

# Penerapan preventive maintenance pada mesin pompa submersible serta analisis menggunakan metode Total Productive Maintenance (TPM) dengan pendekatan Overall Equipment Effectiveness (OEE) di waste water treatment plant Lippo Cikarang = Implementation of preventive maintenance on submersible pump machines and analysis using Total Productive Maintenance (TPM) method with Overall Equipment Effectiveness (OEE) approach at waste water treatment plant Lippo Cikarang.

Dennis Messelinus Christian, author

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## Abstrak

Waste Water Treatment Plant Lippo Cikarang merupakan bidang usaha yang dijalankan oleh PT Lippo Cikarang dengan menyediakan layanan jasa berupa pengelolaan limbah yang dihasilkan dari kegiatan usaha atau produksi yang ada di kawasan industri Lippo Cikarang yang memiliki jumlah tenant yang beroperasi sebanyak 871 unit. Sistem pengolahan limbah tersebut bersifat kontinyu selama 24 jam. Untuk menjaga kontinuitas proses pengolahan air limbah maka diperlukan penanganan yang tepat terhadap system perawatan yang berlaku di Waste Water Treatment Plant Lippo Cikarang. Berdasarkan data tahun 2020 sudah terjadi breakdown peralatan dalam semester pertama tahun 2020 dengan total waktu padam mencapai 101 jam. Hal ini berakibat pada penurunan produktivitas dan efisiensi pengolahan air limbah yang mencapai mencapai 20%. Berdasarkan analisa menggunakan Metode Total Productive dengan pendekatan Overall Equipment Effectiveness maka didapatkan kondisi eksisting OEE sebesar 58 %. Berdasarkan hal tersebut maka perlu dilakukan upaya penerapan perbaikan yang dibagi menjadi 4 komponen, yaitu man power, machine, environment dan equipment. Dan pada hasil perhitungan nilai OEE menunjukkan perbaikan efektifitas peralatan dengan nilai peningkatan sebesar 38 % dari tahun 2020.

.....Waste Water Treatment Plant Lippo Cikarang is a line of business run by PT Lippo Cikarang by providing services in the form of managing waste generated from business activities or production in the Lippo Cikarang industrial area which has a number of tenants operating as many as 871 units. The waste treatment system is continuous for 24 hours. To maintain the continuity of the wastewater treatment process, proper handling of the treatment system applicable at the Lippo Cikarang Waste Water Treatment Plant is required. Based on data in 2020, there has been a breakdown of equipment in the first half of 2020 with a total outage time of 101 hours. This resulted in a decrease in productivity and efficiency of wastewater treatment which reached 20%. Based on the analysis using the Total Productive Method with the Overall Equipment Effectiveness approach, the existing condition of OEE is obtained at 58%. Based on this, it is necessary to implement improvements which are divided into 4 components, namely man power, machine, environment and equipment. And the results of the calculation of the OEE value show an improvement in the effectiveness of the equipment with an increase of 38% from 2020.