

ABSTRACT

PT. CibaliungSumberdaya is one of gold mine company which using cut and fill method for the underground mining system. In underground mining system, all activity doing in ground from surface. The instability of tunnel is one of the problem in underground mining activity. The instability of tunnel become a dangerous potential if not handled correctly, what is required a ground support system in order that dangerous potential can reduce the impact.

A ground support system certainly require an analisa from a safety and economic part. Ground support system should probably produce a revision by a time or an evaluation following mining progress. This evaluation is evaluate the primary ground support system in mining which applied by recommendation of Geotechnical Unit, Dept. Quality Control, PT. CibaliungSumberdaya classified of Rock Mass Rating (RMR) with the ground support system classified by Rock Mass index (RMi). The meaning of evaluation is evaluate from a ground support quantity aspect (total splitset requirement and thickness of shotcrete) and ground support effective aspect to gain a highly safety value. Manual calculation about safety factor (FK) value, plastic zone, stress distribution surrounding the tunnel also available with added a total displacement and strength factor (SF) value from analysis of numerical calculation finite element method with Phase2 v.07. Result of research in 3 locations, evaluation of ground support system by Rock Mass index (RMi) more efficient from support quantity and effective from support utility, also give a highly safety factor for a tunnel.