



U. S. Chemical Safety and Hazard Investigation Board

RECOMMENDATION STATUS CHANGE

SUMMARY

Report:	Husky Energy Superior Refinery Explosion and Fire
Recommendation Number:	2018-02-I-WI-R10
Date Issued:	December 29, 2022
Recipient:	Cenovus Energy, Inc.
New Status:	Open – Acceptable Response or Alternate Response
Date of Status Change:	October 23, 2024

Recommendation Text:

Include and maintain the FCC technology licensors' operating manuals in the process safety information packages for all FCC units, including the FCC unit at Cenovus Superior Refinery.

Board Status Change Decision:

A. Rationale for Recommendation

On the morning of April 26, 2018, the primary and sponge absorber of the Husky Energy Superior Refinery exploded during the planned shutdown of the facility's fluidized catalytic cracking (FCC) unit. Debris from the explosion struck an asphalt storage tank approximately 200 feet away. Asphalt leaked from the damaged tank and over the containment wall spreading into the FCC and crude unit operating areas before eventually catching fire. Husky Superior Refinery reported that 39,000 pounds of a flammable hydrocarbon vapor mixture as well as approximately 17,000 barrels of asphalt were released during the incident.

36 refinery and contract workers received medical treatment as the result of the incident. Of those 36 injuries, 11 met the criteria to be considered OSHA recordable. None of the injuries suffered were deemed life-threatening. It was reported that the explosion shook buildings up to a mile away. The plume from the burning asphalt was visible from neighboring communities. An evacuation order was issued by county officials to protect the public from the smoke plume and as a precaution for fear the incident would escalate.

As a result of the incident the facility was destroyed. The incident resulted in \$550 million of on-site and \$110,000 of off-site property damage. This incident was recorded as having the 33rd largest adjusted property damage loss in the hydrocarbon extraction, transport, and processing industry since 1974¹. In September 2019 a permit was issued to rebuild the refinery and construction began soon after. Husky Energy merged with Cenovus Energy, Inc., a Canadian oil and natural gas company, on January 1, 2021. The refinery is expected to resume operations in 2023 as Cenovus Superior Refinery.

¹ Marsh JLT Specialty, "100 Largest Losses in the Hydrocarbon Industry," 2022. [Online]. Available: <https://www.marsh.com/us/insights/research/100-largest-losses-hydrocarbons-industry-html>. [Accessed 5 October 2022]

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including ineffective transient operation safeguards, a lack of process knowledge, ineffective process safety management systems, a lack of available industry knowledge and guidance, and failures in emergency preparedness. As a result of these findings, the CSB issued three recommendations to Cenovus Energy, Inc. This status change summary addresses CSB Recommendation No. 2018-02-I-WI-R10.

B. Response to the Recommendation

Cenovus Energy, Inc. notified the CSB that they have implemented the recommendation at their Superior, WI refinery and are working towards addressing this recommendation at their other refineries. Due to the complexity of the other refineries a third party was contracted. Cenovus Energy, Inc. expects that the recommendation will be fully implemented during January 2025. Once the recommendation is fully implemented, the CSB can evaluate this recommendation for closure.

C. Board Analysis and Decision

Based upon the information above, the Board voted to change the status of CSB Recommendation No. 2018-02-I-WI-R10 to: “Open – Acceptable Response or Alternate Response.”