Roles of Contractors in Process Safety

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Process safety necessarily starts at project concept phases and continues throughout the entire plant life-cycle. From process selection to plant de-commissioning, various process safety elements govern the safety and reliability of the total system. Contractors play a very crucial role in project execution including detail design, technology selection, plant layout, commissioning, start-up, and further expansion, modification or maintenance activities. Undoubtedly, these are the most critical phases of a plant life-cycle which could trigger an unexpected or uncontrolled situation leading to a catastrophic incident. This paper discusses the impact of contractors’ action on major process safety events including Phillips explosion in Pasadena (1989), Texas City Refinery explosion (2005), Deepwater Horizon blowout (2010) and few others. Lessons from past incidents are highlighted and an in-depth analysis is conducted to identify essential process safety components for different focus group of contractors and for different phases of projects. Different aspects of process safety functional elements are presented and discussed for both greenfield and brownfield projects. Comprehensive understanding on process safety and risk management is required by all level of contractors to ensure risk-based decision making and hazard mitigation. Parallel to process safety expertise, the authors also emphasized on having a consistent and harmonize interaction between the operators/owners and the contractors.

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