June 9, 2018

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        Kristina Miller, United States Environmental Protection Agency
        James Mitchell, United States Environmental Protection Agency
        Jacob Hassan, United States Environmental Protection Agency
        Robert Thiboldeau, Wisconsin Department of Health Services
        John Sager, Wisconsin Department of Natural Resources
        Pat Schanen, Douglas County
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        Dave Longsdorf, Douglas County

Ref. No.: 1156937

From:   GHD/dh/168

Tel:  501-224-1926

CC:  Dyron Hamlin, MS, PE, CIH; Bradley Free

Subject:  Summary of Perimeter Air Monitoring Results: June 8, 2018 – Between 00:00 and 23:59

The purpose of this memorandum is to provide Superior Refining Company LLC (SRC) site management and local, state and federal regulators a summary of GHD’s site perimeter air monitoring activities and results at the Husky Superior Refinery conducted from June 8, 2018 between 00:00 and 23:59 Central Daylight Time (CDT). Air monitoring activities were conducted in accordance with the Air Monitoring Plan, as amended, developed in consultation with the United States Environmental Protection Agency, Wisconsin Department of Natural Resources, Wisconsin Department of Health Services, Douglas County Emergency Management Agency, and Douglas County Health and Human Services.

GHD continued to monitor air quality with 15 AreaRAE monitors located at the refinery site perimeter. Monitor maintenance was conducted by GHD following the Site protocols. The AreaRAE monitors were equipped with a photo ionization detector (PID) (10.6 eV lamp) for monitoring volatile organic compounds (VOCs) and electrochemical sensors specific for carbon monoxide (CO), hydrogen sulfide (H₂S), sulfur dioxide (SO₂) and flammability (LEL). GHD monitored meter status and continuous air quality monitoring results via telemetry from the refinery control room. Results were documented through data logging.

VOC detections were logged above the community action levels at one monitor and H₂S detections were logged above the community action levels at three monitors on June 8, 2018. The detections were not sustained above the community action levels. Therefore, the detections do not constitute as an exceedance of community action levels.
Perimeter monitoring locations and status with respect to community action levels over the period of June 8, 2018 between 00:00 and 23:59 are presented on Figure 1.

Perimeter air monitoring results for VOCs, H$_2$S, and SO$_2$ over this period are presented on Figures 2 through 4, respectively.

The information contained in this memorandum will be considered preliminary until a final Quality Assurance/Quality Control (QA/QC) review of the data is completed. At the completion of the project, all data collected through real-time monitoring will be compiled, summarized, and reported to SRC. Data contained in the final report will go through GHD’s final QA/QC process, including review by a GHD Certified Industrial Hygienist (CIH).
SUMMARY OF PERIMETER ZONE AIR MONITORING RESULTS

JUNE 8, 2018 - 00:00 TO 23:59

HUSKY ENERGY – SUPERIOR REFINERY FIRE
SUPERIOR, WISCONSIN

Legend
Perimeter Monitoring Locations
- COIs Above Community Action Levels
- COIs Below Community Action Levels

GHD HOST LOCATION
RELEASE LOCATION

COORDINATE SYSTEM:
NAD 1983 HARN StatePlane Wisconsin North FIPS 4801 Feet

GIS File: Q:\GIS\PROJECTS\11156000s\11156937\Layouts\PRES007\11156937-00(PRES007)GIS-WA156.mxd

FIGURE 1
## PERIMETER ZONE AIR MONITORING RESULTS - VOCs (PPM)

**Source:**
- Coordinate System: NAD 1983 HARN StatePlane Wisconsin North FIPS 4801 Feet

### RICHARD I. BONG AP (W) Wind Rose

**Legend**
- Perimeter Monitoring Locations
  - COIs Above Community Action Levels
  - COIs Below Community Action Levels

### Graphs
- **Source:** GIS File: Q:\GIS\PROJECTS\11156000s\11156937\Layouts\PRES007\11156937-00(PRES007)GIS-WA153.mxd

**FIGURE 2**

**HUSKY ENERGY – SUPERIOR REFINERY FIRE**

**SUPERIOR, WISCONSIN**

Coordinate System: NAD 1983 HARN StatePlane Wisconsin North FIPS 4801 Feet

HUSKY ENERGY – SUPERIOR REFINERY FIRE
SUPERIOR, WISCONSIN

PERIMETER ZONE AIR MONITORING RESULTS - SO2 (PPM)
JUNE 8, 2018 - 00:00 TO 23:59

FIGURE 4