

ABSTRACT

PT. XYZ is one of the second largest cement producers in Indonesia which produces several kinds of quality cement to meet the needs with a total production capacity of 24.9 million tons of cement. In production activities at PT. XYZ mostly uses machines, so companies need to improve the Reliability, Availability & Maintainability of the production system itself. The data in the form of MTTF, MTTR and MDT are useful for assessing the performance of the working system. Based on data collected from the machine system raw mill in 2019, the obtained, system breakdown structure is namely the control panel, cable installation, protection sensors, motor drives and transformers. Of the five subsystems, the cable installation subsystem is selected as the critical subsystem of the machine raw mill. Due to the modeling system on a machine raw mill arranged in series, which will result if one of the systems is damaged, it can cause the machine to be unusable and will disrupt the production process. Therefore analysis is needed, Reliability, Availability, and Maintainability.

The results of data processing Reliability, Availability & Maintainability Analysis using Reliability Block Diagram (RBD) modeling, at 288 hours the system has a Reliability value (50.89%). The average value of system maintainability at $t = 53$ hours is 100%. Inherent Availability value is 98.3% and Operational Availability value is 97.7%. Based on evaluations that have been carried out using world class maintenance Key Performance Indicators, indicators of leading and lagging availability have reached the target indicators. Based on the analysis that has been done, the proposed maintenance policy that can be done is to carry out preventive maintenance to maintain the system in a ready state for operation in a systematic and periodic manner such as providing inspections, among others by checking the physical engine, checking the noise generated, engine temperature, lubrication conditions, and other parameters that can describe the condition of the machine using the form machine checking checklist once a day, so the machine's performance improving.

Keywords: *Reliability, Availability, Maintainability, Reliability Block Diagram, Inherent Availability, Operational Availability, Key Performance Indicator*