

## ABSTRACT

Removal overburden is one of loosening activities that happens at PT. Pamapersada Nusantara jobsite Adaro environment. Loosening is started by using drilling and blasting methods. The effect of blasting activities is ground vibration. Blasting done in Low Wall pit Tutupan provides ground vibration which is risk Maintank Fuel condition of PT. Sapta Indra Sejati if it is not controlled well.

Based on geotechnical analysis, PT. Adaro Indonesia as the owner, establishes the safe limit of PPV is less than 5 mm/s. After measuring, there are still some blasting ground vibrations that are beyond the limit.

The value of ground vibration is analyzed by using U. S. Bureau of Mines, multiple linear regression and Bertha methods. From the three methods above, by using U. S. Bureau of Mines method we can get the smallest value of average error relative of ground vibration. The average-error relative is 23,12%. Based on analysis using U. S. Bureau of Mines method is got equation:  $PPV=2892 \times DS^{-1.59}$ . Afterwards, that formula is used to predict ground vibration and maximum charge explosive. The safe distance blasting in stiffness ratio 0,86 is 380 m, with maximum charge weight per delay is 41,65 kg. And the safe distance blasting in stiffness ratio 1,14 is 600 m, with maximum charge weight per delay is 66,12 kg.

The highly influential factors of ground vibration are distance, charge weight explosive per delay and stiffness ratio. Besides that, free face availability also influences ground vibration. Control blasting is used to decrease ground vibration with using linedrilling and presplitting techniques.