The Potential Value of a Safety Case Regime in the USA

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Abstract

There have been discussions in the USA for a more risk-based approach in regulation. Both the National Commission and the Chemical Safety Board (CSB) have recommended a safety case regime in their respective reports on the Deepwater Horizon accident and the Chevron fire. This paper explores the background to safety case, why it was developed, the types of facilities covered, and how it has evolved from its initial formulation to the current formats in several countries. Onshore process facilities, offshore oil and gas installations, and mobile drilling units all have a different format for safety case and the nature of these differences is explained. A key feature of all these is that the safety case underpins a risk-based approach to the management of process safety. Since there are fewer prescriptive requirements, the safety case creates facility specific prescriptions that in theory lead to a safer installation. The offshore installations safety case requires defining key safety barriers and establishing for all of these reliability, testing and competence requirements to ensure their continuous effectiveness. Some statistics are presented which provide some indication as to the success of the safety case approach.

The issue of implementing safety case in the USA is discussed in terms of specialized competence requirements, and whether the potential risk reduction benefits merit the extra burdens associated with the safety case approach. It is likely that not all facilities would need a safety case approach, but higher risk facilities – such as deepwater installations, deepwater drilling units, and high potential consequence onshore plants (e.g. large refineries, major toxic plants, and ammonium nitrate facilities) would all benefit.

Keywords:

Safety Case, Risk Management, Onshore, Offshore