VIBRATION ANALYSIS OF PRIMARY AIR FAN (PAF) AS A BASIS FOR PREDICTIVE MAINTENANCE IN THE CFB MB 26 BOILER SYSTEM AT PT INDAH KIAT PULP AND PAPER TBK PERAWANG

Nama Mahasiswa	: Armin Jon Tua Manalu
Nim	: 2204221396
Dosen Pembimbing	: Abdul Gafur S.Si.,M.T.

ABSTRACT

Primary Air Fan (PAF) is a critical component in the Circulating Fluidized Bed (CFB) Boiler system, which functions as a primary air supply to support the combustion process. Disturbances in PAF operation can cause boiler instability and may lead to unit trips, resulting in decreased productivity. One of the early indicators of damage in rotating machinery is vibration. This study aims to analyze the vibration level of the Primary Air Fan (PAF) as a basis for implementing a predictive maintenance strategy in the CFB MB 26 Boiler system at PT Indah Kiat Pulp & Paper Tbk Perawang.

The method used in this research was direct measurement using a vibration analyzer and an infrared thermal gun. The collected data were analyzed based on the ISO 10816-3 standard to determine the condition of the machine. The analysis results indicate that the vibration characteristics of the PAF can identify potential problems such as unbalance, misalignment, and bearing damage. Based on the evaluation results, the machine condition can be classified into specific zones according to the applied vibration standard. Therefore, vibration analysis is proven to be an effective condition monitoring method to support predictive maintenance systems.

This research is expected to contribute to improving boiler operational reliability and minimizing unplanned downtime through the implementation of condition-based predictive maintenance strategies.

Keywords: Primary Air Fan, vibration, predictive maintenance, ISO 10816-3, CFB Boiler.