ABSTRACT

PT. Adaro Indonesia is a coal mining company. Activity system uses open pit mining method is used to strip mine with bench pattern. PT. Adaro Indonesia has a pit with the high production called pit Tutupan. Based on the current contract PKP2B, the mining license of PT. Adaro Indonesia will end in 2022. PT. Adaro Indonesia is currently planning a post-mining.

Used from mining activities would not be entirely enclosed back to normal but there is a void. Strip mine method with bench pattern can caused collapse in the level. Mine design in general using geotechnical data from initial exploration results with the number of drill holes that have not been in detail represent the whole mining area. For that, there should be a review of the final slope design, using the latest geotechnical data, borehole data, and the material characteristics.

The purpose of this study was to analyze the stability of (safe rate) for slope design in 2022, analyzing the causes failure slope design in 2022, and provides advice for Geotechnical Section 2022 related designs.

Value of strength reduction factor (SRF) is desired at 1.2 in accordance with the provisions of the company. The results on the low wall slope design in 2022 to section 16b in overall saturated conditions obtained SRF value of 1.61 and for area high wall in a saturated condition overall SRF value of 0.92 obtained so high wall slope design in 2022 is necessary to redesign (redesign).

Based on the analysis, the factors causing slope instability is a characteristic of the rocks themselves, the geometry level, presence of ground water, changes in the slope of the rock layers, and the presence of a discontinuous bedding plane shear and carbonaceous mudstone.

The design of the high wall made with single slope angle changed to 20° with a width of 30 m level to 50 m and 16 m high. Safety bench with a slope of 20°, 4 m high, 100 m wide and is made on the level of the 2nd and 3rd from the bottom so that the overall pit slope to 9°. Change an overall from 14° to 9° increases the value of the previous SRF from 0.94 to 1.25. Other supporting measures can be done by reinforcing the slope using rock bolt and monitoring the slope using Robotic Total Station with prism and Slope Stability Radar.