

# **EFFECT OF GEOLOGY ON BURDEN DISPLACEMENT**

Rahim G. Haghighi, Ph.D.  
TRW Defense System Group  
Redondo Beach, CA 90278

Calvin J. Konya, Ph.D.  
Ohio State University  
Columbus, OH 43210

## ABSTRACT

Fragmentation is the fundamental concern of rock blasting and it measures the effectiveness of blasting. Fragmentation is sensitive to not only the interrelationship among the design variables, but also is sensitive to local geology. Local geologic conditions have a significant impact on the success of a blasting operation.

The objective of this study was to develop a three-dimensional finite element model which represents a confined bench blast and investigate the effect of geology on burden displacement. Therefore, in order to analyze the significance of beds of different materials on bench blasting, five different models were analyzed. Three of these models were non-homogeneous and the other two models were homogeneous with different rock properties. The burden displacements shown are maximum value after all work has been accomplished by the explosive.