Abstract

Indonesia has produced oil and gas until 108 trillion cubic feet per year refer to “Oil and gas in Indonesia investment and taxation guide 2010”. The most of reserves oil and gas has been located on deepwater sea such as Timor Sea that has capacity until 100,000 bpd (barrels per day) which has geographic data on Timor sea that has shallow trough on 90-340 meters. So, Floating Production, Storage, and Offloading (FPSO) is the best choice for supporting facilities to explore oil and gas on Timor sea. Therefore, we conduct risk assessment to know about potential hazard and reliability on that FPSO. The most important hazard to assessment is about fire hazard on topside FPSO which has failure leak for equipment. First, we must identificate hazard with HAZOP method accordance with BS IEC 61882 standard. It needs P&ID topside FPSO on condensate stabilization system to identificate hazard. After that, defining frequency of hazard with Event Tree Analysis (ETA) method and defining consequences with software simulation ALOHA (Areal Location of Hazardous Atmospheres) for fire modeling. Potential hazard have been defined by analysis frequency and consequence then the potential hazard’s assess using representative risk f-N curve with UK Offshore (1991) standard. The results of analysis show that the potential hazard are jet fire and pool fire. Risk assessment from representative f-N curve is the potential hazard still on acceptable position, therefore it is not necessary to carry out mitigation.
Keywords: Risk assessment, FPSO topside, fire modeling, f-N curve