

# **THE USE OF SLOW MOTION VIDEO TO ANALYZE SURFACE BLASTS**

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## **ABSTRACT**

The use of an ordinary VHS video camera and a four-head player can be an effective tool to analyze surface blasting. The necessary equipment can be purchased for under \$1,300 and will allow frame by frame or slow motion viewing of a blast in 33.33 millisecond increments. Rock breakage, movement, and timing can be studied in high quality slow motion. These studies can result in improved blasts by showing things that the eye can miss in real time.

This paper will primarily deal with the equipment needed to record and play back blasts in slow motion, because an analysis can be accomplished with one question. Is the blast doing what you designed it to do? Some practical suggestions for safely recording blasts with a video camera are given.

The advantages of using this system are that it is economical, extremely user friendly, dependable, and ready to play back the moment the blast is over. The only disadvantage is that one is limited to 33.33 millisecond increments with current low priced and readily available equipment.

Some of the material presented in this paper is not available in VHS camera or player/recorder instruction manuals, but is easily obtained by practical experimentation. A clear explanation of the difference between framing and shutter speed is given.