

A Blast Design Analysis for Optimizing Productivity at INCO Limited's Thompson Open Pit

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ABSTRACT

Several factors affect the productivity of mining operations. The geological structure of a mineral deposit and the fragment size of blasted material are considered to be most influential. It is well known that productivity varies with mucking cycles and that this is related to the explosive energy produced by a blast.

The purpose of this study was to investigate effective operating parameters for INCO Limited Thompson Open Pit Nickel Mine. Calculated and measured properties of explosives and rocks were used to design a series of production blasts. Quantitative analysis of fragmentation and mucking provided the data for computer blast modelling. Actual fragmentation was photographed and digitized using a CAD program. Results confirm this study is practical and provides the data needed to assist with the design of a productive and economical blasting operation.