

Abstract Submitted
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Hydrocode modeling and an experimental study of explosively driven water jets PHILIP RAE, PETER DICKSON, ALAN NOVAK, GARY PARKER, Los Alamos National Laboratory — There is currently interest in water based penetrators. The research to be presented is on the experimental and computer model optimization of designs to produce coherent high velocity ($4\text{--}7\text{ km s}^{-1}$) jets of water from a shaped charge like device. High-speed and Schlieren photography techniques have been used to record the jets produced by various design iterations and the experimental images compared to models run in the CTH hydrocode. The computer code was used to reduce the number of experiments required and to solve some initial problems with non-uniform initial jet shapes. The CTH code has been successful in modeling the observed jets, but only after careful attention was paid to the equation-of-state used for the water. Initially the jet diameter produced by the code was considerably thinner than experimentally observed. A much better match occurred when the most modern SESAME EOS table for water was used.

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