

Backstopping with Millisecond Delay Timing at the Sunshine Mine, Kellogg, Idaho

Dale Nies
Technical/Sales Representative
The Ensign-Bickford Company,
Littleton, Colorado

ABSTRACT

In the past, cap and fuse has been the only economical and efficient initiation system capable of providing sequential timing, ease of loading and hookup, and unlimited borehole number for backstope rounds. Unfortunately, in spite of these advantages, several negative factors inherent to the system have always been noted. Due to the long, narrow nature of backstope rounds at the Sunshine Mine, the cap and fuse system results in very long, inaccurate delay times. The system was also occasionally unreliable under all the conditions encountered, which in turn could cause potential safety hazards.

The Sunshine Mine tested a non-electric initiation system with all of the advantages of cap and fuse and none of the drawbacks with the added advantage of much better fragmentation and wall stability.

Millisecond timing was possible using suspended surface-type delays and a common in-hole delay. The hookup methods and overall system quite possibly have application in a variety of situations where small diameter vertical or horizontal holes are to be shot sequentially.