Design Lower 1,4-Dioxane Extraction and Injection Testing Work Plan to MDEQ for review.	Request for Approval
August 8, 2014	Arcadis	MDEQ	Email	Revised 2014 Interim Groundwater Monitoring Work Plan	Revised 2014 Interim Groundwater Monitoring Work Plan per MDEQ comments.	Submittal
August 8, 2014	Arcadis	MDEQ	Email	RCRA RFI Investigation Summary Report	Submitted RFI Summary Report. This report ties all previous investigation reports together.	Submittal
August 8, 2014	Arcadis	MDEQ	Email	Expanded Discussion for the Geochem & Plume Stability Report	Questions to MDEQ related to content of revised report and how they would prefer revision to be submitted.	Inquiry
August 21, 2014	MDEQ	Arcadis	Email	CMS Pre-Design Lower 1,4-Dioxane Extraction and Injection Testing Work Plan	Approval from MDEQ on CMS Pre-Design Lower 1,4-Dioxane Extraction and Injection Testing Work Plan.	Approval
September 16, 2014	Arcadis	MDEQ	Email	2nd Quarter 2014 Groundwater Monitoring Summary	Submitted 2nd Quarter 2014 Groundwater Monitoring Report.	Submittal
September 17, 2014	Arcadis	MDEQ	Email	Revised Geochemical and Plume Stability Assessment	Submitted the Geochemical and Plume Stability Assessment with revisions to the figures for clarity.	Submittal
September 18, 2014	MDEQ	RACER	Letter	Request for Expedited Approval of Corrective Measure Components	Approval of surface cover retention to prevent infiltration.	Approval
October 15, 2014	Arcadis	MDEQ	Email	3rd Quarter 2014 Progress Report	Submittal of Third Quarter 2014 Progress Report to MDEQ.	Submittal
October 15, 2014	MDEQ	RACER	Letter	Preliminary Groundwater Geochemical and Plume Stability Assessment	Approval of the Preliminary Groundwater Geochemical and Plume Stability Assessment.	Approval
November 10, 2014	Arcadis	RACER and MDEQ	Email	2015 EA Annual Budget Request	Submitted final 2015 Annual Budget Request to RACER and MDEQ on 11/10/14.	Request for Approval
November 18, 2014	Arcadis	MDEQ	Email	Plant 2 LNAPL Scope of Work	Submittal of Work Plan to install 2 wells to monitor the deeper LNAPL in Area 5-2.	Request for Approval
November 19, 2014	MDEQ	Arcadis	Email	Plant 2 LNAPL Scope of Work	Approval of Work Plan to install 2 wells to monitor the deeper LNAPL in Area 5-2.	Approval

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
November 25, 2014	MDEQ	RACER and Arcadis	Email	2015 EA Annual Budget Request	RACER and MDEQ approved (signed) the 2015 Annual Budget request on 11/10/14 and 11/25/14, respectively.	Approval
January 15, 2015	Arcadis	MDEQ	Email	4th Quarter 2014 Progress Report	Submittal of Fourth Quarter 2014 Progress Report to MDEQ.	Submittal
January 22, 2015	Arcadis	MDEQ	Email	Bio-Trap Deployment Summary	Submittal of Bio-Trap Work Plan.	Request for Approval
January 23, 2015	MDEQ	Arcadis	Email	Bio-Trap Deployment Summary	Approval of Bio-Trap Work Plan.	Approval
February 3, 2015	MDEQ	Arcadis	Email	Groundwater Discharge Requirements For Tracer Testing	Determination of approval of injection materials for tracer study - 2-6 weeks for approval.	Response to Inquiry
February 4, 2015	Arcadis	MDEQ	Hard Copy	Area 16 Soil Risk Evaluation, RACER Plant 3, Lansing, Michigan	Submittal of Area 16 Soil Risk Evaluation, RACER Plant 3, Lansing, Michigan.	Submittal
March 4, 2015	Arcadis	MDEQ	Hard Copy	2015 LNAPL Removal Work Plan	Submittal of LNAPL Removal Work Plan.	Request for Approval
March 12, 2015	RACER	MDEQ	Email	RACER Lansing Plants 2&3 Draft 2015 Budget Amendment No. 1	Budget amendment submittal.	Submittal
March 12, 2015	Arcadis	MDEQ	Hard Copy	Approval Request: Lower 1,4-Dioxane Trace Study and In-Situ Chemical Oxidation (ISCO) Injection Pilot Test	Submittal of Approval Request: Lower 1,4-Dioxane Trace Study and In-Situ Chemical Oxidation (ISCO) Injection Pilot Test.	Request for Approval
March 13, 2015	Arcadis	MDEQ	Email	Tracer/ISCO Pilot Request for Approval	Submittal of Tracer/ISCO Pilot Work Plan.	Request for Approval
March 30, 2015	MDEQ	Arcadis	Email	Tracer/ISCO Pilot Request for Approval	Approval of Tracer/ISCO Pilot Work Plan.	Approval
March 30, 2015	Arcadis	MDEQ	Email	Plant 2 LNAPL Transmissivity and Recovery Evaluation	Submittal of Plant 2 LNAPL Transmissivity and Recovery Evaluation.	Submittal
April 14, 2015	MDEQ	RACER	Email	RACER Lansing Plants 2&3 Draft 2015 Budget Amendment No. 1	Budget amendment approval.	Approval
April 15, 2015	Arcadis	MDEQ	Email	1st Quarter 2015 Progress Report	Submittal of 1st Quarter 2015 Progress Report to MDEQ.	Submittal
May 1, 2015	Arcadis	MDEQ	Email	Lower 1,4-Dioxane Source Wells	Correspondence regarding the need for additional weathered bedrock wells.	Clarification of Scope
May 1, 2015	Arcadis	MDEQ	Hard Copy	Area 16 Evaluation of Nickel in Groundwater, RACER Plant 3, Lansing, Michigan	Submittal of Area 16 Evaluation of Nickel in Groundwater, RACER Plant 3, Lansing, Michigan.	Submittal
May 5, 2015	MDEQ	Arcadis	Email	Lower 1,4-Dioxane Source Wells	Comments requesting an additional weathered bedrock monitoring well to the north.	Clarification of Scope

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
May 13, 2015	Arcadis	MDEQ	Email	Lower 1,4-Dioxane Source Wells	Response to comments requesting additional weathered bedrock well.	Response to Comments
May 26, 2015	Arcadis	MDEQ	Email	Plant 2 LNAPL Recovery Plan	Follow up on approval of the LNAPL recovery Work Plan for deep LNAPL in Area 5.2.	Inquiry of Approval
May 26, 2015	MDEQ	Arcadis	Email	Plant 2 LNAPL Recovery Plan	Approval of the LNAPL recovery Work Plan for deep LNAPL in Area 5.2.	Approval
June 15, 2015	Arcadis	MDEQ	Email	2nd Quarter 2015 Progress Report	Submittal of 2nd Quarter 2015 Progress Report to MDEQ.	Submittal
June 26, 2015	Arcadis	MDEQ	Hard Copy	2014-2015 Annual Groundwater Monitoring Report. RACER Trust Plants 2, 3, and 6, Lansing, Michigan	Submittal of 2014-2015 Annual Groundwater Monitoring Report.	Submittal
July 21,2015	Arcadis	MDEQ	Email	RACER Lansing Isotope Sampling	Summary of Work Plan for CSIA sampling and discussion of verbal approval to proceed from MDEQ.	Submittal and Approval
July 29, 2015	Arcadis	MDEQ	Email	RACER Lansing - Revised IGMP	Submittal of revised version of the Interim Groundwater Monitoring Plan (IGMP) sampling matrix.	Submittal
August 18, 2015	MDEQ	Arcadis	Email	RACER Lansing - Revised IGMP	Approval of proposed matrix and reduced frequency of monitoring for stable wells.	Approval
September 1, 2015	MDEQ	Arcadis	Email	RACER Lansing - Plant 2 LNAPL T and Recovery Evaluation	Approval of Plant 2 LNAPL transmissivity and recovery plans.	Approval
October 20, 2015	Arcadis	MDEQ	Hard Copy	Compound Specific Isotope Analysis Results	Submittal of Compound Specific Isotope Analysis Results.	Submittal
October 27, 2015	Arcadis	MDEQ	Email	3rd Quarter 2015 Progress Report	Submittal of 3rd Quarter 2015 Progress Report to MDEQ.	Submittal
November 5, 2015	Arcadis	MDEQ	Email	RACER Lansing - Lower 1,4-D Toe Investigation Work Plan	Submittal of Lower 1,4-D TOE Work Plan.	Request for Approval

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
November 19, 2015	Arcadis	MDEQ	Hard Copy	RACER Lansing - Lower 1,4-D Toe Investigation Work Plan - Revised	Submittal of Lower 1,4-Dioxane Toe Investigation Work Plan.	Request for Approval
November 30, 2015	Arcadis	MDEQ	Email	RACER Lansing 2016 EA Budget Request	Submittal of 2016 EA Budget Request to MDEQ.	Request for Approval
January 15, 2016	MDEQ	Arcadis	Email	RACER Lansing 2016 EA Budget Request	MDEQ approval of 2016 EA Budget Request.	Approval
January 28, 2016	Arcadis	MDEQ	Email	4th Quarter 2015 Progress Report	Submittal of 4th Quarter 2015 Progress Report to MDEQ.	Submittal
March 11, 2016	Arcadis	MDEQ	Hard Copy	Lower 1,4-Dioxane Plume TOE Investigation	Submittal of Lower 1,4-Dioxane Plume TOE Investigation Summary.	Submittal
April 15, 2016	Arcadis	MDEQ	Email	1st Quarter 2016 Progress Report	Submittal of 1st Quarter 2016 Progress Report to MDEQ.	Submittal
April 22, 2016	Arcadis	MDEQ	Email	RACER Lansing - Revised Supplemental Lower 1,4-d Work Plan	Submittal of Revised Supplemental Lower 1,4-d Work Plan.	Request for Approval
April 24, 2016	Arcadis	MDEQ	Email	RACER Lansing - No-Purge Pilot Testing Locations	Submittal of No-Purge Pilot Testing Locations.	Request for Approval
April 29, 2016	MDEQ	Arcadis	Email	RACER Lansing - No-Purge Pilot Testing Locations	Approval of No-Purge Pilot Testing Locations.	Approval
April 29, 2016	MDEQ	Arcadis	Email	RACER Lansing - Revised Supplemental Lower 1,4-d Work Plan	Approval of the Revised Supplemental Lower 1,4-d Work Plan.	Approval
May 20, 2016	Arcadis	MDEQ	Hard Copy	Approval Request: Lower 1,4-Dioxane Propane Biosparge Pilot Test; Plants 2 and 3, Lansing, Michigan	Submittal of Approval Request: Lower 1,4-Dioxane Propane Biosparge Pilot Test.	Request for Approval
May 20, 2016	Arcadis	MDEQ	Email	Approval Request: Lower 1,4-Dioxane Bioreactor Pilot Test	Submittal of Approval Request: Lower 1,4-Dioxane Bioreactor Pilot Test.	Request for Approval
June 13, 2016	MDEQ	Arcadis	Hard Copy - Letter	Approval of the Lower 1,4 Dioxane Propane Biosparge Pilot Test and Bioreactor Pilot Test; RACER Trust; Lansing Plants 2 and 3; MID 980 700	Approval of the Lower 1,4-Dioxane Biosparge and Bioreactor Pilot Tests.	Approval
June 28, 2016	Arcadis	MDEQ	Hard Copy	2015-2016 Annual Groundwater Monitoring Report	Submittal of 2015-2016 Annual Groundwater Monitoring Report.	Submittal
July 13, 2016	Arcadis	MDEQ	Email	2nd Quarter 2016 Progress Report	Submittal of 2nd Quarter 2016 Progress Report to MDEQ.	Submittal

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
August 2, 2016	MDEQ	RACER	Hard Copy - Letter	Acceptance of 2015-2016 Annual Groundwater Monitoring Report	Response to submittal of 2015-2016 Annual Groundwater Monitoring Report.	Confirmation/Acceptance
September 22, 2016	Arcadis	MDEQ	Hard Copy	Supplemental Lower 1,4-Dioxane Plume Toe Investigation	Submittal of Supplemental Lower 1,4-Dioxane Plume Toe Investigation Summary.	Submittal
October 11, 2016	Arcadis	MDEQ	Email	3rd Quarter 2016 Progress Report	Submittal of 3rd Quarter 2016 Progress Report to MDEQ.	Submittal
October 13, 2016	Arcadis	MDEQ	Email	RACER Lansing - Northeast Lob Delineation	Submittal of the Northeast Lob Delineation.	Request for Approval
October 25, 2016	Arcadis	MDEQ	Email	RACER Lansing 2017 EA Budget Request	Submittal of 2017 EA Budget Request to MDEQ.	Request for Approval
October 31, 2016	Arcadis	MDEQ	Email	RACER Lansing - Northeast Lob Delineation - REVISED 10/31/16	Submittal of the Revised Northeast Lob Delineation.	Request for Approval
November 11, 2016	Arcadis	MDEQ	Email	RACER Lansing - PFAS Sampling Plan	Submittal of the PFAS Sampling Plan.	Request for Approval
November 15, 2016	MDEQ	Arcadis	Email	RACER Lansing - PFAS Sampling Plan	Approval of the PFAS Sampling Plan.	Approval
November 15, 2016	MDEQ	Arcadis	Email	Adams Plating Preliminary PFC data and evaluation	Copy of analytical table summarizing PFAS sampling at APC Facility.	Information Request
November 17, 2016	Arcadis	MDEQ	Email	RACER Lansing - Geochemical Sampling	Submittal of proposed Geochemical Sampling for 4th quarter sampling event.	Submittal
November 21, 2016	MDEQ	Arcadis	Email	RACER Lansing - Northeast Lob Delineation - REVISED 10/31/16	Approval of the Revised Northeast Lob Delineation.	Approval
December 15, 2016	MDEQ	Arcadis	Email	RACER Lansing 2017 EA Budget Request	MDEQ approval of 2017 EA Budget Request.	Approval
January 10, 2017	Arcadis	MDEQ	Email	RACER Lansing 3rd 2016 Quarter Report	Submittal of the Third Quarter 2016 Groundwater Monitoring Report.	Submittal
January 13, 2017	Arcadis	MDEQ	Email	4th Quarter 2016 Progress Report	Submittal of 4th Quarter 2016 Progress Report to MDEQ.	Submittal
January 30, 2017	Arcadis	MDEQ	Email	RACER Lansing - Revised Interim GW Monitoring Work Plan	Submittal of Revised Interim Groundwater Monitoring Work Plan.	Request for Approval
February 3, 2017	Arcadis	MDEQ	Hard Copy	Lower 1,4-Dioxane Plume Northeast Lobe Investigation	Submittal of the Lower 1,4-Dioxane Plume Northeast Lobe Investigation Report.	Submittal

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Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
February 3, 2017	Arcadis	MDEQ	Email	Southern Plant 6 Off-Site Metals	Summary of off-site metals occurrence as it relates to the conceptual site model.	Submittal
February 15, 2017	MDEQ	Arcadis	Hard Copy - Letter	Approval of Revised Interim Groundwater Monitoring Work Plan; RACER Trust Lansing Plant 2 & 3	Approval of Revised Interim Groundwater Monitoring Work Plan.	Approval
February 24, 2017	MDEQ	Arcadis	Email	Southern Plant 6 Off-Site Metals	Concurrence that off-site metals occurrence is not related to former Site operations.	Approval
March 20, 2017	Arcadis	MDEQ	Email	RACER Lansing Supplemental 1,4-Dioxane Sampling	Submittal of Additional Investigation Figures for 1,4-D Sampling Activities.	Request for Approval
March 21, 2017	MDEQ	Arcadis	Email	RACER Lansing Supplemental 1,4-Dioxane Sampling	Submittal of Additional Investigation Figures for 1,4-D Sampling Activities.	Approval
March 24, 2017	Arcadis	MDEQ	Email	RACER Lansing - Second Quarter 2017 Investigation Work Plan	Submittal of Second Quarter 2017 Investigation Work Plan.	Request for Approval
March 31, 2017	Arcadis	MDEQ	Email	2nd Quarter Work Plan Modifications/Response to Comments	Submittal of the 2nd Quarter Investigation Work Plan Modifications/Response to Comments.	Request for Approval
April 4, 2017	MDEQ	Arcadis	Email	2nd Quarter Work Plan Modifications/Response to Comments	Questions Regarding Response to Comments.	Inquiry
April 6, 2017	Arcadis	MDEQ	Email	2nd Quarter Work Plan Modifications/Response to Comments	Amended Work Plan per MDEQ Comments.	Request for Approval
April 6, 2017	MDEQ	Arcadis	Email	2nd Quarter Work Plan Modifications/Response to Comments	Approval of the 2nd Quarter Work Plan Modifications.	Approval
April 14, 2017	Arcadis	MDEQ	Email	1st Quarter 2017 Progress Report	Submittal of 1st Quarter 2017 Progress Report to MDEQ.	Submittal
May 5, 2017	Arcadis	MDEQ	Hard Copy	2016 Annual Groundwater Monitoring Report	Submittal of 2016 Annual Groundwater Monitoring Report.	Submittal
May 31, 2017	Arcadis	MDEQ	Hard Copy	Bioreactor Pilot Study Summary Slides and Attachments	Submittal of Bioreactor Pilot Study Summary Slides and Attachments.	Submittal
July 3, 2017	Arcadis	MDEQ	Email	RACER Lansing Plant 2 LNAPL Area 1,4-Dioxane Investigation Summary	Submittal of Plant 2 LNAPL Area 1,4-Dioxane Investigation Summary Report.	Submittal
July 17, 2017	Arcadis	MDEQ	Email	2nd Quarter 2017 Progress Report	Submittal of 2nd Quarter 2017 Progress Report to MDEQ.	Submittal

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Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
July 31, 2017	RACER	MDEQ/Arcadis	Email	Lansing Plants 2 & 3 Draft 2017 Budget Amendment Request No. 1	Submittal of Lansing Plants 2 & 3 Draft 2017 Budget Amendment Request No. 1.	Submittal
August 9, 2017	Arcadis	MDEQ	Hard Copy	PFAS Investigation Work Plan	Submittal of PFAS Investigation Work Plan.	Submittal
August 11, 2017	MDEQ	RACER/Arcadis	Email	Lansing Plants 2 & 3 Draft 2017 Budget Amendment Request No. 1	Approval of Lansing Plants 2 & 3 Draft 2017 Budget Amendment Request No. 1.	Approval
September 1, 2017	Arcadis	MDEQ	Hard Copy	2017 Semi-Annual Groundwater Monitoring Report; RACER Lansing - Plants 2, 3, and 6, Lansing, Michigan	Submittal of 2017 Semi-Annual Groundwater Monitoring Report.	Submittal
September 21, 2017	Arcadis	MDEQ	Email	RACER Lansing Update Meeting Slides	Submittal of slides from the September 15, 2017 MDEQ Update Meeting.	Submittal
September 28, 2017	Arcadis	MDEQ	Email	RACER Lansing - Plant 3 PFAS Additional Work	Submittal of the Plant 3 PFAS Additional Delineation Work Plan.	Request for Approval
September 29, 2017	Arcadis	MDEQ	Hard Copy	Approval Request: Lower 1,4-Dioxane Biosparge Pre-Design Study	Submittal of Approval Request: Lower 1,4-Dioxane Biosparge Pre-Design Study.	Request for Approval
October 2, 2017	Arcadis	MDEQ	Email	RACER Lansing - Plant 6 Soil Corrective Measures Work Plan	Submittal of the Plant 6 Soil Corrective Measures Work Plan - Replaced the Exposure Barrier Work Plan (March 30, 2017) and the Revised Exposure Barrier Work Plan (July 28, 2017).	Request for Approval
October 9, 2017	Arcadis	MDEQ	Email	3rd Quarter 2017 Progress Report	Submittal of 3rd Quarter 2017 Progress Report to MDEQ.	Submittal
October 10, 2017	Arcadis	MDEQ	Email	RACER Lansing - Plant 2 LNAPL Mobility and Composition Summary	Submittal of summary of LNAPL data for Plant 2.	Submittal
October 12, 2017	Arcadis	MDEQ	Email	RACER Lansing - Update Additional PFAS Investigation	Submittal of Revised Scope for Additional PFAS Investigation.	Request for Approval
October 26, 2017	Arcadis	MDEQ	Email	RACER Lansing Pre-Design Biosparge Test Follow Up	Request for update on the Pre-design Biosparge Test.	Request for update on approval
October 26, 2017	MDEQ	Arcadis	Email	RACER Lansing Pre-Design Biosparge Test Follow Up	Update regarding review on the Pre-Design Biosparge Test.	Update on potential Approval
November 7, 2017	Arcadis	MDEQ	Email	RACER Lansing Pre-Design Biosparge Test Follow Up	Request for update on the Pre-design Biosparge Test approval.	Request for update on approval
November 7, 2017	MDEQ	Arcadis	Email	RACER Lansing Pre-Design Biosparge Test Follow Up	Comments to Pre-Design Biosparge Test.	Comments
November 8, 2017	Arcadis	MDEQ	Email	RACER Lansing Pre-Design Biosparge Test Follow Up	Arcadis addresses MDEQ comments to Pre-Design Biosparge Test.	Address Comments

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
November 9, 2017	MDEQ	Arcadis	Email	RACER Lansing Pre-Design Biosparge Test Follow Up	Approval of Pre-Design Biosparge Test.	Approval
December 21, 2017	Arcadis	MDEQ	Email	Lansing Plants 2 & 3 2018 EA Budget Request	Submittal of Lansing Plants 2 & 3 2018 Budget Request.	Submittal
January 18, 2018	MDEQ	Arcadis	Email	Lansing Plants 2 & 3 2018 EA Budget Request	MDEQ Approval of Lansing Plants 2 & 3 2018 Budget Request.	Approval
January 16, 2018	Arcadis	MDEQ	Email	4th Quarter 2017 Progress Report	Submittal of 4th Quarter 2017 Progress Report to MDEQ.	Submittal
February 14, 2018	Arcadis	MDEQ	Email	Response to Comments - 2013 RFI Pathways Analysis	Acknowledges and provided a response to the MDEQ comments regarding the pathway analysis completed as part of the RFI.	Response to Comment
February 15, 2018	Arcadis	MDEQ	Email	RACER Lansing PFAS Off-Site Investigation Work Plan	Work plan for off-site investigation for PFAS in City of Lansing Park east of Plant 3.	Request for Approval
March 7, 2018	Arcadis	MDEQ	Email	RACER Lansing Revised PFAS Off-Site Investigation Work Plan	Work plan for off-site investigation for PFAS in City of Lansing Park east of Plant 3 - revised per MDEQ Comments.	Request for Approval
March 8, 2018	Arcadis	MDEQ	Email	RACER Lansing - Plant 2 LNAPL Composition Summary	Submittal of Plant 2 LNAPL composition data collection to date.	Submittal
March 21, 2018	Arcadis	MDEQ	Email	RACER Lansing Natural Source Zone Depletion Evaluation Work Plan	Work plan for NSZD Evaluation for Plant 2.	Request for Approval
April 17, 2018	Arcadis	MDEQ	Email	1st Quarter 2018 Progress Report	Submittal of 1st Quarter 2018 Progress Report to MDEQ.	Submittal
April 19, 2018	Arcadis	MDEQ	Email	RACER Lansing Interim Measures Work Plan: Plant 3 Storm Sewer Modifications	Work plan for storm sewer modifications at Plant 3.	Request for Approval
April 25, 2018	Arcadis	MDEQ	Email	RACER Lansing - Proposed PFAS Sampling Plant 2 & 6	Additional sampling for PFAS at Plants 2 & 6.	Request for Approval
April 27, 2018	MDEQ	Arcadis	Email	RACER Lansing - Proposed PFAS Sampling Plant 2 & 8	Comments provided on the work plan for additional sampling for PFAS at Plants 2 & 6.	Comments
April 30, 2018	MDEQ	Arcadis	Email	RACER Lansing Interim Measures Work Plan: Plant 3 Storm Sewer Modifications	Comments from MDEQ on work plan for storm sewer modifications at Plant 3.	Comments
May 10, 2018	Arcadis	MDEQ	Hard Copy	2017 RACER Lansing Annual Groundwater Report	Submittal of 2017 Annual Groundwater Report.	Submittal

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

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
May 10, 2018	MDEQ	Arcadis	Email	Approval of RACER Lansing Revised PFAS Off-Site Investigation Work Plan	Approval of PFAS Off-Site Investigation Work Plan.	Approval
May 16, 2018	MDEQ	Arcadis	Email	RACER Lansing Natural Source Zone Depletion Evaluation Work Plan	Approval of NSZD Evaluation for Plant 2.	Approval
May 24, 2018	MDEQ	Arcadis	Hard Copy	MDEQ Approval of Soil Corrective Measures Work Plan - Plant 6	EGLE approval of submitted corrective measures work plan for Plant 6.	Approval
May 24, 2018	Arcadis	MDEQ	Email	RACER Lansing Interim Measures Work Plan: Plant 3 Storm Sewer Modifications - Revised	Address MDEQ comments on work plan for storm sewer modifications at Plant 3.	Address Comments
June 1, 2018	MDEQ	Arcadis	Hard Copy	Approval of RACER Lansing Interim Measures Work Plan for Plant 3 Storm Sewer Modifications	Approval of work plan for storm sewer modifications at Plant 3.	Approval
June 21, 2018	Arcadis	MDEQ	Email	RACER Lansing Request for Site Specific Volatilization to Indoor Air	Request to MDEQ to obtain Site Specific Volatilization to Indoor Air Criteria for the Site.	Submittal
July 16, 2018	Arcadis	MDEQ	Email	2nd Quarter 2018 Progress Report	Submittal of 2nd Quarter 2018 Progress Report to MDEQ.	Submittal
August 3, 2018	Arcadis	MDEQ	Email	RACER Lansing - Water Well Search Summary Memo	Submittal of memo summarizing the water well search results for wells near to RACER Lansing	Submittal
August 15, 2018	MDEQ	Arcadis/RACER	Email	RACER Lansing Provision of Site Specific Volatilization to Indoor Air	MDEQ provided the requested Site Specific Volatilization to Indoor Air Criteria for the Site.	Submittal
September 13, 2018	Arcadis	MDEQ	Email	RACER Lansing - Plants 2 & 6 Monitoring Well PFAS Results	Submittal of memo describing the Plant 2 & 6 PFAS monitoring well sampling results.	Submittal
September 17, 2018	Arcadis	MDEQ	Email	RACER Lansing PFAS Investigation Work Plan - Plant 6	Work plan to complete PFAS investigation at Plant 6 and offsite.	Request for Approval
September 21, 2018	MDEQ	Arcadis	Email	Comments to PFAS Investigation Work Plan - Plant 6	Comments on RACER Lansing PFAS Investigation Work Plan for Plant 6 and offsite.	Comments
October 5, 2018	Arcadis	MDEQ	Email	RACER Lansing Plant 2 LNAPL PFAS Sampling Work Plan	Work plan to complete PFAS analysis of LNAPL at Plant 2.	Request for Approval
October 10, 2018	Arcadis	MDEQ	Email	RACER Lansing PFAS Investigation Work Plan - Plant 6 Revised	Revised work plan per MDEQ comments for Plant 6 and offsite PFAS investigation.	Address Comments
October 15, 2018	MDEQ	Arcadis	Email	Approval of RACER Lansing PFAS Investigation Work Plan - Plant 6	Approval of revised work plan for Plant 6 and offsite PFAS investigation.	Approval

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Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

ARCADIS

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
October 16, 2018	Arcadis	MDEQ	Email	3rd Quarter 2018 Progress Report	Submittal of 3rd Quarter 2018 Progress Report to MDEQ.	Submittal
October 19, 2018	Arcadis	MDEQ	Hard Copy	RACER Lansing Interim Measures Work Plan: Lower 1,4-Dioxane Biosparge	Work plan outlining interim/final corrective measure to address the lower 1,4-Dioxane Plume using Biosparge technology.	Submittal
October 23, 2018	Arcadis	MDEQ	Email	RACER Lansing 2018 Semi-Annual Groundwater Sampling Report	Submittal of 2018 Semi-Annual Groundwater Sampling Report.	Submittal
October 26, 2018	Arcadis	MDEQ	Email	RACER Lansing PFAS Investigation Work Plan - Revised Figure	Submittal of corrected figures for the Plant 6 PFAS Investigation Work Plan.	Revision
November 2, 2018	Arcadis	MDEQ	Email	RACER Lansing - Plant 3 PFAS Summary Report	Summary of Plant 3 PFAS investigation completed at the Site.	Submittal
November 20, 2018	MDEQ	Arcadis	Email	Approval of RACER Lansing Plant 2 LNAPL PFAS Sampling Work Plan with Conditions	Approved the PFAS analysis of LNAPL at Plant 2 with conditions outlined in the email from MDEQ.	Approved with Conditions
December 2, 2018	Arcadis	MDEQ	Email	Lansing Plants 2 & 3 2019 EA Budget Request	Submittal of Lansing Plants 2 & 3 2019 Budget Request.	Submittal
January 15, 2019	Arcadis	MDEQ	Email	4th Quarter 2018 Progress Report	Submittal of 4th Quarter 2018 Progress Report to MDEQ.	Submittal
January 18, 2019	MDEQ	Arcadis	Email	Lansing Plants 2 & 3 2019 EA Budget Request	MDEQ Approval of Lansing Plants 2 & 3 2019 Budget Request.	Approval
January 25, 2019	Arcadis	MDEQ	Email	RACER Lansing Plant 3 Storm Sewer Modification Completion Report	Submittal of the summary of the Plant 3 storm sewer modifications completed.	Submittal
January 29, 2019	Arcadis	MDEQ	Email	RACER Lansing Plant 6 PFAS Investigation_Phase 1	Memo summarizing Phase 1 of the Plant 6 PFAS investigation activities.	Submittal
January 29, 2019	Arcadis	MDEQ	Email	RACER Lansing Plant 2 Storm Sewer Sampling	Memo summarizing the Plant 2 outfall sampling results.	Submittal
February 6, 2019	Arcadis	MDEQ	Email	RACER Lansing - Plant 3 Biosparge Move	Summary of biosparge move to Plant 3 and summarize initial installation process for the system.	Request for Approval
February 18, 2019	Arcadis	MDEQ	Email	RACER Lansing - Plant 6 PFAS Delineation_Phase 2	Scope of work outlining the second phase of PFAS investigation activities proposed for Plant 6.	Request for Approval
March 1, 2019	Arcadis	MDEQ	Email	RACER Lansing - Bedrock Monitoring Well Work Plan	Installation of bedrock monitoring wells for the west side of the Site.	Request for Approval
April 5, 2019	Arcadis	EGLE	Email	RACER Lansing - Vapor Intrusion (VI) Evaluation and Work Plan	VI evaluation and scope of work for further VI investigation activities for Plants 2, 3 & 6.	Request for Approval

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

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
April 15, 2019	Arcadis	EGLE	Email	1st Quarter 2019 Progress Report	Submittal of 1st Quarter 2019 Progress Report to MDEQ.	Submittal
May 16, 2019	Arcadis	EGLE	Email	RACER Lansing - 2018 Annual Report	Submittal of 2018 Annual Report to EGLE.	Submittal
May 17, 2019	Arcadis	EGLE	Email	RACER Lansing - Proposed IGMP Revisions Submittal	Submittal of proposed changes to IGMP for the Site to EGLE for approval.	Request for Approval
June 18, 2019	Arcadis	EGLE	Email	RACER Lansing - SE Plant 2 PFAS Investigation Work Plan	Work plan to identify potential sources of PFAS in the SE portion of Plant 2.	Request for Approval
June 21, 2019	Arcadis	EGLE	Email	RACER Lansing Plant 2 LNAPL-PFAS Evaluation	Memo describing the evaluation of the Plant 2 LNAPL as a potential source of PFAS.	Submittal
July 15, 2019	Arcadis	EGLE	Email	2nd Quarter 2019 Progress Report	Submittal of 2nd Quarter 2019 Progress Report to MDEQ.	Submittal
July 24, 2019	Arcadis	EGLE	Email	RACER Lansing - Plant 3 PFAS Summary Addendum	Submittal of an addendum to the Plant 3 PFAS Investigation Summary originally submitted on November 2, 2018.	Submittal
August 13, 2019	EGLE	Arcadis	Email	RACER Lansing - VI Evaluation and Work Plan	EGLE provided comments to the proposed VI Work Plan for Plants 2, 3 and 6.	Comments
August 14, 2019	EGLE	Arcadis	Email	RACER Lansing - Proposed IGMP Revisions Approval	Approval of the proposed revisions to the IGMP for the Site.	Approval
August 15, 2019	Arcadis	EGLE	Email	RACER Lansing Plant 2 NAPL Area NSZD Report	Summary of the Natural Source Zone Depletion (NSZD) evaluation for the Plant 2 LNAPL.	Submittal
September 3, 2019	Arcadis	EGLE	Email	RACER Lansing - Plant 6 PFAS Investigation Phase 2	Summary of the Plant 6 PFAS investigation Phase 2 results.	Submittal
October 1, 2019	Arcadis	EGLE	Email	RACER Lansing - MW-91-2 Abandonment Plan	Scope of work for abandonment of monitoring well MW-91-2.	Request for Approval

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
October 3, 2019	Arcadis	EGLE	Email	RACER Lansing - Revised VI Evaluation and Workplan per EGLE comments	Revised VI evaluation and scope of work for VI investigation activities for Plants 2, 3 and 6 per EGLE comments.	Request for Approval
October 14, 2019	Arcadis	EGLE	Email	RACER Lansing 2019 Semi-Annual Groundwater Monitoring Report	Submittal of the 2019 Semi-Annual Groundwater Monitoring Report summarizing groundwater sampling activities completed.	Submittal
October 15, 2019	Arcadis	EGLE	Email	3rd Quarter 2019 Progress Report	Submittal of 3rd Quarter 2019 Progress Report to MDEQ.	Submittal
October 18, 2019	EGLE	Arcadis	Email	Approval for discharge of water produced during bedrock drilling processes	EGLE approval for discharge of water produced during bedrock drilling processes to be discharged to the ground surface.	Approval
October 21, 2019	Arcadis	EGLE	Email	RACER Lansing - Plant 6 Storm Sewer Modification Work Plan	Work plan for completion of storm sewer modifications proposed for Plant 6.	Request for Approval
October 28, 2019	Arcadis	EGLE	Email	RACER Lansing - Revised Interim GW Monitoring Work Plan (IGMP)	Submittal of updated IGMP to EGLE for approval for ongoing routine groundwater monitoring at the Site.	Request for Approval
November 7, 2019	Arcadis/RACER	EGLE	Email	Lansing Plants 2020 Budget Request	Submittal of Lansing Plants 2020 Budget Request.	Submittal
December 12, 2019	Arcadis	EGLE	Email	RACER Lansing - Southeast Plant 2 PFAS Summary	Submittal of a summary of the activities related to PFAS investigations for the southeast portion of Plant 2.	Submittal
December 13, 2019	Arcadis	EGLE	Email	RACER Lansing - Plant 3 PFAS Monitoring Well Installation Memo	Summary of the additional well install completed at Plant 3 for PFAS investigation/delineation.	Submittal
January 9, 2020	EGLE	Arcadis	Email	RACER Lansing - Revised VI Evaluation and Workplan	EGLE approval of the Revised VI Evaluation and Work Plan for Plants 2, 3 and 6.	Approval
January 15, 2020	Arcadis	EGLE	Email	4th Quarter 2019 Progress Report	Submittal of 4th Quarter 2019 Progress Report to MDEQ.	Submittal
February 20, 2020	Arcadis	EGLE	Email	RACER Lansing Plant 2 LNAPL CSM_DRAFT	Submittal of the draft Plant 2 LNAPL Conceptual Site Model (CSM) which summarizes results for the LNAPL testing.	Submittal
March 26, 2020	Arcadis	EGLE	Email	RACER Lansing Plants 2 & 3 Soil Corrective Measures Work Plan	Scope of work for additional investigation to address soil impacts remaining at Plants 2 & 3 and requirements for caps.	Request for Approval
April 2, 2020	Arcadis	BWL/EGLE	Email	RACER Lansing - Deep Bedrock Well Update	Summary of the deep bedrock well sampling completed along the west boundary of the RACER Lansing Site.	Submittal

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
April 16, 2020	Arcadis	EGLE	Email	1st Quarter 2020 Progress Report	Submittal of 1st Quarter 2020 Progress Report to MDEQ.	Submittal
May 4, 2020	Arcadis	EGLE	Email	RACER Lansing - 2019 Annual Groundwater Monitoring Report	Submittal of Annual Report summarizing sampling completed in 2019 year.	Submittal
May 6, 2020	Arcadis	EGLE	Email	RACER Lansing - Vapor Intrusion Follow-up Workplan	Scope of work for additional VI investigation activities at RACER Lansing Plants 2 and 6.	Request for Approval
June 12, 2020	Arcadis	EGLE	Email	RACER Lansing - Plant 2 PFAS Workplan - Phase 2	Scope of work for additional PFAS investigation activities for the southeast portion of Plant 2.	Request for Approval
June 17, 2020	Arcadis	EGLE	Email	RACER Lansing Plant 3 Storm Sewer Outfall PFAS Mitigation Memo	Memo documenting RACER's efforts related to the 54-inch main north of RACER property.	Submittal
July 15, 2020	Arcadis	EGLE	Email	2nd Quarter 2020 Progress Report	Submittal of 2nd Quarter 2020 Progress Report to MDEQ.	Submittal
July 15, 2020	EGLE	Arcadis	Email	EGLE Approval for the Plant 2 PFAS Workplan - Phase 2	EGLE approved the scope of work for additional PFAS investigation activities for the southeast portion of Plant 2.	Approval
August 11, 2020	Arcadis	EGLE	Email	RACER Lansing - Biosparge Installation Data Package	Data package that includes the geologic and analytical data collected during the installation of the lower 1,4-dioxane biosparge system.	Submittal
September 3, 2020	EGLE	Arcadis	Meeting	RACER Lansing Plants 2 & 3 Soil Corrective Measures Work Plan	During meeting discussed EGLE comments to the RACER Lansing Plants 2 & 3 Soils Corrective Measures Work Plan and how to address them.	Comments
September 11, 2020	EGLE	Arcadis	Email	Comments regarding monitoring wells to be abandoned submitted in Revised	EGLE comments to 14 proposed wells to be abandoned in revised IGMP for site.	Comments
September 23, 2020	Arcadis	EGLE	Email	RACER Lansing Plants 2 & 3 Soil Corrective Measures Work Plan - Revised per EGLE Comments	Submittal of a revised RACER Lansing Plants 2 & 3 Soil Corrective Measures Work Plan for EGLE approval.	Request for Approval
October 1, 2020	Arcadis	EGLE	Email	RACER Lansing - 2020 Semi-Annual Groundwater Sampling Report	Submittal of 2020 Semi-Annual Groundwater Sampling Report summarizing groundwater sampling activities completed at the Site.	Submittal
October 6, 2020	Arcadis	EGLE	Email	RACER Lansing - Plant 6 Monitoring Well Installation Workplan	Scope of work for installation of perimeter monitoring wells at Plant 6 to monitor for PFAS.	Request for Approval

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
October 7, 2020	Arcadis	EGLE	Email	RACER Lansing Plants 2, 3, and 6 Sewer Modification Work Plan	Submittal of the Sewer Modification Work Plan for Plants 2, 3, and 6 and was a follow up to the sewer modifications that were documented in the Completion Report submitted on August 14, 2020.	Request for Approval
October 8, 2020	Arcadis	EGLE	Email	RACER Lansing - Plant 6 VI Investigation and Work Plan Memo	Summary of Plant 6 VI investigation results and work plan for further investigation activities at Plant	Request for Approval
October 15, 2020	Arcadis	EGLE	Email	3rd Quarter 2020 Progress Report	Submittal of 3rd Quarter 2020 Progress Report to MDEQ.	Submittal
October 16, 2020	Arcadis/RACER	EGLE	Email	Lansing Plants 2021 Budget Request	Submittal of Lansing Plants 2021 Budget Request.	Submittal
October 20, 2020	EGLE	Arcadis	Email	EGLE comments to Plant 6 VI Investigation and Work Plan Memo	Comments on scope of work for the Plant 6 additional VI investigation.	Comments
October 29, 2020	Arcadis	EGLE	Email	RACER Lansing - Plant 6 VI Investigation and Work Plan Memo	Revised per EGLE comments to complete additional scope of work for Plant 6 additional VI	Request for Approval
October 30, 2020	Arcadis	EGLE	Email	Response to comments regarding proposed monitoring wells to be abandoned in revised IGMP submitted to EGLE	Response to address comments presented by EGLE regarding monitoring wells to be abandoned in the revised IGMP submitted to EGLE for the Site.	Response to Comments
November 5, 2020	EGLE	Arcadis	Email	EGLE approval for RACER Lansing - Plant 6 VI Investigation and Work Plan Memo (REVISED)	EGLE approval for Plant 6 VI Investigation and Work Plan.	Approval
November 5, 2020	EGLE	Arcadis	Email	EGLE approval of monitoring wells proposed to be abandoned in revised IGMP submitted for the Site	EGLE approval to proceed with abandonment of select monitoring wells indicated in revised IGMP to be abandoned.	Approval
November 23, 2020	Arcadis	EGLE	Email	RACER Lansing - Plant 2 PFAS Investigation Summary Memo	Summary memo for the Plant 2 PFAS investigation which combines the results of the first phase (2019) and the second phase of work to provide a comprehensive summary.	Submittal
December 4, 2020	Arcadis	EGLE	Email	RACER Lansing Plants 2, 3, and 6 Sewer Modification Work Plan	EGLE comments to the Sewer Modification Work Plan.	Comments
December 10, 2020	EGLE	Arcadis	Email	RACER Lansing - 2020 Semi-Annual Groundwater Sampling Report_EGLE Comments	EGLE provided comments regarding the semi-annual report submitted for 2020.	Comments

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Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
January 6, 2021	Arcadis	EGLE and Stakeholders	Email	RACER Lansing - Lower 1,4-Dioxane CSM	Submittal summarizes the data that has been collected to date for the lower 1,4-dioxane plume and provides interpretation based on best available data and provides basis for the biosparge remedy	Submittal
January 15, 2021	Arcadis	EGLE	Email	4th Quarter 2020 Progress Report	Submittal of 4th Quarter 2020 Progress Report to MDEQ.	Submittal
January 20, 2021	Arcadis	EGLE	Email and Hard Copy	RACER Lansing - Biosparge Construction Completion Report	Summary report outlining the installation of the biosparge systems at RACER Lansing for Plant 2 and Plant 3.	Submittal
January 29, 2021	EGLE	Arcadis/RACER	Email	Lansing Plants 2021 Budget Request	EGLE Approval of Lansing Plants 2021 Budget Request.	Approval
February 9, 2021	Arcadis	EGLE	Email	RACER Lansing - Plants 2,3, & 6 VI Summary Report	Summary of the vapor intrusion evaluation completed for Plants 2, 3, & 6.	Submittal
March 9, 2021	Arcadis	EGLE	Email	RACER Lansing Monitoring Well Abandonment Memo	Memo summarizing the 2020 monitoring wells abandonment activities.	Submittal
March 9, 2021	EGLE	Arcadis	Email	EGLE approval for RACER Lansing Plants 2 & 3 Soil Corrective Measures Work Plan - Revised	EGLE letter indicating approval of the revised Plants 2 & 3 Soil Corrective Measures Work Plan that was revised per EGLE comments.	Approval
March 18, 2021	Arcadis	EGLE	Email and Hard Copy	RACER Lansing - Biosparge Update Report	Submittal of Biosparge Update Report summarizing the operation of the biosparge systems at Plants 2 and 3.	Submittal
March 18, 2021	EGLE	Arcadis	Email	EGLE approval for RACER Lansing Plants 2 & 3 Soil Corrective Measures Work Plan - Revised	EGLE letter indicating approval of the revised Plants 2 & 3 Soil Corrective Measures Work Plan that was revised per EGLE comments.	Approval
March 25, 2021	Arcadis	EGLE	Email	RACER Lansing Sewer Modification Completion Report	Summary of recent rounds of sewer modifications and monitoring for Plants 2, 3, and 6.	Submittal
April 13, 2021	Arcadis	EGLE	Email	RACER Lansing Plant 2 Vault Scope of Work	Scope of Work for the closure of the vault at Plant 2.	Request for Approval
April 15, 2021	Arcadis	EGLE	Email	1st Quarter 2021 Progress Report	Submittal of 1st Quarter 2021 Progress Report to EGLE and Stakeholders.	Submittal
May 6, 2021	Arcadis	EGLE	Email	RACER Lansing 2020 Annual Groundwater Monitoring Report	Submittal of 2020 Annual Groundwater Monitoring Report to EGLE and stakeholders.	Submittal

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
May 20, 2021	Arcadis	EGLE	Email	RACER Lansing Plant 6 PFAS Monitoring Well Installation and Off-Site VAP Delineation Work Plan	Submittal of report summarizing Plant 6 well installation and work plan for completion of off-site VAP locations for PFAS delineation near Plant 6.	Request for Approval
July 15, 2021	Arcadis	EGLE	Email	2nd Quarter 2021 Progress Report	Submittal of 2nd Quarter 2021 Progress Report to EGLE and Stakeholders.	Submittal
July 21, 2021	EGLE	Arcadis/RACER	Email	RACER Lansing Plant 2 Vault Scope of Work	Email approval for the Plant 2 Vault Scope of Work - conditional approval provided based on discussions - letter provided by EGLE on 10/27/21.	Approval
August 3, 2021	Arcadis	EGLE	Email	RACER Lansing - Plant 3 Monitoring Well Repair & Additional Monitoring Well Abandonment	Submittal of work plan to complete monitoring well repairs and abandonment of select monitoring wells at Plant 3.	Request for Approval
August 6, 2021	EGLE	Arcadis/RACER	Email	RACER Lansing Plant 6 PFAS Monitoring Well Installation and Off-Site VAP Delineation Work Plan	EGLE email approval of Plant 6 PFAS Off-Site VAP Delineation Work Plan.	Approval
August 11, 2021	Arcadis	EGLE	Email	RACER Lansing - 1,4-Dioxane Well Installation and Test Well Abandonment Work Plan	Submittal of work plan to install additional monitoring wells and to abandon select pilot test wells for the biosparge system at Plant 2.	Request for Approval
August 25, 2021	EGLE	Arcadis/RACER	Email Letter	Approval: Plant 6 PFAS Monitoring Well Installation Summary and Off-Site Investigation Work Plan	EGLE provided approval to the scope of work to complete off-site VAP work for PFAS delineation.	Approval
September 3, 2021	Arcadis	EGLE	Email	RACER Lansing Sewer Completion Update Report - Plants 2 and 6	Submittal of a summary for sewer modifications completed at Plants 2 and 6.	Submittal
October 4, 2021	Arcadis	EGLE	Email	Former Adams Plating RI Review and Select RACER Trust Data, PFAS and 1,4-Dioxane	Slide summary of relevant PFAS and 1,4-dioxane data included in the ch2m APC RI Report.	Submittal
October 6, 2021	Arcadis	EGLE	Email	RACER Lansing Proposed Storm Sewer Work - Plants 2, 3, and 6	Email work plan outlining proposed work for evaluation and to address PFAS in storm sewers onsite for plants 2, 3, and 6.	Request for Approval
October 7, 2021	EGLE	Arcadis/RACER	Email	RACER Lansing - Plant 3 Monitoring Well Repair & Additional Monitoring Well Abandonment	EGLE approval provided via email on 10/7/21 - email provided was a conditional approval based on discussed changes to the work plan.	Approval
October 7, 2021	EGLE	Arcadis/RACER	Email	RACER Lansing - 1,4-Dioxane Well Installation and Test Well Abandonment Work Plan	EGLE approval provided via email on 10/7/21 and in letter correspondence on 10/18/21 - email and letter provided were conditional approvals based on discussed changes to the work plan.	Approval

Table 1
Summary of Project Correspondence and Submittals
RACER Trust Plants 2, 3 and 6 - Lansing, Michigan

Date	Originator	Recipient(s)	Type of Correspondence	Subject	Subject Details	Purpose of Correspondence
October 14, 2021	Arcadis	EGLE	Email	RACER Lansing - Semi-Annual Groundwater Monitoring Report	Submittal of 2021 Semi-Annual Groundwater Monitoring Report to EGLE and Stakeholders.	Submittal
October 15, 2021	Arcadis	EGLE	Email	3rd Quarter 2021 Progress Report	Submittal of 3rd Quarter 2021 Progress Report to EGLE and Stakeholders.	Submittal
October 15, 2021	Arcadis/RACER	EGLE	Email	Lansing Plants 2022 Budget Request	Submittal of Lansing Plants 2022 Budget Request.	Submittal
October 18, 2021	EGLE	Arcadis/RACER	Email Letter	Conditional Approval: 1,4-Dioxane Monitoring Well Installation and Test Well Abandonment Work Plan	EGLE provided conditional approval to the work plan in an emailed letter. The conditions to the approval were outlined in the letter.	Approval
October 27, 2021	EGLE	Arcadis/RACER	Email Letter	Approval: Plant 2 Vault Scope of Work	EGLE provided approval to the scope of work to complete the abandonment of the subsurface vault located at Plant 2.	Approval
October 29, 2021	EGLE	Arcadis/RACER	Email	Approval: RACER Lansing Proposed Storm Sewer Work - Plants 2, 3, and 6	EGLE provided approval to the scope of work to complete storm sewer work at Plants 2, 3, and 6.	Approval
November 23, 2021	EGLE	Arcadis/RACER	Email	Approval of Lansing Plants 2022 Budget Request	Approval of 2022 Budget Request.	Approval
November 29, 2021	EGLE	Arcadis/RACER	Email Letter	Conditional Approval: Monitoring Well Repair and Monitoring Well Abandonment Work Plan	EGLE provided conditional approval to the work plan in an emailed letter. The conditions to the approval were outlined in the letter.	Approval
December 21, 2021	Arcadis	EGLE	Email	DRAFT - Plants 2 & 3 Soil Corrective Measures Summary	Submittal of evaluation and summary of corrective measures proposed for Plants 2 & 3.	Request for Approval
December 28, 2021	Arcadis	EGLE	Email	DRAFT - PCB Investigation Summary and Self-Implementing Work Plan	Submittal of summary of investigation and proposed TSCA measures for Plant 2 Area 5-2.	Request for Approval
January 4, 2022	Arcadis	EGLE	Email	Plant 6 PFAS Off-Site Investigation Summary	Summary of off-site Plant 6 VAP investigation results and work plan for installation of off-site permanent wells for monitoring.	Request for Approval

Table 2
RFI Results Summary Matrix (rev. December 2021)
RACER Trust Plants 2, 3 and 6
Lansing, Michigan

Investigation Area	Associated AOI / Sub-area	AOI Summary	Soil and GW Exceedances of 2013 Criteria (Part 201, rev. 12/21/20) and Site-Specific Vapor Intrusion Criteria	Exceedances that do not Require a Corrective Measure	2021 CMS Applicable Exceedances
Lower 1,4-dioxane Plants 2 & 3	Plant 2	South of the "Coliseum," a 15-20 ft deep subfloor pit where automotive stamping equipment was formerly housed (Building 304 and 305 press pit operations), Plume extends southeast under Saginaw Ave onto Plant 2, terminating just before the western branch of Plant 6.	**SOIL:** NA, no data	• NA	**Soil:** NA
			GW: 1,4-dioxane > DW and GSI	• NA	**GW:** 1,4-dioxane > DW and GSI
	Plant 3 AREA 11 (AOI ID 3-54)		**SOIL:** NA, no data	• NA	**Soil:** NA
			GW: 1,4-dioxane > DW and GSI	• NA	**GW:** 1,4-dioxane > DW and GSI
Plant 2 AREA 1	AOI 2-16	Two 20,000-gallon tanks that stored gasoline and diesel east of Building 250. One 1,500-gallon tank that stored used oil located southeast of Building 250. One 12,000-gallon tank that stored heating oil located west of Building 250. All USTs removed in 1990 and 1991. Closure report submitted on 10/01/1996. Restrictive Covenant filed with Register of Deeds in 2003.	**SOIL:** VOCs > SSVIAC SVOCs > GSIP and SSVIAC Metals > DWP and GSIP	• NA	**Soil:** VOCs > SSVIAC SVOCs > GSIP and SSVIAC Metals > DWP and GSIP
			GW: VOCs > GSI and SSVIAC GWNIC SVOCs > DW and GSI Metals > DW and GSI	• SVOCs (phthalates only) > DW and GSI: Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > GSI and SSVIAC GWNIC SVOCs (non phthalates) > DW and GSI
Plant 2 AREA 2	AOI 2-12 AOI 2-52 AOI ID 2-26	Empty 55-gallon drums generated from facility operations.	**SOIL:** VOCs > DWP, GSIP, and SSVIAC Metals > DWP, GSIP, DC, and PSIC	• Note: The PSIC exceedance in this area is manganese. Since the depth of the exceedance is greater than 2 feet bgs, an exposure barrier is not necessary, and a notification will be included in the Amended DRC. •Note: The DC exceedance is arsenic is less than 2 feet bgs. This exceedance would be addressed through excavation and exposure barrier.	**Soil:** VOCs > DWP, GSIP, and SSVIAC Metals > DWP, GSIP, DC and PSIC
			GW: VOCs > DW, GSI, and SSVIAC GWNIC SVOCs > DW and GSI Metals > DW and GSI PFAS > DW and GSI	• Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c). • SVOCs > DW and GSI: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b).	**GW:** VOCs > DW, GSI and SSVIAC GWNIC PFAS > DW and GSI

Table 2
RFI Results Summary Matrix (rev. December 2021)
RACER Trust Plants 2, 3 and 6
Lansing, Michigan

Investigation Area	Associated AOI / Sub-area	AOI Summary	Soil and GW Exceedances of 2013 Criteria (Part 201, rev. 12/21/20) and Site-Specific Vapor Intrusion Criteria	Exceedances that do not Require a Corrective Measure	2021 CMS Applicable Exceedances
Plant 2 AREA 3	AOI 2-11	Monitoring well P2-MW-03 in northwestern corner of Plant 2 with 1,4-dioxane in groundwater	**SOIL:** Metals > DWP and GSIP	• NA	**Soil:** Metals > DWP and GSIP
			GW: VOCs > DW 1,4-dioxane > DW Metals > DW and GSI	• Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS, 2014b).	**GW:** VOCs > DW and GSI 1,4-dioxane > DW
Plant 2 AREA 4	AOI 2-8	Likely stored waste paint, spent solvent, and used oils on a concrete pad.	**SOIL:** Metals > DWP and GSIP	• NA	**Soil:** Metals > DWP and GSIP
			GW: 1,4-dioxane > DW Metals > DW and GSI PFAS > DW	• Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS(ARCADIS 2014b).	**GW:** 1,4-dioxane > DW PFAS > DW
Plant 2 AREA 5-1	AOI 2-11 AOI ID 2-31 ID 2-32 ID 2-33 ID 2-34 ID 2-35 ID 2-49	Press Pit and Associated Sumps, Pits, and Trenches ID 2-31 - Two 3'x3' oil containment sumps under hydraulic presses ID 2-32 - Two oil containment sumps, 3'x3' and trench ID 2-33 - Two oily waste line manhole sumps ID 2-34 - Two Press Pits ID 2-35 6" deep Tramp Oil trenches, 3' deep Tramp Oil sumps	**SOIL:** VOCs > SSVIAC SVOCs > DWP, GSIP, DC, and SSVIAC Metals > DWP and GSIP	• Note: The SVOC exceedances in this area were benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene. Since the depth of the exceedances are greater than 2 feet bgs, an exposure barrier is not necessary, and a notification will be included in the Amended DRC.	**Soil:** VOCs > SSVIAC SVOCs > DWP, GSIP, DC and SSVIAC Metals > DWP and GSIP
			GW: VOCs > DW and SSVIAC GWNIC 1,4-dioxane > DW and GSI SVOCs > DW Metals > DW and GSI PFAS > DW	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > DW and SSVIAC GWNIC 1,4-dioxane > DW and GSI PFAS > DW

Table 2
RFI Results Summary Matrix (rev. December 2021)
RACER Trust Plants 2, 3 and 6
Lansing, Michigan

Investigation Area	Associated AOI / Sub-area	AOI Summary	Soil and GW Exceedances of 2013 Criteria (Part 201, rev. 12/21/20) and Site-Specific Vapor Intrusion Criteria	Exceedances that do not Require a Corrective Measure	2021 CMS Applicable Exceedances
Plant 2 AREA 5-2	AOI 2-6 AOI 2-14 AOI ID 2-36	ID 2-6 - SWMU 6 - Former Oily Waste Treatment System. Three 10,000-gallon concrete tanks, two treatment tanks, two gravity separators, chemical storage tanks. ID 2-14 - SWMU 14 - Former Scrap Metal Storage Areas. Stored non-hazardous scrap metal (machining chips, turnings, trimmings, and scrap parts). ID 2-26 - Quench Oil Operations, pits, tanks, and sumps. ID 2-36 - Oil Separator and Sump. 10" oily waste line runs to separator. ID 2-52 - Pickling Room. Concrete wall and acid-resistant floor.	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > DWP, GSIP, and DC PCBs > DC Metals > DWP, GSIP, DC, and PSIC	Metals > DC: The metal exceedance in this area is lead. Based on a 95% UCL evaluation no corrective measure is needed. • Note: The PSIC exceedance in this area is manganese. Since the depth of the exceedance is greater than 2 feet bgs, an exposure barrier is not necessary, and a notification will be included in the Amended DRC. •Note: The SVOC DC exceedance in this area is benzo(a)pyrene. Based on additional investigation it was concluded that the benzo(a)pyrene is attributed to roofing materials contained in the fill material and a notification will be included in the Amended DRC. •Note: The PCB DC exceedance will be addressed with an exposure barrier.	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > DWP, GSIP and DC PCBs > DC Metals > DWP, GSIP and PSIC
			GW: VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW and GSI SVOCs > DW and GSI PCBs > DW and GSI Metals > DW and GSI PFAS > DW and GSI	• SVOCs > DW and GSI: There has only been one historical SVOC exceedance in this area, the corrective measures driver in this area is LNAPL, 1,4-dioxane, and VOCs. Corrective measures implemented to address these drivers will address the SVOCs. Therefore, SVOCs are not separately evaluated in the CMS (ARCADIS 2014c). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > DW, GSI and SSVIAC GWNIC 1,4-dioxane > DW and GSI PCBs > DW and GSI PFAS > DW and GSI
			LNAPL: Present	• NA	**LNAPL:** Present, Cutting oil, hydraulic oil
Plant 2 AREA 5-3	AOI 2-1 AOI ID 2-59 Miscellaneous Data Gap Borings	Press Pits - 8' - 4" deep, 21' by 35', and 67' by 25'	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > DWP, GSIP, DC, and SSVIAC Metals > DWP, GSIP, and PSIC	• Note: The PSIC exceedance in this area is manganese. Since the depth of the exceedance is greater than 2 feet bgs, an exposure barrier is not necessary, and a notification will be included in the Amended DRC. • Note: The DC exceedance in this area is benzo(a)pyrene. Based on additional investigation it was concluded that the benzo(a)pyrene is attributed to roofing materials contained in the fill material and a notification will be included in the Amended DRC.	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > DWP, GSIP, DC and SSVIAC Metals > DWP, GSIP and PSIC
			GW: VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW SVOCs > DW Metals > DW and GSI	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW

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Plant 2 AREA 5-4	AOI ID 2-39	Fuel Oil Pump House and Tank Farm - Eight oil storage tanks, 10.5' diameter. Trenching associated with tanks. Three truck unloading stations associated with tanks.	**SOIL:** VOCs > SSVIAC SVOCs > SSVIAC Metals > DWP and GSIP	• NA	**Soil:** VOCs > SSVIAC SVOCs > SSVIAC Metals > DWP and GSIP
			GW: SVOCs > DW Metals > DW and GSI	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** NA
Plant 2 AREA 5-5	AOI 2-15	AOC 1 - Building 225 UST Farm - Two 20,000-gallon tanks that stored gasoline and diesel east of Building 250. One 1,500-gallon tank that stored used oil located southeast of Building 250. One 12,000-gallon tank that stored heating oil located west of Building 250. All USTs removed in 1990 and 1991. Closure report submitted on 10/01/1996. Restrictive Covenant filed with Register of Deeds in 2003.	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP and DC Metals > DWP and GSIP	• SVOCs > DC: The metal exceedance in this area is benzo(a)pyrene. Based on a 95% UCL evaluation no corrective measure is needed.	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP Metals > DWP and GSIP
			GW: VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW SVOCs > DW Metals > DW and GSI	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW

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Plant 6 AREA 5-6	AOI 6-18 AOI 6-48	AOC 1 - Building 225 UST Farm - Eight former 30,000-gallon tanks. Removed 1989. Closure report submitted 10/1/96.	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > SSVIAC Metals > DWP, GSIP, DC, and SSVIAC (*Mercury only)	•Note: The DC exceedance is lead and is less than 2 feet bgs. This exceedance would be addressed through an exposure barrier.	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > SSVIAC Metals > DWP, GSIP, DC and SSVIAC (*Mercury only)
			GW: VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW Metals > DW and GSI PFAS > DW	• Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > DW, GSI and SSVIAC GWNIC 1,4-dioxane > DW PFAS > DW
Plant 6 AREA 5-7	AOI 6-43 AOI 6-88	ID 6-43 - Stormceptor - Includes stormceptor oil and sediment separator ID 6-88 - Parking Lot Exceedance	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > SSVIAC Metals > DWP, GSIP, and SSVIAC (*Mercury only)	• Note: The October 2017 Soils Corrective Measures Work Plan for Plant 6 noted an exceedance for vanadium above the draft 2017 DC criteria at 4-5 feet bgs and was included in the DRC recorded for Plant 6 (May 15, 2018); however, based on the current promulgated criteria there is no DC exceedance of vanadium.	**Soil:** VOCs > DWP, GSIP, SSVIAC Metals > DWP, GSIP, and SSVIAC (Mercury only)
			GW: VOCs > DW, GSI, and SSVIAC GWNIC SVOCs > DW and GSI Metals > DW and GSI PFAS > DW and GSI	• SVOCs (phthalates only) >DW: Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC PFAS > DW and GSI Metals > DW and GSI
Plant 6 AREA 5-8	AOI 6-49 AOI 6-81	Former Paint Shop Area	**SOIL:** Metals > DWP, GSIP, and SSVIAC (*Mercury only)	• NA	**Soil:** Metals > DWP, GSIP and SSVIAC (*Mercury only)
			GW: VOCs > SSVIAC GWNIC 1,4-dioxane > DW SVOCs > DW Metals > DW, GSI PFAS > DW and GSI	• SVOCs (phthalates only) > DW: Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b).	**GW:** VOCs > SSVIAC GWNIC 1,4-dioxane > DW PFAS > DW and GSI Metals > DW, GSI

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Plant 6 AREA 6	AOI 6-16/6-33 AOI 6-59 AOI ID 6-36 ID 6-38 ID 6-39 ID 6-75	AOC 1 - Tanks 5 and 6 - Tank 5: 4,000-gallon steel diesel fuel storage tank; Tank 6: 15,000-gallon steel gasoline storage tank 16' bgs; stores purge thinner/diesel fuel; double-walled tank with leak detection system; Installed in the same location as AOI 6-16	**SOIL:** VOCs > SSVIAC Metals > DWP	• NA	**Soil:** VOCs > SSVIAC Metals > DWP
			GW: 1,4-dioxane > DW Metals > DW and GSI	• 1,4-dioxane >DW: One historical detection of 1,4-dioxane was detected above the proposed drinking water standard at MWBP-12-UST5-6 at a concentration of 9 mg/L in October 2011. MWBP-UST5-6 has been sampled quarterly since October 2011 and no exceedances have been detected since that date.	**GW:** Metals > DW and GSI
Plant 6 AREA 7	AOI 6-17 AOI 6-47	ID 6-17 - AOC 2 - Tanks 1 (SWMU 4) and 3 (SWMU 8) - Tank 1: 7,500-gallon carbon steel virgin thinner storage tank; Tank 3: 12,000-gallon carbon steel virgin thinner storage tank ID 6-47 - Leaking Industrial Waste Line	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP, DC, and SSVIAC Metals > DWP and GSIP	•SVOCs > DC: In Arcadis' October 2017 Soils Corrective Measures Work Plan for Plant 6 xylene exceeded DC from 9-11 feet bgs and DC exceedances of benzo(a)pyrene were identified; however, xylenes do not exceed the risk based DC Criteria and re-sampling activities in Area 7 confirmed no DC exceedances of benzo(a)pyrene; therefore, no corrective measures were warranted for xylenes and benzo(a)pyrene in Area 7.	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP and SSVIAC Metals > DWP and GSIP
			GW: VOCs > DW, GSI, and SSVIAC GWNIC SVOCs > DW Metals > DW and GSI PFAS > DW	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC Metals > DW and GSI PFAS > DW
Plant 2 AREA 8	AOI 2-7 AOI ID 2-37 AOI ID 2-38	ID 2-7 - Paint Shop Sumps and Trenches - Three sumps are 3'x3'x3' each ID 2-37 - Press Pits. Concrete press pits. One sump associated with presses. ID 2-38 - Scrap Steel Operations Pits. Scrap Steel Pits, 8' Deep. Scrap Pit oily waste sump	**SOIL:** VOCs > SSVIAC SVOCs > DWP and GSIP Metals > DWP and GSIP	• NA	**Soil:** VOCs > SSVIAC SVOCs > DWP and GSIP Metals > DWP and GSIP
			GW: SVOCs > DW and GSI Metals > DW and GSI	• SVOCs > DW and GSI: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** NA

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Plant 6 AREA 9	AOI 6-60 Miscellaneous data gap	Paint Mix Room	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > DWP, GSIP, and SSVIAC Metals > DWP and GSIP	• NA	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > DWP, GSIP, and SSVIAC Metals > DWP and GSIP
			GW: VOCs > DW, GSI, and SSVIAC GWNIC SVOCs > GSI Metals > DW and GSI	• Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC SVOCs > GSI
Plant 6 AREA 10	AOI 6-19 AOI 6-63 AOI 6-82	ID 6-48 - Former Coal Pile ID 6-82 - Former Coal Chute Building. Basement filled with water at the time of the site walkthrough ID 6-19 - Process Waste Tunnel. Runs underneath Buildings 28 and 21; exits Site to the west and continues to GM Lansing Plant 2	**SOIL:** VOCs > SSVIAC SVOCs > SSVIAC Metals > DWP and GSIP	• NA	**Soil:** VOCs > SSVIAC SVOCs > SSVIAC Metals > DWP and GSIP
			GW: VOCs > DW and SSVIAC GWNIC SVOCs > DW and GSI Metals > DW and GSI PFAS > DW and GSI	• VOCs > DW and SSVIAC GWNIC: Benzene exceeded in one well (P6-SB-21) in August 2011, but has not exceeded since that time. Therefore, this exceedance will not be addressed in the CMS. • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** SVOCs > DW and GSI PFAS > DW and GSI
Plant 3 AREA 11	AOI ID 3-54	Sump - Sump pit with sump pump, unknown use	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP Metals > DWP and GSIP	• NA	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP Metals > DWP and GSIP
			GW: VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW and GSI SVOCs > DW Metals > DW and GSI	• SVOCs > DW: The SVOC exceedance in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW and GSI

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Plant 3 AREA 12	MW-04-02 (TD=132.7') MW-04-03 (TD=88.25')	Vinyl chloride detected above DW Criteria in deep overburden and bedrock	**SOIL:** Metals > DWP, GSIP, and SSVIAC (*Mercury only)	• NA	**Soil:** Metals > DWP, GSIP, and SSVIAC (*Mercury only)
			GW: VOCs > DW, GSI, and SSVIAC GWNIC Metals > DW and GSI	• VOCs > DW, GSI and SSVIAC GWNIC: Based on the general lack of a chlorinated volatile organic compound (CVOC) source at Plant 3 and the known regional vinyl chloride impacts to bedrock, the vinyl chloride identified at Plant 3 is attributed to off-site source(s) and will not be addressed as part of the CMS (ARCADIS, 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** NA
Plant 3 AREA 13	Area 13	Former transformer pad	**SOIL:** Metals > DWP and GSIP	• NA	**Soil:** Metals > DWP and GSIP
			GW: VOCs > DW and SSVIAC GWNIC SVOCs > DW Metals > DW and GSI	• VOCs > DW and SSVIAC GWNIC: Based on the general lack of a chlorinated volatile organic compound (CVOC) source at Plant 3 and the known regional vinyl chloride impacts to bedrock, the vinyl chloride identified at Plant 3 is attributed to off-site source(s) and will not be addressed as part of the CMS (ARCADIS, 2014b). • SVOCs > DW: The SVOC exceedance in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** NA

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Plant 3 AREA 14	AOI 3-10 Misc. Data Gap Borings	AOC 4 - Former Electroplating Area - (1) Electroplating operations (2) New and Reworked Storage Tanks, Chromic Acid Reclaim, 7' diameter by 9' tall (3) 17 Acid Copper Plating Tanks (4) Sludge Sump Under Nickel Storage Tank, 1,350 Gallons (5) 3 Washwater Tanks (1,900-gallons each) in Plating Area (6) Nickel Plating Tanks 1, 2, 3, 4, 6, 7, 8, and 9 (7) Copper Buffing Wash and Rinse Tanks (8) Bumper Plating Sumps (9) Dur'ni Nickel Operations Area, Tanks, Sumps, and Drain Deck	**SOIL:** Metals > DWP, GSIP, DC, and PSIC	• Note: The DC exceedances of nickel and arsenic are greater than 2 feet bgs; therefore, an exposure barrier is not necessary, and a notification will be included in the Amended DRC. • Note: The DC and PSIC exceedance is cyanide and is less than 2 feet bgs. This exceedance would be addressed through an exposure barrier.	**Soil:** Metals > DWP, GSIP, DC and PSIC
			GW: VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW SVOCs > DW Metals > DW and GSI PFAS > DW and GSI	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC Metals > DW and GSI PFAS > DW and GSI
Plant 3 AREA 15	AOI ID 3-15	Oil Sump for Crank Shaft Operations	**SOIL:** VOCs > DWP SVOCs > GSIP Metals > DWP and GSIP	• NA	**Soil:** VOCs > DWP SVOCs > GSIP Metals > DWP and GSIP
			GW: VOCs > DW SVOCs > DW	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b).	**GW:** VOCs > DW
Plant 3 AREA 16	AOI 3-11	SWMU 14 - Former Scrap Metal Storage Areas	**SOIL:** SVOCs > DWP, GSIP, DC, and SSVIAC Metals > DWP, GSIP, DC, and SSVIAC (*Mercury only)	• Note: The metal DC exceedance in this area is lead. Since the depth of the exceedance is greater than 2 feet bgs, an exposure barrier is not necessary, and a notification will be included in the Amended DRC. • SVOCs > DC: The svoc exceedance in this area is benzo(a)pyrene. Based on a 95% UCL evaluation no corrective measure is needed.	**Soil:** SVOCs > DWP, GSIP, SSVIAC Metals > DWP, GSIP, DC and SSVIAC (*Mercury only)
			GW: SVOCs > DW Metals > DW and GSI	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b).	**GW:** Metals > DW and GSI

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Plant 3 AREA 17	AOI 3-3 AOI 3-4 AOI 3-9	ID 3-4 - SWMU 18 - Machining Residue Storage Area. 20 cubic yard roll-off box located. ID 3-9 - AOC 2 - Building 301 UST Farm. Six USTs, stored polymer, sulfuric acid, soluble oil, gasoline, hydraulic oil, and APCO cleaner; were removed in 1989.	**SOIL:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP and SSVIAC Metals > DWP and GSIP	• NA	**Soil:** VOCs > DWP, GSIP, and SSVIAC SVOCs > GSIP and SSVIAC Metals > DWP and GSIP
			GW: VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW SVOCs > DW and GSI Metals > DW and GSI PFAS > DW and GSI	• SVOCs > DW and GSI: There has only been one historical SVOC exceedance in this area, the corrective measures driver in this area is LNAPL and VOCs. Corrective measures implemented to address these drivers will address the SVOCs. Therefore, SVOCs are not separately evaluated in the CMS (ARCADIS 2014c).	**GW:** VOCs > DW, GSI, and SSVIAC GWNIC 1,4-dioxane > DW Metals > DW and GSI PFAS > DW and GSI
			LNAPL: Present	• NA	**LNAPL:** Present. Gasoline
Plant 3 AREA 18	AOI 3-2 AOI 3-6	ID 3-2 - SWMU 16 - Oily Waste Treatment System. Treated oily wastewater; Two concrete used oil holding tanks, Two concrete oily sludge tanks. ID 3-6 - SWMU 20 - Former Electroplating Waste Treatment System. Treated electroplating wastes (copper, nickel, and chromium). Included an Acid Wash Tank, Sludge Storage Tank, Waste Acid Storage Tank.	**SOIL:** VOCs > SSVIAC SVOCs > DWP, GSIP, DC, and SSVIAC Metals > DWP and GSIP	•Note: The DC exceedance is benzo(a)pyrene and is less than 2 feet bgs. This exceedance would be addressed through an exposure barrier.	**Soil:** VOCs > SSVIAC SVOCs > DWP, GSIP, DC, and SSVIAC Metals > DWP and GSIP
			GW: NA	• NA	**GW:** NA
Plant 3 AREA 19	AOI ID 3-17	Broach Machine Filter Pit - 9' by 20' by 9' pit	**SOIL:** SVOCs > GSIP Metals > DWP, GSIP, and DC	•Note: The DC exceedance is arsenic and is less than 2 feet bgs. This exceedance would be addressed through an exposure barrier.	**Soil:** SVOCs >GSIP Metals > DWP, GSIP, and DC
			GW: NA	• NA	**GW:** NA

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Plant 3 AREA 20	AOI 3-51	Building 304 and 305 Press Pit Operations	**SOIL:** SVOCs > GSIP Metals > DWP, GSIP, and PSIC	• Note: The PSIC exceedance is manganese. Since the depth of the exceedance is greater than 2 feet bgs, an exposure barrier is not necessary, and a notification will be included in the Amended DRC.	**Soil:** SVOCs > GSIP Metals > DWP, GSIP and PSIC
			GW: Metals> DW and GSI	• Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** NA
Plant 3 AREA 21	AOI 3-51	Building 304 and 305 Press Pit Operations	**SOIL:** Metals > DWP, GSIP, and DC	• Note: The DC exceedance is arsenic. Since the depth of the exceedance is greater than 2 feet bgs, an exposure barrier is not necessary, and a notification will be included in the Amended DRC.	**Soil:** Metals > DWP, GSIP and DC
			GW: SVOCs > DW and GSI Metals > DW and GSI	• SVOCs > DW: The SVOC exceedance(s) in this area were phthalates. Detection of phthalates was determined to be a lab contaminant. Therefore, evaluation of corrective measures for SVOCs in this area are not required (ARCADIS 2014b). • Metals > DW and GSI: Exceedances interior to the site are attributed to natural fluctuations in geochemical conditions and/or reducing conditions created by the presence of VOCs; therefore, metals in this area will not be addressed as part of the CMS (ARCADIS 2014c).	**GW:** NA
Plant 2 PFAS	2, 4, 5-1, 5-2, 2-5, 6-19, 2-4	Primary source area is located in the southeast of Plant 2 and associated with: AOI 2-15 – eight 10,000-gallon that held waste process oil, quench oil, cutting oil, and lubrication oil. AOI-6-19 – process waste tunnel. AOI 2-4 – Storage of nonhazardous used oil and oily wastewater	**SOIL:** PFAS > GSIP	• NA	**Soil:** PFAS > GSIP
			GW: PFAS > DW and GSI	• NA	**GW:** PFOS > DW and GSI PFOA > DW PFNA > DW

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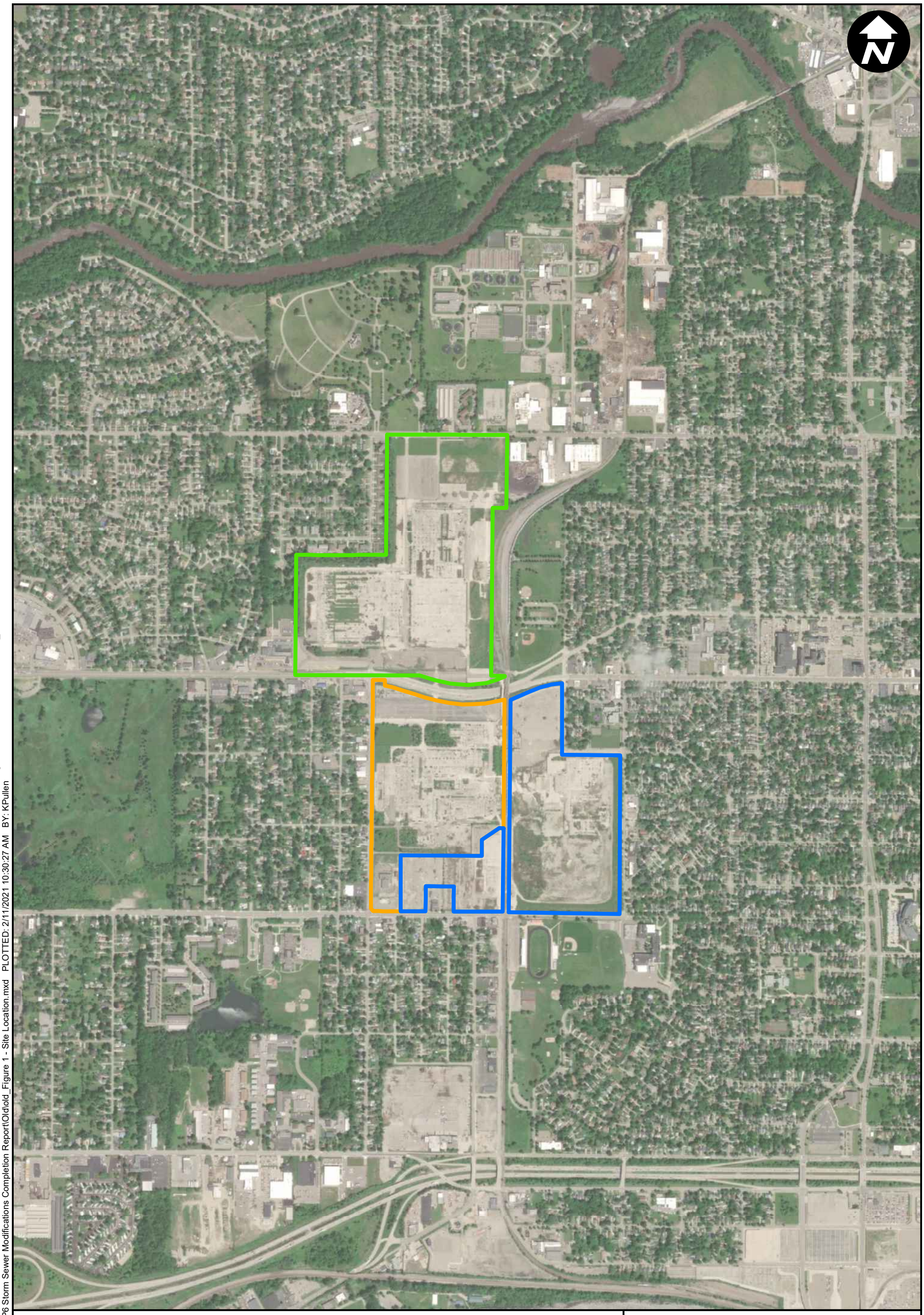
Plant 3 PFAS	14, 17	North central part of Plant 3 primarily associated with: Area 14 - former chromium electroplating area and the use of PFAS mist suppressant	**SOIL:** NA, no data	• NA	**Soil:** NA, no data
			GW: PFAS > DW and GSI	• NA	**GW:** PFOS > DW and GSI PFOA > DW PFNA > DW
Plant 6 PFAS	5-6, 5-7, 5-8, 7, 10	Widespread on Plant 6, specific AOIs include: AOI 6-83 - Plant 6 wastewater treatment plant AOI 6-81 - former paint shop area AOI 6-6 - former paint mixing room AOI 6-11 - Plant 6 rinse water cistern areas	**SOIL:** NA, no data	• NA	**Soil:** NA, no data
			GW: PFAS > DW and GSI	• NA	**GW:** PFOS > DW and GSI PFOA > DW PFNA > DW

Notes:
* - All soil analytical data was compared to SSVIAC. The exception is mercury, which was compared to Michigan state background levels (130 ug/kg) per EGLE correspondence (9/11/19)
1) - Target analytes based on analytes detected during the RFI Phase 1 sampling activities and take into consideration the past use of the AOI detected upgradient and/or in surrounding AOIs.
2) SSVIAC criteria for GW and soil is listed in Table 10 of the Site Specific criteria approved by EGLE (EGLE 2018) and includes the Site Specific Residential Volatilization to Indoor Air Criteria for residential houses constructed with a basement, a depth to groundwater of ≥10 feet below ground surface, and the USDA soil type of sand

Abbreviations:
-- - No applicable Subarea or Associated AOIs
AOI - Area of Interest
bgs - below ground surface
CMS - corrective measures study
COC - contaminants of concern
DC - Non-Residential Direct Contact Criteria
DRC - Declaration of Restrictive Covenant
DW - Residential Drinking Water Criteria
DWP - Residential Drinking Water Protection Criteria
GC - Groundwater Contact Criteria
GSI - Groundwater-Surface Water Interface Criteria
GSIP - Groundwater-Surface Water Interface Protection Criteria
GW - groundwater
NA - Not Applicable
P201 - EGLE Part 201 Criteria
PCBs - polychlorinated biphenyls
PFAS - Per- and Polyfluoroalkyl Substances
PSIC - Non-Residential Particulate Soil Inhalation Criteria
SSVIAC - Residential Site Specific Volatilization to Indoor Air Criteria
SVOCs - semi-volatile organic compounds
SWMU - solid waste management unit
UCL - upper confidence level
UST - underground storage tank
VOC - volatile organic compounds

Figures



PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

0 1,000 2,000

SCALE IN FEET

NOTE: AERIAL IMAGERY FROM ESRI ARCGIS ONLINE.

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SITE LOCATION

ARCADIS

FIGURE
1

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl T:_ENV\RACER\Buffalo\MXDs\2020 P2 P3 P6 Storm Sewer Modifications Completion Report\Old\old_Figure 1 - Site Location.mxd PLOTTED: 2/11/2021 10:30:27 AM BY: KPullen

GRAND RIVER FORMATION

SAGINAW FORMATION

AREA 12

AREA 13

AREA 14

AREA 15

AREA 16

AREA 17

AREA 18

AREA 20

AREA 21

MW-12-04
MW-15-71
MW-12-20
MW-04-04(3)
MW-91-4
MW-13-39B
MW-19-113
MW-88-1
MW-18-97
MW-18-98
MW-19-112
MW-02-03(3)
MW-13-40
MW-13-38
MW-13-41
MW-04-03(3)
MW-04-02(3)
MW-18-99
MW-02-04(3)
MW-19-110
MW-18-89
MW-18-90
MW-91-3
P3-SB-07
UNK-15
LMW-12-09
MW-93-1
MW-06
MW-04
MW-03(3)
MW-05
MW-05(3)
MW-02-02(3)
MW-19-107
MW-91-2R
MW-18-92
MW-18-101
CH-14-RO
MW-19
MW-23
MW-18-93
MW-18-88
MW-19-108
MW-13-37
UNK-09
MW-02(3)
UNK-11
MW-22
MW-01(3)
MW-19-111
MW-18-91
UNK-10
LMW-12-11
LMW-12-10
P3-SB-28
MW-18-94
MW-18-95
MW-14-65
MW-19-114
MW-18-96
MW-18-100
MW-13-26
MW-02-01(3)
MW-04-01(3)
MW-13-30
MW-12-21
MW-13-22
MW-13-28
MW-13-23
MW-13-27
MW-13-24
TW-14-06
MW-91-5
MW-14-64
TW-15-11
PW-14-03
MW-19-119S/D
MW-13-25
MW-13-29
MW-13-31
MW-13-32
MW-13-47
MW-13-48
MW-13-49
MW-91-6
MW-13-46
MW-13-34
MW-21-142
MW-18-102
MW-18-103
MW-18-105
MW-18-104

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

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- SOIL BORING
- APPROXIMATE LOCATION OF GRAND RIVER / SAGINAW FORMATION GEOLOGIC CONTACT
- RFI PHASE 2 INVESTIGATION AREAS

APPROXIMATE PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

0 275 550

SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANT 3 MONITORING WELLS AND SOIL BORINGS

ARCADIS

FIGURE
2

GRAND RIVER FORMATION

SAGINAW FORMATION

AREA 1

AREA 2

AREA 3

AREA 4

AREA 5

AREA 5-1

AREA 5-2

AREA 5-3

AREA 5-4

AREA 5-5

AREA 5-6

AREA 5-7

AREA 5-8

AREA 6

AREA 7

AREA 8

AREA 9

AREA 10

MW-21-142
MW-12-02
MW-14-63
MW-P2-KG187
MW-P2-KF190
MW-P2-KG184
MW-12-03
P2-MW-03
MW-16-80
MW-13-45
P2-SB-20
LMW-14-13D
MW-12-10R
MW-20-126
LMW-14-14D
P2-SB-03
MW-04-06R
MW-20-132
TW-15-12
MW-13-44
LMW-12-03S/D
MW-20-131
MW-12-11
MW-13-42
MW-13-43
PW-14-02
MW-04-05
MW-15-73
LMW-14-15D
MW-03-02
MW-12-12
MW-20-127
MW-14-59
MW-20-128
MW-16-85
MW-19-118S/D
MW-19-125
MW-16-82
LMW-12-08
MW-14-60
MW-14-70
MW-14-58R
MW-17-87
LMW-12-02
MW-16-84
MW-03-04
MW-03-05
MW-19-116
MW-17-86
MW-16-83
MW-12-05R
MW-19-117
PMW-02
MW-02-01(6)
P6-SB-18
MW-12-13
MW-19-115
MW-12-06
P2-MW-04
MW-03-07
MW-14-66
MW-14-69
MW-15-72
PMW-01
MW-14-61
MW-02-03(6)
MW-04-01(6)
LMW-12-01
MW-19-120
LMW-12-06
MW-12-09
LMW-12-07
MW-02-02(6)
MW-03-06
P6-SB-37
MW-14-67
MW-14-57
MW-19-124
MW-14-56
LMW-15-17D
P2-SB-06
MW-03-08
LMW-12-05
P2-SB-37
MW-04-04R
LMW-14-12D
MW-16-81
PMW-03
LMW-15-16D
MW-19-122
LMW-12-04
MW-21-139
MW-20-130
MW-21-141
P6-SB-35
MW-13-36R
MW-20-129
MW-14-62
MW-16-79
MW-14-55
MW-19-121
MW-12-18
MW-14-54
TW-14-02
MW-16-78
MW-16-76
PW-14-01
MW-16-74
TW-14-01
MW-21-140
MW-19-123
P6-SB-21
MW-12-01
MW-16-77
MW-16-75
MW-12-07
MW-12-08
P2-MW-02
MW-13-51
MW-13-50
MW-13-53
MW-13-52
P6-SB-07
MW-21-133
MW-01(2)
MW-21-134
MW-21-135
MWBP-11-UST1-4
MWBP-12-UST5-6
MWBP-12-UST1-4
MW-12-14
MWBP-10-UST5-6
UNK-03
MW-21-137
P6-MW-01
MW-12-16
MW-21-138
MW-13-35
MW-12-15
MW-21-136

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- SOIL BORING
- APPROXIMATE LOCATION OF GRAND RIVER / SAGINAW FORMATION GEOLOGIC CONTACT
- RFI PHASE 2 INVESTIGATION AREAS

APPROXIMATE PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

0 250 500

SCALE IN FEET

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

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

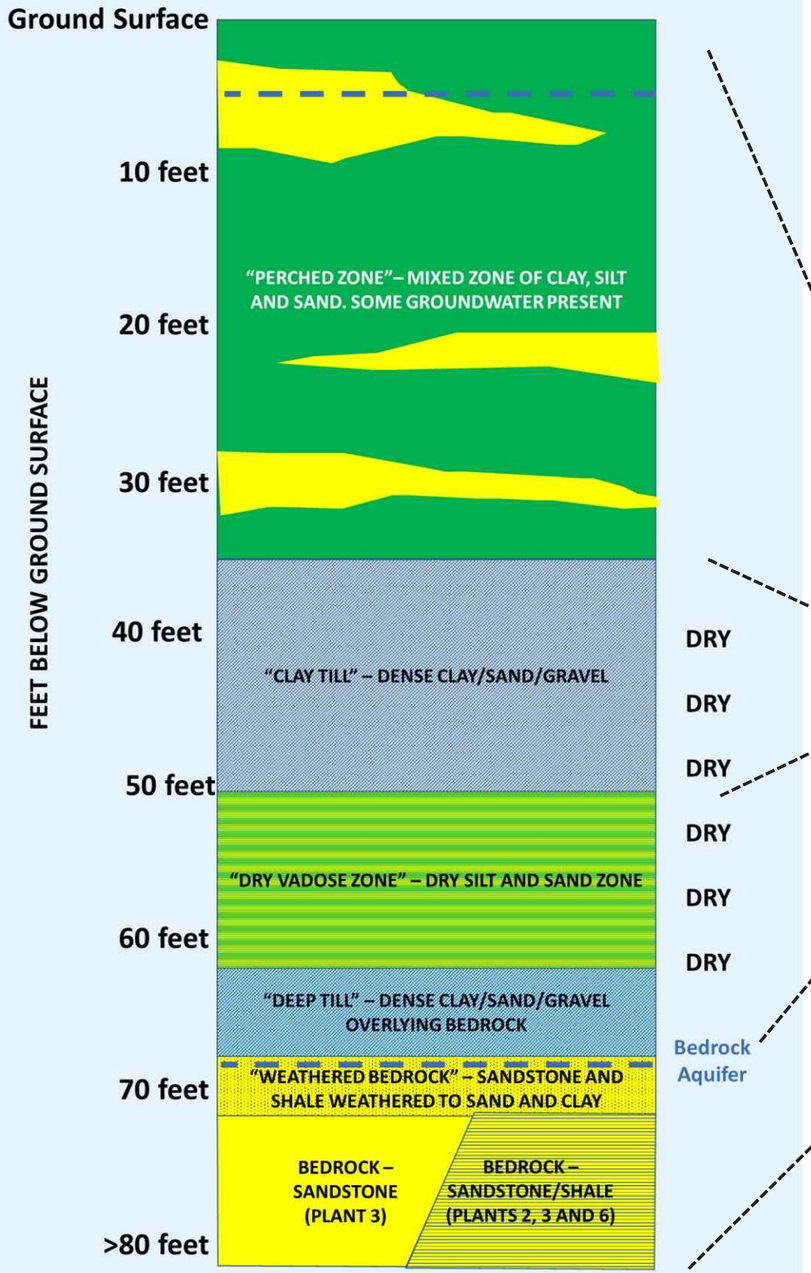
SUMMARY OF PLANTS 2 AND 6 MONITORING WELLS AND SOIL BORINGS

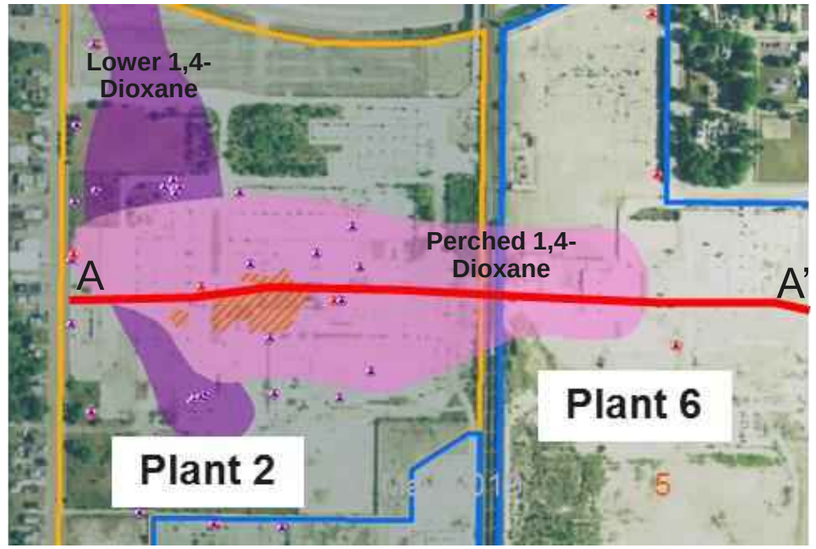
ARCADIS

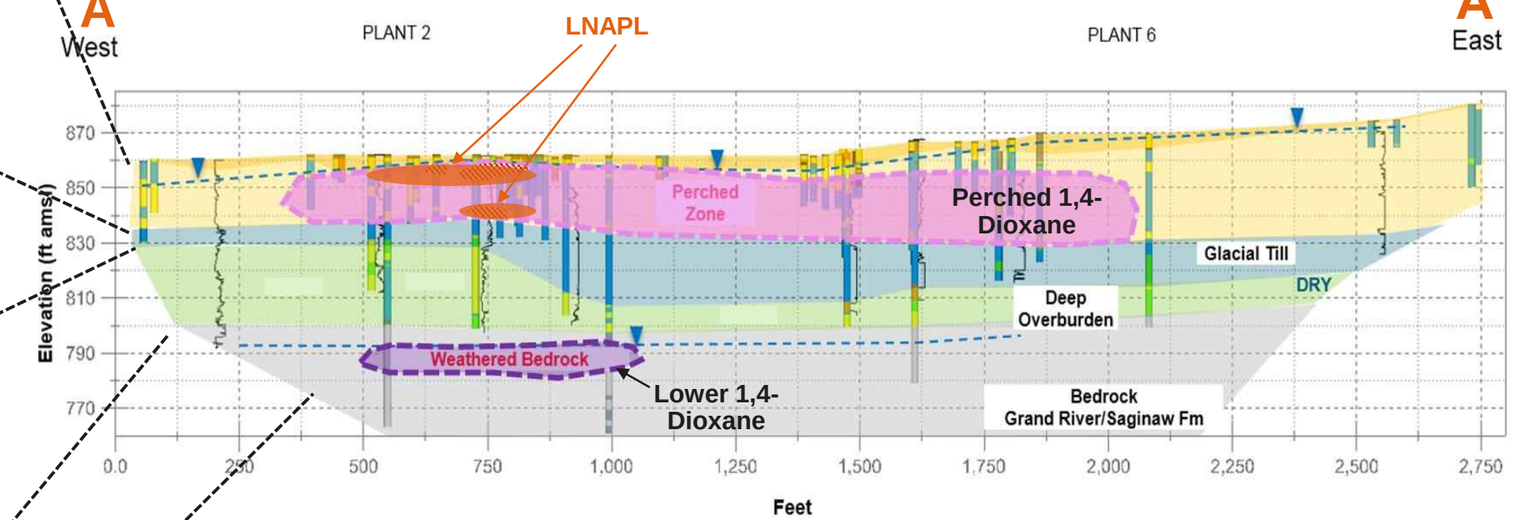
FIGURE 3

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. BARRETT PM:T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 RFI Figures\Figure 3 - Plants 2&6 Layout.mxd PLOTTED: 12/21/2021 10:23:40 PM BY: MJoye

SITE GEOLOGY





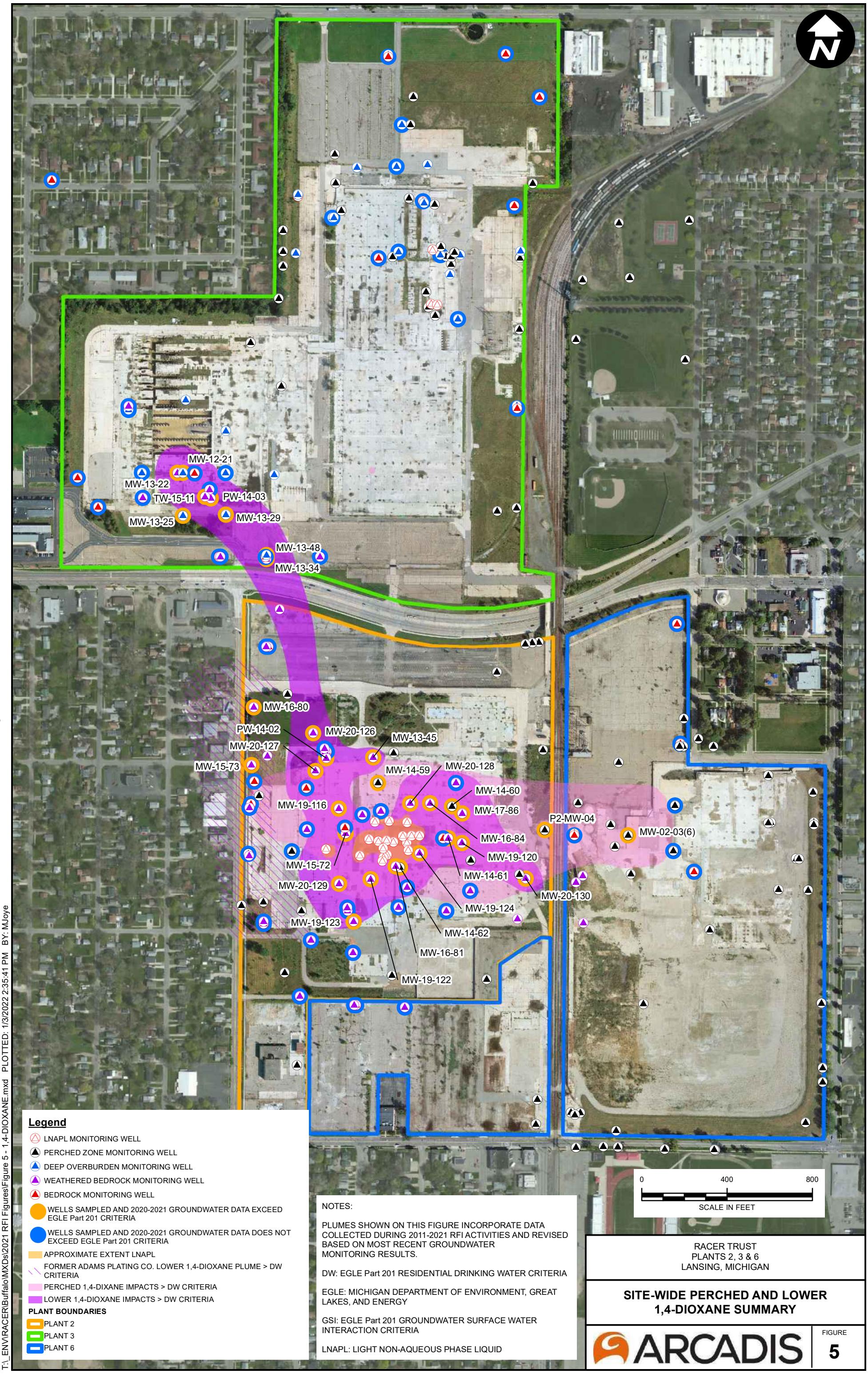


RACER TRUST
LANSING, MI, PLANTS 2,.3 & 6

SUMMARY OF GEOLOGIC CONDITIONS

ARCADIS

FIGURE
4



Legend

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND 2020-2021 GROUNDWATER DATA EXCEED EGLE Part 201 CRITERIA
- WELLS SAMPLED AND 2020-2021 GROUNDWATER DATA DOES NOT EXCEED EGLE Part 201 CRITERIA
- APPROXIMATE EXTENT LNAPL
- FORMER ADAMS PLATING CO. LOWER 1,4-DIOXANE PLUME > DW CRITERIA
- PERCHED 1,4-DIXANE IMPACTS > DW CRITERIA
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

PLUMES SHOWN ON THIS FIGURE INCORPORATE DATA COLLECTED DURING 2011-2021 RFI ACTIVITIES AND REVISED BASED ON MOST RECENT GROUNDWATER MONITORING RESULTS.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

GSI: EGLE Part 201 GROUNDWATER SURFACE WATER INTERACTION CRITERIA

LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SITE-WIDE PERCHED AND LOWER 1,4-DIOXANE SUMMARY

ARCADIS

FIGURE
5

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 RFI Figures\Figure 5 - 1,4-DIOXANE.mxd PLOTTED: 1/3/2022 2:35:41 PM BY: MJoye

MW-18-98
MW-18-99
MW-18-89
MW-18-90
CH-14-RO
UNK-15
MW-18-88
MW-18-91
MW-18-95
MW-14-59
MW-14-60
MW-14-62
MW-20-131
MW-20-132
MW-04-05(6)
MW-12-12
MW-14-70
MW-14-67
MW-13-36R
P6-SB-07
MW-21-133
MW-21-134
MW-21-135

Legend

- PROPOSED MONITORING WELL
- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELL SAMPLED AND 2020-2021 GROUNDWATER DATA EXCEED EGLE Part 201 CRITERIA
- WELL SAMPLED AND 2020-2021 GROUNDWATER DATA DOES NOT EXCEED EGLE Part 201 CRITERIA
- PFAS COMPOUNDS > P201 CRITERIA
- APPROXIMATE EXTENT LNAPL

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

PLUMES SHOWN ON THIS FIGURE INCORPORATE DATA COLLECTED DURING 2011-2021 RFI ACTIVITIES AND REVISED BASED ON MOST RECENT GROUNDWATER MONITORING RESULTS.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

GSI: EGLE Part 201 GROUNDWATER SURFACE WATER INTERACTION CRITERIA

LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

PFAS: PER- AND POLYFLUOROALKYL SUBSTANCES

PFOA: PERFLUOROOCTANOIC ACID

PFOS: PERFLUOROOCTANE SULFONIC ACID

0 450 900

SCALE IN FEET

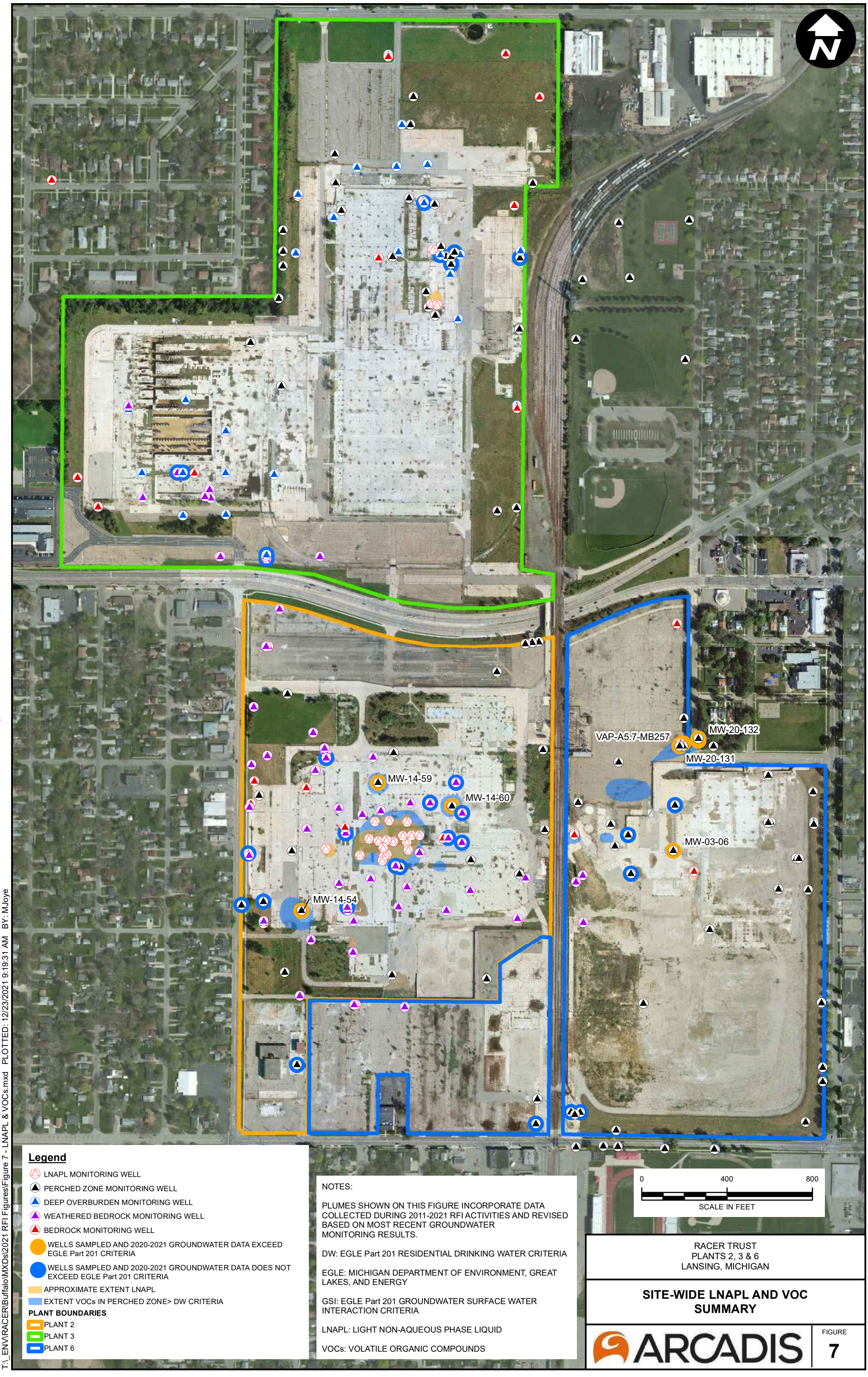
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SITE-WIDE PFAS SUMMARY

ARCADIS

FIGURE
6

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 RFI Figures\Figure 6 - PFAS Distribution.mxd PLOTTED: 1/3/2022 2:47:27 PM BY: MJoye



RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SITE-WIDE LNAPL AND VOC SUMMARY

ARCADIS

FIGURE
7

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 RFI Figures\Figure 7 - LNAPL & VOCs.mxd PLOTTED: 12/23/2021 9:19:31 AM BY: MJoye

Arcadis of Michigan, LLC
28550 Cabot Drive, Suite 500
Novi
Michigan 48377
Phone: 248 994 2240
www.arcadis.com