



RACER Nodular Industrial Land Site Overview

June 7, 2023

Agenda

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Introduction

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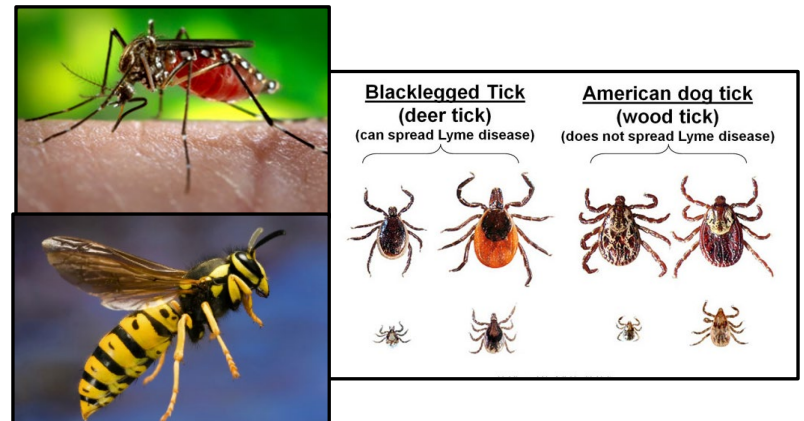
John-Eric Pardys, GHD, Project Manager

Bart Williams, GHD, Field Staff



Safety Moment

1. Sun Hazards – Sun is no safer in April than in July
2. Insects and Vegetation – Ticks are prevalent in the spring



SITE VICINITY MAP – SAGINAW NODULAR INDUSTRIAL LAND



Site Background

- RACER executed a RCRA Section 3008(h) Performance-based Administrative Order of Consent with U.S. EPA Region 5 on Sept. 30, 2011 (RCRA-05-2011-0023) for the Site.
- Saginaw Nodular Industrial Land is a portion (~280 acres) of an approximately 700-acre portion of a manufacturing site that began operations in the 1920's called the Saginaw Casting Complex.

Site Background

The Saginaw Nodular Industrial Land included the following Site features as part of the former operations:

- **IU G - Former Nodular Iron Plant** was located on the west portion of the property adjacent to the Saginaw River, was built in 1965, and operated until 1987 when it was closed. The Plant casted automotive parts including rear drive differential drives and carriers. The Plant was demolished in 1999.
- **IU H - Former wastewater treatment facility (WWTF)** is located on the central part of the property which was used to recycle water by removing phenols, solids, and trace metals. The WWTF was built in 1977 and operated until 2010. The WWTF included two classifiers, 4 primary settling basins, and a secondary settling basin.

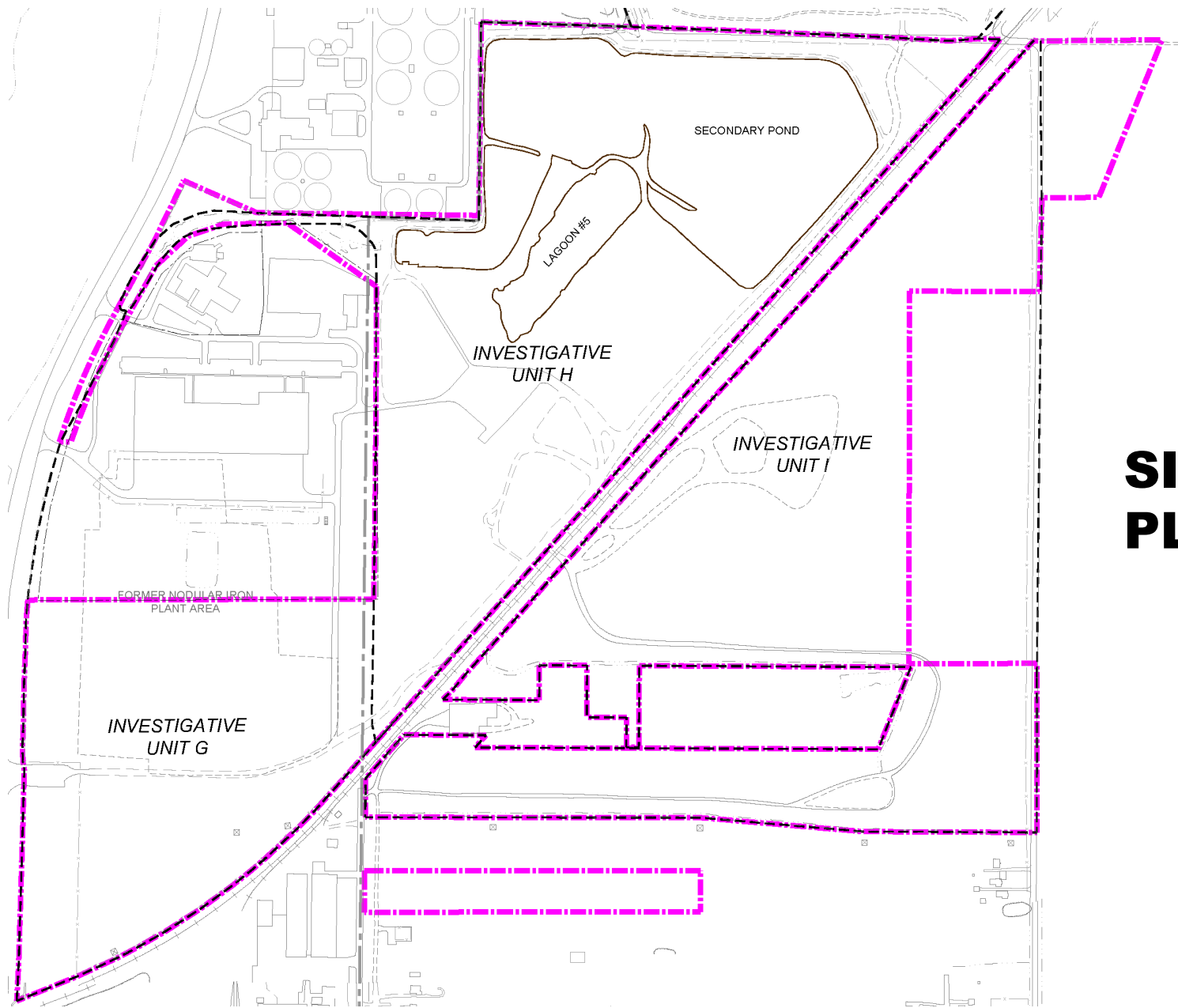
Site Background

- **IU I – Classified Sand Staging Area** is located east of the railroad tracks and was used to stage classified sands, quench slag, and casting sand. In addition, there is a stockpile of clay which was created when constructing the General Motors Landfill (north of the Site).

Surrounding land use:

- Saginaw River to the west/northwest
- City of Saginaw WWTP and the former City of Saginaw Landfill to the north
- Buena Vista WWTP to the north and east
- General Motors SMC0 Facility to the southwest
- General businesses to the south and west





SITE PLAN

Site Background

Geology

- Overburden at the Site ranges from 84 to 106 ft thick and is comprised of fill materials, fluvial and marsh deposits, and glaciolacustrine clays.
- The Site lies over the Middle Carboniferous Saginaw Formation bedrock unit in the central part of the Michigan basin.

Hydrogeology

- Three hydrostratigraphic units exist at the Site; an upper water-bearing zone; a confining layer of clay; and a lower subglacial sand/bedrock aquifer.
- Groundwater flow is controlled on a regional scale by the Saginaw River, which acts as a discharge point for overburden groundwater.



Site Media Contamination (Soil)

Site Soil Contamination (RFI)

- PCBs above 1 mg/kg in area south of former Nodular Plant (delineated to 1 mg/kg in 2015 – GHD, Feb. 2017)
- Manganese above MDEQ particulate inhalation criteria in areas of the former WWTF and material staging area
- High soil pH in material staging area
- No soil vapor contamination issues

Soil Evaluation (GHD, Apr. 2018)

- To identify any potential concerns when comparing the data to more recent screening criteria (Part 201 – Dec. 2013, and draft 2017 [were not adopted])
- No further action was recommended with respect to soil beyond recording a DRC and additional soil investigation at two points in

Site Media Contamination (Soil)

Additional IU-H Soil Evaluation (GHD, Sept. 2021)

- To respond to comments from U.S. EPA on the April 2018 Soil Evaluation regarding two previous sample locations in IU-H that warranted further investigation (Area 1 – only sample analyzed for PHCs and Area 2 – cyanide above screening levels).
- Concluded that there are no Site-related concentrations in soil that represent a potential for significant exposure to on- or off-site receptors. No further action is warranted for these two areas.

Site Media Contamination (Groundwater)

Site Groundwater Contamination (RFI)

- Various metals, ammonia, benzene, bis(2-ethylhexyl-phthalate, cyanide, fluoride, pentachlorophenol, and pH above MDEQ industrial drinking water criteria

Groundwater Evaluation (GHD, Oct. 2018)

- To identify any potential concerns when comparing the data to more recent screening criteria (Part 201 - Dec. 2013 and draft 2017, which were not adopted)
- All data was screened, however, only monitoring wells located at the downgradient property boundary were reviewed since RACER is proposing restrictions on groundwater extraction and use on-Site.
- Various metals, ammonia, cyanide, pH, and pentachlorophenol were above MDEQ residential drinking water criteria



Site Media Contamination (Groundwater)

Additional Site Groundwater Sampling

- 5 locations sampled in Dec. 2018
- Iron and nickel were detected above 2013 residential drinking water criteria but consistent with previous results or less. Detections believed to be the result of background conditions
- Total cyanide was detected above 2013 groundwater surface water interface criteria for free (amenable) cyanide but less than previous results. Total cyanide is a conservative estimate of amenable. GHD does not expect there to be appreciable amounts of amenable cyanide, given the low total cyanide

Site Media Contamination (Groundwater)

Additional Site Groundwater Sampling (continued)

- All other parameters below Part 201 – Dec. 2013 screening criteria
- No further action was recommended with respect to groundwater beyond recording a DRC and on-going annual EI monitoring (pH and ammonia). Note EI monitoring was terminated in January 2021 with U.S. EPA approval.

Site Media Contamination (Sediment)

Sediment Contamination (Secondary Pond)

- Elevated PCBs and metals in sediment were detected in the Secondary Pond (Supplemental Investigations – June 2011; Mar., May, and Aug. 2016; and Sept. 2017)
- Zinc in pore water was reported above Michigan chronic water quality criteria (Apr. 2018)

Sediment contamination (North Ditch)

- Various metals and total cyanide were reported above MDEQ GSI protection criteria in the North Ditch (Supplemental Investigation – July 2013)

Site Media Contamination (Surface Water)

Surface Water Contamination (Secondary Pond)

- Results for 7 surface water samples collected in the Secondary Pond in Sept. 2017 identified no exceedances of MDEQ GSI protection criteria

Surface Water Contamination (North Ditch)

- Results for 6 surface water samples collected in the North Ditch identified no exceedances of MDEQ GSI protection criteria (Supplemental Investigation - July 2013)

All discharges from the North Ditch and Secondary Pond were monitored under existing NPDES Permit MI0059042, until the permit was terminated on Apr. 23, 2020



Site Media Contamination (Risk Assessments)

Summary of HHRA Conclusions (2007)

- The potential exposures to routine workers, maintenance workers, trespassers, and off-facility residents were not significant relative to reasonable maximum exposure under current and reasonably expected future land and groundwater uses at and around the Facility.
- There was the potential for unacceptable non-cancer hazards to a hypothetical construction worker from exposures to elevated ammonia and pH levels in shallow groundwater south of Former Nodular Plant.
- There was a potential for unacceptable exposures to off-Facility construction workers if off-Facility migration of overburden groundwater from south of Former Nodular Plant, exhibiting high pH levels, were to occur.

Site Media Contamination (Risk Assessments)

Summary of ERA Conclusions (2007)

- Risk of adverse ecological effects was low to negligible

Updated ERA for Secondary Pond

- Secondary Settling Pond was historically part of the Site waste water treatment plant (WWTP) and stopped receiving water in Sept. 2010.
- Secondary Pond is reverting back to more natural conditions and as a result an updated risk assessment of the Secondary Pond was completed (GHD, Aug. 2017). U.S. EPA comments were provided Oct. 2017 to which GHD responded to in Jan. 2018.
 - The risk assessment identified the potential for unacceptable metal toxicity in sediment, therefore, GHD recommended pore water sampling to further evaluate (GHD Work Plan, Jan. 2018).



Site Media Contamination (Risk Assessments)

Updated ERA for Secondary Pond (continued)

- Pore water sampling conducted in Apr. 2018 and results submitted to U.S. EPA in June 2018.
 - Concluded that metals are unlikely to cause significant toxicity to benthos in the pond and therefore no further assessment or remediation is required with respect to metals in sediment.
 - GHD recommended removal of PCB-impacted sediment above 50 mg/kg, which was approved by U.S. EPA via email on Sept.17, 2018.

Site Media Contamination (Risk Assessments)


Updated ERA for North Ditch

- GHD conducted an ERA consistent with the approach taken with the Secondary Pond (GHD, Mar. 2019).
 - GHD recommended no further risk assessment or remediation was warranted beyond the proposed collection of sediment samples for analysis of black carbon (to reduce uncertainty associated with risks to biota from PCBs in sediments).
- GHD conducted additional sampling for black carbon and total organic carbon (TOC) to reduce uncertainty with risks to biota from PCBs.
 - Black carbon and TOC were found in the sediments, which confirm high binding capacity of the sediments.
 - GHD recommended no further action for the North Ditch, which was approved by U.S. EPA in Feb. 2020.



Site Media Contamination (Risk Assessments)

Updated ERA for isolated wetland area

- Area south of the former Nodular Plant was not considered in 2007 ERA because the area was poor, highly disturbed upland vegetation, however, over the past decade small wetlands have developed as a result of discontinuing dewatering associated with the former plant in the 2000s and shutting down pumps that previously helped dewater the area in 2012.
- As a result of this changed condition a risk assessment of the wetland area was completed (GHD, Jan. 2019).
 - Concluded that significant ecological risks are unlikely to occur in the newly formed wetlands
 - The wetlands are unnatural, small, isolated, and of moderate to low habitat value
 -  GHD concluded that no further evaluation of ecological risk was warranted

Site Activities Completed

Reporting

- **Sept. 2012** – Submitted RFI report to U.S. EPA
- **Apr. 2013** – Submitted CMP report to U.S. EPA. Submitted revised CMP report to U.S. EPA **June 2021**.
- **Jan. 2015** – Submitted Waste Management Unit status memorandum to MDEQ. Received approval of certification of closure for outstanding Nodular Iron Oil House RCRA Hazardous Waste Storage Area **May 2015**
- **Oct. 2011** – Obtained NPDES permit for discharge from Secondary Pond to maintain freeboard, which was renewed **July 1, 2018**
Permit was terminated on **Apr. 23, 2020**.
- **Apr. 2019** – On-Site meeting with new U.S. EPA Project Management staff
- **May 2019** – Responded to U.S. EPA comments from Site meeting.



Site Activities Completed

Reporting (continued)

- **June 2019** – U.S. EPA provided additional comments to RACER's May 2019 responses, to which RACER responded in **July 2019**. RACER follow-up included: North Ditch sediment sampling for black carbon, slag characterization/impacts to soil in IU H, and PCB-impacted soil removal in wetlands south of Former Nodular Plant (see investigations and construction sections for details)
- **Feb. 2021** – U.S. EPA completed historical review of files for Site and submitted comments, including request to resubmit CMP and conduct PFAS and 1,4-dioxane sampling
- **Mar. 2021** – RACER submitted responses to comments on U.S. EPA's Feb. 2021 comments. A follow-up memo was prepared to evaluate potential uses of PFAS at the Site in **Apr. 2021**

Site Activities Completed

Reporting (continued)

- **Jan. 2022** – U.S. EPA met with EGLE’s Remediation Advisory Team to review RACER’s proposed remedy. Comments included updating the mixing zone and conducting PFAS sampling.
- **Mar. 2022** – Submitted updated mixing zone determination
- **Oct. 2022** – EGLE updated the mixing zone based GSI criteria. At EGLE’s request RACER agreed to complete mixing zone compliance groundwater monitoring to demonstrate compliance with the GSI criteria.
- **Nov. 2022** – Letter from U.S. EPA HQ to RACER Trustee requesting PFAS sampling at this Site
- **Feb. 2023** – Submitted PFAS Sampling and Analysis Plan

Site Activities Completed

Investigations

- 2011 – Secondary Pond sediment and surface water sampling for the purpose of obtaining a NPDES permit and to further evaluate remedial alternatives
- July 2013 - North Ditch sediment and surface water sampling to characterize impacts and assist in developing alternatives to address concerns, if necessary
- March/April/August 2015 – PCB and manganese impacted soil delineation in IU G
- March/May 2016 – Secondary Pond sediment and surface water sampling to support corrective action and to assess suitability for potential establishment of mitigation wetlands

Site Activities Completed

Investigations (continued)

- Aug. 2016/Sept. 2017 – PCB impacted sediment delineation in Secondary Pond
- Apr. 2018 – Secondary Pond pore water sampling for metals
- Dec. 2019 – evaluate potential impacts of slag on surrounding soils in IU I. Concluded that no further action was identified for the area containing slag to which U.S. EPA concurred.
- Dec. 2019 – North Ditch sediment sampling for black carbon and total organic carbon. Confirmed binding properties of sediment.
- June 2021 – IU-H additional delineation of impacts in soil (TPH and cyanide). Concluded no Site-related concentrations in soil represent a potential for significant exposure to on- or off-site receptors. No further action was warranted for these two areas.

Site Activities Completed

Investigations (continued)

- Dec. 2022 – Mixing zone compliance groundwater monitoring event to demonstrate compliance with the mixing zone-based GSI criteria. It is noted that there have been no concentrations detected in groundwater at the Site that exceed the revised criteria.

Site Activities Completed

Construction

- Primary settling basin stabilization work was completed in June 2013, which involved backfilling the primary basins with on-Site stockpiled classified sand and clay
- Demolition of the WWTF and supporting facilities (trestle, pump houses, clarifiers, etc.) was completed in April 2016



- November 2019 – Removal and disposal of PCB-impacted $> 50\text{ppm}$ in sediments from secondary pond
- September 2020 – Removal and disposal of PCB-impacted soil in wetland south of Former Nodular Iron Plant

Ongoing Activities/ Activities in Progress

- Conduct PFAS and 1,4-dioxane sampling (July 2023) and submit summary report. Other activity dependent upon results.
- Conduct annual mixing zone compliance groundwater monitoring event (November 2023) and submit summary report
- Provide support to U.S. EPA during its preparation of a Statement of Basis and the Final Decision process.
- Review current monitoring well network and propose well abandonments.

Questions





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