

Safety Culture: Lessons Learned from the US Chemical Safety and Hazard Investigations Board

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The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigation of the 2005 BP Texas City Refinery disaster as well as the Baker Panel Report have set the stage for the consideration of human and organizational factors and safety culture as contributing causes of major accidents in the oil and gas industry. The investigation of the BP Texas City tragedy in many ways started a shift in the way the oil and chemical industry sectors looked at process safety and the importance of human and organizational factors in improving safety. Since the BP Texas City incident the CSB has investigated several incidents, including the 2010 Macondo disaster in the Gulf of Mexico, where organizational factors and safety culture, once again, were contributing causes of the incidents.

In the Texas City incident the CSB found that “while most attention was focused on the injury rate, the overall safety culture and process safety management (PSM) program had serious deficiencies.” The CSB concluded that “safety campaigns, goals, and rewards focused on improving personal safety metrics and worker behaviors rather than on process safety and management safety systems.”

The Baker panel, established as a result of a CSB recommendation, did a more extensive review of BP's safety culture. The Baker panel found that “while BP has aspirational goals of “no accidents, no harm to people” BP has not provided effective leadership in making certain it's management and US refining workforce understand what is expected of them regarding process safety performance.” This may have been in part due to a misinterpretation of positive trends in personal injury rates as an indicator of effective process safety. The panel also found that “at some of its US refineries BP has not established a positive, trusting and open environment with effective lines of communication between management and the workforce, including employee representatives.”

In 2010 when the CSB began to investigate the Macondo incident, it became clear that there were similarities with the BP Texas City situation. In 2014 the CSB released two other investigation reports, Tesoro, Anacortes, WA and Chevron, Richmond, CA, which noted deficient safety cultures as contributing to the incidents.

The on-going trend of a great deal of focus on personal safety and a lack of adequate focus on process safety was recently discussed in a DNV-GL report. DNV-GL, an international oil and gas technical consulting group, concluded that personal injury rates in offshore oil and gas operations have shown a ten-fold magnitude of improvement. The report concluded that the available data for looking at process safety in the last five years shows no unified global trend toward improved performance.

This presentation will examine the lessons learned from the CSBs investigations regarding safety management systems and safety culture as contributing factors to some major incidents in the oil and gas and chemical industrial sectors.