Integrity Management of Critical Equipment and Systems for the use of Impact Assessment

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ABSTRACT

Hazard & Effects Management process has gained popularity in the Process Industry especially in Major Hazard sites such as Offshore Oil & Gas, Refineries and Petrochemicals. This process adopts a goal setting approach that requires the owner operator to conduct all the activities such that the risks are reduced to as low as reasonably practicable (ALARP). This approach can be applied through out the life cycle of a project or facility starting from front end engineering up to commissioning, construction and operation. Every phase involves identification of hazards, assessing risks using quantitative or qualitative techniques and demonstrating that the risks have been reduced to ALARP. Upon this demonstration, enforcement agencies grant permission to operate. The Hazard & Effects Management process have two objectives namely “Permissory” and “Assurance”. The permissory objective involves determination of risks and comparing them with acceptance criteria. License to operate is granted based on the permissory objective. Assurance objective involves demonstration of integrity of the critical equipment and system throughout the facility life. License to continue operation is granted based on the assurance objective. The critical equipment and system are those that prevent a major accident, protect people, assets and reputation and / or help in recovering from a major accident. The objective of this paper is to present the process of identification of critical equipment and systems, identifying critical activities and personnel that are required to ensure that the equipment will function appropriately and reliably to protect life, property and reputation. The paper also discusses the documentation required to be maintained by owner operators to demonstrate assurance of integrity.

Keywords: ALARP, Asset Integrity Management