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Implementation of Dozer Push Measurement under Payment Mechanism in Mining Operation

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Abstract : The decline of coal prices over past years have been significantly increasing the awareness of effective mining operation. A viable step must be undertaken in becoming more cost competitive while striving for best mining practice especially at Melak Coal Mine in East Kalimantan, Indonesia. This paper aims to show how effective dozer push measurement method can be implemented as it is controlled by contract rate on the unit basis of USD ($) per bcm. The method emerges from an idea of daily dozer push activity that continually shifts the overburden until final target design by mine planning. Volume calculation is then performed by calculating volume of each time overburden is removed within determined distance using cut and fill method from a high precision GNSS system which is applied into dozer as a guidance to ensure the optimum result of overburden removal. Accumulation of daily to weekly dozer push volume is found 95 bcm which is multiplied by average sell rate of $ 0,95, thus the amount monthly revenue is $ 90,25. Furthermore, the payment mechanism is then based on push distance and push grade. The push distance interval will determine the rates that vary from $ 0,9 - $ 2,69 per bcm and are influenced by certain push slope grade from -25% until +25%. The amount payable rates for dozer push operation shall be specifically following currency adjustment and is to be added to the monthly overburden volume claim, therefore, the sell rate of overburden volume per bcm may fluctuate depends on the real time exchange rate of Jakarta Interbank Spot Dollar Rate (JISDOR). The result indicates that dozer push measurement can be one of the surface mining alternative since it has enabled to refine method of work, operating cost and productivity improvement apart from exposing risk of low rented equipment performance. In addition, payment mechanism of contract rate by dozer push operation scheduling will ultimately deliver clients by almost 45% cost reduction in the form of low and consistent cost.

Keywords : contract rate, cut-fill method, dozer push, overburden volume
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