

U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Superior Refining Company Explosion - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region V

**Subject:** **POLREP #4**  
**Progress Report**  
**Superior Refining Company Explosion**  
  
**Superior, WI**

**To:** Mark Johnson, ATSDR  
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Nicholas Alexander, Superior Police  
Steve Panger, City of Superior  
Erin E CDR Williams, MSU Dulluth

**From:** David Morrison, OSC

**Date:** 6/13/2018

**Reporting Period:** May 2, 2018 - June 13, 2018

**1. Introduction**

**1.1 Background**

<b>Site Number:</b>	<b>Contract Number:</b>
<b>D.O. Number:</b>	<b>Action Memo Date:</b>
<b>Response Authority:</b> OPA	<b>Response Type:</b> Emergency
<b>Response Lead:</b> EPA	<b>Incident Category:</b>
<b>NPL Status:</b> Non NPL	<b>Operable Unit:</b>
<b>Mobilization Date:</b> 4/26/2018	<b>Start Date:</b> 4/26/2018
<b>Demob Date:</b>	<b>Completion Date:</b>
<b>CERCLIS ID:</b>	<b>RCRIS ID:</b>
<b>ERNS No.:</b>	<b>State Notification:</b>
<b>FPN#:</b> E18516	<b>Reimbursable Account #:</b>

**1.1.1 Incident Category**

Emergency Response

**1.1.2 Site Description**

**1.1.2.1 Location**

The Superior Refining Company Refinery is located at 2407 Stinson Ave, Superior, Douglas County, WI 54880. The refinery is

located southeast of the city center of Superior. Lake Superior is located to the north/northeast of the refinery.

**1.1.2.2 Description of Threat**

An explosion in the facility resulted in an asphalt tank fire and a significant smoke plume as well as several smaller fires, and the threat of a hydrogen fluoride (HF) release to the community. Oil continued to leak from damaged tanks and piping on the refinery, resulting in a potential continued discharge to Newton Creek. Newton Creek drains into Lake Superior. EPA had observed a sheen leaving the refinery property in the ditch and in the Creek on 4/27 and 4/28, 2018.

**1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results**

Following arrival at the scene, EPA began to conduct air monitoring.

**2. Current Activities**

**2.1 Operations Section**

**2.1.1 Narrative**

On 4/26/18 at approximately 1000 CST, Superior Refining Company was shutting down equipment at the refinery when an explosion occurred. It is believed that an unknown hydrocarbon was released, which ignited. By 1100 CST, the small fire was extinguished. During the explosion, however, a piece of shrapnel damaged tank 101, which was full of asphalt (50,400 barrels). Around 1200 CST, a second fire began in the breached Tank 101. Due to the ensuing fire, the refinery was subsequently evacuated. A community evacuation was also ordered by the Fire Department. The evacuation was approximately 6 miles wide by 10 miles long downwind, primarily driven in size due to a concern about a potential failure of a tank containing 15,000 pounds of hydrofluoric acid (HF).

The fire spread at the facility to process units, ground fires by tanks 103 and 104, a vac-tower, a crude unit, tank 100, gate 101, tank 103 mixer, and the FCC main column. 7 large (50K barrel) tanks were affected and had insulation burned off. The fire in tank 101 was initially extinguished at 1842 CST, however, hot spots associated with the tank were not completely extinguished until 2355 CST.

Superior Refining Company filed an NRC report (#1210367) at 1126 EST on 4/26/18 reporting an air release of an unknown hydrocarbon which resulted in an explosion.

**2.1.2 Response Actions for Current Reporting Period**

05/02 – 06/13, 2018: The following activities have occurred or are occurring:

Environmental Response:

- Oil recovery and cleanup. On-site cleanup of No. 6 fuel oil and (sticky) asphalt oil continues. Currently, approximately 1,900 tons of asphalt oil have been recovered of the estimated 22,000 barrels released. Oil boom is being maintained at storm water ponds and Newton creek to capture any unintended new releases until cleanup is done. The company is regularly collecting surface water samples from the onsite storm water ponds, and at multiple locations along the length of Newton Creek under coordination with the WI DNR.

- Protections and deterrents for wildlife, including fencing, flagging, canine patrols and laser stations are in place. A laser light system, which uses lasers mounted on tripods to create a programmed pattern, has proven successful in deterring birds, particularly at night. An animal rehabilitation facility has been authorized by U.S. Fish and Wildlife Service and set up on site to treat wildlife impacted by the incident. Wildlife fatalities to date are one common grackle, one crow, one small unidentified bird, one weasel, one fawn and two frogs. Two oiled mallards and three geese were successfully treated and cleaned in the facility and have been released at the Douglas County Wildlife Area. One new mallard is now in treatment and three additional geese are expected to be released this weekend. Approval has been given to relocate four threatened geese families.

- Air Monitoring efforts are continuing until the site is stable and the damaged units' de-inventory process is complete. There are currently 26 fixed air monitoring locations collecting roughly 5,000 data points per day each along with community and downwind monitoring (on the order of 700 locations/week). HF air monitoring is also integrated into the air sampling. None of the community monitoring efforts have shown concentrations above health-based thresholds. The results of the community monitoring program can be found on the Douglas County Department of Health and Human Services website.

- Other: The off-site tank insulation and debris has been collected from areas from the day of the fire and the WWTP is currently operating under monitoring criteria from the WI DNR.

Threat Mitigation Efforts:

- The Facility is working to ensure that light end hydrocarbons are removed from the leaning tower before crane removal operation efforts begin.

- The Facility continues to develop and implement systems' hydrocarbon de-inventory plans.

- Efforts are underway to systematically restore power to parts of the refinery,

- Efforts are underway to Rebuild Control Systems for many major refinery components.

**2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)**

The refinery is owned by Superior Refining Company, LLC. A notice of federal interest has been issued to Superior Refining Company, LLC.

**2.1.4 Progress Metrics**

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>
No.6 FO/water		tbd		Oil Water Separation	
Asphalt Oil		1900 tons			Mixed debris landfilling

## 2.2 Planning Section

### 2.2.1 Anticipated Activities

EPA will continue to ensure that Superior Refining Company's air monitoring plan is maintained while continued operations at the facility occur that could result in off-site releases. It is anticipated that the damaged equipment de-inventory processes should be complete by end of June, at which time, the Incident command system will likely be stood down and air monitoring will be significantly reduced in scope.

WI DNR will continue to oversee wildlife response efforts until oil is fully recovered from open areas on the site. Likewise, Newton Creek and off-site water impacts will be monitored until no further threats from runoff can occur.

### 2.2.1.1 Planned Response Activities

Continue to monitor the response efforts

### 2.2.1.2 Next Steps

Continue to monitor the response efforts.

### 2.2.2 Issues

None

## 2.3 Logistics Section

R5 EPA Emergency Response Staff assisted with logistics, EPA START contractor facilitated EPA air monitoring efforts

## 2.4 Finance Section

### 2.4.1 Narrative

An FPN was initially opened for \$50,000. An increase to \$100,000 was approved by the fund center on 4/28/18. This was subsequently raised to \$125,000 on 05/29/18.

### Estimated Costs \*

	Budgeted	Total To Date	Remaining	% Remaining
<b>Extramural Costs</b>				
TAT/START	\$50,000.00	\$0.00	\$50,000.00	100.00%
<b>Intramural Costs</b>				
<b>Total Site Costs</b>	\$50,000.00	\$0.00	\$50,000.00	100.00%

\* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

## 2.5 Other Command Staff

### 2.5.1 Safety Officer

OSC and Superior Refining Safety Officer are filling this role.

### 2.5.2 Liaison Officer

OSC and Superior Refining Liaison Officer are filling this role.

### 2.5.3 Information Officer

Rachel Bassler,  
Francisco Arcaute

## 3. Participating Entities

### 3.1 Unified Command

Superior Refinery and Husky Corporation are currently in response lead. EPA and WI DNR are monitoring activities.

### 3.2 Cooperating Agencies

Superior Fire Department  
Douglas County Emergency Management  
Superior Police Department  
Wisconsin Department of Natural Resources (WDNR)  
Minnesota Pollution Control Agency (MPCA)  
Agency for Toxic Substances and Disease Registry (ATSDR)  
Douglas County Health Department  
Wisconsin Department of Health Services  
Minnesota Department of Health  
Occupational Safety and Health Administration (OSHA)  
Chemical Safety Board (CSB)

## 4. Personnel On Site

EPA: One on-site as needed, community open house on June 5th.  
WDNR: 1, regularly on site for daily briefings.

## 5. Definition of Terms

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

WDNR	Wisconsin Department of Natural Resources
EPA	Environmental Protection Agency
ERRS	Emergency and Rapid Response Service
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
OPA	Oil Pollution Act
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NRC	National Response Center
OSC	On Scene Coordinator
RCRIS	Resource Conservation and Recovery Act Information System
PRP	Potentially Responsible Party
CWA	Clean Water Act
START	Superfund Technical Assessment and Response Team
US FWS	United States Fish and Wildlife Service
USCG	United States Coast Guard

## **6. Additional sources of information**

### **6.1 Internet location of additional information/report**

Additional information can be found on the Douglas County Website: <https://www.douglascountywi.org/>

### **6.2 Reporting Schedule**

Final Polrep TBD

## **7. Situational Reference Materials**

Initial Air Monitoring Plan,  
Wildlife Response Plan,  
Water Sampling Plan,  
Waste Management Plan.