ABSTRACT

Anugerah Baru Kaltim Coal Mining (ABK) Ltd. is a coal mining company which located in Loa Jonan Subdistrict, Kutai Kartanegara Regency, East Borneo Province. ABK Ltd. operate coal mining with open pit method. This research is fulfilled in Pit North Extention (NE) highwall slope and lowwall slope. The problem that will be discussed is could be the last wall condition which is safe according to value standard of stability factor (SF) that is still allowed by Department of Public Works with SF ≥ 1,35 for single slope and SF ≥ 1,50 for whole slope. This research intends to know slope stability level through highwall slope and lowwall slope SF value.

The analysis was executed using Slide 5.0 software from Rockscience with Bishop method to analyse highwall slope, and Janbu method to analyse lowwall slope. The analysis is executed in one profile which cuts SSS_04 drill hole and GEO_02A drill hole. Based on the average rainfall intensity / day in the research area shows the state of the light rain that assumed the slope condition in the research area in half saturated condition.

The result of analysis is obtained that failure which may be happened in the research area are circular failure for highwall slope and plane failure for lowwall slope. The SF value for highwall slope in dry condition has SF value 1,193, half saturated condition has SF value 1,093 and SF value 0,758 for saturated condition. As for lowwall slope in dry condition has SF value 4,891, half saturated condition has SF value 4,543 and SF value 4,219 for saturated condition.

Based on analysis result, highwall slope does not fulfil safe criteria, while lowwall slope fulfils safe criteria. The unstable condition of highwall slope is caused by unappropiate of slope geometry nowadays. Thus, highwall slope has to be slope geometric adjusted. The adjustment of highwall slope geometry is done by reducing the height and reduce the overall slope angle. Highwall slope that originally had height 115.5 m to 110 m and converted the whole of the original angle changed 41^{O} to 30^{O}. Therefore, highwall slope is recommended after done the adjustment : 10 m high with angle of 60^{O} for single slope and 30^{O} for the whole tilt angles of highwall slope with 110 m for the whole highwall slope height.