Federal investigators conclude Chevron refinery fire should trigger regulatory reform

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Watch Chemical Safety Board’s Chevron Video

RICHMOND -- While more than a decade of decisions by Chevron officials led to a massive refinery fire last August, a regulatory regime weakened by insufficient resources and "permissive" language in its safety requirements allowed deteriorating equipment to go undetected and unrepaired, federal investigators said Friday.

Recommendations for regulatory reform highlighted the public presentation by U.S. Chemical Safety Board officials, which drew more than 120 people to the Richmond Memorial Convention Center on Friday night.

CSB investigators said Chevron must work with city, county, state and federal regulatory bodies to share information and build a repository of data to foster an "Inherently Safer Systems" approach, which would require the best available technology in new or repaired refinery infrastructure.

"The ultimate issue here is not (pipe) corrosion," said CSB Chairman Rafael Moure-Eraso. "(The issue is) how to make effective corporate decisions."

The recommendations, which the CSB board approved Friday, centered on ensuring transparency within the notoriously secretive refinery industry and collecting and sharing technical data among regulators.

CSB officials said inherently safer technology is crucial, noting that the Aug. 6 fire occurred in part due to sulfidation corrosion of a nearly 40-year-old carbon steel pipe, a material susceptible to thinning.

Refineries should provide regular documentation of "leading and lagging indicators," so that regulators and safety experts can both monitor wear on materials and advance the science of improved safety, officials said.
Finally, the recommendations called for the California Department of Industrial Relations to serve as the lead agency in storing data from the state's 1,600 refineries and chemical plants. The CSB has been critical of Chevron for its "tolerance for allowing piping to run toward failure," noting that Chevron uses hundreds of metal "clamps" to bolster weakened pipes.

The new regime would "ensure identification" of potentially hazardous components long before they fail, said CSB investigator Steve Cutchen.

The 250,000-barrel-a-day refinery lost its No. 4 crude unit when a pipe carrying high-temperature, high-sulfur gas oil leaked hydrocarbons that soon ignited. The fire injured several workers and sent more than 15,000 residents to area hospitals with respiratory discomfort and other complaints.

The CSB on Friday debuted an animated video dramatizing the leak and fire. In the video, a worker discovers gas oil pooling on the ground below the failing pipe, but the head operator opts to pinpoint and patch the leak rather than shut down the unit. Workers try to strip insulation from the pipe in order to apply a clamp.

A Chevron firefighter is depicted using a pike to strip away the insulation, which likely causes an additional puncture, and hydrocarbon vapor sparks a small fire. The firefighters put out that fire, then attempt to strip the insulation with high-pressure water.

The leak worsens further, and a decision is made to shut down the unit. But by then, the hydrocarbon cloud is so dense that workers are forced to crawl to safety. One firefighter is trapped inside his truck, engulfed in flames.

"To escape the inferno, he fled through what witnesses described as a 'wall of fire,'" according to the video narrator. In a prepared statement released Friday, Chevron officials said "we respectfully disagree with several significant findings" in the CSB's report, but will continue to cooperate and consider recommendations.

Chevron also said it "strongly urged" the CSB not to release the video animation because it "contains numerous, material factual inaccuracies. ... The reasons behind the incident are far more complex than depicted in the animation and we are disappointed with the CSB's decision to go forward with this unfair depiction."

CSB officials announced earlier this week that tests at Chevron's El Segundo refinery in Southern California found pipe corrosion there similar to that which occurred in Richmond. Chevron has replaced the corroded pipes in El Segundo, according to the CSB.
Congressman George Miller, D-Martinez, hailed the CSB's work and noted that Chevron's metallurgists and inspection teams called for replacement of corroded piping as early as 2002, and had not followed its own policies of inspecting 100 percent of vulnerable pipes.

"In some cases, when clamps leaked, Chevron slapped even bigger clamps on top of the leaking clamps," Miller said.

Miller sent a letter to Gov. Jerry Brown Thursday urging him to request budget authority to impose a process safety fee on refineries and chemical plants to "provide adequate resources for oversight of the 1,600 facilities under Cal/OSHA's" jurisdiction.

The CSB's final report is expected later this year.

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