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

Report:	Marathon Martinez Renewable Fuels Fire
Recommendation Number:	2024-01-I-CA-R8
Date Issued:	March 13, 2025
Recipient:	American Petroleum Institute (API)
New Status:	Open – Awaiting Response or Evaluation/Approval of Response
Date of Status Change:	Not Applicable – Initial Status

Recommendation Text:

Revise API RP 556 Instrumentation, Control, and Protective Systems for Gas Fired Heaters, or successor API products, with the following:

(a) Requirements for proper response to high tube metal temperatures, including guidance to alert operators when safe operating limits are exceeded and to specify predetermined response actions, such as shutting down the fired heater remotely. The predetermined response actions must include actions that specify when to stop troubleshooting and remove personnel from the vicinity of the fired heater;

(b) Design requirements ("shall" rather than "should" language) for protecting fired heaters from low process flow where process piping diverges downstream of a flow meter. Requirements may include achieving proof of flow to the heater through valve position indicators and interlocks on branch downstream of flow meters to prevent backflow, reverse flow, or other diverted flow scenarios that could defeat the safety instrumented system; and

(c) Engineering safeguard requirements ("shall" rather than "should" language) to detect and prevent afterburning in fired heaters. These requirements may include the use of instrumentation such as combustibles measurements, flame detectors, and/or thermocouples that measure tube metal, flue gas, and process fluid temperatures. The requirements shall address monitoring capability from the control room.

Board Status Change Decision:

A. Rationale for Recommendation

On November 19, 2023, a fire erupted when a metal tube within a fired heater ruptured during the initial startup of a renewable diesel hydroprocessing unit at the Marathon Martinez Renewables facility in Martinez, California. A lack of process flow due to valve misalignment combined with afterburning due to poor combustion conditions caused overheating of the tubes leading to the rupture and fire.

One employee received third-degree burns over 80 percent of his body during the incident and remained in critical condition for a period of over six months. Marathon Petroleum Corporation estimated that over 200,000 pounds of renewable diesel and 2,200 pounds of hydrogen were released. The incident resulted in approximately $350 million in damage.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including those associated with safe operating limits, worker proximity to fired heaters, low flow through fired heaters, burner operation, valve misalignment, and corporate oversight. As a result of these findings, the CSB issued one recommendation to the American Petroleum Institute (API). This status change summary addresses CSB Recommendation No. 2024-01-I-CA-R8.

CSB Public Record