PEO Ammunition Overview

July 2004

COL Nate Sledge
Project Manager, Combat Ammunition Systems
**Single Manager for Conventional Ammunition (SMCA)**

- **SMCA Mission:** Manage DoD conventional ammunition, and personnel and training functions

- **Objectives:** Achieve the highest possible degree of efficiency and effectiveness in the DoD operations required to acquire top quality conventional ammunition for U.S. Forces

- **SMCA Total:** $1.3B for FY04, 166 items, All Services
Primary Objectives

- Unify & Integrate Ammunition Management Under One Single Chain of Command…by Consolidating Responsibility and Resource Management in the PEO
- Develop a Unified Munitions Acquisition Strategy
  - Integrate Requirements…Training, War Reserve, & Modernization
  - Include SMCA Mission
  - By Munition Family
- Develop an Industrial Base Strategy (Organic and Commercial)
- Identify and Optimize Key Business Processes

Authority and Accountability…
For Meeting Full Military Requirement For all Ammo Families
Close Combat Systems Mission

Equip Soldiers with Close Combat Systems for:

**Assured Mobility**
- Intelligent Munitions System
- Anti-Personnel Landmine
- Countermine
- Demolitions

**Force Protection**
- APLA
- Countermine
- Non-Lethal
- Pyro/Flares
- EOD Equipment

**Close Battle**
- Hard Target Defeat
- Demolitions
- Hand Grenades
- Non-Lethal
- Pyro/Flares

15 Prime Contractors
- 30 Contracts

GOCOs
- JMC

R&D Establishments
- TARDEC
- ARDEC
- ARL
- CERDEC

Combat Developers
- USAES
- USAMPS
- USAFAS
- USASOC
- USAIS
- USMC

SBCT Volcano

AN/PSS-14
- Mine Detecting Set (HSTAMIDS)

M67 Hand Grenade

Selectable Lightweight Attack Munition

Non-Lethal Capability Set

Bunker Defeat Munition
PM Maneuver Ammunition Systems
PM Joint Services Mission

- Execute Single Manager for Conventional Ammunition (SMCA) acquisition functions
  - Manage the execution of other services’ acquisitions not currently managed by other PEO Ammo PMs (e.g. bombs, pyrotechnics, propellant and explosives)
  - Coordinate management of other services’ acquisitions managed by other PEO Ammo PMs (e.g. artillery, cannon, small and medium caliber)
  - Oversight of PM Demil
Demilitarization

Demil Mission: Perform life cycle management of demilitarization, disposal, and resource recovery and recycling (R3) of conventional munitions for all services, and DoD and US Gov’t Agencies

Demil Total FY03: $70M per year For R&D and Production
Industrial Base Transformation

Sizing Up the Problem …

- Munitions Production Base Capacity
  - Down 68% Last 10 Years
  - Currently Underutilized

- Single Sources
  - 71 of 302 Critical Components

- Minimal Incentives for Contractor Capital Investment

- Manufacturing Capability
  - Currently Focused on Legacy Systems
  - Marginal Future Munitions Capacity

- Surge Capability Virtually Non-Existent
Industrial Base Strategic Plan

Strategic Goals:
1. Transform to Meet Current and Future Requirements
2. Modernize Utilized Manufacturing Capacity
3. Balance Industrial Base & Acquisition Management Risk
4. Operate Efficiently and Effectively
5. Incentivize Industry to Reinvest in Capital Equipment and Processes

Sample Overarching Strategies:
1. Acquisitions Will Determine and Posture the Production Base.
2. Acquisitions and Investments Will be Synchronized to Assure Required Manufacturing Capabilities Remain Available.
3. Opportunities for Greater Joint Service Activity Will be Identified and Implemented.

Outlines Goals and Tactics to Shape the Industrial Base
Greening Small caliber ammo
Designing for Demilitarization
Improving asset visibility in time of war
Implementing the DoD’s RFID/UID policy
Supporting the Army’s Modularity initiative
Demilitarizing OIF and OEF munitions stockpiles
Procuring M67 acrylic bag and green ammo for 105mm
Expanding small arms production capacity to meet wartime needs
Fire support munitions modernization (precision, range, robustness)
Light weight mortar: ballistic computer and 81mm weapon base plate
Coordinating with industry and government to reach consensus on smart and precision weapons cost estimation techniques
Emphasizing Six Sigma disciplined processes through Executive training
Where We Are Today

- Single Manager for Conventional and Advanced Ammunition
  - ASA(ALT) Named SMCA – 8 Jan 2003
  - PEO Ammunition Named SMCA Executor – 16 Apr 2003
  - SMCA Charter in Service Review
  - All FY04 Service Funding Goes thru PEO Ammunition
  - PM’s are Engaging Other Services
  - Formed SMCA Acquisition Council

- Metrics – Covering All SMCA Functional Areas
  - All Major Issues Resolved
  - Moving Forward With Execution
  - Measuring Improvements
Summary – The Ammunition Enterprise is …

- Supporting Current Operations/Planning Future
- Improving Ammunition Life-Cycle Practices
- Focused, Well-Trained Workforce
- Leveraging World Class Capabilities & Technologies
- Vital to the development of products for the Future Joint Force
# PM Combat Ammunition Systems

## Artillery

<table>
<thead>
<tr>
<th>Concept</th>
<th>Development</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCCM</td>
<td>Excalibur Unitary</td>
<td>M782 MOFA</td>
</tr>
<tr>
<td></td>
<td>M1155 PIAFS</td>
<td>105mm M1 HE</td>
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<tr>
<td></td>
<td>105mm M314A3 Illum</td>
<td>105mm M915 DPICM</td>
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<tr>
<td></td>
<td>155mm M107 HE</td>
<td>155mm M75 HE Projectile</td>
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<tr>
<td></td>
<td>155mm M762 ET</td>
<td>155mm M804A1 Practice</td>
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<td>M762 ET</td>
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<tr>
<td></td>
<td>155mm M231/M232 Prop</td>
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## Mortars

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<th>Concept</th>
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<tr>
<td>120mm XM984 DPICM</td>
<td>(MFC-S) Heavy</td>
<td>120mm Training Insert, M303</td>
</tr>
<tr>
<td></td>
<td>MBC</td>
<td>60mm M769 FRPC</td>
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<tr>
<td></td>
<td>81mm M853A1 Illum</td>
<td>120mm M983 IR</td>
</tr>
<tr>
<td></td>
<td>81mm M821A1/M889 A1 HE</td>
<td>60mm M720A1 HE</td>
</tr>
<tr>
<td></td>
<td>120mm XM395 (PGMM)</td>
<td>120mm M934 HE</td>
</tr>
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## Artillery
- 105mm M314A3 Illum
- 105mm M1 HE
- 155mm M107 HE
- 155mm M231/M232 Prop
- 75mm M337A2 Blank

## Mortars
- 60mm M769 FRPC
- 81mm M853A1 Illum
- 120mm M983 IR
- 60mm M720A1 HE
- 120mm M934 HE
Army Transformation:
How We Fit In

Future Force

- Agile
- Lethal
- Versatile
- Survivable
- Deployable
- Responsive
- Sustainable

Special Operations

Modernized CATK

Stryker Force

Forced Entry

2004

IOC 2010

FOC 2012

155mm M782 MOFA 155mm MACS

155mm M864 Recap

MFCS

ACAAP

120mm XM984 ER Mortar

81mm LW Mortar

CCF

155mm Non-Lethal

120mm Mortar Family
- High Explosive
- Smoke
- Illuminating
- Full Range PC

60mm Mortar Family
- High Explosive
- Smoke
- Illuminating
- Full Range PC

81mm Mortar Family
- High Explosive
- Smoke
- Illuminating
- Full Range PC

155mm M107 HE

155mm M795 HE

105mm M915 DPICM

155mm M1155 PIAFS

Excalibur
- Unitary
- Discriminating

SFM

PGMM

M782 MOFA 155mm MACS

155mm M864 Recap

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155mm M1155 PIAFS

Excalibur
- Unitary
- Discriminating

SFM

PGMM
Transforming Army Indirect Fires

Networked through Battle Command

Fully Interoperable with Joint systems

Mobile (Strategic and Tactical)

Responsive & Integrated with Maneuver

Lethal (through precision and volume)

Precise Effects with Area Options

Reduced Sustainment

Ability to Mass Effects

24/7, All-Weather, All-Terrain

To achieve Destructive, Suppressive and Protective effects while minimizing collateral damage taking advantage of emerging technology
Today’s Cannon Artillery

H-T-K

155 mm, 39 Cal Cannon

Source: AMSAA Data for Uncorrected M864 & M549
Future Cannon Artillery
Without Munitions Improvements

- M864 CEP
- M549 CEP
- PTS M549 CEP
- Painted Target

155 mm, 39 Cal Cannon

Source: AMSAA Data for Uncorrected M864 & M549
The Future Force

Cannon Scalable Precision

Source: AMSAA Data for Uncorrected M864 & M549

155 mm, 39 Cal Cannon

Painted Target

M864 CEP
M549 CEP
PTS M549 CEP
M864&M549 w/CCF
Excalibur
H-T-K
**Highest Priority Programs**

**Course Correcting Fuze**
- **System Description:** A NATO-size fuze that provides ballistic course correction for spin stabilized artillery projectiles.
- **Requirements:** Low cost, fuze-sized module resulting in projectile CEP <50M at max range.
- **Goal:** Near Precision
  - **IC:** FY07
  - **IOC:** FY10
- **Status:** Developing co-operative program with Navy
- **POC:** Mr. Russ Hill

**Excalibur**
- **System Description:** Precision Guided, Extended Range 155mm projectile
- **Requirements:** Greatly increased precision and reduced collateral damage
  - **Goal:** Precision, Range
  - **ACAT:** I
  - **IC:** FY06 (LW155)
  - **IOC:** FY08
- **Status:** SDD
- **POC:** LTC Jeffrey Wilson

**Precision Guided Mortar Munition**
- **System Description:** Links mortar fires with the digital battlefield
- **Requirements:** Allow mortar crews to send and receive digital call for fire messages
- **Goal:** Accuracy, Responsiveness
  - **IC:** FY03
- **Status:** Fielding
- **POC:** Mr. Tom Bradley

**Mortar Fire Control System**
- **System Description:** Submunition Fuze to reduce battlefield UXO
- **Requirements:** UXO less than 1%
  - **Goal:** Lethality, Safety
  - **IC:** FY04
- **Status:** In Production
- **POC:** Mr. Bill Vogt

**Self-Destruct Fuzes**
- **Requirement:** Destroy or Immobilize stationary SPHs and other hard point targets
- **Goal:** Lethality
  - **IC:** N/A
  - **Status:** Accessing foreign NDI projectile compliance with JBMOU
  - **POC:** Mr. Russ Hill

**Advanced Cannon Artillery Ammunition Program**
- **System Description:** Extended range NDI projectiles
- **Requirements:** Increased Lethality through Pff technology
  - **Goal:** Range, Ballistic Similitude
- **IC:** FY06
- **Status:** Safety Testing
- **POC:** Mr. John Irizarry
Other Developments

120mm ER Mortar

**System Description:** ER-DPICM round made with lightweight composites round and rocket motor for increased range

**Requirements:** 50% greater range

**Goal:** Range, Lethality

**IOC:** FY11

**Status:** STO UFR

**POC:** Mr. Pete Burke

**Arms Room Concept**

**System Description:** Provide Light Forces maneuver commanders with 81mm and 120mm mortar support

**Requirements:** HQDA G3 approved BOIP change July 03

**Goal:** Lethality, Range, Flexibility

**IOC:** Fielding

**Status:** Seeking additional funding

**POC:** Mr. Tony Barreiro

**Lt. Wt. Mortar**

**System Description:** STO to reduce the weight of the M252 81mm Mortar System

**Requirements:** 30 to 40% lighter weapon system

**Goal:** Mobility, Portability

**IOC:** TBD

**Status:** Trade Studies

**POC:** Mr. Ed Lewis

**M864 Recap**

**System Description:** “Like new” DPICM rounds with grenade Self Destruct Fuzes (SDFs) for the Stryker Brigade Combat Teams

**Requirements:** Submunition Self Destruct capability for 155mm artillery ammunition (<1% UXO)

**Goal:** Recapitalization, Safety

**IOC:** FY05

**Status:** Recap Feasibility Study Ongoing

**POC:** Mr. David Kondas

**Non-Lethal Munitions**

**System Description:** MOSM to reduce the weight of the M252 81mm Mortar System

**Requirements:** Lighter, more effective

**Goal:** Lethality

**IOC:** TBD

**Status:** Fielding

**POC:** Mr. Steve Hromnak

**60mm Modernization**

**System Description:** Perform a side by side comparison of the MAPAM with the M720A1 Cartridge, analyzing Lethality and Effectiveness

**Goal:** Dispense Less-Lethal Payloads

**IOC:** TBD

**Status:** SDD

**POC:** Mr. John Slivovsky
Support to FCS NLOS - Cannon

SMOA Programs
- Excalibur (XM982)

155mm Ammunition
- High Explosive (HE)
- Rocket Assist Projectiles (RAP) and Basebleed
- Dual Purpose Improved Conventional Munitions (DPICM)
- Sense and Destroy Armor (SADARM)
- Illumination Area
- Denial Munitions
- Training/Practice

Developmental Ammunition
- Sensor Fuzed Munitions (SFM)
- Advanced Cannon Artillery Ammunition Program (ACA²P)
- Non-Lethal

Fuzes and Fuze Setter
- Multi-Option Fuze for Artillery (MOFA)
- Electronic Time Fuze (M762/767)
- Point Detonating Fuzes

Developmental Fuzes and Fuze Setter
- Course Correcting Fuze (CCF)
- Enhanced PIAFS (EPIAIFS)

Propellants
- Modular Artillery Charge System (MACS)
Support to FCS NLOS - Mortar

SMOA Programs
- Mortar Fire Control Systems (MFCS) Software
- Precision Guided Mortar Munition (PGMM)

Conventional 120mm Ammunition
- HE
- IR Illumination
- VL Illumination
- Smoke
- Full Range Training

Developmental Ammunition
- Future Extended Range Ammunition (FERA)
- Lethal, Non-Lethal, and Special Purpose
Enabling Technologies

- Hardened & Compact GPS/IMU
- Deeply Integrated Guidance
- Composite Materials
- Lower TLE's
- Digital Fire Control (LW155)
- Modeling & Simulation
- Network Efficiency & Reliability
- Improve Battery Tech
- GPS Codes
- Insensitive Energetics
- Increased Bandwidth
- Enhanced Fuze Setter (EPIAFS)
- Next Generation GPS SAASM
- Improve Sensors
- Network Efficiency & Reliability
- SFM
- Automation
- Ammo Marking
- Inventory Control
- Ammo Condition Indicators
- ATR/Discrimination Tech
- Precision & Smart Thrusts
- MEMS Fuzing
- Telemetry/Datalink
- Rocket Assist Tech
- Force-Level Models
- Fire Control Algorithms
- Decision Support Tools
THE HIGHEST CALIBER

Hooah!