BLAST PARAMETRIC STUDIES USING A 1:57 SCALE SINGLE DRIVER MODEL OF A LARGE BLAST SIMULATOR

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A 1:57 scale model of a large blast simulator was designed and constructed with a single driver. The original throat design of 1:10 area expansion ratio was modified with various baffles placed at the diaphragm section to allow for waveshape changes. Driver lengths and pressure levels were varied to produce a range of explosive yields. Side-on and stagnation overpressure measurements were made along the test section from 7 to 28 diameters from the diaphragm section. Results were scaled up to the full size
simulator. Parameters of driver length and pressure, test pressure decay, rarefaction catch-up, and cold gas effects are compared with predictions from the BRL/QID code. Working curves of obtainable explosive yields are given for the proposed design.