



Superior Refining Company LLC

2407 Stinson Avenue

Superior, WI 54880

2018 Superior Refinery Fire Summary of Water Sampling Results for Ongoing Monitoring 6/4/2018

The purpose of this memorandum is to provide a summary of the ongoing surface water sampling activities and water quality sampling results initiated on April 26th, 2018 in response to the 2018 Superior Refinery Fire. Ongoing sampling is being completed in accordance with the approved 2018 Superior Refinery Fire Surface Water Sampling and Analysis Plan (SWSAP), developed in conjunction with the Wisconsin Department of Natural Resources (WDNR) and United States Environmental Protection Agency (USEPA).

The facility maintains a WPDES effluent discharge permit for the Refinery's Waste Water Treatment Plant (WWTP, Outfall 001) which treats surface water from the refinery process unit areas. Surface water from the facility outside of the refinery process areas is conveyed off site via the northern Stinson Avenue storm water ditch or managed through authorized storm water Outfalls 002 and 003. Both the WWTP and other site surface water discharge to the head of Newton Creek, a small stream approximately 1.5 miles long that connects to Superior Bay via Hog Island Inlet.

During the incident, both water and firefighting foam were used to extinguish the fire. The majority of these firefighting materials were contained onsite in the facility's fire water and storm water retention ponds. However, a small percentage of the firefighting materials from the early stages of the response are known to have migrated to the northern Stinson Avenue storm water ditch and into Newton Creek prior to implementation of onsite containment measures during the evening of the initial response. Following the implementation of containment measures, a treatment plan for PFAS mitigation was developed through close consultation with WDNR. The water collected on-site will be run through the on-site wastewater treatment plant and the recently installed onsite PFAS mitigation system consisting of granular activated carbon and ion-specific resin as necessary. Discharge is authorized under WPDES Permit No. WI-0046531-06-0.

Surface water sample locations were selected post incident based on known sensitivity or risk as well as field observations including safety of sampling personnel, site accessibility and visual impact assessments. All samples collected are being analyzed by accredited third party laboratories. Ongoing surface water sample locations are presented on Figure 1.

A summary of water sampling results for ongoing monitoring are contained in Table 1. For ease of reference, the following units of measure and identifiers have been defined as follows:

mg/L = milligrams per liter which is the equivalent of parts per million (ppm)

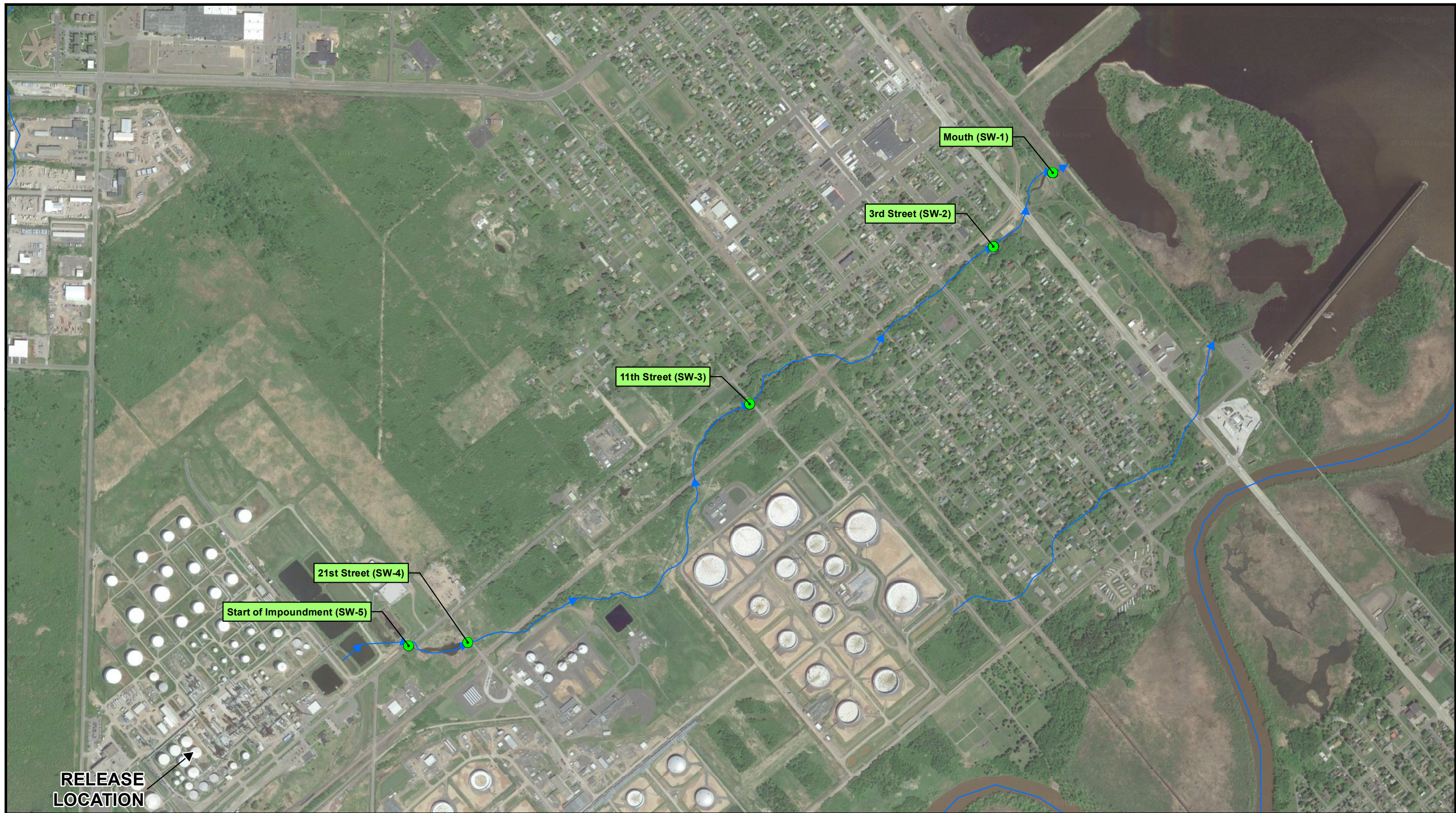
ug/L = micrograms per liter which is the equivalent of parts per billion (ppb)

ng/L = nanograms per liter which is the equivalent of parts per trillion (ppt)

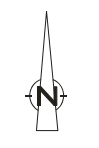
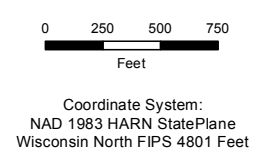
ND = Indicates the analyte was not detected in the analysis and the number represented inside the () indicates the detection limit.

J = Indicates the analyte estimated value was less than reporting limit but greater than the method detection limit

- = Indicates analyte was not analyzed



Sources: 2015 TIGER/Line Shapefiles, prepared by the U.S. Census Bureau, 2015; U.S. Geological Survey, National Geospatial Technical Operations Center - National Elevation Dataset, 2015; USGS High Resolution National Hydrology Dataset. Imagery © Google.



- Legend**
- Surface Water Sample Location
 - ➔ Surficial Drainage Direction (USGS NHD)



HUSKY ENERGY – SUPERIOR REFINERY FIRE
SUPERIOR, WISCONSIN

SURFACE WATER SAMPLING LOCATIONS

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FIGURE 1

