

# Peningkatan Kinerja Sistem pada Lini Produksi NPK, Water Treatment Plant dan Cooling Tower Berbasis RAMD = Improvement of System Performance of NPK Production Line, Water Treatment Plant and Cooling Tower Based on RAMD.

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## Abstrak

### **ABSTRAK**

Tujuan utama dari penelitian adalah untuk mengidentifikasi komponen yang paling kritis atau paling lemah berbasis analisis RAMD. Peningkatan kinerja komponen akan dilakukan pada komponen terlemah yang ditemukan. Data *time-between-failure* (TBF) dan *time-to-repair* (TTR) dikumpulkan untuk memperkirakan *reliability, availability, maintainability, dependability,* dan *mean-time between hazardous failure* (MTBH). Berbagai ukuran kinerja pabrik seperti *mean-time-to-repair* (MTTR) dan *mean-time-between-failure* (MTBF) juga dipaparkan dalam penelitian. Permodelan kinerja sistem didasarkan pada asumsi bahwa data perbaikan dan kegagalan adalah bersifat konstan dan independen secara statistik. Untuk merepresentasikan penerapan metode yang diusulkan, Lini Produksi NPK, *Water Treatment Plant* dan *cooling tower* digunakan sebagai objek penelitian untuk studi kasus evaluasi dan peningkatan kinerja sistem. Data kegagalan dan data perbaikan dapat menjadi basis data yang berguna bagi manajemen untuk meningkatkan *availability* dari sistem.

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### **ABSTRACT**

The main objective of this study is to identify the most critical or weakest components based on RAMD analysis. System performance and Improvement will be performed on the most critical component. Time-between-failure (TBF) and time-to-repair (TTR) data are collected to estimate reliability, availability, maintainability, dependability, and mean-time between hazardous failures (MTBH). The dependability parameters are solely applied to those subsystems that have both constant failure rate and repair rate. Various measures of plant performance such as MTTR and MTBF are as well presented. Performance modeling of the system is carried out based on the assumption that both repair and failure data are statistically independent. To show the application of the proposed method, NPK fertilizer production line, Water Treatment Plant and Cooling Tower System as repairable production system has been provided for case studies of performance evaluation. The records of failure and repair data can be a useful database for the management of to improve system availability.