

ABSTRACT

PT. Anugrah Bara Kaltim is a coal mining company operating in East Kalimantan with a coal production target of 3.000.000 tonnes with overburden stripping of 27.000.000 bcm by 2018. The research sites are in *highwall* and *lowwall* pit MN and OP to be analyzed for safety factors, due to the impact of increased coal production, the company widened and deepened the excavation. This activity led to the need for stability analysis of *highwall* and *lowwall* slopes divided into 3 sections namely section A, section B and section C. Data obtained from direct observation in the field is the data *Geological Strength Index (GSI)* determined by comparing the rock structure and state thick surfaces with gam charts Hoek and Marinos (2000). The result of the *GSI* value will be entered into *roclab* application to get the cohesion value and the friction angle. Characteristics of rocks in MN and OP pits include soft rocks with a compressive strength value between 0.5-5 MPa. Therefore, data processing uses *Mohr-Coulumb* criterion of failure with probability approach.

The result of the research shows that there is a landslide probability value of 33,2% at 2H condition of C section in *highwall* OP so it is necessary to optimize the overall angle of slope from 37° to 34° with a landslide probability value of 2,1%. Then on the incision A on *Lowwall* MN has a landslide probability value of 20,3% at 2H condition so that the slope optimization is done at the overall slope angle from 23° to 20° with a landslide probability value of 4,8%.

Keywords: *highwall*, *lowwall*, *gsi*, landslide probability.