

U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD

Urgent Recommendation

Whereas:

1. On March 23, 2005, the BP Texas City refinery experienced a severe explosion and fire accident involving a raffinate splitter tower within the isomerization (isom) unit and associated blowdown system that resulted in 15 deaths, 170 injuries, and significant economic losses; the accident was one of the most serious U.S. workplace disasters of the past two decades.
2. All of the fatalities and many of the serious injuries occurred in or around the nine contractor trailers that were sited near process areas and as close as 121 feet from the isom unit. This unit contained large quantities of flammable hydrocarbons and had a history of releases, fires, and other safety incidents over the previous two decades.
3. Workers in adjacent units were injured in trailers as far as 480 feet from the isom blowdown drum. A number of trailers as far as 600 feet from the blowdown drum were heavily damaged.
4. At the Texas City refinery, trailers had been periodically sited in and around hazardous process areas for reasons of convenience such as ready access to work areas. The trailers did not need to be located as close as they were to the process areas in order for workers to perform their job duties.
5. Trailers had been sited periodically in the same location near the isomerization unit for a number of years. On September 1, 2004, and prior to a safety assessment, BP placed the trailer where 12 workers died near the isomerization unit; a month later BP applied a siting policy to approve the location. The eight other trailers placed nearby were not analyzed for hazards related to their location, nor was the impact of the total occupancy of multiple trailers in close proximity considered.
6. Under BP's siting policy, trailers used for short periods of time such as turnaround trailers were considered as posing little or no danger to occupants. This approach conforms with the guidance provided in American Petroleum Institute (API) Recommended Practice 752, "Management of Hazards Associated with Location of Process Plant Buildings." API 752 states that each company may define its own risk and occupancy criteria.
7. API 752 is a widely recognized practice for complying with facility siting requirements under the Process Hazard Analysis element of OSHA's Process Safety Management Standard (29 CFR 1910.119).

8. API 752 provides no minimum safe distances from hazardous areas for trailers used in refineries and other chemical facilities. Trailers are not generally designed to protect the occupants from the fire and explosion hazards present in refineries. In contrast, occupied buildings (e.g. control rooms, operator shelters) located within a process unit are typically permanent and constructed to be blast and fire resistant.
9. Trailers can be easily relocated to less hazardous sites. Subsequent to the March 23rd incident, BP America Inc. announced that it would move trailers at least 500 feet from hazardous process areas. A number of contractor offices were moved to an offsite location.
10. In 1995, another serious process plant incident involved occupied trailers placed too close to hazardous areas, resulting in significant deaths and injuries. At the Pennzoil Refinery in Rouseville, Pennsylvania, a hydrocarbon fire that resulted from the bursting of two storage tanks led to five fatalities, including two contractors who were in trailers sited near the tanks. A 1998 EPA investigation report determined that if the trailers had been isolated from the storage tank area the casualties may have been prevented.
11. Under 42 U.S.C. §7412(r)(6)(C) (ii), the Board is charged with “recommending measures to reduce the likelihood or the consequences of accidental releases and proposing corrective steps to make chemical production, processing, handling and storage as safe and free from risk of injury as is possible”
12. Board procedures authorize the issuance of an urgent safety recommendation before a final investigation report is completed where there is a likelihood that a safety issue is widespread at a number of sites.

Accordingly:

Pursuant to its authority under 42 U.S.C. §7412(r)(6)(C)(i) and (ii), and in the interest of promoting safer operations at U.S. petrochemical facilities and protecting workers and communities from future accidents, the Board makes the following urgent safety recommendations:

American Petroleum Institute

In light of the above findings concerning the March 23rd incident at BP’s Texas City refinery, revise your Recommended Practice 752, “Management of Hazards Associated with Location of Process Plant Buildings” or issue a new Recommended Practice to ensure the safe placement of occupied trailers and similar temporary structures away from hazardous areas of process plants. Ensure that the new recommended practice:

- Protects occupants from accident hazards such as heat, blast overpressure, and projectiles;
- Establishes minimum safe distances for trailers and similar temporary structures away from hazardous areas of process plants;
- Evaluates the siting of trailers under a separate methodology from permanent structures, since trailers are more susceptible to damage, are more readily relocated, and likely do not need to be placed near hazardous areas.

American Petroleum Institute and the National Petrochemical and Refiners Association

Issue a safety alert to your membership to take prompt action to ensure the safe placement of occupied trailers away from hazardous areas of process plants.