

COST EFFECTIVE LOADING OF LARGE DIAMETER PRE-SPLIT HOLES

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ABSTRACT

San Juan Mine began pre-splitting the highwall prior to cast blasting in August 1986. The first pre-split shot used six inch PVC (polyvinylchloride) pipe inside a 10 5/8 inch hole, drilled at a 74 degree angle. The powder factor was about .90 pounds per cubic yard.

In early 1987, five inch PVC was used and subsequently replaced by four inch PVC late in 1987. In addition, an "arm" attachment was designed to fit on the CAT 950 Loader which facilitated loading the pipe into the borehole. Costs were reduced by about fifteen percent using the five inch PVC and further reduced twenty percent with the four inch PVC. Powder factor dropped to .63 pounds per cubic yard using the five inch pipe, and .40 pounds per cubic yard using four inch pipe. In 1988, when cardboard tubes were substituted for the PVC, costs were reduced an additional twenty percent.

The most recent refinement to pre-splitting at the San Juan Mine has been the use of gas bags. Gas bags have resulted in a cost saving of fifty-two percent. This is primarily due to being able to load up to seventy holes per shift as compared to only twenty-five holes with the pipe and the cost of the bags, which is about one-fourth the cost of the PVC pipe.