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JOINT OVERSIGHT HEARING OF THE
SENATE ENERGY, UTILITIES AND COMMUNICATIONS AND
ENVIRONMENTAL QUALITY COMMITTEES

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Thursday, March 5, 2015
6:00 p.m.

ExxonMobil Torrance Refinery Explosion: Community Impacts, Emergency Response, and Long-term Safety

BACKGROUND INFORMATION

SUMMARY

The hearing is intended to address the recent ExxonMobil Refinery explosion in Torrance, CA. Witnesses from the community, Exxon Mobil, first responders and air quality/environmental agencies will answer questions on the emergency response, the refinery's safety record, the impacts to the community and the state's continued efforts to better prevent and coordinate the response to refinery incidents.

A refinery explosion in populated areas raises significant concerns about public safety, emergency response, as well as the safety of California's energy infrastructure. Safety procedures have to be followed to prevent these incidents from happening. In August 2012, there was an explosion at the Chevron Richmond refinery which resulted in 19 workers narrowly escaping harm and 15,000 residents inundating local hospitals. The ExxonMobil refinery explosion is the first significant incident at a refinery to test the protocols and improved coordination that has been put in place, including the establishment of a state interagency taskforce.

REFINERY SAFETY BASICS

In California no single state agency is wholly responsible for ensuring oil refineries compliance with all aspects of health and safety and emergency response. Instead, nearly a dozen state agencies have regulatory responsibilities for overseeing aspects of refinery operations, such as air emissions, worker safety, emergency response, hazardous materials handling, and others. California is home to roughly 20 major oil refineries (defined as those that refine more than 10,000 barrels per day), as well as, several minor refineries spread across the state (Attachment A. Map of California Oil Refineries). Of the major oil refineries, five are located in the Bay Area, three in Kern County, one in San Luis Obispo County, and the remaining eight refineries in Los Angeles County. Each region has its own local air pollution control district, as well as, agencies that serve as first responders and other agencies that handle environmental hazards. The need for effective collaboration and coordination among all agencies is necessary to ensure adequate public and worker safety (Attachment B. California Refineries: Local Regulatory Jurisdictions).

Agencies involved in regulating refinery operations include, but are not limited to, the following:

Local Air Pollution Control Districts are responsible for overseeing air emissions from stationary sources, including refineries. Local air pollution control districts, such as the Bay Area Air Quality Management District (BAAQMD) and the South Coast Air Quality Management District (SCAQMD) issue air permits and ensure compliance with air quality regulations and laws.

California Division of Occupational Safety and Health Administration (CalOSHA) monitors and enforces regulations and laws related to worker safety, including preventing release of hazardous chemicals that could expose employees and others to serious hazard.

Certified Unified Program Agencies (CUPAs) are local agencies, often city or county local hazardous materials units, that consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. These include Hazardous Material Release Response Plans and Inventories (known as Business Plans) and the California Accidental Release Prevention (CalARP) Program, along with four others programs.

California Environmental Protection Agency (CalEPA) oversees the implementation of the Certified Unified Program, including certified local unified program agencies.

California Office of Emergency Services (CalOES) coordinates responses to major disasters, assures the state's readiness to respond to and recover from all hazards (natural, manmade, war-caused emergencies and disasters) and assists local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

Regulations Related to Refinery Safety

Process Safety Management (PSM) – Administered through CalOSHA. The purpose of the PSM standard is to prevent releases of hazardous chemicals that could expose employees and others to serious hazards. The focus of the PSM is on-site chemical releases. CalOSHA operates the only PSM Unit in the nation, which inspects facilities with large volumes of toxic and flammable materials, in particular, refineries. Under the PSM, every September 15th refineries are required to notify CalOSHA of the upcoming year's scheduled shutdowns for maintenance, repair, and other related purposes. The PSM was promulgated by the 1990 amendments of the federal Clean Air Act.

California Accidental Release Prevention Program (CalARP) – Administered by CalOES. The purpose of the program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases occur, and to satisfy community right-to-know laws. CalOES administers CalARP as part of the state's Unified Hazardous Waste and Hazardous Materials Management Program, and the CUPAs implement the program at the local level. The focus of the CalARP program is off-site chemical releases needing emergency response.

Contra Costa County Industrial Safety Ordinance (ISO) – Administered in by the county in unincorporated areas. (Subsequently adopted by Richmond in 2000, and updated in 2013.) The purpose of the ISO is to expand on the CalARP and prevent accidental release of hazardous chemicals, involve the public and industry, and conduct periodic audits of the plans and inspections of the industrial plants.

EXXONMOBIL TORRANCE REFINERY

The ExxonMobil Torrance refinery dates back to 1907. It is one of the major refineries in the state that produces gasoline and other fuels. Per ExxonMobil, the Torrance facility covers 750 acres, employs approximately 650 employees and 550 contractors. The refinery processes an average of 155,000 barrels of crude oil per day and produces 1.8 billion gallons of gasoline per year. The ExxonMobil Torrance refinery produces on average 5-10% of the state's annual gasoline.

EXXONMOBIL TORRANCE REFINERY EXPLOSION

At approximately 8:50 a.m. on February 18, 2015, a significant explosion occurred at the ExxonMobil refinery in the City of Torrance which ripped apart major structures at the facility, shook homes for miles around the blast in the populated Southern California community, and sent ash into the air, landing on cars and homes throughout the area. California Institute of Technology (Caltech) officials said the explosion created ground shaking equivalent to a magnitude-1.7 earthquake. The enormity of the blast could have resulted in severe injuries and possible fatalities. Fortunately, only minor injuries were reported, including eight workers who were decontaminated onsite and four taken to the hospital. Three of the injured were released the same day. One worker remained hospitalized with a knee injury. A smoke advisory was issued for neighborhoods near the refinery while regulators conducted analysis as to the potential health

threat of the ash. Torrance Unified School District, the local school district, issued a "shelter-in-place" warning to nearby schools. Several schools were affected and sheltered in place during the day of the incident.

Agencies who responded to the incident included: the City of Torrance Fire Department who served as the incident commander, Los Angeles County Fire Hazardous Materials (HazMat), South Coast Air Quality Management District (SCAQMD), and California Occupational Safety and Health Administration (CalOSHA).

The exact cause of the explosion is under investigation and may not be known for months. However, initial inspections point to an over-pressurized air filtration device, an electrostatic precipitator, as the source of the explosion. The electrostatic precipitator is a piece of equipment roughly 100-feet long and used in the refining process to capture particulates and other air contaminants to prevent them from being released into the air. Agencies and news reports have noted that at the time of the incident workers were addressing the fluid catalytic cracking unit (FCC), a main unit at the refinery that converts crude oil to high-octane gasoline and other fuels. As a result, the FCC unit was off, or on standby mode.

In the aftermath of the incident, city officials held a briefing at the City Council meeting the Tuesday following the explosion. City officials acknowledged the need to improve response, particularly the effectiveness of the communications tools they have in place. The City of Torrance Fire Department has the ability to notify residents when a major incident has occurred with a suite of communications tools, including the use of a community warning siren system intended to alert the public in close proximity to ExxonMobil Refinery of a chemical release and the need to shelter in place. However, the alert sirens were not utilized on the day of the incident. The City also has a phone alert system that calls residents who have signed up for the service, Torrance Alerts, which was utilized with mixed results as noted by City Councilmembers who expressed confusion with the system. In addition to the communications tools, the City has a barrier system for both Crenshaw and Del Amo Boulevards, two of the major roadways bordering the refinery, to restrict traffic in order to reduce exposure and support the emergency response effort. The day of the incident, the Del Amo Boulevard barrier was used, but the Crenshaw Boulevard barrier was not utilized.(See Attachment C. for more information about the suite of communications tools, "What? When? Where? The ABC's and 123's of the Torrance Community Warning System").

CHEVRON RICHMOND REFINERY EXPLOSION IN 2012

The explosion at the ExxonMobil Torrance refinery is the first major refinery incident in the state since the August 6, 2012 Chevron Richmond refinery explosion which endangered the lives of 19 workers and sent 15,000 residents to local hospitals as a plume of black smoke enveloped the region. According to the incident summary by the U.S. Chemical Safety Board, the explosion at the Richmond refinery was the result of a catastrophic ruptured pipe in the #4 crude unit which released flammable, high temperature light gas oil[1] which then vaporized into a large, opaque vapor cloud that engulfed 19 workers. Two minutes after the release, the vapor ignited and all but one worker escaped the fireball. The remaining worker, a Chevron refinery fire fighter, was

[1] Light gas oil is a component of crude oil with a boiling point range of 401°F and 653°F.

in a fire engine wearing full protective gear which enabled him to survive. Additionally, 15,000 residents flooded local emergency rooms and hospitals to report concerns from the smoke and related particulate pollution.

In response to the incident, CalOSHA, the U.S. Chemical Safety Board (CSB), and the United States Environmental Protection Agency (U.S. EPA) opened investigations and have issued reports. Chevron also completed its own investigation. According to a 2014 report issued by a state working group, "All four investigations identified serious concerns about process safety management procedures at the refinery and expressed the need for stronger preventative safeguards."[2] The CSB released its final report in January 2015 in which it attributes a number of technical and managerial missteps by Chevron that resulted in the explosion[3]. The report noted that the steel of the ruptured pipe was extremely vulnerable to corrosion, particularly from sulfur commonly used in the refining process. The CSB further points to Chevron management who did not understand how to address the leak in the pipe and whose actions made the situation worse. Moreover, according to the CSB, management rejected or ignored reports from employees that conditions were unsafe, including employee requests for safer equipment and practices. As a result of the incident, Chevron has paid millions in fines, including a record-breaking fine issued by CalOSHA, and millions to affected community members and local government agencies for incident response and medical-related costs.

STATE RESPONSE

The Richmond incident raised many concerns and questions about the risks of refineries, particularly near major population centers, and the need to improve response and communication for these incidents. In the aftermath of the Chevron Richmond refinery explosion the Legislature and Governor responded by increasing the number of inspector positions at CalOSHA Processing Safety Management (PSM) Unit so as to increase the quality of the inspections at refineries. Legislation was passed, SB 54 (Hancock, 2014) to ensure contractors and subcontractors at facilities, including refineries, receive proper training. Governor Brown formed an Interagency Working Group to "examine ways to improve public and worker safety through enhanced oversight of refineries, and to strengthen emergency preparedness in anticipation of any future incident." The Working Group has evolved into the Interagency Refinery Safety Taskforce which is focused on implementing the recommendations from the initial July 2013 working group report.

The members of the Taskforce consist of 10 state agencies, along with representative from federal and local agencies, specifically:

- California Environmental Protection Agency (CalEPA)
- Governor's Office of Emergency Services (CalOES)
- Division of Industrial Relations (DIR)
- Division of Occupational Safety and Health Administration (CalOSHA)

[2] Interagency Refinery Safety Taskforce report. February 2014.

[3] ***U.S. Chemical Safety and Hazard Board Final Investigation Report: Chevron Richmond Refinery Pipe Rupture and Fire.*** January 2015. http://www.csb.gov/assets/1/7/Chevron_Final_Investigation_Report_2015-01-28.pdf

- Office of the State Fire Marshall
- California Air Resources Board (CARB)
- Department of Toxic Substances Control (DTSC)
- State Water Resources Control Board (SWRCB)
- California Department of Public Health (CDPH)
- California Emergency Medical Services Authority
- U.S. Environmental Protection Agency, Region IX (U.S. EPA)
- Local Certified Unified Program Agencies (CUPAs) with refineries:
    - Contra Costa County Environmental Health
    - El Segundo Fire
    - Kern County Environmental Health
    - Los Angeles County Fire
    - City of Los Angeles Fire
    - San Luis Obispo County Environmental Health
    - Solano County Environmental Health
- Local Air Pollution Control Districts with refineries:
    - Bay Area Air Quality Management District (BAAQMD)
    - San Joaquin Valley Air Pollution Control District (SJVAPCD)
    - San Luis Obispo County Air Pollution Control District (SLOCAPCD)
    - South Coast Air Quality Management District (SCAQMD)

In February 2014, the Taskforce issued a final report, ***Improving Public and Worker Safety at Oil Refineries***, detailing its recommendations in four key areas: improved oversight and coordination, emergency response and preparedness, safety prevention and hazardous events, and community education and alerts. Among the first of the recommendations is the establishment of a taskforce with a dedicated staff person housed at CalEPA to serve as a central point of contact for coordination of refinery-related matters for local, state, and federal agencies, and for industry and the public. The Taskforce report also acknowledged gaps in the existing regulations, including the need to better define thresholds for reporting leaks or releases; shortcomings in emergency alerts, including timely dissemination of health and safety information to the public; the need for improved real-time air monitoring; and the need for more refinery specific elements in safety and prevention regulations.

CONCLUSION

There is an inherent risk from facilities processing hazardous materials, like refineries, which necessitate requirements for collaboration and coordination by local, state and federal agencies to better prepare for the unexpected and prevent and reduce harm. Emergency incidents by their nature can be chaotic and quickly evolving situations. A multi-agency response involves a well-orchestrated effort that follows a well-developed – and routinely practiced – plan to ensure the safety of workers and the public. Unfortunately, the explosion at the ExxonMobil Torrance Refinery underscores the continued need for improvements.

Today's hearing will focus on what is known about what led to the explosion at the ExxonMobil Torrance refinery as investigations continue. How adequate was the emergency response? There's already been acknowledgement about shortcomings of the emergency alerts and

communication to the public. Therefore, of particular concern is the effectiveness of the communications to the public during an incident and immediately following. When is the public notified? How are the potential threats and instructions to protect themselves and their families communicated? How can the public distinguish between an alert for shelter in place and one that encourages evacuation of an area?

The second portion of the hearing will focus on California's efforts to address worker and public safety from refinery incidents. It's been more than two years since the Chevron Richmond explosion, where are we in the process of strengthening coordination and collaboration between the myriad of agencies involved? Where is the Taskforce in implementing its recommendations? What does the ExxonMobil Torrance incident tell us about areas that need further work? How can the Legislature continue to support the effort?