

ABSTRACT

The secondary cooling system has a role to absorb the decay heat brought from the primary system through a heat exchanger (HE) and the decay heat is then discharged into the environment using a cooling tower. The secondary cooling system has 3 pumps where normally 2 main pumps operate simultaneously (2x50%) and 1 pump as a backup. The pump works continuously for 24 hours. Over time, engine damage will decrease and it can cause engine damage. For this machine to operate properly, it is necessary to carry out maintenance. The purpose of this study is to provide suggestions for pump engine maintenance and the optimal total cost of maintenance using the Reliability and Risk Centered Maintenance (RRCM) method. To determine the critical components of the secondary cooling pump using a risk matrix and the selected components are mechanical seals and motors. Based on the results of the study, using the RRCM method, 3 proposed maintenance tasks were obtained, including 2 scheduled on-condition tasks and 1 scheduled discard task. Based on the proposed maintenance task and its time interval, the proposed maintenance cost is Rp3.319.627 while the existing maintenance costs to be incurred by the company are Rp5.019.583. So the proposed maintenance cost is Rp1.699.955 lower than the company's existing maintenance costs so that the company can save maintenance costs by 33.9%.

Keywords: *Maintenance, Risk Matrix, Reliability and Risk Centered Maintenance (RRCM), Uncertainty Assessment.*