

**VACUUM DISTILLATION TURBINE LUBE OIL PURIFICATION SYSTEM
IN STEAM POWER GENERATION PLANTS**

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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

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Steam coal-fired power generations plant are equipped with turbine lubrication systems. A turbine lubrication systems are to provide lubrication film for steam turbine bearings and rotating parts. Lubrication system with oil film thickness to decrease friction affect in the tribo-system in steam power generation plants. Contamination in the turbine lube oil affects oil film thickness and is an indication of steam bearings health. Contamination can effect to turbine high vibration and make unbalance to turbine rotation and power plants outages. Contamination in turbine lube oils are solid particle contaminants, water content and oxidation products. Common problems found in regular condition monitoring are solid particle contaminants and water contamination in turbine lube oil. Oxidation contamination is a degradation by products and formed in long term of turbine operation. In this thesis, an oil purification system with vacuum distillation method is developed to remove water and particle contamination. Vacuum distillation is to improve reliability and tribological operation in steam coal-fired power generation. the oil purification system developed is a vacuum distillation oil purification system with atmospheric distillation. The advantage of vacuum distillation process over atmospheric pressure distillation is the system can be operated at lower temperature to separate water from turbine lube oil under vacuum pressure; This technique is to avoid degradation on quality properties of turbine lube oil due to thermally sensitive substances.

Keyword: turbine lube oil, oil purification system, oil purifier, vacuum distillation.

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DEDICATION

I dedicated this research to my family and steam coal-fired power plants providers in Indonesia

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