

**ANALYSIS OF THE IMPACT OF UNIT CONDITION MONITORING IN THE
MAINTENANCE PROCESS TO IMPROVE PHYSICAL AVABILITY
MAINTENANCE ACCURACY AND PRECISION PT. KALIMANTAN PRIMA
PERSADA JOBSITE RANT USING THE FMEA APPROACH**

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in

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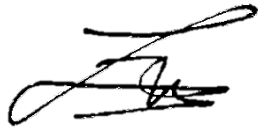
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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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ABSTRACT

ANALYSIS OF THE IMPACT OF UNIT CONDITION MONITORING IN THE *MAINTENANCE* PROCESS TO IMPROVE *PHYSICAL AVAILABILITY* *MAINTENANCE* ACCURACY AND PRECISION PT. KPP JOBSITE RANT USING THE FMEA APPROACH

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Maintenance management merupakan proses perencanaan, pengorganisasian, pelaksanaan, dan pengendalian aktivitas pemeliharaan untuk memastikan bahwa peralatan dan fasilitas produksi dapat beroperasi secara andal, aman, dan efisien. Dalam industri pertambangan, *Maintenance management* memiliki peran strategis karena karakteristik operasional yang bersifat *continuous operation*, beban kerja unit yang tinggi, serta kondisi lingkungan yang ekstrem. Kegagalan sistem *Maintenance* dapat menyebabkan terhentinya proses produksi, meningkatnya biaya perbaikan, serta risiko keselamatan kerja. Oleh karena itu, *Maintenance management* harus dirancang secara sistematis dan berbasis data. Perkembangan *Maintenance management* telah bergeser dari pendekatan reaktif menuju pendekatan *proaktif* dan berbasis kondisi aktual peralatan. Penerapan unit *condition monitoring* memungkinkan pengambilan keputusan *Maintenance* yang lebih akurat dan presisi karena didasarkan pada data kondisi unit secara aktual, bukan hanya interval waktu. Hal ini mendukung peningkatan efektivitas proses *Maintenance* dan pengurangan pekerjaan yang tidak diperlukan. Penelitian ini menawarkan solusi sebuah sistem pemeliharaan yang dapat mengevaluasi risiko kegagalan secara sistematis membantu memprioritaskan komponen kritis berdasarkan *Severity*, *Occurrence*, dan *Detection*, sehingga unit dapat difokuskan pada tindakan perbaikan yang paling berdampak terhadap keandalan peralatan dan pengurangan *operational cost*.

Keywords: Maintenance Management, Mining Industry, Failure, Maintenance Efforts, Maintenance System, Severity, Occurrence, Detection.

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ANALYSIS OF THE IMPACT OF UNIT CONDITION MONITORING IN THE *MAINTENANCE* PROCESS TO *IMPROVE* PHYSICAL AVAILABILITY *MAINTENANCE* ACCURACY AND PRECISION PT. KPP JOBSITE RANT USING THE FMEA APPROACH

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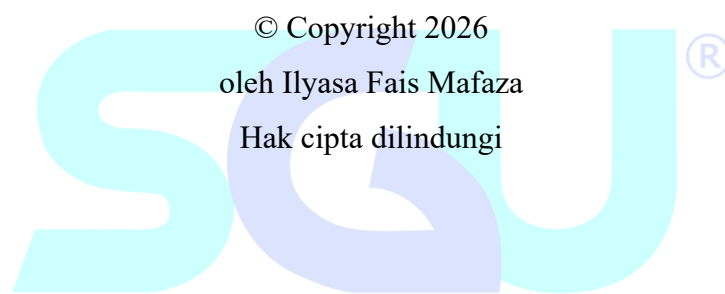
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Maintenance management is the process of planning, organizing, executing, and controlling Maintenance activities to ensure that production equipment and facilities operate reliably, safely, and efficiently. In the mining industry, Maintenance management plays a strategic role due to the nature of continuous operations, high equipment workloads, and extreme environmental conditions. Failures in the Maintenance system can lead to production downtime, increased repair costs, and heightened safety risks. Therefore, Maintenance management must be designed systematically and based on data. The development of Maintenance management has shifted from a reactive approach to a proactive and condition-based approach. The implementation of unit condition monitoring enables more accurate and precise Maintenance decision-making, as it is based on the actual condition of the equipment rather than fixed time intervals. This approach supports Improved Maintenance effectiveness and reduces unnecessary work. This study proposes a Maintenance system capable of systematically evaluating Failure risks and assisting in prioritizing critical components based on Severity, Occurrence, and Detection. As a result, Maintenance efforts can be focused on corrective actions that have the greatest impact on equipment reliability and the reduction of operational costs.

Keywords: Maintenance Management, Mining Industry, Failure, Maintenance Efforts, Maintenance System, Severity, Occurrence, Detection.



LEMBAR PERSEMBAHAN

Saya mendedikasikan penelitian ini untuk diri saya di masa depan. Saya ingin mengucapkan terima kasih kepada diri saya dan keluarga saya saat ini yang telah memberi dukungan memberi kekuatan untuk mengatasi semua tantangan saat ini dan mempersiapkan semua hal baik yang menanti di masa depan.



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