

## **ABSTRACT**

*Electricity has become a primary need of the Indonesian people, in the absence of electricity, some community activities have also stopped. Electricity can be produced through several types of plants, one of which is Geothermal Power Plant (PLTP). One company that manages Geothermal Power Plants in Indonesia is PT Indonesia Power. In processing geothermal into electricity, the company needs machines that work well under any conditions, one of which is a separator machine. Separator machine is a machine that has an important role for the electricity production process because the separator functions as a separator of geothermal steam with impurities (silica, water, etc.) so that the steam that enters the generator is dry steam. To keep the separator machine working properly, proper inspections are needed. Inspections are needed to ensure that the separator machine is always in good condition, especially those machines that have a large risk impact if damage occurs. Inspection can be done by several methods, one of which is the risk based inspection method. Therefore, the study was conducted by applying a risk based inspection method based on API 581 Second Edition to determine the level of risk, the remaining life of the machine, and the planning of inspections (intervals and inspection techniques) on the machine.*

*Based on the results of research on three units of PT Indonesia Power UPJP Separator Machine Kamojang using API 581 Second Edition, the level of risk obtained is a medium high level for all units, with a risk category of 1E which is a low probability of failure and very high failure consequences. The estimated life remaining of a machine to perform its functional ability is 25 years for unit I, 13 years for unit II, and 18 years for unit III. Estimated residual age based on research on each unit is different because the rate of depletion in each unit is also different. Inspection planning in this study is determining the interval of machine inspection and determination of inspection techniques carried out on machines, inspections of unit I are carried out every six years, inspections of unit II are carried out every three years, and inspections of unit III are done every four years with thorough inspection (with partition demolition) and thickness measurements using automated ultrasonic scanning tools, or profile radiography for inspection techniques on each unit.*

*Keywords: Geothermal Power Plant, Separator Machine, Risk Based Inspection, API 581, Remaining Life, Inspection Intervals and Techniques*