

PFAS Soil Investigation – Supplement A Progress Update

To: John Sager, Wisconsin Department of Natural Resources
From: Lynette Carney, Barr Engineering
Subject: Superior Refinery April 26, 2018 Incident
Date: May 25, 2022
Project: 49161497.02
BRRTS Number: 02-16-581317

This PFAS Soil Investigation – Supplement A progress update report summarizes the work completed thus far from the *PFAS Soil Site Investigation Work Plan (SIWP) - Supplement A* performed by Barr Engineering Co. (Barr) at the request of Superior Refining Company LLC (SRC) at the Superior Refinery in Superior, Wisconsin (Figure 1).

Background

Site Investigation activities were initiated in response to the April 26, 2018 (Incident) at the Site in which asphalt, Therminol®, #6 fuel oil containing hydrocarbons were released and Aqueous Film Forming Foam (AFFF) containing PFAS was utilized for emergency response firefighting efforts. SRC prepared the SIWP – Supplement A (Barr, 2021b) in response to a request from the Wisconsin Department of Natural Resources (WDNR) for additional PFAS soil investigation in their letter response to the *Site Investigation Report Update (SIRU)* (Barr, 2021a) dated April 22, 2021 (WDNR, 2021). The SIWP – Supplement A scope of work was approved by WDNR in their letter dated October 18, 2021.

The purpose of this update is to inform WDNR of the progress made on the SIWP - Supplement A scope to date. As outlined in the SIWP – Supplement A, this phase of the investigation included the following objectives:

- Collect additional PFAS soil samples to delineate the horizontal extent of the Incident impacted areas where PFAS compounds were previously documented in soil; and
- Collect/assess additional information necessary to complete the PFAS soil investigation.

Site features are shown on Figure 2 and previous PFAS soil sample results are provided on Figure 3.

Field Activity Summary

The SIWP – Supplement A proposed up to 19 soil borings to be completed to evaluate PFAS soil impacts. Two Stinson Avenue Ditch (SAD) borings were complete on November 16, 2021 (Figure 4a), the six western Asphalt Tank Farm (ATF) borings were completed on November 16 and 17, 2021 (Figure 4b) and

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nine of the eleven main Asphalt Tank Farm (ATF) borings were completed on May 14, 2022 (Figure 4c). Soil samples were analyzed for the Wisconsin required suite of 33 PFAS analytical compounds. Laboratory analyses were performed by Merit Laboratories, Inc. in East Lansing, Michigan (Merit). Additionally, at each of the completed soil boring locations, field screening parameters were observed including visual, distinguishable odor, and soil organic vapor headspace.

Two soil borings remain to be completed in the main ATF as part of the SIWP – Supplement A. These remaining borings include PFAS ATF-15 and PFAS ATF-16 and are depicted in Figure 4c.

Future Investigation

The refinery rebuild activities are continuing and the remaining borings are located in heavily congested areas of the refinery. Depending on the site rebuild schedule, the remaining two borings will be completed as site access allows and are currently targeted for July 2022.

An investigation report update will be submitted within 90 days following the receipt of the final laboratory report from the remaining two borings for this phase of the Site Investigation. The investigation report update will be prepared to summarize the results of the PFAS soil delineation investigation and if necessary, this report will make recommendations for additional investigation, interim action, and/or remedial action. Final schedules will be dependent on coordination with construction contractors, weather conditions, facility accessibility during the refinery rebuild and restart activities, and receipt of analytical results.

Figures

- Figure 1 Site Location
- Figure 2 Site Features
- Figure 3 Previous Soil Sample Results
- Figure 4a PFAS Soil Sample Locations
- Figure 4b PFAS Soil Sample Locations
- Figure 4c PFAS Soil Sample Locations

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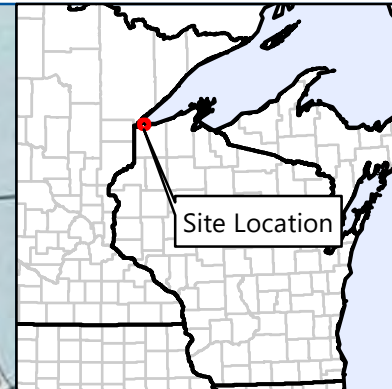
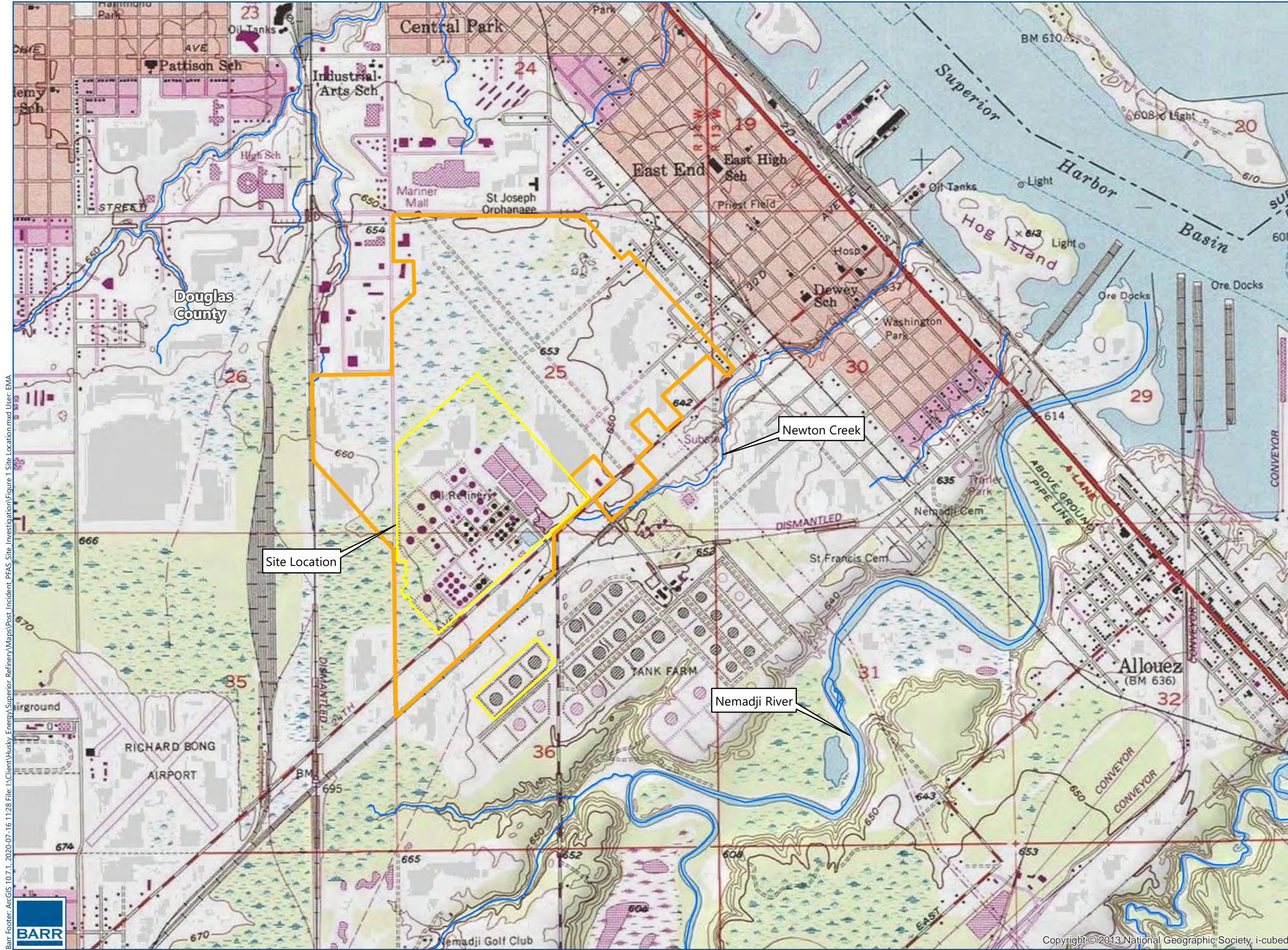
References

Barr, 2021a. *Site Investigation Report Update – Hydrocarbon and PFAS, Superior Refinery April 26, 2018 Incident, BRRTS Number: 02-16-581317*, prepared for Superior Refinery Company, LLC. February 2021.

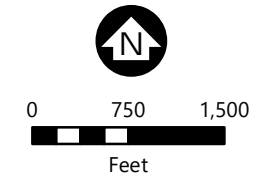
Barr, 2021b. *PFAS Soil Site Investigation Work Plan – Supplement A, Superior Refinery April 26, 2018 Incident, BRRTS Number: 02-16-581317*, prepared for Superior Refinery Company, LLC. September 2021.

WDNR, 2021. WDNR Letter with Site Investigation Report Update Review Comments, BRRTS ID 02-16-581317, Wisconsin Department of Natural Resources, April 22, 2021.

Figures



- Approximate SRC Property Boundaries for Contiguous Operations
- Approximate Fenceline Boundaries for Refining-Related Activities






SITE LOCATION
 Superior Refining Company LLC (SRC)
 Superior, WI
FIGURE 1

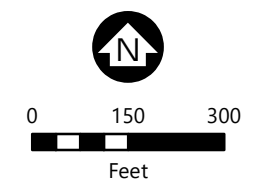
Barr Footer: ArcGIS 10.7.1, 2020-07-16 11:28 File: I:\Client\Husky Energy\Superior Refinery\Maps\Post-Incident PFAS_Site_Investigation\Figure 1 Site Location.mxd User: EMA



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-  Process Unit
-  Battery Limits
-  Approximate Fence Line Boundaries for Refining-Related Activities



SITE FEATURES
REFINING-RELATED ACTIVITIES
 Superior Refining Company LLC (SRC)
 Superior, WI
FIGURE 2

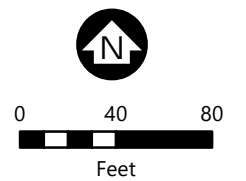


- PFAS Soil Boring Location (Nov 16-17, 2021)
- ⊕ Existing Monitoring Well
- ⊕ Existing Monitoring Well & Piezometer Pair
- PFAS Soil Boring Location (Sept 4-5, 2020)
- ▲ PFAS Hand Auger Location (PFAS-HA-# Sept 1, 2020 PFAS-HA-#B Oct 16, 2020)
- 10-Foot Contours
- 2-Foot Contours

Incident occurred April 26, 2018

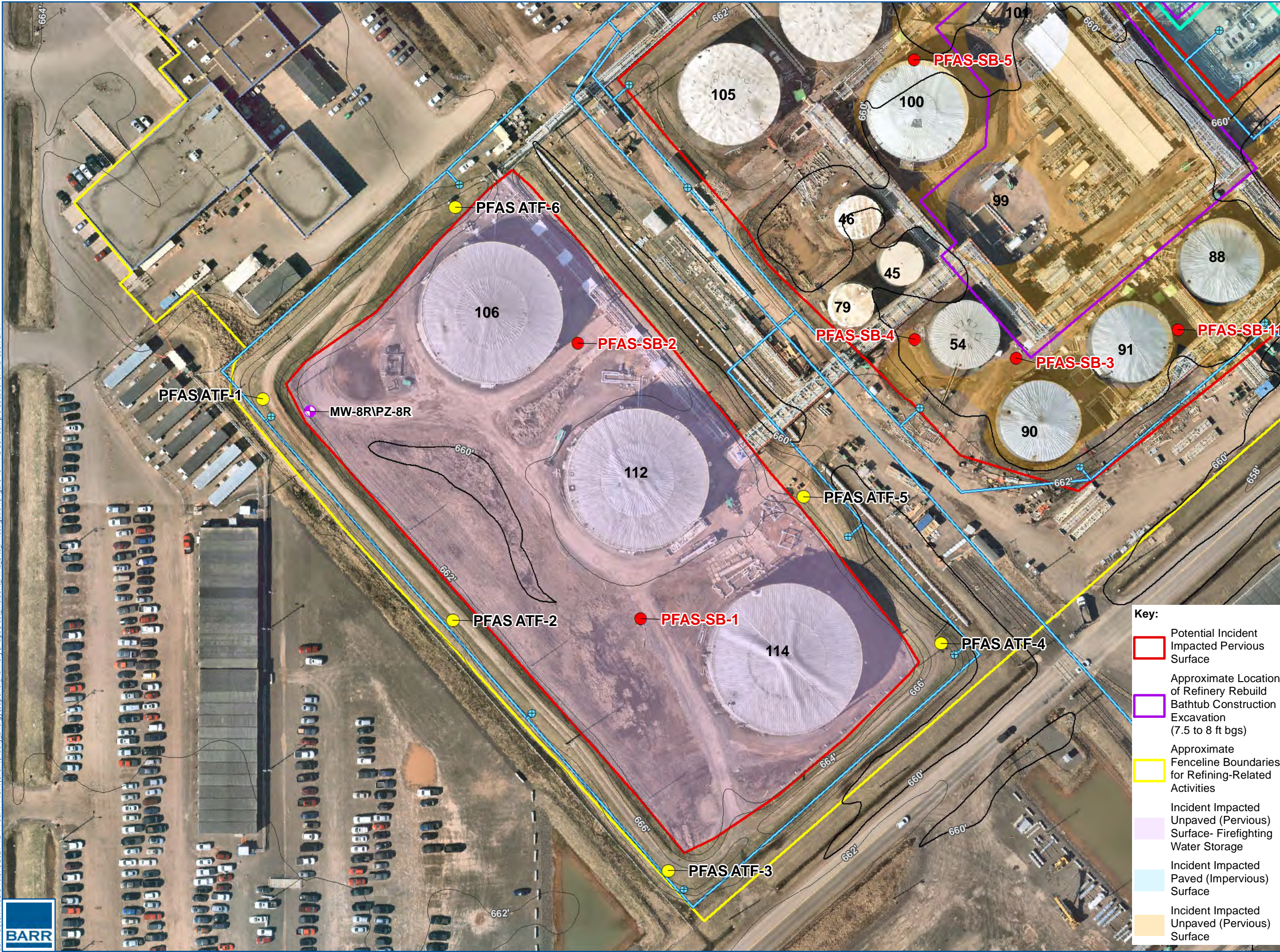
Key:
SAD = Stinson Avenue Ditch

- Key:**
- Potential Incident Impacted Pervious Surface
 - Approximate Fenceline Boundaries for Refining-Related Activities
 - PFAS Impacted Surface Water Storage and Treatment System
 - Incident Impacted Paved (Impervious) Surface
 - Incident Impacted Unpaved (Pervious) Surface
 - Stinson Ave Ditch



PFAS SOIL SAMPLE LOCATIONS
Superior Refining Company LLC (SRC)
Superior, WI
FIGURE 4a





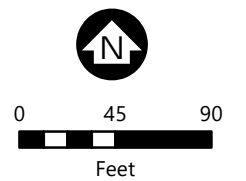
- PFAS Soil Boring Location (Nov 16-17, 2021)
- ⊕ Existing Monitoring Well & Piezometer Pair
- PFAS Soil Boring Location (Sept 4-5, 2020)
- ▲ PFAS Hand Auger Location (PFAS-HA-# Sept 1, 2020 PFAS-HA-#B Oct 16, 2020)
- ⊕ Hydrant
- Fire Main
- Definition Boundary-Edge of Post-Incident Rebuild Construction Excavation (Sheet Pile Wall)
- ~ 10-Foot Contours
- ~ 2-Foot Contours

Incident occurred April 26, 2018

Key:

- Potential Incident Impacted Pervious Surface
- Approximate Location of Refinery Rebuild Bathtub Construction Excavation (7.5 to 8 ft bgs)
- Approximate Fenceline Boundaries for Refining-Related Activities
- Incident Impacted Unpaved (Pervious) Surface- Firefighting Water Storage
- Incident Impacted Paved (Impervious) Surface
- Incident Impacted Unpaved (Pervious) Surface

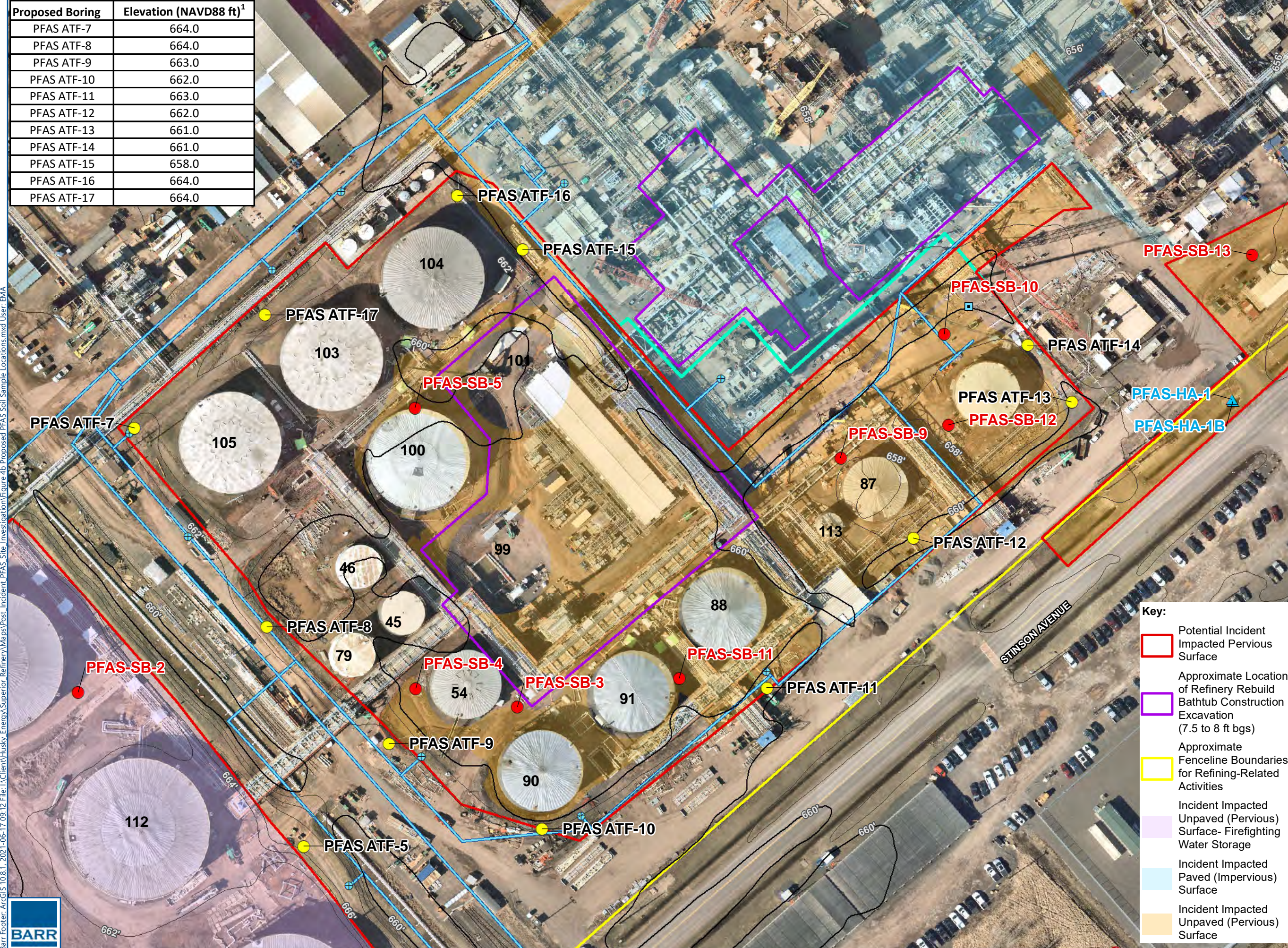
Key:
ATF = Asphalt Tank Farm



PFAS SOIL SAMPLE LOCATIONS
Superior Refining Company LLC (SRC)
Superior, WI
FIGURE 4b



Proposed Boring	Elevation (NAVD88 ft) ¹
PFAS ATF-7	664.0
PFAS ATF-8	664.0
PFAS ATF-9	663.0
PFAS ATF-10	662.0
PFAS ATF-11	663.0
PFAS ATF-12	662.0
PFAS ATF-13	661.0
PFAS ATF-14	661.0
PFAS ATF-15	658.0
PFAS ATF-16	664.0
PFAS ATF-17	664.0



- Proposed PFAS Source Monitoring Well Location
- Proposed PFAS Soil Boring
- ~ 10-Foot Contours
- ~ 2-Foot Contours
- PFAS Soil Boring Location (Sept 4-5, 2020)
- ▲ PFAS Hand Auger Location (PFAS-HA-# Sept 1, 2020 PFAS-HA-#B Oct 16, 2020)
- Definition Boundary-Edge of Post-Incident Rebuild Construction Excavation (Sheet Pile Wall)
- ⊕ Hydrant
- Fire Main

Incident occurred April 26, 2018

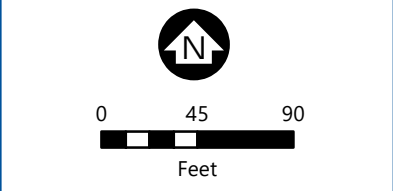
We propose to have a temporary gravel ramp built to facilitate access for the drill rig at the following locations: PFAS ATF-8, PFAS ATF-11, PFAS ATF-12, PFAS ATF-14, PFAS ATF-15, and PFAS ATF-16."

Key:

- Potential Incident Impacted Pervious Surface
- Approximate Location of Refinery Rebuild Bathtub Construction Excavation (7.5 to 8 ft bgs)
- Approximate Fenceline Boundaries for Refining-Related Activities
- Incident Impacted Unpaved (Pervious) Surface- Firefighting Water Storage
- Incident Impacted Paved (Impervious) Surface
- Incident Impacted Unpaved (Pervious) Surface

Key:
ATF = Asphalt Tank Farm

¹Elevation data from City of Superior LiDAR data collected in 2019.



PFAS SOIL SAMPLE LOCATIONS
Superior Refining Company LLC (SRC)
Superior, WI
FIGURE 4c

