RISK ASSESSMENT OFFSHORE AND ONSHORE GAS PIPELINE CROSSINGS: A CASE STUDY OF KETAPANG PSC GAS PIPELINE, EAST JAVA

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Abstract

Condition of crossing between gas pipelines is currently difficult to avoid by the industry. This condition resulted in substantial risk to both existing pipelines in crossing condition. In the case of gas pipelines crossing of Ketapang PSC, there is one point of onshore pipeline crossing with highway and five points of offshore pipeline crossing with other existing pipelines. Risk assessment within this study was performed by analyzing the stress acting on the pipe with reference to the API 1102 standard for onshore crossing pipeline and ASME B31.8 standard for offshore crossing pipeline. For offshore crossing pipelines risk assessment, however, the procedure should incorporate stability analysis and soil settlement calculation with reference to the DNV-OS-F101. To verify the stress analysis results, several models using CAESAR 5.1 were then developed to examine the stress acting on offshore pipeline crossing. This study found that both onshore and offshore crossing pipeline crossing still meet the criteria given by the standards, and soil settlement calculation was also meet the criteria given by DNV-OS-F101. so as to the soil settlement analysis, that was also verified according to DNV-OS-F101.

Keywords : Pipeline Crossing, Onshore crossing, Offshore crossing, DNV-OS-F101, API 1102, ASME B31.8