

AN ECONOMIC ANALYSIS OF CAST BLASTING COMPARED TO OTHER STRIPPING ALTERNATIVES

J. Lyall Workman
Calder & Workman, Inc., Mandan, North Dakota

ABSTRACT

This paper examines the comparative economics of cast blasting to alternative stripping techniques. There are several scenarios where a mine may consider introducing cast blasting. However, there are other alternatives such as adding dragline capacity or introducing a prestripping operation. The question becomes which alternative will be more economical.

Situations are examined wherein the overburden ratio is increasing and the existing dragline can no longer uncover sufficient coal, where incremental coal sales required additional overburden removal and where one wishes to minimize overburden removal costs in an existing situation or new mine.

Present value analysis of operating costs and added capital investment is used to compare cases. It is found that cast blasting is quite attractive for meeting incremental coal sales if 23 percent or more direct castover is achieved. It is also attractive in increasing ratio cases if 25 percent or more direct castover is required and can be achieved. Cast blasting is less attractive for reducing cost in a fixed environment, for either an existing or new mine, unless high castover percentages are obtained.