Abstract
In subsea pipeline designing, wall thickness calculation and lay out configuration design form an important factor for determine the flow of full designing in accordance with cost aspect, reliability, safety design, and stress analysis. This study work through the wall thickness designing of subsea pipeline in certain condition using a standard code as DNV-OS-F101 and ASME B31.7 for the flange pressure calculation in 4 configuration design which will be used for this study. From the designing, the result was obtained as the optimum wall thickness is 0.4027 inches and with the specified API 5L consideration it went over to 0.406 inches, and stress analysis for 4 configuration design work on using AUTOPIPE program. The result for 4 configuration design variation shows the maximum value on fourth configuration 420 N/mm² whereas the minimum value obtained on first configuration 183 N/mm². The maximum flange pressure value is 21,117 MPa which obtained on the second configuration and the minimum flange pressure value is 14,401 MPa on the second configuration. According to the material which been used for this 4 configuration design, the maximum cost is Rp 13,869,572.543,- for the first configuration, and minimum cost is Rp 12,661,053.048,- for the third configuration.

Key words: Design, underwater pipeline, Cost, DNV-OS-F101, ASME B31.7