

TERRAIN EFFECTS ON SHOCK WAVES AS MEASURED USING A 1:1300 SCALE MODEL OF THE REITERAPLE FACILITY AND SURROUNDING MOUNTAINS

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A 1:1300 scale model of the Reiteralpe Proving Ground large blast simulator and nearby countryside was constructed. A model shock tube was machined from steel pipe having a 0.767 cm inside diameter. The scale model was constructed indoors to assure consistent climate control during the test program.

Tests were performed and measurements recorded at 4 geographical locations of interest. For the purpose of comparison, the shock tube was placed on a flat plywood surface and blast parameters were measured at distances and angles similar to the 4 geographical locations of interest (free field case) in 2 configurations.

This paper emphasizes the effects of the terrain on the shock wave and also discusses the problems encountered in modeling at small scale, such as scaling of materials from 1:1300 to full-size, signal to noise ratio, mechanical vibrations, and very small positive phase duration.

Although it was expected that the mountains, valleys, and irregular surface of the model would attenuate the shock wave when compared with the free field case, in actuality, at 3 of the stations there was not much difference in the magnitude of the pressure measurements.