

What happened?

On March 23, 2005, BP employees and contract workers began a transient and critical procedure - re-starting a unit that had been down for repairs. They began to fill a tower with gasoline. The tower was overfilled, and the excess gasoline eventually sent a geyser into the air through a vent stack.

The vented mist formed a massive vapour cloud on the ground which likely got ignited by an idling truck. The blast destroyed several office trailers full of workers located nearby. The death toll stood at 15, while another 170 were injured.



The *unchanged* situation today

In the aftermath of the BP disaster, safety experts recommended moving vulnerable temporary buildings and nonessential personnel away from process units. They advocated upgrading or eliminating outdated technology, like the vent stack that overflowed. These and other reforms were intended to eliminate catastrophic accidents which may lead to fatality.

A decade later, many oil and gas facilities remain nearly as potentially at risk as before. With more than 10 years of hindsight, what has the industry learned?

Quoting from the US Chemical Safety Board report:

- *The Board of Directors did not provide effective oversight of BP's safety culture and major accident prevention programs.*
- *Reliance on the low personal injury rate as a safety indicator failed to provide a true picture of process safety performance and the health of the safety culture.*
- *Safety campaigns, goals, and rewards focused on improving personal safety metrics and worker behaviors rather than on process safety and management safety systems.*

These deficiencies continue to be uncovered to this day in other CSB-investigated disasters, in such incidents as the 2010 Tesoro, Anacortes, refinery explosion and the 2012 Chevron, Richmond, refinery fire; quoting CSB investigation findings - a poor safety culture that ignored warning signs, a deficient process safety management system, and the use of obsolete equipment.

Call for action – what needs to be done

You might think that these, and other similar tragic accidents, would have resulted in a wake-up call to industry leading to drastic improvements in process safety. Ten years on, a closer look suggests that such faith has not been fully justified; Process Safety related vulnerabilities still remain with scope for improvement.

It's important to remember that there are always warning signs and that disasters like these can be prevented. In these and many others, none had unique or unpredictable causes; **each repeated a lesson that the industry should have already learned.**

One such framework for learning from incidents is to form a holistic view in the context of the whole cycle of an incident, to promote contextualised learning coupled with sense making and reflection.

For further reading, the following is recommended:

Learning from Accidents, T.A. Kletz

Learning from accidents – What more do we need to know?, Lindberg et al.

Recognizing Catastrophic Incident Warning Signs in the Process Industries, CCPS

Process Safety is Everybody's Responsibility!

An initiative of the Process & Engineering Committee

SINGAPORE CHEMICAL INDUSTRY COUNCIL LIMITED (SCIC)
 8 Jurong Town Hall Road, #25-04, The JTC Summit, Singapore 609434
 Tel : 6267 8891 Fax : 6267 8893