ABSTRACT

One of the problems often encountered in underground mining is opening stability. Potential instability that occurs in underground mining will always require special treatment, especially to maintain the worker's safety, and prevent disruption of production. Stope stability is closely related to the use of ground support. The use of ground support is expected to make the rock mass can support itself so that the stope becomes stable Therefore, ground support sufficiency is needed to minimize the risk of instability. This research was conducted in Blok Cibitung PT. Cibaliung Sumberdaya, located in Kecamatan Cimanggu Kabupaten Pandeglang, Banten. Rock mass characteristic around the stope is jointed, range form Class III (fair) to Class IV (poor). The stopes researched were CBT_996_XC8_STH, CBT_966_XC9_STH, CBT_951_XC10_STH and CBT_Decline.

Based on back analysis, there is a reduction of rock mass strength at Blok Cibitung. CBT_996_XC8_STH's rock mass strength reduces from 13% to 86%, CBT_951_XC10_STH's rock mass strength reduces from 32% to 70%, and CBT_Decline's rock mass strength reduces from 22% to 52%. Only CBT_966_XC9_STH's rock mass strength that is not reduce.

Based on research result, existing support CBT_996_XC8_STH and CBT_951_XC10_STH are insufficient (SF <1). This problem cause the stopes unstable and failed. After ground support is redesigned, supporting need CBT_996_XC8_STH is splitset 12 pieces (existing 11 pieces) with instaling space 1,2 m (existing 1,3 m), steelset, and shotcrete with thickness 100 mm. For CBT_951_XC10_STH, the supporting need is splitset 11 pieces (existing 9 pieces), and increase shotcrete thickness become 60 mm (existing 50 mm). Meanwhile, existing support for CBT_966_XC9_STH and CBT_Decline are sufficient.

Based on redesign ground support, known that it can solve the existing support insufficient. The ground support combination of the research can increase the factor safety on all sides of the stope CBT_996_XC8_STH and CBT_951_XC10_STH, which is unstable (SF<1) become stable (SF>1). Therefore, the ground support combination of the research can be applied to solve insufficient ground support at CBT_996_XC8_STH and CBT_951_XC10_STH.