

ABSTRAK

PT United Tractors Semen Gresik (UTSG) merupakan perusahaan jasa kontraktor pertambangan batu kapur yang menggunakan mesin *bulldozer* D155A sebagai alat didalam proses pengambilan batu kapur yang dekat dengan pemukiman warga. Tingginya *downtime* mesin menyebabkan efektivitas kerja menurun, sehingga nilai *Overall Equipment Effectiveness* (OEE) belum mencapai target perusahaan. Penelitian ini bertujuan untuk mengetahui penyebab rendahnya efektivitas mesin menggunakan metode *Six Big Losses* serta menentukan interval *preventive maintenance* yang optimal dengan metode *Preventive Maintenance Policy*. Data yang digunakan berupa data kerusakan dan *downtime* mesin selama periode Januari–Desember 2025. Analisis dilakukan melalui perhitungan OEE, identifikasi *Six Big Losses*, pengelompokan komponen berdasarkan Klasifikasi ABC, dan perbandingan biaya *repair maintenance* dengan *preventive maintenance*. Hasil penelitian menunjukkan bahwa nilai OEE mesin berada pada kisaran 36,17%–51,14% dengan rata-rata 44,39%, masih di bawah standar *World Class Manufacturing* sebesar 85%. Faktor utama yang menyebabkan rendahnya efektivitas mesin adalah *breakdown losses* sebesar 1651,41 jam atau 33% dari total kerugian waktu. Hasil analisis juga menunjukkan bahwa *Preventive Maintenance Policy* lebih efisien dibandingkan *Repair Maintenance Policy*, dengan interval perawatan yang direkomendasikan setiap 6 bulan untuk klasifikasi A, 7 bulan untuk klasifikasi B, dan 9 bulan klasifikasi C. Penerapan metode tersebut diharapkan dapat menekan biaya perawatan sekaligus meningkatkan keandalan mesin.

Kata Kunci: *Bulldozer* D 155a, *Downtime*, *Overall Equipment Effectiveness* (OEE), *Six Big Losses*, Klasifikasi ABC, *Preventive Maintenance Policy*.

ABSTRACT

PT United Tractors Semen Gresik (UTSG) is a limestone mining contractor that uses the D155A bulldozer as the primary equipment for limestone extraction in an area located near residential settlements. Frequent machine downtime has reduced operational effectiveness, resulting in an Overall Equipment Effectiveness (OEE) value that has not yet met the company's performance target. This study aims to identify the factors contributing to the low effectiveness of the D155A bulldozer using the Six Big Losses method and to determine the optimal preventive maintenance interval based on the Preventive Maintenance Policy approach. The study uses machine failure and downtime data collected from January to December 2025. The analysis includes OEE calculation, identification of the Six Big Losses, component classification using the ABC Classification method, and a comparison of repair maintenance and preventive maintenance costs. The results show that the OEE value ranged from 36.17% to 51.14%, with an average of 44.39%, which is still below the World Class Manufacturing standard of 85%. The main factor contributing to the low machine effectiveness was breakdown losses, accounting for 1651,41 hours or 33% of the total time losses. In addition, the Preventive Maintenance Policy proved to be more cost-effective than the Repair Maintenance Policy, with recommended maintenance intervals of six months for Category A, seven months for Category B, and nine months for Category C. Therefore, implementing the proposed maintenance policy is expected to reduce maintenance costs while improving machine reliability.

Keywords: D 155a Bulldozer, Downtime, Overall Equipment Effectiveness (OEE), Six Big Losses, ABC Classification, Preventive Maintenance Policy.