ABSTRACT

Splitting machine at PT.GMP is one of the main machines used to do skin cleavage in accordance with the thickness standards set by the company. The high frequency of engine downtime causes a decrease in engine performance which will affect production targets. For this reason, appropriate steps are needed to reduce these problems by analyzing the value of reliability, availability, maintainability and safety (RAMS) in the company. The data used is Splitting machine damage data for January 2017 - December 2019. In the calculation of the risk matrix, critical subsystems are obtained, namely knives, tables and bearing roll. The results of RAMS data processing using RBD modeling obtained value of system reliability at t = 264 of 80% best on IVARA world class standard. The inherent availability value is 99.51% and operational availability is 99.73%. The system maintainability value reaches 100% at t = 16 hours. In the evaluation of leading indicators and lagging indicators have reached targets above 95% in accordance with IVARA World Class Maintenance Key Performance Indicator standards. The safety calculation results are based on the PFD and RRF values for each subsystem at intervals of 8 hours and 40 hours, the bearing roll subsystem has the largest SIL level, namely SIL 2, the knife and table subsystem has a SIL 2 level at 8 hours and has SIL 1 at the time 40 hours. This calculation is based on the IEC 61508 standard.

Keywords: Splitting, Reliability, Availability, Maintainability, Safety, Reliability Block Diagram, Maintenance Key Performance Indicators, SIL, IEC 61508.

Abstract