

ABSTRACT

PT. Mitra Bara Jaya is one of the company's coal concession, it's located at the village of Bebatu, sub-district Sesayap Hilir, regency Tanah Tidung, East Kalimantan Province. Mining activities that will be done, use open mine with bench system, so that it needs kinds of analysis of slope stability to support the next stages of the mining activities.

The condition of the research currently is in the preparation phase to mine. The study was conducted to find out the model of failure, the value of the calculation FoS with Mohr-Coulomb and Hoek & Brown failure criteria, the application of geometry slope to be used, and slope stability factor effect. Minimum value of the safety is recommended $FoS > 1,35$ for single slope, $FoS > 1,5$ for overall slope. The method which is used is the limit equilibrium method with Mohr-Coulomb and Hoek & Brown failure criteria.

The Analysis slope stabilities are based on Mohr-Coulomb and Hoek & Brown failure criteria with saturated condition. The results of the analysis can be concluded that potential failure that might be occur is circular failure. Mohr-Coulomb failure criteria have recommendation for single slope are 12 m height with 45° , except for soil material with 6 m height with 20° , and Hoek & Brown failure criteria have recommendation for single slope are 6 m height with 40° , except for soil material with 6 m height with 20° . The stability analysis of the overall slope by designing bench wide level are 4 m, 5 m, and 6 m on saturated condition. The overall slope by designing bench wide 6 m for Mohr-Coulomb failure criteria, and the overall slope by designing bench wide 5 m for Hoek & Brown failure criteria.