Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Confined PBX 9501 Gap Reinitiation Studies TERRY SALYER, Los Alamos National Laboratory — For explosive systems that exhibit gaps or cracks between their internal components (either by design or mechanical failure), measureable time delays exist for detonation waves crossing them. Reinitiation across such gaps is dependent on the type of explosive, gap width, confinement, and temperature effects. To examine this reinitiation effect, a series of tests has been conducted to measure the time delay across a prescribed gap within an "infinitely" confined PBX 9501 system. Detonation breakout along the explosive surface is measured with a streak camera, and flow features are examined during reinitiation near the gap. Such tests allow for quantitative determination of the time delay corresponding to the time of initiation across a given gap oriented normal to the direction of the detonation wave. Measured time delays can be compared with established Pop plots and 1-D calculations, making it possible to estimate detonation run-up distances as well. These results are beneficial for the design and evaluation of explosive systems that require precision timing and performance.

Terry Salyer
Los Alamos National Laboratory

Date submitted: 18 Feb 2009 Electronic form version 1.4