Abstract ID: **11528**

Title: XM1128 155mm Insensitive Munition (IM) High Explosive (HE) Extended Range Artillery Projectile

Abstract Text: 1. Purpose: To address the USMC requirement for a 155mm IM HE projectile achieving a maximum range of 30km (T) and 40km (O) in indirect fire for all US firing platforms and maintaining a lethality greater than or equal to that of the M549A1. The XM1128, funded to date by techbase and USMC, is a potential replacement candidate, with improved performance, for the aging stockpile of M549A1. The Army is currently in the process of adopting the USMC requirement.

2. Solution: The XM1128 will be based on a TRL 6+ low cost 155mm IM HE projectile prototype with a base bleed. The projectile consists of a high-fragmentation steel body that is melt-pour filled with an insensitive high explosive. The projectile body design uses a M795 projectile body profile modified to reduce drag and utilizes the existing industrial capabilities. Extended range is achieved by the base bleed propellant gases being discharged into the low pressure region at the projectile's base during flight to reduce base drag. The approximate three pound base propellant grain is ignited during firing from the weapon. The base bleed solution yields a more consistent ballistic trajectory, thus reducing the Range Probable Error (RPE)

3. Background: From September 2001 to November 2003, the M795E1 underwent a process of testing and refinement with the ultimate threshold of reaching 30 km. The M795E1 was the first attempt at adding a base bleed to the M795 basic design. The efforts were focused on base bleed modifications to extend the range and reduce the RPE. The final and most successful iteration was 'Option J', which reached a corrected range of 29.3 km.

The program was revived at the start of 2008 to demonstrate a range of 30 km. To minimize schedule and cost, as well as leverage past successes, the M795E1 was used as a baseline. By modifying existing hardware and utilizing remaining propellant grains from the M795E1 program, the team was able to successfully demonstrate the objective corrected range in less than six months.

5. Key Accomplishments: The Range Demonstration and Dfuze test was conducted 1 December 2008. The test showed that the M795E2 achieved a corrected range of over 30 km. On-Board instrumentation also provided data showing favorable stability characteristics in the transonic mach regime, showing preliminary indication of a round that will be fully zoneable.

6. Planned Activities: The Army is currently in the process of adopting the USMC requirement. Once approved, the plan for the XM1128 is to enter the Engineering & Manufacturing Development Phase in the acquisition process as a fully funded program. Tooling and processes have been developed and the initial production batch has been delivered to the proving grounds for testing under USMC resources.