ABSTRACT

PT. LBE is one of the power supply companies for PLN's Java-Bali power plant. The increasing demand for electricity due to economic growth, PT. LBE is required to be able to meet the electricity needs according to the request from PLN. In order for this to be fulfilled, PT. LBE must always be in good condition in order to produce according to consumer demand. To minimize losses incurred by the company due to not being able to meet consumer needs, good maintenance activities are needed. One way to increase maintenance activities is to increase the Reliability, Availability, Maintainability value of the production system itself and the Safety value contained in the company. Data in the form of Mean Time to Failure (MTTF), Mean Time to Repair (MTTR). Mean Down Time (MDT) is needed to measure the performance of existing systems in the company. To measure the safety value, you can use the MTTF value. The measurement of the safety value itself is based on the international standard, namely IEC 65108. The Reliability Block Diagram (RBD) is used to determine the relationship between critical subsystems. The depiction of RBD for critical subsystems of the C2 Conveyor Belt machine is depicted in series, because each subsystem is interrelated with one another. The results of data processing from Reliability, Avaiability, Maintainability, Safety (RAMS) analysis, obtained results for the Reliability system value of 77.06% at t = 72 then the three critical subsystems have maintainability values of 100% at t = 9.5 hours, for Avaiability system has 2 measurement aspects, namely inharent avaiability (Ai) which has a value of 99.60% and operational availability (Ao) has a value of 99.88%. In accordance with the values of Ai and Ao, all critical subsystems are above the Key Performance Indicator criteria because the values of Ai and Ao are above the value of 95%. The Safety Integirty Level (SIL) is at the SIL level 1.

Keywords: Reliability, Availability, Maintainability, Safety, Reliability Block Diagram, Safety Integrity Level, Key Performance Indicator.