



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

<b>Report:</b>	BP America Refinery Explosion
<b>Recommendation Number:</b>	2005-04-I-TX-R6a
<b>Date Issued:</b>	March 20, 2007
<b>Recipient:</b>	American Petroleum Institute (API)
<b>New Status:</b>	Closed – Acceptable Alternative Action
<b>Date of Status Change:</b>	October 25, 2022

### Recommendation Text:

*Work together (with the United Steel Workers International Union<sup>1</sup>) to develop two new consensus American National Standards Institute (ANSI) standards:<sup>2</sup>*

*a) In the first standard, create performance indicators for process safety in the refinery and petrochemical industries. Ensure that the standard identifies leading and lagging indicators for nationwide public reporting as well as indicators for use at individual facilities. Include methods for the development and use of the performance indicators.*

*In the development of each standard, ensure that:*

- a) the committees are accredited and conform to ANSI principles of openness, balance, due process, and consensus;*
- 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 explosions and fire in an isomerization unit that resulted in 15 deaths, 180 injuries and significant economic losses. The accident was caused by the overfilling of a raffinate splitter tower during startup that in turn opened pressure relief devices and dumped heated flammable liquid into a blowdown drum with a stack that was open to the atmosphere. The amount of flammable liquid released from the tower exceeded the capacity of the blowdown drum and its stack, and a portion 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, which are

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<sup>1</sup> This recommendation was issued jointly to the API and the USW; however, responses are evaluated separately by the CSB. The USW response is not a part of this evaluation.

<sup>2</sup> The second consensus standard asked API to address fatigue prevention guidelines which is not a part of this evaluation.

detailed in the CSB final report. The agency issued recommendations to BP at the corporate and facility levels, OSHA, the American Petroleum Institute (API), the United Steelworkers International Union<sup>3</sup> (USW) and the Center for Chemical Process Safety (CCPS).

Among the most significant findings of the investigation, the CSB concluded that BP and the oil refining and chemical sectors did not have an effective system of indicators to evaluate their performance and use the measures to continually improve the management and control of process safety risks. The company and industry sectors were instead typically using personal safety indicators, such as trends in traditional workplace accidents (i.e., "slips, trips and falls"), rather than indicators capable of preventing the risks of catastrophic failures such as this incident. In some instances, the company actually collected information that could serve as process safety indicators, but they were not systematically used to drive performance improvements. The investigation further concluded that standardized and demonstrably effective process safety indicators were not available in the refinery and petrochemical industries as a whole. The report placed an emphasis in particular on the preventative impact of leading performance metrics. Moreover, the investigation found that public reporting of the performance of the firms and individual sites in the area of process safety was extremely weak or non-existent<sup>4</sup>.

These findings led the CSB to recommend that the API and USW jointly lead the development of a voluntary consensus standard for leading and lagging process safety indicators for these industries. The API is a national trade association that reportedly represents nearly 400 member firms from all sectors of America's oil and natural gas industry, from very large to small and independent oil companies. The USW is the major union that represents workers employed in the oil and gas industry, though not the sole worker representative.

#### B. Response to the Recommendation

In November 2021, API responded to the CSB that it had published the third edition of ANSI/API RP 754, *Process Safety Performance Indicators for the Refining and Petrochemical Industries*, dated April 2021. API explained in its response letter how the third edition addressed the CSB recommendation as well as new features that were incorporated, including:

- Adoption of the Globally Harmonized System for Classification and Labeling of Chemicals (GHS) as an additional descriptor for threshold release categorization.
- Making mandatory the previously optional Process Safety Event Severity Weighting.
- Adding an additional layer of causes under each primary cause
- Expanded the data collection capability to include non-petroleum based chemical facilities

CSB purchased a copy of the third edition of ANSI/API RP 754 to review and to verify the contents of API's response.

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<sup>3</sup> The union has since merged to become The United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union. USW is used in this status change summary for the sake of brevity.

<sup>4</sup> See CSB *BP America Refinery Explosion* report, pp. 25-26, 144-46, 149, 154-55, 159, 163, 185

### C. Board Analysis and Decision

Based on API's response, the Board notes that API RP 754 identifies leading and lagging indicators for nationwide public reporting as well as indicators for use at individual facilities and includes methods for the development and use of the performance indicators. As API RP 754 is an approved ANSI standard whose drafting committee met the American National Standards Institute's "Essential Requirements for Standards Development" for openness, balance, consensus and due process, these elements of the CSB recommendation have been met.

However, the Board's expectations that this standard be jointly developed with the participation of "diverse sectors such as industry, labor, government, public interest and environmental organizations and experts from relevant scientific organizations and disciplines," has not been met. As committee membership is entirely voluntary, though API solicited broad diverse participation, unfortunately, the drafting committee did not include civic or community leaders, regulatory agencies, environmental groups, scientific disciplines and other industrial sectors with experience using indicators that the Board envisioned would participate in its development.

While the specific "diverse sector" aspect of the recommendation was not met, despite API's actions, API RP 754 is an approved ANSI standard that does identify leading and lagging indicators for nationwide public reporting as well as indicators for use at individual facilities and includes methods for the development and use of the performance indicators. Additionally, the third edition also introduced several new improvements, such as incorporation of GHS criteria for threshold releases; mandatory weighting of Process Safety Event severity; additional cause layers; and expanded the data collection capability to include non-petroleum based chemical facilities. Therefore, the Board voted to change the status of CSB Recommendation No. 2005-04-I-TX-R6a to: "Closed – Acceptable Alternative Action."