

"SOME ASPECTS OF DESIGN AND EVALUATION OF PERIMETER CONTROL BLASTING IN FRACTURED AND WEATHERED ROCK"

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ABSTRACT

Overbreak and damage to rock walls at the perimeter of rock excavation can lead to safety problems due to rock falls and additional costs due to a] extra mucking, b] extra concrete or shotcrete to backfill overbreak, c] additional rock reinforcement, d] additional water inflow and e] additional maintenance of rock walls. To minimize these undesirable effects, there are several perimeter control techniques available (i.e. line drilling, cushion blasting, pre-splitting, smooth blasting, and fracture control blasting) which control perimeter hole spacing, burden and loading to provide a smooth, stable excavation contour. Conventional perimeter control loading and hole spacing is satisfactory for massive, homogeneous formations, but when blasting in weathered or fractured rock closer spacing and very light loading is required.

Various factors which affect perimeter control results are discussed, a simple method is presented for evaluating perimeter control results, and three case histories are presented in which light, string loaded column charge of 400 grain/ft. Primacord was used, together with closely spaced drill holes, to achieve good perimeter control results in badly fractured or weathered rock.