APMI – Precision on the Front Line

Discussion Topics

- Responding to Soldiers Needs – Why Accelerated Precision Mortar Initiative (APMI)?
- Mortar Guidance Kit (MGK) – ATK’s Answer to APMI
- Demonstrated Capability – Results of Demonstration Test
- Delivering Precision – APMI Program Plan

Innovation … Delivered
Why APMI? – Respond to Soldier Needs

Reduce Soldier Risk

Precision Benefits

Minimize Collateral Damage
Capabilities:

- Accuracy: 10m CEP (Threshold); 5m (Objective)
- Lethality: Similar kinetic effects of current munitions
- Maximum Range: 6.5km or greater
- Guidance: GPS Selective Availability Anti-Spoofing Module (SAASM)
- Compatibility: US 120mm Mortar System
What is APMI? – Precision for 120mm Mortars

XM395, 120mm HE Guided Cartridge

Urgent Material Release (UMR) of Four Systems

Mortar Fire Control System

Stowage Kit: 120mm Mortar, M326

M150/M151 Dismounted

Precision Lightweight Universal Mortar Setter System (XM701 PLUMSS)

M32
Lightweight Handheld Mortar Ballistic Computer

120mm Mortar, M120
Can PGK be adapted to guide a 120mm fin-stabilized mortar cannon fired projectile?

PGK is designed to guide a 155mm spin-stabilized howitzer fired projectile.

Operational Range: 6-27 km
Spin Rates: 150-275 Hz
Speeds: 330-830 m/sec (Supersonic)
Setback ~ 20 KG

Operational Range: 1.0-6.5 km
Induced Spin Rates: 5-40 Hz
Speeds: 130-330 m/sec (Subsonic)
Setback ~ 8.5 KG
APMI – Integrating Demonstrated Technologies

- **Tail Subsystem**
  - Lengthened boom/boattail
  - Standard M1020 igniter
  - Proven high-hat M47 charge increments
  - Proven folding fin design
    - Fin hub cant applied to induce body spin

- **M934 Body Subsystem**
  - Standard M934 mortar body
  - Obturating ring for pressure seal
  - Composition B explosive fill
    - Modified for deep intrusion fuze well

- **Nose Subsystem**
  - PGK nose assembly with modifications
  - Fixed canard assembly
  - IEC GPS receiver
  - Common Mortar S&A
  - PGK booster assembly
  - Canard cover for EPIAFS interface
• Steady-state must result in a moment balance
• Round noses down to counter canard moment with body pitching moment
• Body lift and canard lift in the same direction
APMI – Demonstrated Precision

TRN2291 & 2299

XM395
Accelerated Precision Mortar Initiative
Live Testing
Yuma Proving Grounds, Arizona
February 2010

APMI Precision = Significant Reduction of Rounds to Defeat Targets
ATK selected as winner of competitive demonstration program in April 2010

Building hardware for qualification testing that begins Summer 2010

Urgent Material Release (UMR) planned for October 2010, with fielding shortly after
APMI Provides Solution to Immediate Soldier Needs
• Effective Response to the field
• ATK’s MGK delivers Required Capability at completion of Competitive Phase I

APMI Succeeded Building on Proven Technologies
• Type classified 120mm Mortar Systems & Fire Control
• Successful PGK program provides Basis for MGK Approach
  – MGK modifies M934 HE Cartridge making it Precise

ATK’s MGK Demonstrated Necessary Capability
• Delivered <10m CEP in Competitive Shoot-off

APMI Will Deliver Capability to the Soldier this Year