

ABSTRAK

KAJIAN TEKNIS ALAT GALI MUAT KOMODITAS PASIR BATU DI CV CANDI KARYA PERDANA, KABUPATEN MAGELANG, PROVINSI JAWA TENGAH

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Produktivitas alat gali muat pada penambangan pasir batu di CV Candi Karya Perdana belum optimal akibat besarnya swing angle excavator dan adanya waktu hambatan kerja. Kondisi *front loading* yang sempit menyebabkan excavator melakukan swing angle hingga $\pm 180^\circ$ sehingga cycle time alat menjadi lebih besar.

Penelitian ini bertujuan untuk mengidentifikasi faktor yang mempengaruhi produktivitas alat gali muat serta melakukan upaya perbaikan produksi. Metode penelitian dilakukan dengan pengamatan langsung di lapangan dan simulasi perbaikan geometri front loading.

Hasil penelitian menunjukkan produktivitas aktual alat gali muat sebesar 1.324 BCM/hari dengan swing isi 7 detik, swing kosong 6 detik, dan efisiensi kerja sebesar 77%. Setelah dilakukan simulasi perbaikan swing angle menjadi $\pm 90^\circ$ serta pengurangan waktu hambatan kerja, produktivitas meningkat menjadi 1.888 BCM/hari dengan efisiensi kerja sebesar 77%.

Kata kunci: alat gali-muat, produktivitas, cycle time, bucket fill factor, pasir batu.

ABSTRACT

TECHNICAL STUDY OF LOADING EQUIPMENT FOR SANDSTONE MINING PRODUCTION AT CV CANDI KARYA PERDANA, MAGELANG REGENCY, CENTRAL JAVA PROVINCE

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The productivity of loading equipment in sand and gravel mining activities at CV Candi Karya Perdana has not yet reached optimal conditions. One of the factors affecting the low productivity is the large swing angle of the excavator and the presence of work delay time during production activities. The narrow front loading condition causes the excavator to perform a swing angle of approximately 180°, resulting in a longer cycle time and reducing equipment productivity.

This study aims to identify the factors affecting the productivity of loading equipment and to analyze production improvement efforts through a front loading geometry improvement simulation. The research method was conducted through direct field observation, cycle time data collection, work efficiency analysis, and simulation of excavator swing angle improvement.

The results show that the actual productivity of the loading equipment was 1,324 BCM/day, with a loaded swing time of 7 seconds, an empty swing time of 6 seconds, and a work efficiency of 77%. After simulating the swing angle improvement to approximately 90° and reducing work delay time, the equipment productivity increased to 1,888 BCM/day, with the work efficiency remaining at 77%. This improvement indicates that front loading geometry optimization and work delay control can positively contribute to increasing the productivity of loading equipment.

Keywords: loading equipment, productivity, cycle time, bucket fill factor, sand and gravel.