APPLICATION OF FORMAL SAFETY ASSESSMENT (FSA) FOR ACCIDENT RISK ANALYSIS ON FSO HELIPAD: CASE STUDY FSO KAKAP NATUNA

Floating Storage and Offloading Unit (FSO) is a ship used in the oil industry for storage of oil in offshore. However, FSO Kakap Natuna is not only for the storage purpose but also serves as a living quarter to accommodate 300 people who work on offshore platforms nearby. It takes a special place as the landing platform helicopter called helipad to accommodate transport activities of the FSO-Offshore-Onshore. Due to the ability of the helicopter that could land and fly in a vertical direction, helipad does not need a place that is too broad and could be anywhere as long as sufficient space for the rotor/propeller helicopter. To ensure that the Helipad can be used safely and work properly, it needs to be held as a research effort in identifying any hazards that may threaten. This final project aims to analyze the risk of structural failures on the FSO Kakap Natuna helipad platform by using the Formal Safety Assessment (FSA) method in accordance with IMO standards. The study used expert judgement techniques with questionnaires helping in the determination of probability. The risk analysis uses a Fault Tree Analysis (FTA) method and Even Tree Analysis (ETA). The failure of the structure at helipad is used as the top event. The calculation of minimal cut set in the FTA was done using RAM Commander 8.1 Demo Version software. In the study, 16 kinds of risks control options have been identified and they will be used in an attempt to reduce the risk of failure in helipad. After that, the cost from each risk control option (RCO) was calculated to compare the gains in risk reduction. The result showed that of the structure failure at helipad. RCO2 that doing proper selection of material and RCO3 that doing periodic inspection is selected to control corrosion

Keywords: Helipad, Formal Safety Assessment (FSA), Fault Tree Analysis (FTA), Even Tree Analysis (ETA)