

# EMULSION PERFORMANCE EVALUATION

R. R. Rollins, Professor  
West Virginia University  
Morgantown, WV 26506

R. W. Givens, Mining Engineer  
Geupel Construction Company, Inc.  
Columbus, OH 43220

## ABSTRACT

This paper discusses emulsion performance and characteristics. Also presented are pattern design equations by a weight strength method, a "Q" factor method, and a coupled energy powder factor (CEPF) method. Pattern expansion by replacing ANFO with emulsion is presented along with quality control checks for emulsion products. The predicted performance of the calculated burden and the equivalent powder factor as a function of the emulsion percentage, as determined by the three methods, is compared. Field results indicate that of the three methods the weight strength is the most conservative, the "Q" is overly optimistic, and the CEPF more accurately predicts the effect of coupling and is more consistent with a variety of emulsion and heavy ANFO products.