

ABSTRACT

PT. Trubaindo Coal Mining (PT. TCM) is the coal mines company located in West Kutai, East Kalimantan. The loosening of a overburden layer done with drilling and blasting methods with the safe distance for equipment 300 m and 500m for human. Along the progress of mining, pit become more narrower as well as blasting are numerous and spread on Pit 4500 Block 12. This condition resulting in moving excavators are too far when evacuation before blasting. Therefore, in this condition require to reduce the safe distance for excavators, then required the assessment on safe distance area flyrock from blasting activities whether it can be reduced or keep such the current condition.

Research conducted by counting flyrock farthest throws from the blasting location both theoretically and actual in the field. The data taken 13 times on wet blast hole condition and 11 times on dry blast hole condition. Based on data obtained flyrock farthest throws theoretically according to Adrian J. Moore and Alan B. Richard at the wet blast hole condition, face burst: 177,49 m, cratering: 374,98 m, while at the dry blast hole condition, face burst: 141,53 m, cratering: 70,93 m. Actual throws in the field get farthest throw rocks on wet blast hole condition: 277,18 m while on the dry blast hole condition: 96,96 m. Based on this data, a review on wet blast hole condition is needed to reduce the safe distance for excavators.

To approach the actual rock throws in Pit 4500 Block 12 is done by using charging and stemming recommendations based on the theory of the scale of charging (scaled depth of burial) from Livingston (1956) developed by Frank Chiapetta (1990) and predictions based on flyrock control by Adrian J. Moore & Alan B. Richard (2005). According to the theories, the range on the wet blast hole condition as follows:

- Depth 3 m, 0,5 – 0,8 m charging and stemming 2,2 – 2,5 m.
- Depth 4 m, 1,5 – 1,7 m charging and stemming 2,3 – 2,5 m.
- Depth 5 m, 2,5 – 2,7 m charging and stemming 2,3 – 2,5 m.
- Depth 6 m, charging 3,3 m and stemming 2,7 m.
- Depth 7 m, charging 3,8 m and stemming 3,2 m.
- Depth 8 m, charging 4,5 m and stemming 3,5 m.

Based on recommendation and approachment, the throw rocks theoretically on wet blast hole condition, face burst: 24,61 m, cratering: 77,84 m and actual rock farthest throw on trial: 80,7 m so that recommendation of safe distance evacuation of excavators can be lowered into 200 m.