U.S. CHEMICAL SAFETY BOARD

An independent federal agency investigating chemical accidents to protect workers, the public, and the environment.

U.S. CHEMICAL SAFETY BOARD FINDS MULTIPLE SAFETY DEFICIENCIES LED TO FEBRUARY 2015 EXPLOSION AND SERIOUS NEAR MISS AT THE EXXON MOBIL REFINERY IN TORRANCE, CALIFORNIA

Torrance, California, January 13, 2016 -- An ongoing investigation by the U.S. Chemical Safety Board (CSB) of the February 18, 2015, explosion at the ExxonMobil Refinery in Torrance, California, has uncovered multiple process safety management deficiencies that led to the accident and a serious near miss.

CSB News Conference on ExxonMobil Investigation

The Board is poised to hear investigators' preliminary findings at a public meeting on Wednesday, January 13, 2016, at 5:00 pm at the Torrance City Hall Chambers in Torrance, California. Following the staff presentation, the Board will hear from an ExxonMobil representative, the Torrance Refinery Action Alliance, and a panel of experts who will discuss California's new process safety management reforms. The panel will include representatives from Cal/OSHA, Cal/EPA, the United Steelworkers, the Western States Petroleum Association, and the Blue Green Alliance.

At ExxonMobil, two workers were injured when an explosion occurred in the refinery's electrostatic precipitator, or ESP, which is a piece equipment used to control air pollution. Due to a series of events that unfolded over several days, hydrocarbons accumulated inside the ESP. The result was a blast that dispersed large quantities of catalyst dust up to a mile away from the facility.

The CSB also found that large pieces of debris from the explosion were thrown into other units of the refinery directly surrounding the ESP. One of these pieces of debris hit scaffolding in the refinery's alkylation unit, narrowly missing a tank containing tens of thousands of pounds of modified hydrofluoric acid, or HF. The CSB determined that had the debris struck the tank, a rupture could have been possible, resulting in a potentially catastrophic release of extremely toxic modified HF into the neighboring community.

CSB Chairperson Vanessa Allen Sutherland said, "Hydrofluoric acid can pose a severe hazard to the population and environment if a release occurs. After HF acid vaporizes it condenses into small droplets that form a dense low-lying cloud that will travel along the ground for several miles and can cause severe damage to the respiratory system, skin, and bones of those who are exposed, potentially resulting in death."

Torrance, California is a mixed-use city with industrial areas directly adjacent to residential communities. Within a three-

mile radius of the ExxonMobil refinery are 333,000 residents, 71 schools, and eight hospitals. In an area as heavily populated as Torrance, a significant release of modified HF stored at ExxonMobil has the potential to cause serious injury or death to many community members.

Chairperson Sutherland said, “Had flying debris ruptured the tank of modified HF, this accident could have been far worse. We look forward to hearing the concerns from the community at our public meeting.”

Those unable to attend the meeting my watch a live webcast at the following link: http://livestream.com/CitiCABLE

CSB investigators have faced a lack of cooperation from ExxonMobil to comply with their requests for information about the near miss incident involving the alkylation unit and modified HF even after repeated voluntary requests and subpoenas. To date, the CSB has no or incomplete responses to 49% of its subpoena requests. Chairperson Sutherland said, “Despite these challenges, the team is making strides to complete their investigation, including analysis of the near miss incident.”

The sequence of events that eventually led to the explosion at the refinery began on February 12, 2015, when problems with a piece of equipment called an expander caused the refinery’s fluid catalytic cracking, or FCC, unit to be put into a idled condition referred to as safe park.

With the FCC unit shut down, steam was forced into a reactor to prevent hydrocarbons from flowing back from the main distillation column. On the morning of the accident, this steam was escaping through an open flange on the expander, preventing operators from continuing their maintenance work. It had traveled through a leaking slide valve connected to the reactor.

An outside supervisor then reduced the amount of steam being forced into the reactor so that work could continue. However, at the time, workers were unaware that hydrocarbons were leaking into the main distillation column from interconnected equipment. As the pressure of the steam dropped, the hydrocarbons flowed back into the reactor, out through the leaking slide valve and eventually into the ESP. There the hydrocarbons found an ignition source – and exploded.

While the investigation into the February 18, 2015, explosion is ongoing, investigators have already identified multiple process safety management deficiencies that helped contribute to the accident. In order to perform work to bring the FCC unit back online, ExxonMobil determined they needed to deviate from several existing procedures. This required a document called a variance, which is a written temporary deviation from normal operating procedures. The variance used was created in 2012 to address problems with the expander. CSB investigators found that ExxonMobil did not conduct a management of change review before implementing this outdated variance, even though conditions within the FCC unit had changed over the previous three years.

Also, ExxonMobil performed inadequate process hazard analyses, which could have identified more effective safeguards against the flow of hydrocarbons, such a blind or de-inventorying the main distillation column. Investigator-in-charge Mark Wingard said, “Although our investigation found two different process hazard analyses that considered a combustible mixture igniting in the electrostatic precipitator, no effective safeguards were implemented at the refinery to mitigate this threat.”

The failure to conduct a management of change review or perform a hazards analysis for this non-routine work is similar to the circumstance surrounding other CSB refinery investigations, including the August 6, 2012, fire at the Chevron Refinery in Richmond, California. That fire endangered 19 workers and sent more than 15,000 residents to the hospital for medical attention. In a final report on that accident, the CSB proposed recommendations for substantial changes to the way refineries are regulated in California. The agency also added process safety management reform to its list of most wanted safety improvements.

The state of California has since worked to revise and strengthen its refinery safety requirements and has drafted a new rule to address numerous issues raised in the CSB's Chevron report. Chairperson Sutherland said, "The CSB is continuing to advocate for its process safety management recommendations and monitor developments in California. I look forward to hearing from expert panel members about California's reforms at our public meeting. The actions being taken in the state are some of the most substantive safety improvements happening in the United States right now."

The CSB is an independent federal agency charged with investigating serious chemical accidents. The agency's board members are appointed by the President and confirmed by the Senate. CSB investigations look into all aspects of chemical accidents, including physical causes such as equipment failure as well as inadequacies in regulations, industry standards, and safety management systems. The Board does not issue citations or fines but makes safety recommendations to companies, industry organizations, labor groups, and regulatory agencies such as OSHA and EPA. Please visit our website, www.csb.gov.

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Back

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