

ABSTRACT

The Final goal of blasting design is to get reasonable rate cost of blasting as desired by the company. One of factor that affected blasting cost is using powder factor (PF) so that activity should be considered. Using PF must match the condition or characteristic of rock mass. PF that is oversized it produces good blasting quality result, but causes less economical blasting planning. PF that is too small it resulting deterioration of blasting quality result, but causes an economical blasting planning.

Based on observation, in Bendili pit has excess PF of the plan. The PF plan is $\leq 0.30 \text{ kg/m}^3$, while the actual current PF is 0.317 kg / m^3 . Innovation is needed to reduce the value of PF or minimize the derivation of blasting quality. Bottom air deck is one way to decrease the PF by replacing Column Charge with Air Deck at the bottom of the hole, which determined from the Air Deck Factor (ADF) ratio and will divergent based on rock characteristic value.

Observation that has been done in Bendi pit for overburden seam unit of SN coal got value ratio of ADF based on Rock Mass Rating (RMR) is 0,10-0,20. Equation of $\text{ADF} = \text{Air deck length (ADL)} / \text{Original Column Charge (OCC)}$. Length of Air deck is 1 m, and length of the original column charge will divergent suitable with depth of the explosive hole, then got the recommendation of application bottom air deck to in hole geometry based on ADF ratio 0.10 - 0.20 and $\text{PF} \leq 0.30 \text{ kg/m}^3$. Minimum hole depth for application of bottom air deck is 8.5 m with a minimum fill length of 3.9 m, and the maximum depth is 12.5 m with a maximum fill length of 6.4 m.

After got recommendation from application of bottom air deck to in hole geometry, then conducted experiment toward three locations are named location BN30WK19, BN40WK22 and BN55WK27. The ADF values for locations BN30WK16, BN40WK22 and BN55WK27 are 0.16, 0.15 and 0.14 with the average ADF is 0.15. Application of bottom air deck could reduced the value of PF $\leq 0.30 \text{ kg/m}^3$. Based the result of that blasting treatment had average of PF design value was 0.293 kg/m^3 , with decreased an Average PF amount 8.12%. While the actual average PF was 0.291 kg/m^3 , with decreased an average amount 8.77%.

Keywords : Powder Factor, Air Deck Factor, Original Column Charge.