Abstract Submitted for the SHOCK11 Meeting of The American Physical Society

Effects of high sound speed confiners on ANFO detonations CHARLES KIYANDA, SCOTT JACKSON, MARK SHORT, Los Alamos National Laboratory — The interaction between high explosive (HE) detonations and high sound speed confiners, where the confiner sound speed exceeds the HE's detonation speed, has not been thoroughly studied. The subsonic nature of the flow in the confiner allows stress waves to travel ahead of the main detonation front and influence the upstream HE state. The interaction between the detonation wave and the confiner is also no longer a local interaction, so that the confiner thickness now plays a significant role in the detonation dynamics. We report here on larger scale experiments in which a mixture of ammonium nitrate and fuel oil (ANFO) is detonated in aluminium confiners with varying charge diameter and confiner thickness. The results of these large-scale experiments are compared with previous large-scale ANFO experiments in cardboard, as well as smaller-scale aluminium confined ANFO experiments, to characterize the effects of confiner thickness.

> Charles Kiyanda Los Alamos National Laboratory

Date submitted: 18 Feb 2011

Electronic form version 1.4