

ABSTRACT

The loosening process material of PT Freeport Indonesia - Papua uses drilling and blasting methods. One of the effects on the environment of blasting activities is the presence of ground vibration. Blasting activities carried out at Grasberg pit produced ground vibration which was very risky to the final wall condition of the mine.

Rock mass that compose slopes affected by ground vibration due to blasting causes poor final wall quality. The quality of the final wall is seen from the results of the wall geometry, the half barrel results from presplit blasting, the influence of the structure on the wall, and the profile of the mine wall formed. Assessment of final mine wall quality based on Prayetno Siburian, 2014.

Overall the quality of the final mine wall level 3235 - 3205 bench radial 2100-3200 pit (Grasberg) still produces poor end-of-mine wall quality. Factors that influence ground vibration are the distance from the blasting location to the measurement location, explosive filling per delay and rock mass structure conditions. The closer the distance from the measurement location to the source of the explosion or the greater the content of explosives per delay will result in a higher peak particle velocity. The equation obtained from the analysis is theoretically then used to predict peak particle velocity in blasting activities. This equation is quite good and at a certain distance can be used as a reference for predicting ground vibration. The equation obtained is $PPV = 197.34 (SD) -1.271; R^2 = 0.7101$.

In this study, an analysis was carried out to produce a good end-of-mine wall quality based on the limits of the ground vibration (PPV) criteria used. Based on the analysis obtained with the PPV criteria limit from CNI, 2009 with a value of 120 mm / s is relatively better than the criteria limit of After Langefors et al. 1958 and After Edwards and Northwood, 1960 with a value of 100 mm / s to produce a suitable final wall quality in the PTFI Grasberg pit.