



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

Report:	BP America Refinery Explosion
Recommendation Number(s):	2005-04-I-TX-R7a 2005-04-I-TX-R7b
Date Issued:	March 20, 2007
Recipient(s):	American Petroleum Institute (API) United Steel Workers (USW)
New Status:	R7a: Closed – Acceptable Action R7b: Closed – Acceptable Action
Date of Status Change:	January 20, 2021

Recommendation Text:

Work together [API and USW] to develop two new consensus American National Standards Institute (ANSI) standards. In the second standard, develop fatigue prevention guidelines for the refining and petrochemical industries that, at a minimum, limit hours and days of work and address shift work. In the development of each standard, ensure that the committees a) are accredited and conform to ANSI principles of openness, balance, due process, and consensus; and b) include representation of diverse sectors such as industry, labor, government, public interest and environmental organizations and experts from relevant scientific organizations and disciplines.

Board Status Change Decision:

A. Rationale for Recommendation

On March 23, 2005, the BP Texas City refinery experienced severe explosions and fire in an isomerization unit (ISOM) that resulted in 15 deaths, 180 injuries, and significant monetary losses. The accident was caused by the overfilling of a raffinate splitter tower during startup that in turn opened pressure relief devices and dumped flammable liquid into a blowdown drum with a stack that was open to the atmosphere. The flammable liquid released from the stack exceeded the capacity of both the blowdown drum and its stack and was released into the surrounding area where it ignited, resulting in the explosions and fire.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigation found that the incident was caused by multiple technical, system, and organizational deficiencies, and the agency issued recommendations to various parties. Among the findings, the CSB investigation concluded that the ISOM operators were likely fatigued from working long hours over consecutive days during the turnaround of the unit prior to startup. Additionally, the CSB found that there were no federal safety regulations, industry safety guidelines, or voluntary standards to manage and prevent fatigue as a risk factor. The CSB recommended that the American Petroleum Institute (API) develop a fatigue standard and that the United Steel Workers (USW)

work with API in its development. This status change summary addresses CSB Recommendation Nos. 2005-04-I-TX-R7a (R7a) and 2005-04-I-TX-R7b (R7b).

B. Response to the Recommendation

API is accredited by the American National Standards Institute (ANSI) and developed the proposed 2nd Edition of RP-755 in accordance with ANSI standards per the requirements of R7a. The RP 755 Revision Committee had diverse representation by the following sectors: industry, engineering and contractors, government, consultants, trade associations/professional societies, labor, and others. USW was one of the participants in the Committee meetings for the 2nd Edition as required by R7a.

Since the previous status change on December 19, 2018, API released the 2nd Edition ANSI/API Recommended Practice (RP) 755 - Fatigue Risk Management Systems for Personnel in the Refining and Petrochemical Industries. In general, API RP 755 provides fatigue prevention guidelines for the refining and petrochemical industries that limit hours and days of work as well as address shift work.

The following is a high-level list of significant revisions that were made in the 2nd edition:

- Revision of several ‘should’ statements to ‘shall’ statements;
- Simplification of ‘hours of service limits’ with increased flexibility and clarity;
- Modification of ‘exception approval process’ to be more stringent for ‘exceptions’ with the greatest potential fatigue risk;
- Guidance on managing ‘call-outs;’
- Additional ‘work environment’ information; and
- Reference to objective and validated tools for ‘individual risk assessment and mitigation’ efforts.

C. Board Analysis and Decision

Based upon the information above regarding the release of the 2nd Edition, ANSI/API RP 755 - Fatigue Risk Management Systems for Personnel in the Refining and Petrochemical Industries, the Board voted to change Recommendation Nos. 2005-04-I-TX-R7a and 2005-04-I-TX-R7b to: **“Closed – Acceptable Action.”**