XM395 Precision Guided Mortar Munition
(120mm PGMM)
Responsive, Standoff Precision Lethality for Highly Deployable and Mobile Forces

International Infantry & Joint Services Small Arms Systems Annual Symposium
“Meeting the Needs of Our Joint Ground Forces in the Fight Against Terrorism and Developing the Tools for Future Combat”
May 16-19, 2005

Presented By: Anthony Pezzano
OPEO Ammunition/OPM CAS/ OPM Mortars
Task

Present a Summary of the Product Manager’s Approach to PGMM Training

Purpose

Develop Systems Approach for PGMM Training Concept Utilizing Six Sigma Principles and Processes
System Requirements (Key Performance Parameters):
Increment I

Lethality: Incapacitate protected personnel, in two rounds or less, within:
- Earth and timber bunkers
- Brick over block masonry structures
- Stationary lightly armored vehicles

Maximum Range:
- Current Force: 7.2km (Threshold), 10km (Objective)
- Future Combat System (FCS) Mortar: 8km (T), 10km (O)

Compatibility:
- 120mm Battalion Mortar System
- Stryker - Mortar Carrier
- FCS Non-Line of Sight (NLOS) Mortar
- Current / Future Laser Designators & Fire Control Systems
PGMM Operations

Leverages Existing Fire Support Systems
Reduces Collateral Damage

Precision Munitions Increase Warfighter Effectiveness
Mortar Infrastructure In Place

- 120mm Mortars in current infrastructure
  - 120mm Mortar Platforms: M121 (carrier-mounted), M120 (towed), Stryker - Mortar Carrier
  - 120mm Mortar Munitions: HE, Smoke, Illumination (Visible & Infrared)
- Light-weight Laser Designator Range Finder (LLDR)
- Fire Control / Command & Control Links
  - Mortar Fire Control System (MFCS)
  - Advanced Field Artillery Tactical Data System (AFATDS)

PGMM
An Integral Part of Modern and Future Battalion Indirect Fire
Baseline PGMM (Increment I) Program Schedule

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Problem Statement

- Reduced Combat Effectiveness without Adequate Training Program
- No Affordable or Practical PGMM Training System is Available
  - Current Options
    - Firing Tactical Laser Guided PGMM (Hundreds of Rounds/Year x $10K/Round)
    - No Training (Not an Option)
    - Manual Process @ Training Center (not representative of Tactical)
Project Goals

• Develop an integrated plan for PGMM Training Concepts that can:
  – Effectively Train the Mortar Crew
    • Preparation, drop firing, and misfiring procedures
  – Training of Forward Observer to Adequately Designate Targets within the PGMM Firing Mission Timelines
  – Communication Links between FO, Battalion FSE, FDC and Mortar Crew
  – Achieve a 50% minimum overall Cost Avoidance through Reduced Tactical PGMM Firing
    • Cost effective training concept alternatives.

NOTES: FSE: Fire Support Element    FDC: Fire Direction Center    FO: Forward Observer
# PGMM Training Q$SR

## Project Summary:
Develop an integrated plan for PGMM Training Concepts that can:
- Effectively Train the Mortar Crew
  - Preparation, drop firing, and misfiring procedures
- Train Forward Observer to Adequately Designate Targets within the PGMM Firing Mission Timelines
- Identify Communication Links
- Achieve a 50% minimum overall Cost Avoidance through Reduced Tactical PGMM Firing.

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<th>Quality or Customer Satisfaction</th>
<th>Cost</th>
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<td>Provide the Warfighter with a viable, low cost training solution to achieve indirect fire precision strike capability.</td>
<td>Potential savings $10.24M/year of Training (10 year product life cycle can save over $100M in training costs)</td>
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<th>Schedule</th>
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<td>FMEA evidenced medium risk areas.</td>
<td>FO Trainer; Virtual Simulator</td>
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<td>Project Successfully laid out Approach, Methodology and Plan. (Follow-on Project recommended to Implement Training Concept into Program SDD)</td>
<td>QFD identified Training Concept leverage points to maintain affordable approach.</td>
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PGMM Training Implementation
Implementing PGMM Training

- **New Equipment Training (NET)**
  - Update documents to include PGMM and operating Tactics, Techniques and Procedures.
  - Develop physical mock up of PGMM for handling, programming, and visual reference.
  - Text / Video Course instruction training material.

- **Institutional Training**
  - Develop classroom training.
  - Integrate CFFT / Mortars / MFCS / PGMM / Laser Designation for classroom training.

- **Virtual Training**
  - Understand / Develop Tactics, Techniques & Procedures (TTPs).
  - Integrate CFFT / Mortars / MFCS / PGMM / Laser Designation for virtual training.
  - Integrate PGMM Trainer with MFCS Gun & FDC training aids and devices.
  - Develop Models and Simulations as part of Virtual Training resources to support Live Training.
  - Virtually train Gunner, FDC, and Forward Observer in a closed loop system, for collective unit training.

- **Collective (Live and Combined Arms)**
  - Develop Embedded Training Instrumentation (MFCS).
  - Provide a PGMM training capability at the Combat Training Center (CTC).
Who We Will Be Training

- Fire Direction Specialist (MOS 13F)
- Indirect Fire Infantryman (MOS 11C)
- Ammunition Specialist (MOS 55B)
- Fire Direction Center (FDC) Personnel
- EOD

Mortar Mission Training Requirements

- Operate in Centralized or Decentralized C3 Modes
- Centralized: Through Battalion Fire Support Element
- Decentralized: Sensor to FDC and/or Gun
Summary

- US Army investing in Precision Munitions for Close Combat (Mortar Systems)
  - Requirements are Approved
  - Program is Fully Funded, PGMM SDD Awarded 01Dec04

- Result will be Leap Ahead Precision Effects Capabilities for the Maneuver Commander

- Training is key to PGMM Affordability and Performance

- Collective/Combined Arms Training Requirements are being defined

6th Annual Mortars Conference October 19-21, 2005
Headquarters Plaza Hotel, Morristown NJ

www.NDIA.org  w4.pica.army.mil/pmmortars