

A Study on Framework of Fire Quantitative Risk Analysis in LNG-FPSO System

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LNG-FPSO is a type of floating plant used by offshore gas industry. LNG-FPSO system is designed to take all of the natural gas produced from nearby gas fields, and liquified at a low temperature by using N_2 or CH_4 gas as refrigerants until the LNG can be offloaded on a LNG carrier.

The risk associated with LNG-FPSO systems are different from those of existing systems such as a steel jacket, TLP, SPAR etc. because all of the process of LNG-FPSO is performed in relatively limited space. However, designers should consider a trade-off between the aspects of safety and the economics of natural gas production simultaneously.

To achieve this trade-off in LNG-FPSO systems, Quantitative Risk Analysis (QRA) is a essential method that is now being used world-wide by designers and consultants in the offshore industry. In this study, a framework of QRA, especially focused on fire, and a simple case study of QRA are introduced. These works can be of great help in better understand the safety of LNG-FPSO systems.