ABSTRAK

EVALUASI PRODUKTIVITAS *BACKHOE* HITACHI EX 1200 PADA AKTIVITAS *LOADING* LUMPUR DI *PIT* 14 PT DARMA HENWA, PROV. KALSEL

Oleh
Yoktan Indra Setyawan
NIM: 112220046
(Program Studi Sarjana Teknik Pertambangan)

Kondisi iklim tropis di Indonesia yang ditandai dengan curah hujan tinggi menyebabkan terjadinya akumulasi lumpur di area tambang terbuka, sehingga menimbulkan berbagai kendala operasional seperti menghambat akses alat, menurunkan stabilitas *front*, mengganggu proses produksi, serta menutupi lapisan batubara yang berdampak pada keterlambatan kegiatan penambangan. Pada kondisi aktual di *Block* 12 *Pit* 14, volume lumpur sebesar 25.961 Lcm menyebabkan keterlambatan pencapaian target *mined out*. Metode *load* and *haul* dengan penggunaan *backhoe* dan *dump truck* sebagai solusi pemindahan lumpur memiliki keunggulan fleksibilitas, namun tetap menghadapi tantangan terkait produktivitas, efisiensi kerja, dan konsumsi bahan bakar. Penelitian ini bertujuan untuk meningkatkan produktivitas *backhoe* Hitachi EX 1200 hingga 240 Lcm/jam, menganalisis nilai *fuel ratio* terhadap target 1,8 liter/Lcm, serta memastikan penyelesaian pemuatan lumpur sesuai dengan rencana finalisasi *Block* 12 *Pit* 14. Metode yang digunakan adalah pendekatan kuantitatif dengan mengombinasikan data primer berupa pengamatan langsung terhadap waktu edar, waktu hambatan, dan kondisi operasional, serta data sekunder seperti spesifikasi alat, data produksi, dan konsumsi bahan bakar. Analisis difokuskan pada produktivitas *backhoe*, efisiensi kerja dan *fuel ratio*. Hasil penelitian menunjukkan bahwa metode *single backhoe* mampu mencapai produktivitas rata - rata 243 Lcm/jam dengan *fuel ratio* 1,61 liter/Lcm, lebih baik dari target, sedangkan metode *double backhoe* hanya mencapai 180 Lcm/jam dengan *fuel ratio* 2,39 liter/Lcm akibat ketidakseimbangan kerja dan tingginya waktu tunggu. Secara keseluruhan, durasi pekerjaan meningkat dari rencana 11 hari menjadi 16 hari, meskipun volume aktual mencapai 33.070 Lcm yang disebabkan ketidakkonsistenan volume *overburden* pada *vessel*. Dengan demikian, metode *single backhoe* terbukti lebih efektif dan efisien dibandingkan metode *double backhoe* dalam kegiatan pemuatan lumpur.

Kata kunci: Muat-Angkut, Pemuatan Lumpur, Produktivitas, Rasio Bahan Bakar, *Single Backhoe* dan *Double Backhoe*

ABSTRACT

EVALUATION OF PRODUCTIVITY OF THE HITACHI EX 1200 BACKHOE ON MUD LOADING ACTIVITIES AT PIT 14 PT DARMA HENWA, SOUTH KALIMANTAN

By
Yoktan Indra Setyawan
NIM: 112220046
(*Mining Engineering Undergraduate Program*)

Tropical climatic conditions in Indonesia, which are characterized by high rainfall, cause the accumulation of sludge in the open mining area, causing various operational obstacles such as hindering equipment access, lowering front stability, disrupting the production process, and covering the coal layer which has an impact on delays in mining activities. In the actual conditions in Block 12 Pit 14, the volume of sludge of 25,961 Lcm caused a delay in achieving the mined out target. The load and haul method, utilizing backhoes and dump trucks as a mud removal solution, offers flexibility but still faces challenges related to productivity, work efficiency, and fuel consumption. This study aims to increase the productivity of the Hitachi EX 1200 backhoe to 240 Lcm/h, analyze the fuel ratio value to the target of 1.8 liters/Lcm, and ensure the completion of mud loading in accordance with the finalization plan of Block 12 Pit 14. The method used is a quantitative approach by combining primary data in the form of direct observation of distribution time, obstacle time, and operational conditions, as well as secondary data such as equipment specifications, production data, and fuel consumption. The analysis is focused on backhoe productivity, work efficiency and fuel ratio. The results showed that the single backhoe method was able to achieve an average productivity of 243 Lcm/h with a fuel ratio of 1.61 liters/Lcm, better than the target, while the double backhoe method only reached 180 Lcm/hour with a fuel ratio of 2.39 liters/Lcm due to work imbalance and high waiting time. Overall, the duration of the work increased from the plan of 11 days to 16 days, although the actual volume reached 33,070 Lcm due to the inconsistency of the overburden volume on the vessel. Thus, the single backhoe method has proven to be more effective and efficient than the double backhoe method in mud loading activities.

Keyword: Load-Haul, Mud Loading, Productivity, Fuel Ratio, Single Backhoe and Double Backhoe