



Community Air Monitoring Plan - 2018 Superior Refinery Fire

Husky Energy Inc.

Husky Superior Refinery, Superior, Wisconsin

GHD | 11719 Hinson Road Suite 100 Little Rock, Arkansas 72212

11156937



Table of Contents

1.	Introduction and Objectives	1
2.	Community Exposure Guidelines	1
3.	Real-Time Air Monitoring	2
4.	Integrated Air Sampling	4
5.	Quality Assurance/Quality Control (QA/QC) and Reporting	5

Table Index

Table 1	Community Real-Time Monitoring Action Levels	2
Table 2	Real-Time Monitoring Equipment.....	2
Table 3	Summary of Analytical Air Sampling Methods	5



1. Introduction and Objectives

At the request of Husky Energy Inc. (Husky), GHD Services Inc. (GHD) is providing air monitoring and public health support related to an incident involving an asphalt fire. The incident occurred at the Husky Superior Refinery located in Superior, Wisconsin. These services are provided to assist Husky with ensuring the health and safety of members of the surrounding community and the environment from compounds of interest (COIs) that may be emitted during the incident, and during subsequent response and remediation efforts.

The purpose of this community air monitoring plan is to address air monitoring/sampling during the response and remedial phases of the project. This plan is based upon the overall Site Air Monitoring Plan developed and implemented on Thursday, April 26, 2018, which includes both work-area and community air monitoring strategies. This plan represents the work which has taken place since implementation of the community air monitoring strategies contained in that plan, with additional updates designed to reflect current Site conditions. This plan was prepared to allow agencies with oversight specific to community monitoring only (and not work area monitoring) to approve the entirety of the plan's contents.

The specific objectives of this plan include the following:

- Perform real-time air monitoring for COIs at the perimeter of the incident site, surrounding area, and evacuation zone to characterize potential exposures to members of the community.
- Comply with the air monitoring requirements of the applicable standards and guidelines.
- Establish and implement procedures to ensure appropriate responses to elevated levels of COIs. This may include arranging for a timely evacuation of the area surrounding the site in the event of hazardous concentrations of airborne asphalt vapors or other COIs.
- Communicate the hazards associated with exposures to members of the neighboring community and other potential receptors.
- Respond to citizen concerns regarding re-occupancy of their residences or businesses.

GHD will continue air monitoring services until the project is deemed complete by Unified Command and community exposures to gases/vapors/combustion by-products associated with the incident are eliminated. The air monitoring data will be collected and compiled in accordance with established public health guidelines and practices. In addition, the results will be communicated to Husky and others as required and/or as necessary to ensure the safety and health of potentially affected individuals.

2. Community Exposure Guidelines

Many of the standards or guidelines listed in Table 1 are intended to protect the general public and sensitive community members from lifetime exposures to each COI. Emergency exposures are generally much shorter and therefore different community standards are warranted for action levels



at community locations. Table 1 summarizes the proposed Community Real-time Monitoring Action Levels for this response.

Table 1 Community Real-Time Monitoring Action Levels

COI	Averaging Period	Concentration	Limiting Effect/Basis
Hydrogen Sulfide	1-hour average	0.51 ppm	USEPA AEGL-1
Total VOCs	1-hour average	1 ppm	Based on half of Stoddard Solvent Action Level (100 ppm) divided by 42
Benzene	1-hour average	0.053 ppm	Texas Effects Screening Level – 1 hour averaging period
Hydrogen Fluoride	1-hour average	1 ppm	USEPA AEGL-1
Ammonia	1-hour average	30 ppm	USEPA AEGL-1
Particulate matter – TSP, PM10 or PM2.5	1 hour average	100 µg/m ³	Adopted from the USEPA Guide for Wildfire Smoke ¹
Comments: <ul style="list-style-type: none"> Monitoring throughout the community will be conducted for COI and recorded as a 1-minute average. If the one-minute average is above the action level of a COI, monitoring will continue for the averaging period listed for that action level. If the action level of a COI is exceeded over the averaging period, exposed community members will be notified as described in the Addendum to the overall Site Air Monitoring Plan and reproduced below. Mitigation measures will also be implemented as required, to reduce off-site concentrations. Evacuation or shelter-in-place decisions will be discussed with the appropriate authorities through the channels described. 			

3. Real-Time Air Monitoring

Community real-time air monitoring will be conducted using real-time air monitoring techniques described below, for the duration of the cleanup and recovery phases of the project. The equipment used for conducting the monitoring is described in Table 2 below.

Table 2 Real-Time Monitoring Equipment

COI	Equipment Model	Detection Limit
Hydrogen Sulfide	MultiRAE Plus 5-gas Monitor	0.1 ppm
	AreaRAE 5-gas Monitor	0.1 ppm
Total VOCs	MultiRAE Plus 5-gas Monitor	0.1 ppm
	AreaRAE 5-gas Monitor	0.1 ppm
Benzene	UltraRAE Benzene Monitor	0.053 ppm

¹ Wildfire Smoke: A Guide for Public Health Officials. Revised May 2016. US Environmental Protection Agency; US Forest Service; US Centers for Disease Control and Prevention; California Air Resources Board.



Table 2 Real-Time Monitoring Equipment

COI	Equipment Model	Detection Limit
Hydrogen Fluoride	Dräger X-am 5100	0.1 ppm
Ammonia	MultiRAE Plus 5-gas Monitor	0.97 ppm
	AreaRAE 5-gas Monitor	0.97 ppm
Particulate matter – TSP, PM10 or PM2.5	DusTrak II and DusTrak DRX	1 µg/m ³

Instruments will be calibrated and operated in general accordance with the manufacturer's specifications or applicable test/method specifications.

The strategies employed at the site are reflected in the overall Site Air Monitoring Plan, and reproduced here. The community air monitoring plan has specifically been prepared to address the following Site activities:

1. A fixed perimeter monitoring system has been deployed to the area currently delineated as the hot zone. This monitoring is being conducted in accordance with the Site action levels described in Table 2 of the overall Site Air Monitoring Plan, to address work area health and safety. Although the levels indicated in that plan are not the purview of this Community Air Monitoring Plan, the monitoring being conducted in the hot zone will be used as a guide to inform the potential for elevated levels at the refinery perimeter and in the community. A map of AreaRAE locations, including hot zone AreaRAEs, is attached to this Community Air Monitoring Plan as Attachment A.
2. A fixed perimeter monitoring system has been deployed to the perimeter of the refinery, within, but at, the fenceline. This monitoring will be used to provide information regarding air quality in close proximity to potential sources of emissions of COI during the cleanup and recovery phases of the project.
3. Mobile community monitoring teams continue to conduct monitoring in the area outside the facility, with a focus on downwind monitoring, while the cleanup and recovery phases of the project are ongoing.

The communication of any exceedances of community action levels described in Table 1 of this plan, will be conducted as follows:

1. Monitoring teams observing any of the three monitoring systems described in this addendum will communicate exceedances to the GHD on-site shift manager
2. The GHD on-site shift manager will communicate exceedances to the Environmental Unit Lead.
3. The Environmental Unit Lead will communicate with Incident Command, at which point appropriate procedures will be implemented as per IC procedures.



Specifically, if airborne concentrations of the chemicals listed in Table 1 are detected above the community action levels, the following designated public health and environmental personnel will be contacted:

Douglas County Health and Human Services, contact one of the following:

Pat Schanen 218.390.5347

Kathy Ronchi 218.390.3762

Dave Longsdorf 218.340.2060

If no one above can be reached, contact one of the following Douglas County Emergency Management:

Keith Kessler 218.391.1896

Dave Sletten 715.817.1899

If evacuation is recommended, also contact:

WDNR Hotline 800.943.0003

USEPA – call NRC first, 800.424.8802, then USEPA David Morrison – 651.706.4116

In addition to the above notification, if a sustained off-site release occurs during the response, recovery, and cleanup operations, GHD will work with USEPA to determine locations to deploy resources as a team to ensure the best distribution of air monitoring resources.

Daily monitoring summaries and maps will be provided to the local health department for dissemination to the public through their website.

4. Integrated Air Sampling

The real-time air monitoring recommended for the site is sufficient to detect the levels of COI at or below the recommended community action levels. If additional information is needed to determine levels of COI with lower detection limits, or to obtain laboratory data to confirm real-time air monitoring results, or other needs for analytical sampling are identified by Unified Command, air samples will be collected and analyzed in accordance with established laboratory analytical methods. The analytical air sampling methods for the COIs are summarized in Table 3.



Table 3 Summary of Analytical Air Sampling Methods

Analytical Method	List of Analytes	Sample Media	Flow Rate (mL/min)	Typical Sample Volume
OSHA 1005	Total VOCs	3M 3520 OVM Passive Dosimeter	N/A	N/A
NIOSH 1500/1501	Benzene, Total Hydrocarbons	3M 3520 OVM Passive Dosimeter	N/A	N/A
NIOSH 0500	Total or Respirable Dust	2 and 3 Piece Pre-weighed PVC cassettes	2000	960 Liters
Modified EPA-TO-17	VOCs	Radiello™ 130	N/A	N/A
EPA-TO-15	VOCs	Tedlar Bag Grab Sample	N/A	1 Liter

Samples will be shipped to Galson Laboratories, an American Industrial Hygiene Association (AIHA) accredited laboratory, to Pace Analytical Laboratory in Minneapolis, MN (Tedlar bags), or to Eurofins / Air Toxics Laboratory in Folsom, CA. Media will be provided to the laboratory for field blank sample comparison.

5. Quality Assurance/Quality Control (QA/QC) and Reporting

Real-time data collected will be stored in an on-site electronic archive. Manually-collected real-time data and integrated sampling information will be reviewed to ensure accuracy and completeness. The manually-collected monitoring/sampling data will be entered into an electronic database (spreadsheet or equivalent), and will undergo a quality assurance and quality control (QA/QC) review. Data entry forms and field notes will be kept on-site and retained for reference upon completion of the project. If necessary, full laboratory analysis data packages will be provided, and associated data validation processes will be arranged.

During the project, interim reporting of results may be required. This may include data summaries, maps, or other presentations of preliminary monitoring and sampling results. For example, a data summary will be provided to Husky every 24 hours, once data have undergone an initial QA/QC. Such reporting will be considered preliminary, as a final QA/QC of the data will not be complete. At the completion of the project, a report will be prepared in which data collected through real-time monitoring and integrated sampling analyses will be compiled, summarized, and reported to Husky. Data contained in the final report will have been through the QA/QC process, will be reviewed by a Certified Industrial Hygienist (CIH), and will be considered final.

This plan was prepared by GHD based on information available and provided to GHD on April 29, 2018. As additional information becomes available, the plan may be revised as necessary and appropriate to meet the objectives as previously stated.

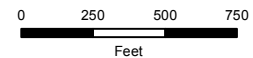


Attachment A

Approximate AreaRAE Monitoring Locations



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; Imagery © Google.



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



Legend

- Perimeter AreaRAE Locations
- Source Zone AreaRAE Locations
- Hot Zone Perimeter



HUSKY ENERGY – SUPERIOR REFINERY FIRE
SUPERIOR, WISCONSIN

AIR MONITORING PLAN

11156937-00
Apr 30, 2018

FIGURE 1