

## ABSTRACT

*PT. Singlurus Pratama (SGP) is one of the coal mining company located in Kabupaten Kutai Kartanegara, East Kalimantan Province. Mining site of PT. SGP is divided into several blocks, the blocks are Sungai Merdeka Block, Argosari Block, Mutiara Block, and Margomulyo Block. At this time, mining operations only do on the Sungai Merdeka Block, because on the other Block is still in the exploration stage. Area V is one of location plan of the mine on the Sungai Merdeka Block, this block is represented by drill hole GT-01 and GT-02. This block will be mined with surface mining system, because of that reason this area needs geotechnical recommendation which have safe of value FK.*

*Input data for modeling of geotechnical are the data results of physical properties and mechanical properties test of rocks, that previously is obtained from the results of rock sampling in mining site the form of soil, mudstone, siltstone, sandstone, carbonaceous mudstone and coal. Input data (material properties) are used, among others, the content of dry weight ( $\gamma_d$ ) and the content of saturated weight ( $\gamma_s$ ) results of physical testing, while the cohesion ( $C$ ) and the friction angle ( $\phi$ ) is the direct shear test results are worth the remaining (residues). Geotechnical modeling uses program Rocscience Slide V6.0 program by using the limit equilibrium methods.*

*Geotechnical modeling of the Area V Pit performed on a single slope and overall slope highwall. Modeling a single slopes is simulated at high 6 m and 10 m, angle of 50°, 60° and 70° with the material properties of each compiler borehole lithology. Modeling of overall slopes highwall carried out on height of 60 m, 70 m, and 80 m, angle of 40°, 45° and 50° with the average material properties of Area V. Every modelling was classified into dry, half saturated and saturated of groundwater conditions.*

*From the simulation that is done, recommendations for single slope geometry is high 10 m angle 60° semi saturated groundwater conditions, and recommendation for overall slope highwall is high 80 m angle 45° half saturated groundwater conditions. Recommendations the slope geometry are based the minimum safe of FK, the  $FK \geq 1.20$  for the single slope and  $FK \geq 1.30$  for the overall slope highwall (Canmet, 1979).*

*The results of geotechnical modeling, at single slope GT-01 and GT-02 are gotten the value of safety faktor for the claystone (1,26 & 2,5), siltstone (1,71 & 1,35), sandstone (1,21 & 1,66) and carbonaceous clay (3,34 & 1,24). For overall slope highwall FK values obtained at 1,301. A few factor that influence the value of safety faktor are the content of saturated weight, bench geometry like high and angle of bench and groundwater condition.*