

## **ABSTRACT**

*Pipe system is one of the major systems contained in geothermal power plants because these systems ensure smooth distribution of fluid from the source to the plant and running it again for reinjection into geothermal sources. One component of the system is a main steam pipe that serves the main steam from the steam turbine to receiving header. PLTP UBP Kamojang unit 1 is the longest-generating units operate so susceptible to damage. Based on observations, the wall of main steam pipe units 1 found corrosion caused by moisture or corrosive environment containing Cl, Na, and O as well as thinning of the wall of pipe which occurs due to the collision of solid particles such as sand or deposits containing calcium. The corrosion can lead to the risk of accidents at work and financial risk in the event of a leak in the pipe. Currently pipeline inspection activities are carried out at regular intervals for 4 years.*

*Risk Based Inspection (RBI) is an approach to risk assessment and management process that is focused on equipment failures due to defects in materials. RBI is a method for determining the inspection plan (where and when equipment must be inspected) based on the risk of failure.*

*From the results of the qualitative RBI analysis, there is a main steam pipe at low risk category while the quantitative RBI analysis of the results contained in the medium risk category. Then do the remaining life analysis to determine the age of rest on main steam pipe and plan appropriate inspection intervals both preventive and corrective analyzed by categories of risk. Based on the concept of the inspection intervals improvement, preventive maintenance activities can save Rp 88,188,120 and corrective maintenance activities can save Rp1,687,216,035. But the failure to anticipate the production process, the company must provide the risk cost of Rp 83,819,626.*

*Keyword : Risk based inspection, remaining life, inspection interval, risk cost*