Pipeline is a technology used to drain fluid such as oil, gas or water in a very large number and long distances. In the distribution of pipeline through the sea or a particular area, the problem that often arises is the leakage due the internal or external impact. this paper presents risk assessment of the pipeline owned by PT. Pertamina Hulu Energi-West Madura Offshore which distributes natural gas and this paper took the pipe segment of the PT. Maspion leading to the ORF(Onshore Receiving Facility). This segment consists of offshore and onshore section. Problems arise because of the dredging process near the pipeline, so there is the possibility of an external impact on the pipe. Risk assessment is used to assess whether the risk is acceptable or not. For the onshore section, pipelines located in densely populated areas, so the pipes leak risk assessment needs to be done. Societal Risk is one of the methods used to conduct a risk assessment on an onshore
pipeline. The Result of societal risk method plotted to F-N curve. F-N curve shows the frequency of occurrence of leakage and the consequences that arise. Consequence modeling is done using Shell Fred software. Risk assessment is based on DNV RPF-107 standards. The results of risk assessment can be used as a consideration that the risk is at acceptable levels, ALARP or unacceptable.

Keywords: offshore, onshore, risk assessment, DNV RPF-10, shell fred.