HAZOP STUDY ON DISTRIBUTION SYSTEM "INSTALASI SURABAYA GROUP (ISG) PT.PERTAMINA TANJUNG PERAK" BASED ON FUZZY LAYER OF PROTECTION ANALYSIS (FLOPA)

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ABSTRACT

Sector of the oil industry has an important role in sustaining the life of the community. Green environment and zero accident will affect the balance of the environment and sustainable development. Built to maintain the environmental balance of fuel supply system that does not paralyze the transportation system and community activities. This is closely related to the operations of the distribution process of fuel oil (BBM) from the tanker to charge the car where the oil distribution impacts of high risk such as fire, explosion, leakage, and oil spills. LOPA based risk identification is done to show the value of the Safety Integrity Level (SIL) in some scenarios. SIL calculations encourage economic impact analysis based on modern software. Fuzzy system is applied in the risk assessment on the fuel distribution system with multiple inputs in terms of several aspects to produce output that is easily understood and reliable. Fuzzy Layer of Protection Analysis appropriately used as a method of risk assessment based protective coating experts show qualitatively and quantitatively. Rule base-based expert system used in FLOPA. The linkage between the risk impacts of the extent of the Safety Integrity Level is known as a firm step in preventing environmental pollution. Probability economic impact FLOPA system used by management for making decisions that greatly affect the economic resilience of the company and the needs of the community. The results of the evaluation of the guarantor system, assets, environment, safety and reputation for the company and the government for the creation of sustainable development so that environmental and green city and economic sectors to be smooth. This is evidenced by the SIL rating of 1 to 3 nodes, i.e. NO SIL, SIL 0, and SIL 1. Moreover, the results FLOPA economic impact on node 2 to 3 medium overall categories with total losses / year in the range of U.S. $ 10,000 - U.S. $ 100,000.

Keywords: fuel distribution, risk assessment, FLOPA