

ABSTRACT

The demand of raw steel continues to increase, from 7.4 million tons in 2009 to 12.7 million tons in 2014. Rough steel demand is projected to reach 17.5 million tons in 2019. PT Krakatau Steel is State-Owned Enterprises (SOEs) with a capacity of 3.15 million tons per year with the largest capacity of Hot Rolled Coil / Plate of 1.55 million tons per year produced at the Hot Strip Mill (HSM) or 49 % Production capacity at PT Krakatau Steel produced by HSM factory. To maintain the quality of the steel produced, there is a Water System which is a watering system at the plant which is used to reduce defects in products due to scale. Therefore, there is a need for reliability, availability, and maintenance (RAM) and determination of optimum engine life in water systems and proper maintenance crew numbers. The method used is Life Cycle Cost and RAM method. From the results of data processing using RAM Analysis by using Reliability Block Diagram (RBD), the system has reliability 34.447% at 168 hours. Inherent Availability Value of 99.9993% and Operational Availability 99.9973223%. Based on Key Performance Indicators of World Class Maintenance (KPI), indicators of Leading Availability have reached the target indicator given. Based on the calculation. The maintenance cost is Rp27,348,870,107, - with an optimal age is seven years and the number of maintenance crews is two.

Keywords: *Reliability, Availability, Maintainability, Key Performance Indicator, Maintenance managemet, Life Cycle Cost*