



U. S. Chemical Safety and Hazard Investigation Board

RECOMMENDATION STATUS CHANGE

SUMMARY

Report:	BP – Husky Oregon Chemical Release and Fire
Recommendation Number:	2022-01-I-OH-R4
Date Issued:	June 24, 2024
Recipient:	Ohio Refining Company
New Status:	Closed – Acceptable Action
Date of Status Change:	December 19, 2024

Recommendation Text:

Revise the ‘Toledo Alarm Philosophy’ by incorporating the Engineering Equipment and Manufacturers Users Association (EEMUA) guidance for alarm rate following an upset and not limiting alarm performance to a single metric averaged over a month. In addition to including analyzing individual alarm flood events, the revised philosophy document should improve refinery alarm performance to reduce alarm flood duration and peak rate for events similar to the September 20, 2022, incident. Consult EEMUA Publication 191, Chapter 6.5.1, for guidance regarding abnormal condition performance levels. Apply the improved performance levels where applicable, but specifically to the Crude 1 control board alarm performance.

Board Status Change Decision:

A. Rationale for Recommendation

On September 20, 2022, a vapor cloud ignited at the BP-Husky Refining LLC (“BP Husky”) refinery in Oregon, Ohio. The vapor cloud formed when flammable liquid naphtha was intentionally released from a pressurized vessel to the ground in response to an abnormal situation. Two employees were fatally injured. BP Husky estimated that over 23, 000 pounds of naphtha was released during the event, and that \$597 million in damage was incurred.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including inadequate safeguarding to prevent liquid overflow, ineffective abnormal situation management, and failure to learn from previous incidents. As a result of these findings, the CSB issued four recommendations to the Ohio Refining Company LLC. This status change summary addresses CSB Recommendation No. 2022-01-I-OH-R4.

B. Response to the Recommendation

The Ohio Refining Company (ORC) notified the CSB that they have revised and reissued the Toledo Alarm Philosophy to include the guidance from the Engineering Equipment and Manufacturers Users Association Publication 191 Chapter 6.5.1. ORC now measures key performance indicators on alarm flood analysis daily and monthly. They have also established a tracking system for board consoles exceeding a pre-determined number of alarms over a 10-minute period. Each line on the tracker is reviewed, mitigation actions identified, and closed by

ORC's Process Control Team. In addition to these actions, ORC has also undertaken an alarm rationalization effort which has significantly improved the alarm performance of the board controlling the Crude 1 unit. Upon review of the information provided, the CSB concluded that ORC's actions satisfy all elements of the recommendation.

C. Board Analysis and Decision

Based upon the information above, the Board voted to change the status of CSB Recommendation No. 2022-01-I-OH-R4 to: "Closed – Acceptable Action."