



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

<b>Report:</b>	BP America Refinery Explosion
<b>Recommendation Number(s):</b>	2005-04-I-TX-R7a 2005-04-I-TX-R7b
<b>Date Issued:</b>	March 20, 2007
<b>Recipient(s):</b>	American Petroleum Institute (API) United Steel Workers (USW)
<b>New Status:</b>	Open – Acceptable Response or Alternate Response
<b>Date of Status Change:</b>	December 19, 2018

### 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 the Occupational Safety and Health Administration (OSHA) has no regulations and that the American Petroleum Institute (API) and there were no industry safety guidelines or voluntary standards to manage and prevent fatigue as a risk factor. The CSB recommended that API

develop a fatigue standard and that the United Steel Workers (USW) work with API in its development.

#### B. Response to the Recommendation

Since the previous status change on May 12, 2015, API has been developing the 2<sup>nd</sup> Edition ANSI/API Recommended Practice (RP) 755 - Fatigue Risk Management Systems for Personnel in the Refining and Petrochemical Industries. CSB Recommendations Staff attended RP 755 Revision Committee meetings dated 3/23/2017, 5/2/2017, 7/11/2017, 10/5/2017, 11/29/2017, 1/11/2018, 2/15/2018, and 7/19/2018. Additionally, CSB staff were provided the opportunity to comment on draft working documents.

API is ANSI accredited and developed both the current API RP 755 and the proposed 2<sup>nd</sup> Edition of RP-755 in accordance with ANSI standards per the requirements of the CSB's recommendation.

The RP 755 Revision Committee shows 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 2<sup>nd</sup> Edition as required by the recommendation. API used various processes to solicit attendance for Committee participation and directly solicited organizations/groups that were mentioned in the recommendation text, however, as they cannot require membership and participation, they will not be held responsible for the additional organizations' non-participation.

API's new revision promises to address several of the CSB's previous concerns, and includes:

- 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 and pending 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: **“Open – Acceptable Response or Alternate Response.”**