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Establishing Safety System Requirements for Onshore Facilities

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Abstract

As Oil and Gas operating companies have evolved, complexities that were typically only existent in large facilities, have found their way into way into all areas of operation. Single well pad are in the past and larger, complex pads are the way of the future. As this occurs, the need to develop consistent practices for hazard analysis are evident. One such case is with the design and installation of safety systems. The requirements for safety systems vary greatly between different types of operational environments. For offshore platforms a checklist approach utilizing API RP 14C, *Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms*, is employed to assess baseline requirements for various pieces of equipment. The application of API RP 14C is effectively built into the regulations for offshore platforms, making the analysis mandatory. For onshore facilities, both regulated by OSHA and not, a similar requirement does not exist. Therefore, large inconsistencies are present in the assessment and application of safety systems. For a larger facility, typically a Layer of Protection Analysis (LOPA) or other semi-quantitative analysis is conducted to establish and confirm safety system requirements. However, there are several operations where LOPA is not utilized or is not appropriate for the level of risk. In these cases, the application of safety systems is largely inconsistent and is influenced by the experience of the review team. In this paper, the use of a modified checklist for onshore operations, based off of API RP 14C, is investigated and case studies are presented.