

ABSTRACT

PT. Berau Coal is a coal mining company in Indonesia. Mining activity is being done at the Sambarata site, the Binungan site, and the Lati site. In conducting mining activities, removing overburden material are needed. Heaping overburden material at PT. Berau Coal could be done within the area of In Pit Dump (IPD) which is located in the area that has been exploited and Out Pit Dump (OPD) which is located outside the mining area. One of the disposal area that being used is the OPD B15 located at site Sambarata.

Based on the results of in-situ testing Standard Penetration Test (SPT) and Cone Penetrometer Test (CPT) core drilling data within the area, it was found the presence of mud material on the base of waste dump ± 20 meters deep. Therefore, it is necessary to analyze the disposal slope stability with the condition of the presence of mud material at the base of the disposal pile. The analysis was carried out using the GLE / Morgenstern-Price limit equilibrium method. Slope geometry is 10 m height with 25° of single slope angle and overall slope height up to RL 70. The parameters used in the formula are cohesion and unit weight. Material is assumed to be saturated. There are three sections that been made, namely section A-A', section B-B', and section C-C'.

The results of the analysis shown that the disposal slope conditions on the west and south sides are not safe with a Safety Factor value (SF) ≤ 1.3 and a Probability of Failure (PoF) value of $\geq 20\%$, therefore evaluation of the disposal design is needed so that the stability level of the slope could fulfill the acceptance criteria.

Evaluation of the disposal design causes the value of SF and PoF increasing, so the value could fulfill acceptance criteria. Changes that make on the disposal design are change the bench width on certain request level (RL), that causes overall slope more slightly, also make a disposal drainage using a French drains method at RL-20.

Keywords : Disposal, Mud, Safety Factor, Probability of Failure.