

Safety Management in the Chemical Process Industries: Implementation of State-of-the-Art Safety Management System to Prevent Chemical Diesters in Chemical Processing Industries

Pankaj Kumar and Prof. Praveen Thatoad

Shiv Kumar Singh Institute of Technology & Science, Indore

Abstract: *It has been observed worldwide that process safety management system is implemented in chemical process industries only. The nature and scale of risk associated with the large-scale and concentrated storage of bulk hazardous substances is ignored in earlier years. But incidents such as Buncefield in the UK in 2005 and the Caribbean Petroleum Refining explosion in 2009 illustrate the catastrophic consequences of a loss of containment and further damage to people, environment, asset and reputation of the organization and country.*

Storage located along estuaries and coastal sites pose a special risk to protected marine environments. The combined pressure of protecting people and the environment comes with the territory of managing any large-scale terminal facility. Fortunately, few operators have ever experienced a catastrophic accident however, the past is not a good predictor of the future when it comes to risk management. Time and human factors often lead to a "Check Box" mentality where requirements are fully complied with "On Paper" with little or no emphases on quality of compliance. Occupational Safety and Health Administration's (OSHA) Process Safety Management (PSM) requirements are often exposed to this "check box" mentality. The big lessons to learn about risks from terminal storage operations over the last 20 to 30 years is that we should implement a process safety management system effectively which manages catastrophic risks and helps to prevent major catastrophic accidents.

Process Safety Management (PSM) comprises the proactive identification, evaluation and prevention of loss of primary containment events in a chemical process due to any failure(s) in the Process, Procedure, Equipment, or Components. Simply put, it deals with the Loss of Primary Containment (LOPC) of Highly Hazardous Chemicals (HHC). The 13 elements of process safety management have been included in this synopsis along with various catastrophic incidents occurred across the world for learning purpose. The implementation of this elements helps to prevent the catastrophic incidents in chemical processing industries

Keywords: Safety Management System

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