

APPLICATION OF CRATER THEORY IN EXPLOSIVES CASTING DESIGN

T. Guiliani
Plant Engineer
Central Silica Company
Zanesville, OH 43702

F. Otuonye
Mining Engineering Department
Michigan Tech University
Houghton, MI 49930

ABSTRACT

Explosives casting is gaining increasing popularity as an overburden removal method in strip mining because the costs of using explosives to cast a percentage of the overburden to the spoil are lower than the costs of using stripping shovels or draglines to do all the overburden removal. This is due to the rising capital and operating costs of draglines and shovels.

Current practices in explosives casting are largely based on experience and comparisons with methods in use at other mines. This paper discusses the formulation of a model of explosives casting from field data. The model is based on crater theory and incorporates the important variables required for blast design. The results of the model, which have been validated with data from three operating mines, appear to give a good first approximation of final casting design.