RISK ANALYSIS FOR CNG STORAGE WITH FMEA

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ABSTRACT

Natural gas is one the power of energy found in onshore and offshore, there are two main types of gas storage with low pressure known as LNG storage and second Compressed Natural Gas ( CNG ) with pressure 2500 up to 3600 psi. Spill of gas is the main problem of CNG storage and during storage processes which is could lead to Blast or even Bleeve.

The aim of this research is to identified and analysed spill on CNG storage. Research was taken at CNG storage Grati, Pasuruan and Hazard and Operability Study ( HAZOP ) method is used to identify the risk. A form of question sampling was using to collect the primary data, with operational manager and staff as responder from CNG Grati, for a non-probability sampling- ( purposive sampling ). Failure Mode Effect Analysis ( FMEA ) is used as data analysis method.

The main causes of spill at CNG Grati is valve with 25% of damage rank, with butterfly valve is on top of it. Mitigation were taken by making bypass model on valve system, dike wall to reduce the spread of spill, and improvement of plant monitoring system, and better risk management is achieved.

Keywords : LNG storage, CNG storage, spill, HAZOP, FMEA, risk management