

## ABSTRACT

PT. Borneo Brikoks Industri is a company that is engaged in mining activity based on "IUP Operasi Produksi" given by Bupati Berau 545/010/IUP-E/D.PE/2010 with an area of 80 Ha. On paper, PT. BBI is located on "Kecamatan Teluk Bayur, Kabupaten Berau, East Kalimantan Province" and astronomically is located between  $02^{\circ}08'04,6'' - 02^{\circ}08'05''$  LU and  $117^{\circ}24'25'' - 117^{\circ}24'35''$  BT. Analysis locations are located at Pit A and B where the amount of overburden that will be stripped totals to 3,6 million bcm with a work of duration of around one year.

Overburden stripping will be done with using a combination of mechanical equipment such as hydraulic excavator backhoe Komatsu PC800SE-8 with a bucket capacity of  $4,5 \text{ m}^3$  as a dig-load equipment and a rigid dump truck Komatsu HD325-7 with a vessel capacity of  $24 \text{ m}^3$  as a material hauler. This study is confine to the analysis of the total number of heavy dig-load and hauling equipment needed based on the already existing production target and also giving recommendations technical-wise on the amount of equipment needed based on the matching factor and operating factor.

Based on the mathematics and number that were required, the number of mechanical equipment's needed to fulfill the overburden stripping target per day are 2 unit of backhoe and 10 dump truck units. The production capacity of 2 dig-load equipments is 16.486,50 bcm/day which has already achieved the controoled production target. Which is 12.635,91 bcm/day. Production capacity 10 dump truck units is around 12.898,98 bcm/day which has also achieved the production target. The matching factor from the combination of these 2 machinery is around 0,74 given the fact that the operating factor of a backhoe is 74,14% and the operating factor of a dump truck is 100%. The waiting time of a backhoe to load the overburden into each dump truck is around 21,48 seconds. Based on the agreed loss factor frim the company is 10% or equals to 13.899,50 bcm/day, then the amount of 10 dump truck still not enough. The production capacity 12 dump trucks is 15.478,77 bcm/day which has fulfilled the agreed production target. The matching factor target of 0,89, operating factor of a backhoe which is 99,97% and the operating factor of a dump truck which is 100%. The waiting duration of a backhoe to load the overburden to each dump truck is 45 seconds.

Looking at the mathematical number the amount of dump trucks needed passed on the matching factor of 1 and to serve the backhoe is 14 units, where the matching factor gained is 1,04 with a operating factor of 100% for the backhoe and the dump truck at 96,35%. The waiting time for a dump truck to be loaded by a backhoe is around 16,5 seconds. Due to the matching factor, operating factor nd loss factor, then 12 dump trucks are used for optimum production.