



U. S. Chemical Safety and Hazard Investigation Board

RECOMMENDATION STATUS CHANGE

SUMMARY

Report:	Caribbean Petroleum Refining Tank Explosion and Fire
Recommendation Number:	2010-02-I-PR-R2
Date Issued:	October 21, 2015
Recipient:	Environmental Protection Agency (EPA)
New Status:	Closed – Acceptable Alternative Action
Date of Status Change:	July 26, 2023

Recommendation Text:

Conduct a survey of randomly selected bulk aboveground storage containers storing gasoline or other flammable liquids with a NFPA 704 flammability rating of 3 or higher, at terminals in high risk locations (such as near population centers or sensitive environments) that are already subject to the Spill Prevention, Control and Countermeasure (SPCC) and/or Facility Response Plan (FRP) rules to determine:

- a) The nature of the safety management systems in place to prevent overfilling a storage tank during loading operations. Analysis of the safety management systems should include equipment, training, staffing, operating procedures and preventative maintenance programs.*
- b) The extent to which terminals use independent high level alarms, automated shutoff/diversion systems, redundant level alarms or other technical means to prevent overfilling a tank*
- c) The history of overfilling incidents at the facilities, with or without consequence*
- d) Whether additional reporting requirements are needed to understand the types of incidents leading to overfilling spills that breach secondary containment and have the potential to impact the environment and/or the public, as well as the number of safeguards needed to prevent them.*

Board Status Change Decision:

A. Rationale for Recommendation

On October 23, 2009, an above ground storage tank at the Caribbean Petroleum Corporation (CAPECO) tank farm facility in Bayamón, Puerto Rico was overfilled. The overfill occurred during the offloading of the tank ship, Cape Bruny. An estimated 200,000 gallons of gasoline was spilled during the overfill.

During the overflow some of the gasoline, which sprayed from the tank's roof vents and hit the tank's wind girder as it fell, aerosolized forming a large vapor cloud (estimated to encompass an area of about 107 acres) that subsequently ignited after reaching an ignition source in CAPECO's wastewater treatment facility. The ensuing blast, multiple secondary explosions and fire resulted in significant damage to 17 of 48 petroleum storage tanks. The blast created a pressure wave that

registered 2.9 on the Richter scale and damaged approximately 300 homes and businesses, up to 1.25 miles from the site. Fortunately, there were no fatalities and only three people experienced minor injuries offsite as a result of the initial blast. The fires burned for almost 60 hours. Petroleum products leaked into the soil, nearby wetlands, and navigable waterways in the surrounding area.

As a part of its investigation, the U.S. Chemical Safety and Hazard Investigation Board (CSB) analyzed relevant regulatory, industry, and consensus standards for safety and management of bulk aboveground storage facilities. While certain environmental statutes and EPA regulations apply to bulk aboveground storage tank terminals, such as CAPECO, the CSB determined that these regulations do not offer robust protections to the public from catastrophic explosion and fire incidents that may occur due to overfilling at such facilities that store gasoline, jet fuels, blendstocks, and other flammable liquids having an NFPA 704 flammability rating of 3 or higher. As a result of this finding, the CSB issued three recommendations to the Environmental Protection Agency (EPA). This status change summary addresses **CSB Recommendation No. 2010-02-I-PR-R2**.

B. Response to the Recommendation

In 2021, the EPA concluded an internal quality and consistency review of Spill Prevention, Control, and Countermeasure (SPCC) Plans and Facility Response Plans (FRPs) to identify regulatory compliance gaps. As a part of this effort the EPA collected data from a diverse sampling of SPCC Plans and FRPs from facilities that the EPA reviewed during routine compliance monitoring activities in FY2018 and FY2019. The EPA summarized and posted their findings¹. In May 2021, the EPA also conducted three stakeholder outreach webinars to discuss the findings of the review to increase regulatory clarity in the hopes of improving SPCC Plan and FRP compliance. They are continuing to communicate with the regulated community about the identified areas for improvement.

C. Board Analysis and Decision

Though not a “survey” of the regulated community, as required by the recommendation, the review undertaken by the EPA covered the same types of facilities and hazardous materials identified in the recommendation. The information they reviewed, namely SPCC Plans and FRPs of existing facilities in operation, covered all of the appropriate information required in the recommendation at least as effectively as a “survey” of the regulated community would have. Additionally, the EPA shared the results of their review with the regulated community. By taking this action, the EPA proactively enhanced future risk reduction. In this regard, the Board commends the EPA’s actions.

Based upon the information above, the Board voted to change the status of **CSB Recommendation No. 2010-02-I-PR-R2** to: “**Closed – Acceptable Alternative Action.**”

¹ U.S. Environmental Protection Agency. (2022, June 27). *Quality and Consistency Review of SPCC and FRP Plans*. Retrieved February 27, 2023, from [www.epa.gov: https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/quality-and-consistency-review-spcc-and-frp](https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/quality-and-consistency-review-spcc-and-frp)