ABSTRACT

PT. Freeport Indonesia is a copper and goldmining company. Grasberg Block Cave (GBC) is one of the underground mine site located at PT. Freeport Indonesia. The mining method in underground mines Grasberg Block Cave using Caving method.

BC-613 Tail Access and BC-612 Transfer Accessare the location at GBC that uses blasting method to rock excavation. The location is in the same lithology (diorite rock) with an average density of 2.7 ton / m^3 and the planned opening hole size of 5.5 mx 5.5 m. PT. Freeport Indonesia uses the same blasting geometry and support geometry for this location.

Overbreak often occur at this location. The cause of overbreak expected due generalization blasting geometry used and differences in the condition of the rock mass (rock mass rating). Overbreak incur additional costs due to the addition of ground material support to be installed. Generalization of support geometry also potentially reduce the value of the safety buffer even though the number of support that are installed have been added since the overbreak.

The calculation is done to determine the effect of the RMR to damage radius, getting constant formulation of rocks against RMR, a large increase in costs due overbreak, and the formulation of support space

Based on this research, it is known that the reductionof RMR value will increasing the damage radius, obtained the formula for determining the value of burden correction = (68.585-RMR)/0.5904, the formulation support space for primary support = -0,3573 x (% Overbreak) + 1,1904, the formulation support space for secondary support (overbreak more than 28,85%) = -0,3867 x (% Overbreak) + 1,3017, the actual additional costs because overbreak of US$ 5.44/tonnes, and the recommendation additional costs due overbreak to maintain the value of the safety factor of the support of US$ 9.965/tonnes.

Keyword : Blast Design, Overbreak, Support Design, Cost