Abstract Submitted
for the SHOCK11 Meeting of
The American Physical Society

The Effect of Localised Short Duration Thermal Insults on HMX based Explosives STEVE WORTLEY, AWE — This paper describes some experiments undertaken to address a specific concern regarding the susceptibility of a bare HMX based explosive charge to an extremely hot source but with a short duration of application such as a metal spark arising from a cutting operation or a single drop of hot material. In a short series of experiments small pressed charges of HMX formulated with Viton where heated by the application of a pre-heated thermocouple. The temperature of the thermocouple and the duration of the contact were varied and the response of the explosive was observed. In general the explosive was remarkably tolerant of the thermal insult. However, at the highest test temperatures and at the longest durations ignitions leading to prolonged burning were observed. Although materials in these experiments were undamaged prior to application of the thermal insult this data may help to understand the likely response of explosives to bullets or fragments preheated by penetration of protective layers.

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Date submitted: 23 Feb 2011 Electronic form version 1.4