



U. S. Chemical Safety and Hazard Investigation Board

RECOMMENDATION STATUS CHANGE

SUMMARY

Report:	Husky Energy Superior Refinery Explosion
Recommendation Number:	2018-02-I-WI-R14
Date Issued:	December 29, 2022
Recipient:	American Petroleum Institute (API)
New Status:	Closed - Acceptable Action
Date of Status Change:	July 10, 2026

Recommendation Text:

Modify the appropriate existing recommended practice (for example, API RP 553, Refinery Valves and Accessories for Control and Safety Instrumented Systems) to include information about the purpose, design, maintenance, and testing of additional FCC catalyst slide valve components, including the slide valve body. If an API product other than API RP 553 is modified, API RP 553 should guide the reader to that reference.

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

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].

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 three recommendations to the American Petroleum Institute. This status change summary addresses CSB Recommendation No. 2018-02-I-WI-R14.

B. Response to the Recommendation

API Published the 3rd Edition of API Recommended Practice 553 *Refinery Valves and Accessories for Control and Safety Instrumented Systems* (API RP 553) during May 2026². This revision addresses all the recommendations requirements in new text added to Chapter 11 of API RP 553.

C. Board Analysis and Decision

API revised API RP 553 to include new information about the purpose, design, maintenance, and testing of fluid catalytic cracking (FCC) catalyst slide valves as envisioned by the Board in issuing this recommendation.

The CSB appreciates the work of the API, and its Subcommittee on Instruments and Controls (SOICS)³, in revising this critical industry standard. Based upon the information above, the Board voted to change CSB Recommendation No. 2018-02-I-WI-R14 to: “Closed – Acceptable Action.”

² <https://www.apiwebstore.org/standards/553>

³ SOICS is a subcommittee of API’s Committee on Refinery Equipment (CRE). They are responsible for the technical content of API RP 553.