Abstract
Pipeline are considered as the safest method of delivering oil & gas. However, pipelines, like all engineering plant can, and do fail. Pipeline failures are vital to the environment, people and properties. Therefore, the integrated solution to minimize the following risk need to be treated as priority, especially in the safety application and inspection rules of pipeline. Pipeline risk assessment is one of the best identification method for potential occurrence of pipeline operation failure, environment, health and safety issue included. This Final Project studies about the risk assessment on gas distribution pipelines at Tandes-Margomulyo Area owned by PT. Perusahaan Gas Negara along 9.9 km. The following assessment has been done at each pipe segmentation and reviewed based on its supporting attribute. The risk assessment used in this Final Project is indexing model risk assessment through scoring index to each parameter (probability and consequence of failure). From the calculation, then probability of failure obtained in each segment of pipe that is in the form of indexes with items from third-party damage with an average score of 57.16, corrosion with an average score of 68, design with an average score of 75, and incorrect operations with an average score of 90. The leak impact factor is used to adjust the index scores to reflect the consequences of a failure. It can be obtained by multiply the whole area factors (include to product hazard, leak/spill volume, dispersion and receptors). From this, we can get the estimation score, for product hazard is about 7, leak/spill volume is 0.4, dispersion is 0.8, receptors variation score between 10.8 up to 15.9, thus can be obtained the leak impact factor with an average score of 31.696. Relative risk score obtained an average score of 9.45, so the level of risk at pipeline Tandes-Margomulyo including at low level. Risk mitigation need to be done for unacceptable level by reducing the consequence frequency or combining both.

keyword: pipeline, risk assessment, Indexing Model Risk Assessment, risk mitigation