



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

Report:	Public Safety at Oil and Gas Storage Facilities
Recommendation Number:	2011-H-1-R3
Date Issued:	September 30, 2011
Recipient:	Oklahoma Corporation Commission (OCC)
New Status:	Closed – Unacceptable Action/No Response Received
Date of Status Change:	May 21, 2024

Recommendation Text:

Amend state oil and gas regulations to:

- a) Protect storage tanks at exploration and production sites from public access by requiring sufficient security measures, such as full fencing with a locked gate, hatch locks on tank manways, and barriers securely attached to tank external ladders and stairways.*
- b) Require hazards signs or placards on or near tanks that identify the fire and explosion hazards using words and symbols recognizable by the general public.*
- c) Require the use of inherently safer tank design features such as flame arrestors, pressure vacuum vents, floating roofs, vapor recovery systems or an equivalent alternative, to prevent the ignition of a flammable atmosphere inside the tank.*

Board Status Change Decision:

A. Rationale for Recommendation

On October 31, 2009, two teenagers, aged 16 and 18, were killed when a petroleum storage tank exploded in a rural oil field in Carnes, Mississippi. Six months later a group of young adults and teenagers were exploring a similar tank site in Weleetka, Oklahoma, when an explosion and fire fatally injured one individual. Two weeks later, a 25-year-old man and a 24-year-old woman were on top of an oil tank in rural New London, Texas, when the tank exploded, killing the woman and seriously injuring the man.

In April 2010, the U.S. Chemical Safety and Hazard Investigation Board (CSB) initiated a safety hazard study into the causes of these tragic incidents. All three incidents involved rural unmanned oil and gas storage sites that lacked fencing and signs warning of the hazards, which might have otherwise deterred members of the public from using them as places to gather. The CSB identified 26 similar incidents between 1983 and 2010, which resulted in a total of 44 fatalities and 25 injuries as part of this safety hazard study. All of the victims were 25 years of age or less.

Specifically, at the Weleetka, Oklahoma explosion site, the CSB determined that the only site security was an unlocked iron cattle gate, approximately four feet high by 12 feet long, located where the dirt road intersects the main road. There was no perimeter fence. The oil storage tanks at the site were equipped with six-inch diameter hatches, but they were not locked and there were no warning signs identifying hazards of the flammable petroleum crude oil inside the tanks. Of the 26 incidents identified by the CSB in its safety hazard study, seven (27%) occurred in the state of Oklahoma (which resulted in 12 fatalities and two injuries).

As the Oklahoma Corporation Commission (OCC) regulates oil and gas drilling and production operations under various Oklahoma statutes for various purposes, the CSB reviewed state regulations applicable to oil storage tank sites. While the Oklahoma Energy Resources Board has taken a proactive role in the education of children about the dangers of playing around oil field equipment, the CSB noted that OCC oil and gas regulations do not: (1) require fencing around oil and gas sites that do not contain hydrogen sulfide; (2) mandate hatch locks for oil storage tanks; and (3) require inherently safer tank design features on oil storage tanks.

The CSB noted that oil storage tanks on oil and gas sites that also contain hydrogen sulfide hazards do require perimeter fencing, hazard warning signs and protective manways on some tanks. The CSB also noted that the OCC has stronger safety measures for certain aboveground flammable storage tanks; however, these rules do not apply to oil and gas wells and their associated tanks involved in upstream exploration and production (E&P) operations. Tanks subject to the aboveground flammable storage tank regulations are required to be enclosed within a 6-foot-high chain link fence, be separated from the fence by at least 10 feet, and have a gate to secure against unauthorized entry. These regulations also require "conspicuously posted" signs with the words "Warning" and "No Smoking" and grounding instructions.

The CSB concluded that the seven Oklahoma oil site incidents would have been less likely to occur if the sites were subject to the fencing and/or hazard warning regulations for aboveground flammable storage tanks, or the regulations applicable to oil and gas production sites with hydrogen sulfide hazards. Consequently, the Board issued a recommendation to the OCC to address these issues.

B. Response to the Recommendation

During a meeting held on October 27, 2023, the OCC communicated to the CSB that they had not taken any steps to implement the recommendation, nor did they intend to implement the recommendation. OCC has also declined to respond to requests for further information.

C. Board Analysis and Decision

As a result of previous communications with OCC, the Board was initially hopeful that OCC would implement this recommendation. However, based upon the information above, the Board had no choice but to vote to change the status of CSB Recommendation No. 2011-H-1-R3 to: "Closed – Unacceptable Action/No Response Received." The Board wished to communicate its profound disappointment with this outcome, which is a true loss for safety.