

Achieving Ore-Waste Separation By Dual-Fragmentation Blasting

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ABSTRACT

At a North Carolina feldspar surface mine, the orebody contains intrusions of waste material occurring at various angles from horizontal to dipping, and varying considerably in thickness. In order to obtain optimum feed for the mill, it is desirable to obtain maximum separation of ore from waste during blasting and digging.

In a newly developed drilling and blasting technique, holes are drilled on a predetermined pattern and logged carefully to identify the upper and lower extent of the waste zones within the boreholes. Holes are then selectively loaded depending upon the material identified by logging. Ore zones are loaded to obtain maximum fragmentation while the waste zones are air-decked to produce coarse fragmentation, thus minimizing contamination.

The paper discusses drill patterns, logging technique, explosives selection, powder factor, and system of initiation. This will be supported by schematic illustrations of a typical orebody, borehole loads, and delay patterns. Overall and specific areas of operation will be shown by means of photographic slides.