



## U. S. Chemical Safety and Hazard Investigation Board RECOMMENDATION STATUS CHANGE SUMMARY

<b>Report:</b>	Husky Energy Superior Refinery Explosion and Fire
<b>Recommendation Number:</b>	2018-02-I-WI-R6
<b>Date Issued:</b>	December 23, 2022
<b>Recipient:</b>	Cenovus Superior Refinery
<b>New Status:</b>	Open – Awaiting Response or Evaluation/Approval of Response
<b>Date of Status Change:</b>	Not Applicable – Initial Status

### Recommendation Text:

*Develop and implement an FCC unit operator, supervisor, and manager training program based on the licensor's guidance and on available industry guidance. Elements of the training program shall include:*

- a) A set of written training materials (such as a manual) consistent with the licensor's technology information, encompassing:*
- i) FCC equipment;*
  - ii) Normal operations;*
  - iii) Transient operations (including startup, shutdown, standby, and emergency); and*
  - iv) Case studies of industry FCC industry incidents, including ExxonMobil Torrance (2015) and this incident; and*
- b) Training delivery methods including:*
- i) Group and individual training; and*
  - ii) Simulator training for board operators.*

### 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 33<sup>rd</sup> largest adjusted property damage loss in the hydrocarbon extraction, transport, and processing industry since 1974<sup>1</sup>. 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.

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 seven recommendations to Cenovus Superior Refinery. This status change summary addresses **CSB Recommendation No. 2018-02-I-WI-R6**.

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<sup>1</sup> 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].