The Safest Facilities Are Created During Concept, Siting, and Engineering Design

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The best time to create a safer process plant is during the concept, siting, and design phases of a project. Inherently safer feedstocks, products, process technologies and facility designs are best chosen early on in an Engineering, Procurement, and Construction (EPC) project. At that critical stage in the life cycle of a process plant, choices are made that will affect the safety and operability of the plant for the rest of its life cycle. Siting and layout choices affect the offsite consequences of any major incident and decrease or eliminate risk from any adjoining hazardous facilities.

The design team may involve several hundred individuals, and the construction team may number several thousand. Some team members, such as key owner, technology, and design contractor team members, may participate for much of the project. Many team members, such as providers of equipment and consultants may be involved only briefly. Each individual and the organizations they represent often have different process safety cultures. The creation and maintenance of a strong and unified project process safety culture among the diverse stakeholders is essential and challenging.

This paper will describe a risk-based approach to the design of major process facilities.