

## Safety Corner

### Would Risk Assessment prevent the Gulf Oil Spill at Deepwater Horizon?

On 20 April 2010, bubbles of methane gas escaped from the oil well at Deepwater Horizon oil rig in the Gulf of Mexico. The bubbles burst through several seals and barriers before exploding, killing 11 workers and causing more than 6 m litres of crude oil pouring into the Gulf of Mexico. A further 800,000 litres is estimated to be pouring from the stricken well every day, turning the accident into the worst US oil disaster since the Exxon Valdez in Alaska in 1989. The cost of dealing with the Deepwater Horizon oil spill could reach up to US\$12.5bn, with BP's share totalling \$8bn.

Twelve months ago BP dismissed the possibility that a catastrophic accident could happen at its offshore rig Deepwater Horizon. An exploration plan and environmental impact analysis for the well, produced by the company in 2009, concluded that it was virtually impossible for there to be a giant crude oil spill from it. BP uses a system of massive hydraulics to choke off supply if oil begins to surge up a pipe. Risk assessments concluded that it was unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. There are redundant control switches and a number of different ways of closing the pipe, making the system seemingly very reliable, on paper. It has also been our belief that conducting risk assessments would save companies from accidents. So what went wrong?

Risk assessment is a tool. If you use it wisely, it will help you to identify the weakness of a system and allow you to reduce the likelihood and severity of accidents. However, if a risk assessment is not conducted professionally and diligently, the risk that one missed and not assessed could be the one that destroy the system. There are many do's and don'ts for conducting risk assessments. The typical mistakes I have seen from unacceptable risk assessments are: use of generic data instead of system-specific data, analysis neither systematic nor comprehensive, failure to include past events, not consider uncertainties, etc. In the upcoming issues, we will diverge from the lecture series of probability distributions and discuss the factors leading to good risk assessments and bad risk assessments.

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