



# 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-R5                                   |
| <b>Date Issued:</b>           | December 23, 2022                                 |
| <b>Recipient:</b>             | Cenovus Superior Refinery                         |
| <b>New Status:</b>            | Closed – Acceptable Action                        |
| <b>Date of Status Change:</b> | February 16, 2024                                 |

#### Recommendation Text:

*Develop guidance for analyzing operating procedures to improve transient operation hazard evaluations during PHAs. Refer to section Chapter 9.1 in the CCPS publication Guidelines for Hazard Evaluation Procedures, 3rd Ed. or an appropriate equivalent resource to develop the guidance. Incorporate the guidance into the appropriate Cenovus Superior Refinery PHA procedural documents and policies.*

#### 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 and Occupational Safety and Health Administration (OSHA) recordable injury. 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 onsite 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 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

<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].

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 one recommendation to Cenovus Superior Refinery (Cenovus). This status change summary addresses CSB Recommendation No. 2018-02-I-WI-R5.

**B. Response to the Recommendation**

Cenovus notified the CSB on November 8, 2023, that they had successfully implemented the recommendation. Cenovus incorporated a policy into their PHA procedural documents, which was developed using the guidance recommended by the CSB, for analyzing operating procedures and evaluating transient operation hazards. Cenovus provided ample documentation in support of their assertions which was reviewed by the CSB and determined to be sufficient.

**C. Board Analysis and Decision**

Based upon the information above, the Board voted to change CSB Recommendation No. 2018-02-I-WI-R5 to: "Closed – Acceptable Action."