MODELING CLOSE-IN AIRBLAST FROM ANFO CYLINDRICAL AND BOX-SHAPED CHARGES

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Personnel of the U. S. Army Engineer Research and Development Center (ERDC) recently investigated close-in airblast (250 to 600 MPa peak reflected pressures) through a series of experiments and numerical simulations. Cylindrical and box-shaped charges (22.7 and 45.4 kg) of ammonium nitrate with fuel oil (ANFO) were detonated at various heights above a heavy steel plate. The plate was instrumented with twelve PCB piezoelectric pressure sensors with a maximum range of 827 MPa (120 ksi). Eight additional HKS piezoresistive pressure gages were placed on two radials on the ground beyond the plate. This paper describes the experimental program and its results, accompanying hydrocode calculations, and development of an engineering-level code CAB (Close-in Airblast) for calculation of the reflected pressure loads.