HIGH ENERGY BLAST FACILITY

FACILITY DESCRIPTION

The High Energy Blast Facility is a remote test facility designed to withstand explosive blasts equivalent to 500 lb of TNT. Testing can be performed with solid, cryogenic, and hypergolic propellants and with high explosives. The facility is equipped to handle the toxicity and environmental issues associated with these propellants. Two separate areas of land have been cleared, leveled, and packed in preparation for testing. The first test area is 300 ft in diameter and contains a ground-zero concrete pad, a 250 ft drop tower, three ground-level instrumentation legs, and three camera bunkers. The second test area is 200 ft in diameter and contains three elevated gauge lines. Data from each test area are collected in the protected control room located ~500 ft from the center of the first test area and 800 ft from the second test area.

FACILITY INSTRUMENTATION

Instrumentation and data acquisition systems are available to obtain side-on and reflected pressure measurements and weather information such as wind velocity, humidity, barometric pressure, and ambient temperature. The LeCroy® data acquisition system currently is configured to obtain 100 data channels at 1 mega samples per second. Eighty of these channels have extended memory modules (256 K samples per channel) and the remaining channels have 128 K samples per channel of memory. Overpressure measurements from 4 to 350 ft can be obtained. Three 10,000-frame-per-second (fps) cameras, three 500-fps cameras, and standard video are available. All overpressure data and film and video frames are time-correlated using Inter-Range Instrumentation Groups.

TEST CAPABILITIES

The following explosion tests have been performed: 1 to 300 lb of TNT, C4, or pentolite; 150-lb mixtures of monomethylhydrazine/liquid oxygen, liquid hydrogen/nitrogen tetroxide, monomethylhydrazine/nitrogen tetroxide, liquid oxgyen/RP-1, hydrogen peroxide/Jet A; 25 to 2000-lb mixtures of liquid hydrogen/liquid oxygen; 100 to 450 lb solid propellant; and one STAR 48B demonstration test containing ~4430 lbs of solid propellant.

CONTACT

Alan R. Porter, NASA White Sands Test Facility, Facility Manager
alan.r.porter@nasa.gov, (575) 524-5734

Larry W. Starritt, NASA White Sands Test Facility,
Hydrogen Hazards and Testing Group Leader
larry.w.starritt@nasa.gov, (575) 524-5676