EXPLOSIVE ENGINEERING PROBLEMS FROM FRAGMENTATION TESTS IN OIL SHALE AT THE ANVIL POINTS MINE, COLORADO

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ABSTRACT

During 1981 and 1982, an extensive oil shale fragmentation research program was conducted at the Anvil Points Mine near Rifle, Colorado. The primary goals were to investigate factors involved for adequate fragmentation of oil shale and to evaluate the feasibility of using the modified in situ retort (MIS) method for recovery of oil from oil shale.

The field test program included single-deck, single-borehole experiments to obtain basic fragmentation data; multiple-deck, multiple-borehole experiments to evaluate some practical aspects for developing an in situ retort; and the development of a variety of instrumentation techniques to diagnose the blast event.

This paper discusses some explosive engineering problems encountered, such as electric cap performance in complex blasting patterns, explosive and stem performance in a variety of configurations from the simple to the complex, and the difficulties experienced when reversing the direction of throw of the oil shale in a subscale retort configuration. These problems need solutions before an adequate MIS retort can be created in a single-blast event and even before an experimental mini-retort can be formed.