

ABSTRACT

PT . Teguh Sinar Abadi (PT. TSA) is one of the company's coal mines are located in Melak District, West Kutai Regency, East Kalimantan. PT. TSA plans to conduct mining development in the western part of Block Lisat . Requiring geotechnical recommendations in the form of a single slope geometry design and overall slopes geometry design safe .

Geotechnical input data for modeling were taken from the results of laboratory testing of rock samples from drill hole locations GTL 13, GTL 14, GTL 16 and GTL 17. Testing performed is testing the physical properties, Unconfined Compressive Strength Test and Direct Shear Test. Results of laboratory testing are used as input data material is dry density, saturated density, cohesion and friction angle.

To analyze the stability of the single slope geometry design made by two parameters , with heights are 10 m and 15 m . Variations in slope angle used is 50°, 55° and 60° . In the overall slope highwall parameters were analyzed following lithologic drill logs . The design is done in stages with height of the overall slope 80 m , 120 m , 140 m , 160 m 180 m , 200 m and 215 m . Variations in slope angle used is 35° , 39° , 40° and 45° . Safety Factor value (SF) is recommended $SF \geq 1.2$ for single slope and $SF \geq 1.3$ for the overall slope highwall. The method used is the limit equilibrium method with assistance program Slide V. 6.0.

From the analysis it can be concluded , that the potential for landslides that may occur is a circular failure. Single slope recommendations for all types of material that is 15 m high slope and slope angle 55 ° with half saturated condition. Recommendation overall slope geometry with high depth of excavation at 200 m and overall slope angle 39 ° in half saturated condition. Factors affecting slope instability is the slope geometry, the characteristics of rock and soil water level.