

# **EXPERIMENTAL DATA INDICATING A DIRECT LINK BETWEEN THE RATE OF STEMMING EJECTION AND THE DEGREE OF ROCK FACE MOVEMENT IN BENCH BLASTING**

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## **ABSTRACT**

A strong inverse relationship between rock face movement and stemming ejection is presented. Previously unpublished data from blast control plug research and development involving high speed video analysis, which was conducted between 1986 and 1988, is presented. Face and stemming ejection velocities were calculated for tests utilizing the same bench blasting configuration comprising; a 4 ft high bench in dolomite, 3 ft burden and single 1.75 in. holes loaded with 2 ft of small diameter cartridge emulsion. The singular difference between these tests was the stemming configuration. Varying lengths of stemming were used with the presence or absence of differing experimental configurations of blast control plug. The effectiveness of this plug has been published previously.

The newly presented experimental data indicates an average, approximate three (3) fold reduction in bench movement (velocity) for inadequately stemmed holes in which excessive stemming ejection of over 300 ft per second occurred. The data is also shown to be grouped into blast holes in which the stemming held and those in which it punched out with sparse intermediate data, indicating a bi-modal distribution.

The implications of the importance of stemming effectiveness in blasting and computer blast simulation is addressed.