

ADVANCED PLANNING BRIEFING TO INDUSTRY

Panel # 1 Joint Commodity Requirements

Panel # 2 Organic Base Discussion

Panel #1

Dennis Brogan

JMC

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PM, CAS

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ADVANCED PLANNING BRIEFING TO INDUSTRY

**JOINT MUNITIONS PROGRAMS
BOMBS / ENERGETICS / NAVY GUN
AMMO / PYROTECHNICS**

Mr. Jim Loehrl

13 Feb 03

TOPICS

■ BOMBS

- PRODUCTION PROGRAMS - EXISTING

■ ENERGETICS

- PRODUCTION PROGRAMS –POTENTIAL

■ NAVY GUN AMMO

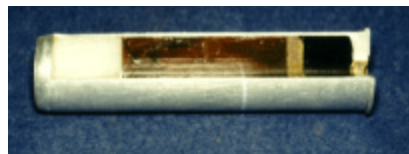
- PRODUCTION PROGRAMS - EXISTING

■ PYROTECHNICS

- PRODUCTION PROGRAMS - EXISITNG

BOMBS – EXISTING PROD. PROGRAMS COMPONENTS

- MK 80 Series Bomb Bodies
- BLU-109 Empty Case
- Bomb Fins
- Bomb Cables
- Bomb Lugs
- Aluminum Powder
- 25lb Practice Bombs
- MK4-3 Signal Cartridge
- CBU-97 (D-2)/B
- Sensor Prox FZU-39 (D-2)/B



BOMBS – EXISTING PROD. PROGRAMS COMPONENT ACQUISITION STRATEGIES

■ Bomb Bodies

- MK80 Series – Sole source to IMCO**
- BLU-109 – Restricted to US/Canada**
- BDU-50 – CDI – FY03 – Restricted to US/Canada
(Planned)**

■ Fins

- BSU-86/B – Full & open**
- All Others – Small business set aside**

■ Lugs – Small business set aside

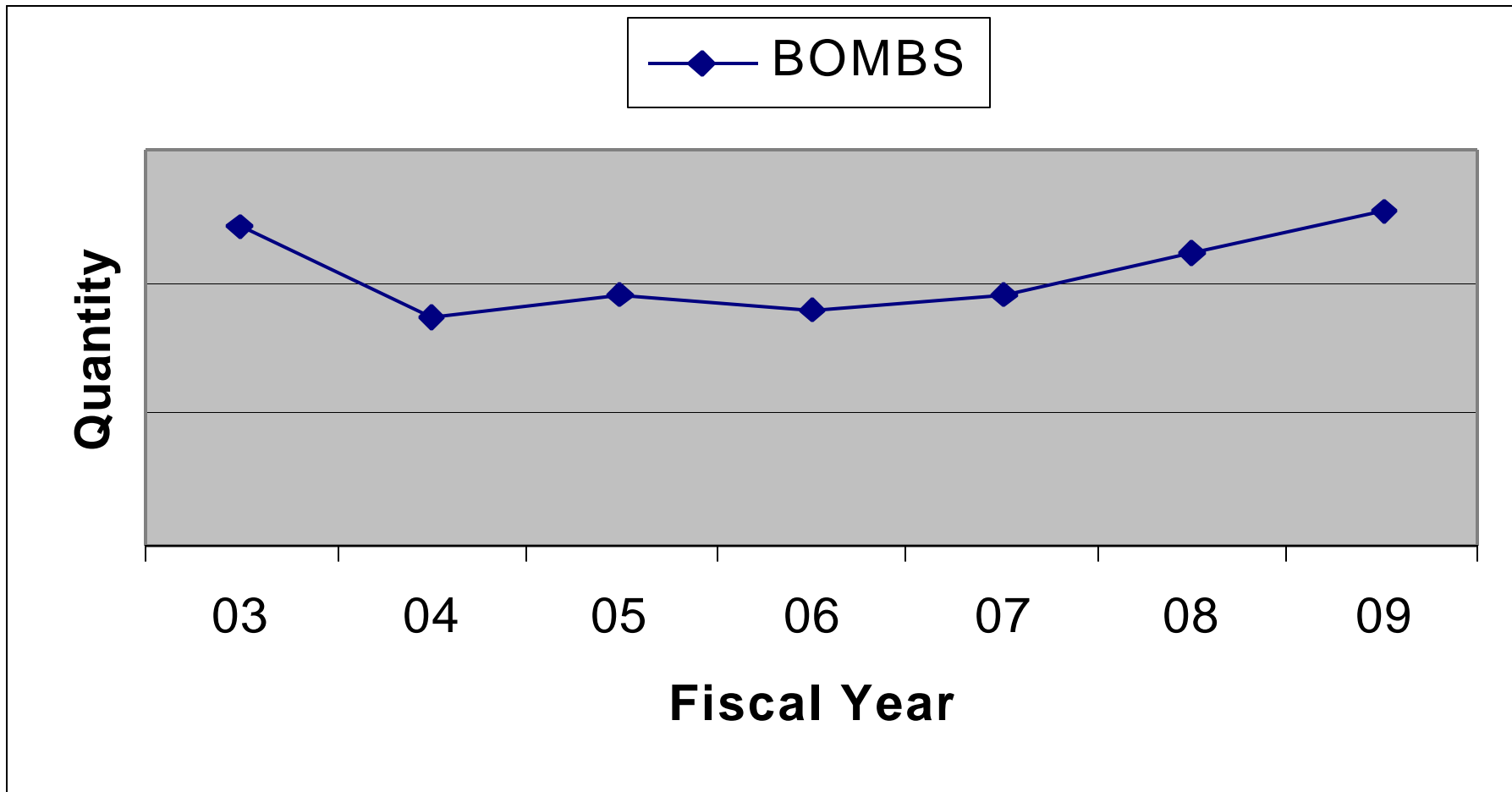
■ Cables – Restricted to US/Canada

BOMBS – EXISTING PROD PROGRAMS COMPONENT ACQUISITION STRATEGIES

(Continued)

- **Aluminum Powder – Full & open**
(Commercial Item, under FAR Part 12)
- **Cartridge Signals (Practice Bombs) – Full & open**
- **25 lb Practice Bomb – Small business set aside**
- **LAP of all Bombs performed at McAlester AAP**
(GOGO)

BOMB TRENDS



ENERGETICS - POTENTIAL PRODUCTION PROGRAMS

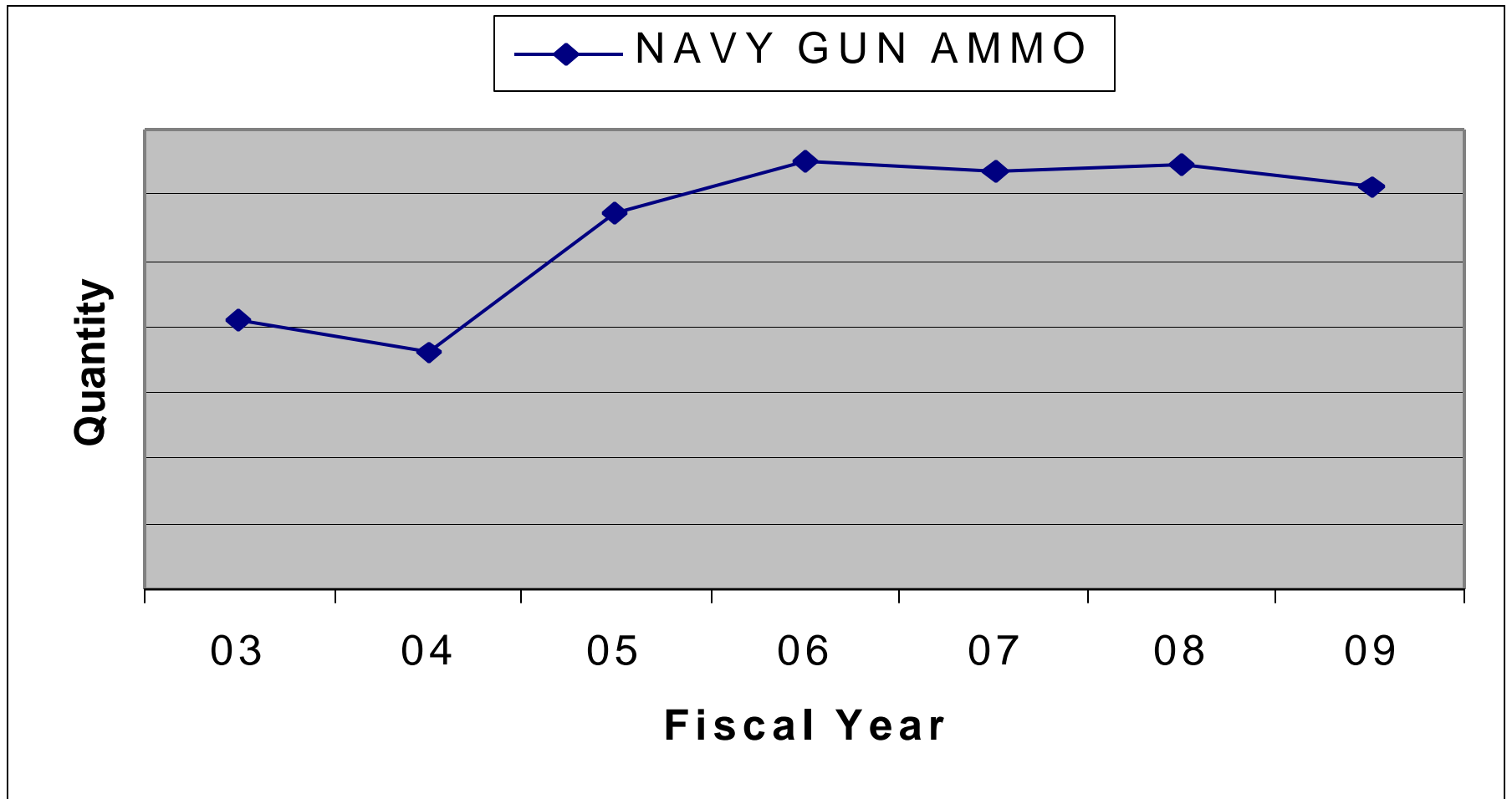
■ TNT

- 5Yr competitive best value contract (NTIB)**
- RFP to be formally issued Feb 03**
- Requests combination of reclamation, manufacture and purchase OCONUS**

NAVY GUN AMMO – EXISTING PROD. PROG. - COMPONENT ACQ STRATEGIES

- **LAP supported by GFM & CFM (Navy)**
- **5"/54 CAL GFM:**
 - **Projectile body – Competitive US & Canada**
 - **CTG case – Sole source to Norris**
 - **Dummy nose plug – Small business set aside**
- **76mm GFM:**
 - **Projectile body - Competitive US & Canada**
 - **CTG case - Sole source to Norris**
 - **Fuze – Full and open**
 - **Dummy nose plug – Small business set aside**

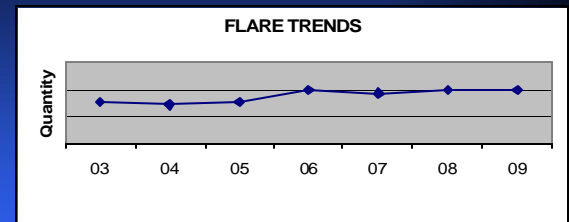
NAVY GUN AMMO TRENDS



PYROTECHNICS - EXISTING PRODUCTION PROGRAMS

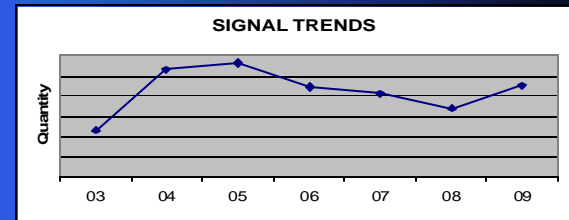
■ Infrared Countermeasure Flares

- MJU-7A/B & 10B
- M206 (Army configuration)



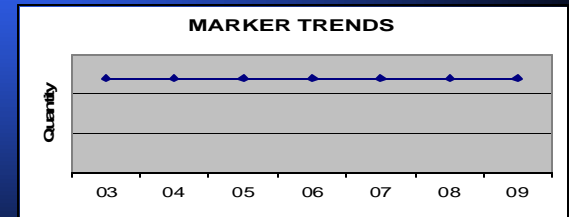
■ Signals

- Smoke and Illum Signal MK124
- Smoke Signal MK131
- Personnel Distress Signal AP25
- Personnel Distress Kit MK79



■ Marine Location Markers

- MK58 Marine Location Marker
- MK25-3/4 Marine Location Marker



PYROTECHNICS – EXISTING PROD. PROGRAMS - ACQUISITION STRATEGIES

■ IR FLARES

- Restricted competition between Kilgore and Armtec**
- FY04 plus three years – Full and open**

■ SIGNALS

- Small business set aside**

■ MARINE LOCATION MARKERS

- MK25 SERIES - Full and open competition**
- MK58 – Planned sole source for FY03**

SUMMARY

- **Opportunities may exist with:**
 - **Bomb components**
 - **TNT**
 - **Navy gun ammo components**
 - **IR Flares/Signals/Markers**

- **Opportunities are funding and requirement dependent**



ADVANCED PLANNING BRIEFING TO INDUSTRY

Project Manger, Maneuver Ammunition Systems (MAS)



**Small Caliber (5.56mm, 7.62mm, .50 Cal, Misc)
Medium Caliber (20mm, 25mm, 30mm, 40mm)
Large Caliber (105mm Tank, 120mm Tank)**

**Mr Carl Roller
Cost Analysis Team Leader
13 Feb 2003**

TOPICS

- Influences on Ammunition
- Acquisition Approaches
 - Large Caliber
 - Medium Caliber
 - Small Caliber
- Existing Programs
 - Research and Development
 - Production
- Potential Configuration Changes
 - Cost Reduction
 - “Green” Ammo
- Potential Programs
 - Research and Development

INFLUENCES ON AMMUNITION

- **RDTE Emphasis on Future Combat System**
 - Precision Munitions
- **Industrial Base Issues**
- **Increased Training Tempo**
- **Specialized Lethality Requirements**
 - Thermobaric
 - Canister
 - Wall Breaching
- **Environmental Issues**
- **Insensitive Munitions**
- **Training Safety**
 - Dud reducing ammunition

ACQUISITION APPROACHES

■ Large Caliber

- 120mm Tank Tactical – System Contractor, Performance Specification
- 120mm Tank Training – System Contractor(s), Multiyear, TDP
- 105mm – System Contractor, Performance Specification

■ Medium Caliber

- 20mm, 25mm, 30mm – System Contractor(s), TDP
- 40mm Grenades – Component Breakout / System, TDP

■ Small Caliber

- System Contractor – Requirements Contract, TDP

EXISTING R&D PROGRAMS

■ Large Caliber

- Mid Range Munition
- XM1002
- XM1028
- XM1040

■ Medium Caliber

- M910E1

EXISTING R&D CONTRACTS

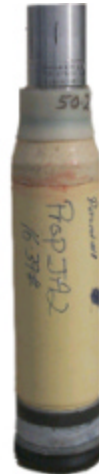
■ XM1002 TPMP-T 120mm

- Contract w/Alliant Techsystems
 - ➔ R&D: FY00-FY03
 - ➔ Production Starts: FY04
 - ➔ Second Source Competition – FY04



■ XM1028 Canister 120mm

- Contract w/GDOTS
 - ➔ R&D: FY02-FY04
 - ➔ Production: FY04-06



■ Mid-Range Munition for FCS

- Proof of Principal Contracts w/Alliant and Raytheon
- Downselect for SDD at end of FY03 (pending availability of funds)



UPCOMING R&D CONTRACTS

■ XM1040 Canister 105mm

- Contract in Source Selection
 - ➔ R&D: FY03-FY04
 - ➔ Production Starts: FY04



■ XM910E1 TPFSDS-T 25mm

- RFP issuance imminent
 - R&D: FY03-FY05
 - Production Starts: FY05



LARGE CALIBER PRODUCTION

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
120mm							
M865 TPCSDS-T	X	X	X	X	X	X	X
M831A1 HEAT-TP-T	X	X	X	X			
XM1002 MPAT-TP-T		X	X	X	X	X	X
M829E3 APFSDS-T	X	X	X	X	X	X	X
XM1028 Canister		X	X	X			
M830A1 MPAT-T (USMC)	X	X	X				
105mm							
M393A3 HE-T	X	X	X	X			
M467A1 TP-T	X	X	X	X	X	X	X
XM1040 Canister		X	X	X	X	X	X

MEDIUM CALIBER PRODUCTION

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
25mm							
M793 TP-T	X	X	X	X	X	X	X
M910 TPDS-T	X						
M910E1 TPCSDS-T			X	X	X	X	X
M919 APFSDS-T	X						
30mm							
M788 TP-T	X	X	X	X	X	X	X
M789 HEDP	X						
40mm							
M385A1 Practice	X	X	X	X	X	X	X
M430A1 HEDP	X	X	X	X	X	X	X
M918 TP	X	X	X	X	X	X	X
M583 White Star	X	X	X	X	X	X	X
M781 Practice	X	X	X	X	X	X	X
M1001 Canister	X						

SMALL CALIBER PRODUCTION (5.56 / 7.62 MM)

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
5.56mm							
M193 Ball	X	X	X	X	X	X	X
M200 Blank	X	X	X	X	X	X	X
M200 Blank Linked	X	X	X	X	X	X	X
M855 Ball	X	X					
M855 Ball Linked	X	X					
4 Ball / 1 Tracer	X	X					
M855 (Green)	X	X	X	X	X	X	X
M855 (Green) Linked	X	X	X	X	X	X	X
4 Ball (Green) / 1 Tracer	X	X	X	X	X	X	X
M995 AP	X	X	X	X	X		
7.62mm							
M82 Blank	X	X	X	X	X	X	X
M80 Ball	X	X	X	X	X	X	X
4 Ball / 1 Tracer	X	X	X	X	X	X	X
M973/M974 SRTR							
M118 Long Range	X	X	X	X	X	X	X
M993 AP	X	X	X	X	X	X	X

SMALL CALIBER PRODUCTION (.50 CAL / MISC)

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
.50 Cal							
M20 APIT		X					
M33 Ball	X	X	X	X	X	X	X
4 Ball / 1 Tracer	X	X	X	X	X	X	X
M1A1 Blank	X	X	X	X	X	X	X
MK211 API (single)		X			X		
MK211 API	X	X	X	X	X		
M903 SLAPT (single)		X	X	X	X	X	X
M903 SLAPT	X	X	X	X	X		
Shotgun Shells							
10 Gauge Blank		X	X	X	X	X	X
12 Gauge 00 Buckshot	X			X	X	X	X
12 Gauge #9 Shot							
9mm / Misc							
.22 Cal LR Match	X	X	X	X	X	X	X
.30 Cal Blank	X	X	X	X	X	X	X
9mm M882 Ball	X	X	X	X	X	X	X
Special Training Ammo		X					
RLEM	X						
OICW				X	X	X	X

POTENTIAL CONFIGURATION CHANGES

■ 20mm/25mm/30mm families

- Material Change programs to reduce cost or improve environmental conditions where suitable

■ Small Calibers & 40mm Grenades

- Material Change programs to reduce cost or improve environmental conditions where suitable

POTENTIAL R&D PROGRAMS

■ Large Caliber (FCS)

- Mid-Range Munition SDD
- Advanced Kinetic Energy
- Advanced Multi-Purpose

■ Medium Caliber (FCS)

- Ammunition for FCS Medium Caliber Systems
 - Airburst
 - Armor Piercing
 - Trainers

SUMMARY

■ Opportunities May Exist With:

- 120mm Ammo for ABRAMS and FCS
- 105mm Ammo for MGS
- 25mm Ammo for BRADLEY
- 20mm for Aviation
- 30mm for Aviation & Ground Systems
- Medium Caliber for FCS
- Small Calibers
- Sub-Contracting Through System Contractors

■ Opportunities – Funding and Requirement Dependent

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**PM Combat Ammunition Systems
Artillery and Mortars**

**Advanced Planning
Briefing to Industry**



Robert Goldberg

**Life Cycle
Management,
PM CAS**

Feb 13, 2003

Topics

- R & D PROGRAMS

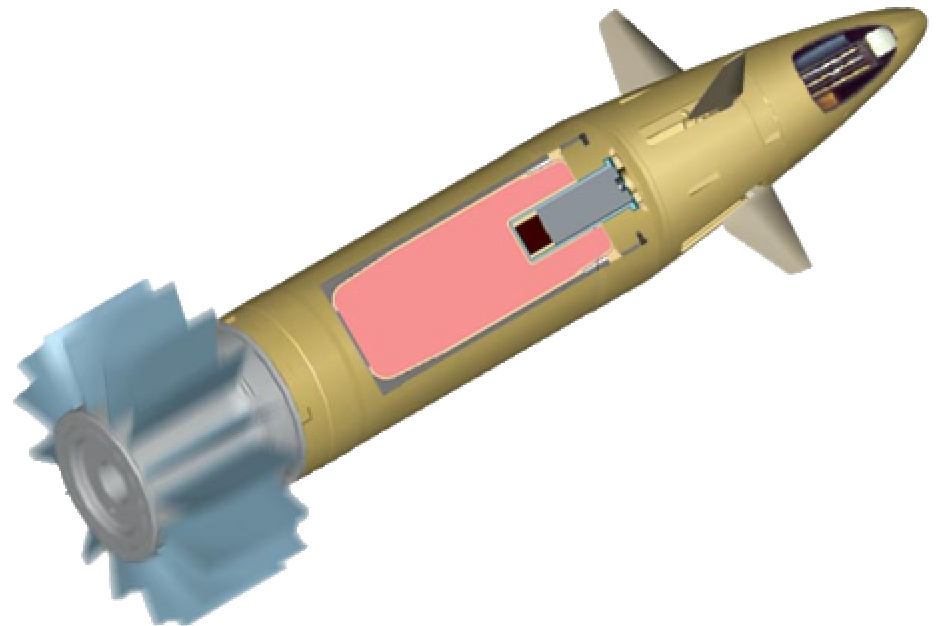
- PRODUCTION PROGRAMS

R&D Programs

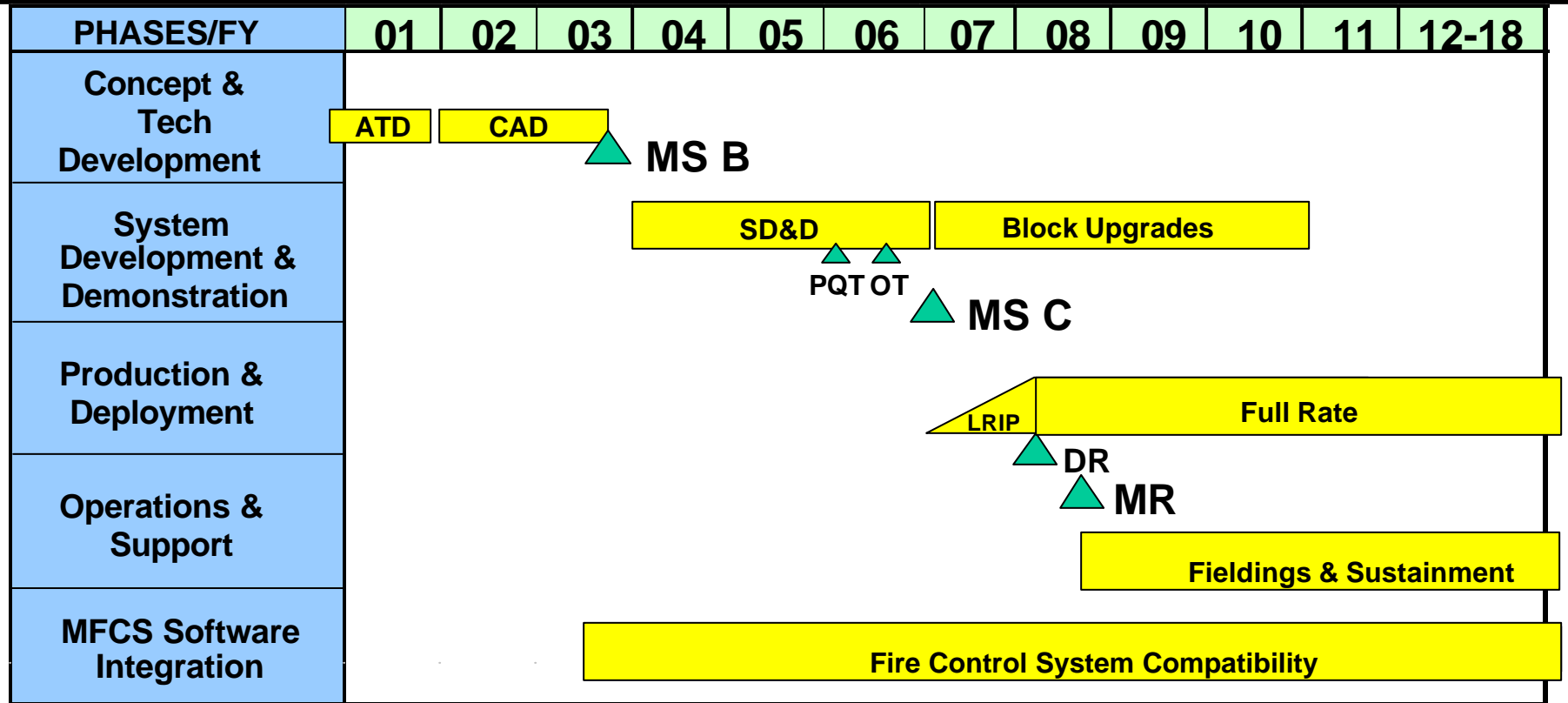
- **XM 982 Excalibur**
- **Precision Guided Mortar Munition**
- **HE IM Program**
- **XM 784 Electronic Time Fuze**
- **120mm Monopack**
- **Advanced Conventional Artillery Ammunition Program**
- **Enhanced 120mm Mortar Family**
- **Next Generation 120mm Mortar Family**
- **Artillery Cost Correction Fuze**
- **Smart Artillery Projectiles**

XM 982 Excalibur

- XM 982 Excalibur
 - Contract with Raytheon & Bofors
 - ➔ FY06: Unitary Milestone C
 - ➔ FY08: Unitary IOC



Precision Guided Mortar Munition (PGMM)



Block 1 Fully Funded – RFP Release February 2002

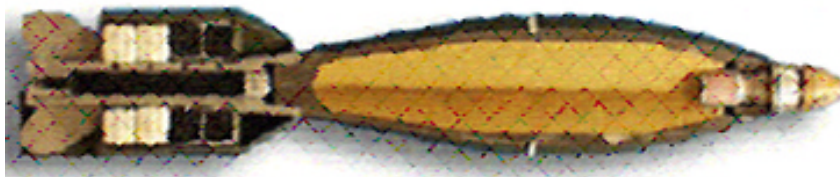


SYSTEM DESCRIPTION:

The Precision Guided Mortar Munition (PGMM) will be a precision strike round with extended range and enhanced lethal mechanism technology. It will be capable of a first round defeat of high value/payoff hard point targets such as bunkers, command and control centers. PGMM greatly enhances BCT effectiveness, and is required by its ORD. PGMM is implementing a blocked approach to reduce risk and ensure affordability.

High Explosive (HE), Insensitive Munition (IM) M934A1E1 w/M734A1 Fuze

Program Milestones	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08
Type Classification-Std (1QFY05)					★			
Matériel Release (1QFY07)							★	
US Army Production						████████████████████		



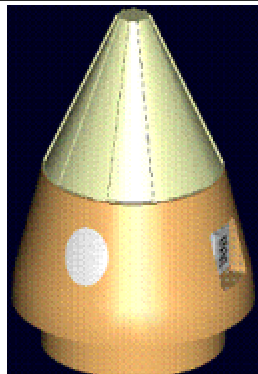
SYSTEM CHARACTERISTICS:

- Range:
 - Minimum: 300m
 - Maximum: 7200m
- Probable Error:
 - Range: 1.5%
 - Deflection: 1.0%
- Effectiveness: 50% Improvement over 4.2" M329A1 HE
- Reliability: 0.97 at 80% Confidence
- IM Performance Targets:
 - Cook-Off: Type V Desired; Type IV Required
 - Sympathetic Detonation: Type V Desired; Type II Required
 - Bullet Impact: Type V Desired; Type IV Required
 - Fragment Impact: Type V Desired; Type IV Required
- Maintains interfaces with standard M1020/M234 Propulsion System, M734A1 MO Fuze, and M31 Fin Assembly.
- M734A1 MO Fuze will utilize IM-enhanced Booster
- Maintains interfaces with M1064 Carrier ammunition storage racks

Fuze, Electronic Time (ET), XM784/XM785



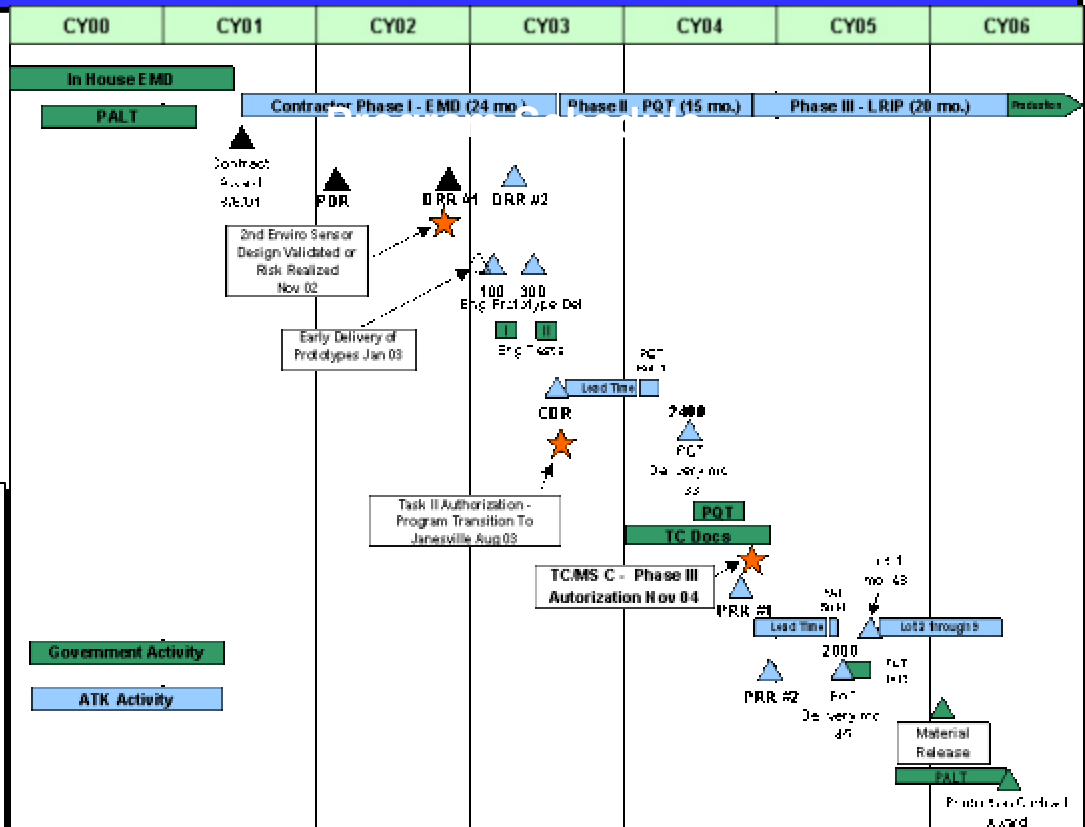
XM784



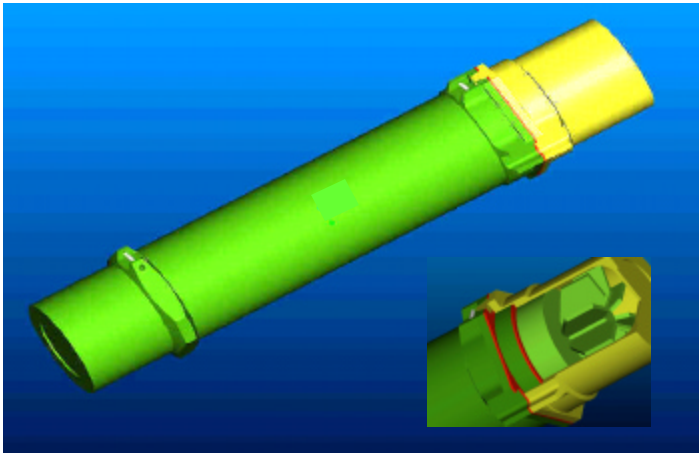
XM785

SYSTEM CHARACTERISTICS:

- Safety Per MIL-STD-1316 (Dual Environ Safety)
- Cartridge Compatibility:
 - 60 mm (M721 Illum & M767 IR Illum)
 - 81 mm (M853A1 Illum, XM816 IR Illum & M819 RP Smoke)
 - 120 mm (XM930 Illum, XM983 IR Illum)
- Hand Settable Required (Inductive Set Desired)
 - Self Illuminating
- Reliability 98%
- Set Time 5 – 99.9 Seconds (0.1 Sec Increments)
- Cannot Significantly Degrade Cartridge Range
- 20 Year Shelf Life (Controlled Environment)
- Minimum Arming Distance: 200 Meters



120mm Monopack



Program Milestones	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08
Contract			■					
Safety Confirmation Test				■				
Incorporate ECP into TDP				★				

SYSTEM CHARACTERISTICS:

- Replace the current Fiber Tube and Metal Container with a lightweight monopack container
- Reduce layers of packaging and overall weight of package containers (from 18 lbs to 8 lbs per round)
- Provide ammo with full protection through out the logistics systems and while in vehicle storage racks

Advanced Conventional Artillery Ammunition Program (ACAAP)

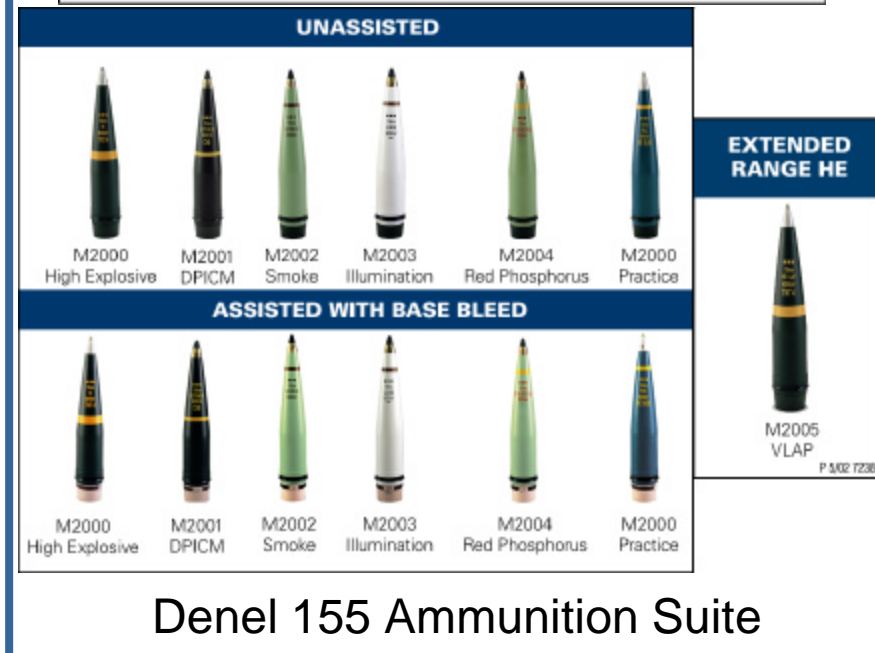
ACAAP Objectives - Qualify Non Developmental Items options for meeting Army's Ammunition replenishment requirement buys and transformation objectives

Denel Family of Munitions –

- Family of 105mm Artillery projectiles compatible with US 105mm Howitzers
- Family of 155mm artillery projectiles qualified for 39 and 52 caliber guns

Status

- Nov 2001 - PM CAS conducted a world-wide search for a family of ammunition to meet the FCS requirements. The General Dynamics Ordnance and Tactical Systems/Denel team was selected.
- May 2002 – Congress approved PM CAS ACAAP Foreign Comparative Testing proposal for the families of 105mm and 155mm ammunition for safety and gun qualification.
- Formal safety assessment of the family of ammunition commences March 2003 with Type Classification planned for 2005.



Mortars Programs In Support of FCS

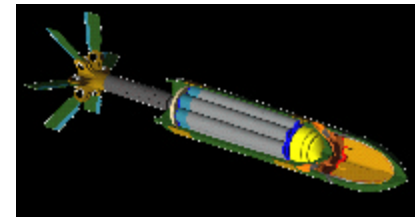
- Enhanced 120mm Family
- Next Generation 120mm Family

High Explosive
Smoke
Illuminating
Training



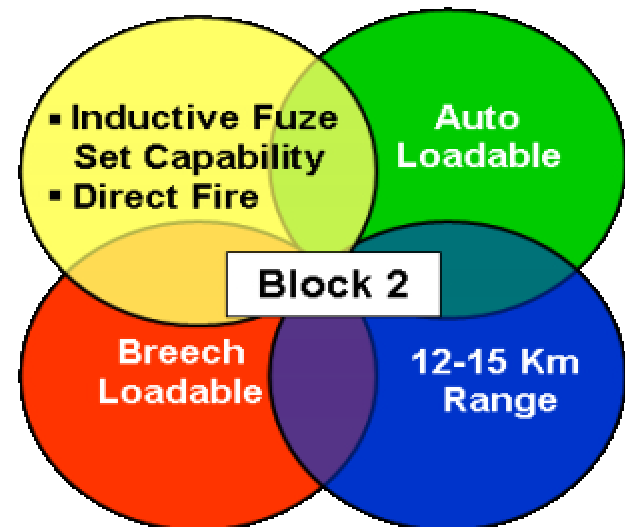
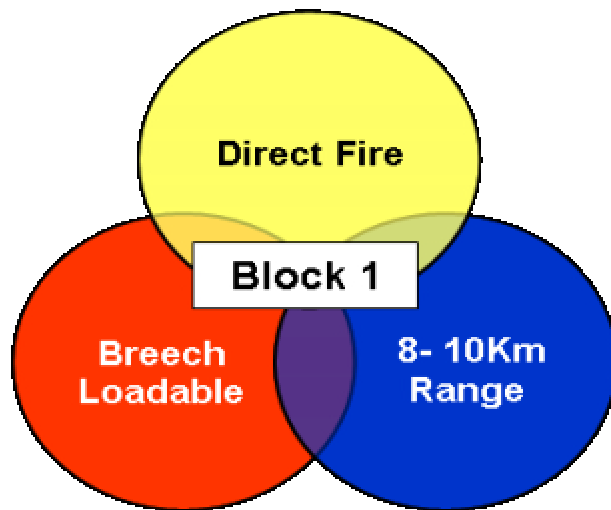
Enhanced 120mm Family

High Explosive
Smoke
Illuminating
Training
Non-lethal



Next Generation 120mm Family

FCS 120mm Ammunition Requirements



Enhanced Conventional
120mm Family

High Explosive
Smoke
Illuminating
Training

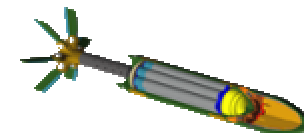
▲ FUE - 2008



Next Generation
120mm Family

DPICM
High Explosive
Smoke
Illuminating
Training
Non-lethal

▲ FUE - 2012



FCS demands improved 120mm mortar ammunition – currently unfunded

Mortar Systems Evolution Ammunition

Today

- 3 families of ammo (120mm, 81mm, 60mm)
- Highly Collateral Damage
- Anti-Personnel
- Area Weapon – Large CEP
- Drop Fired
- Multi-Option, Hand Settable Fuzing
- Max Range 7,200 Meters (120mm)



FCS



Need PGMM
Plus New Family of
Extended Range
120mm Mortar
Munitions!

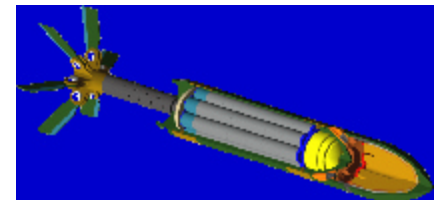
- Precision
 - high value targets
 - low collateral damage
- Extended ranges (12-15 km)
- Area Suppression w/Greater Accuracy
- Automated Loading/Handling
- Automated Fuze Setting
- Reduced Logistics Burden

FCS Technology Enablers

Low Cost Course Correction
Inductive Fuze Setting
Modular Charges for Automatic Loading
Composite Materials
Electronic/Self Destruct Fuzing

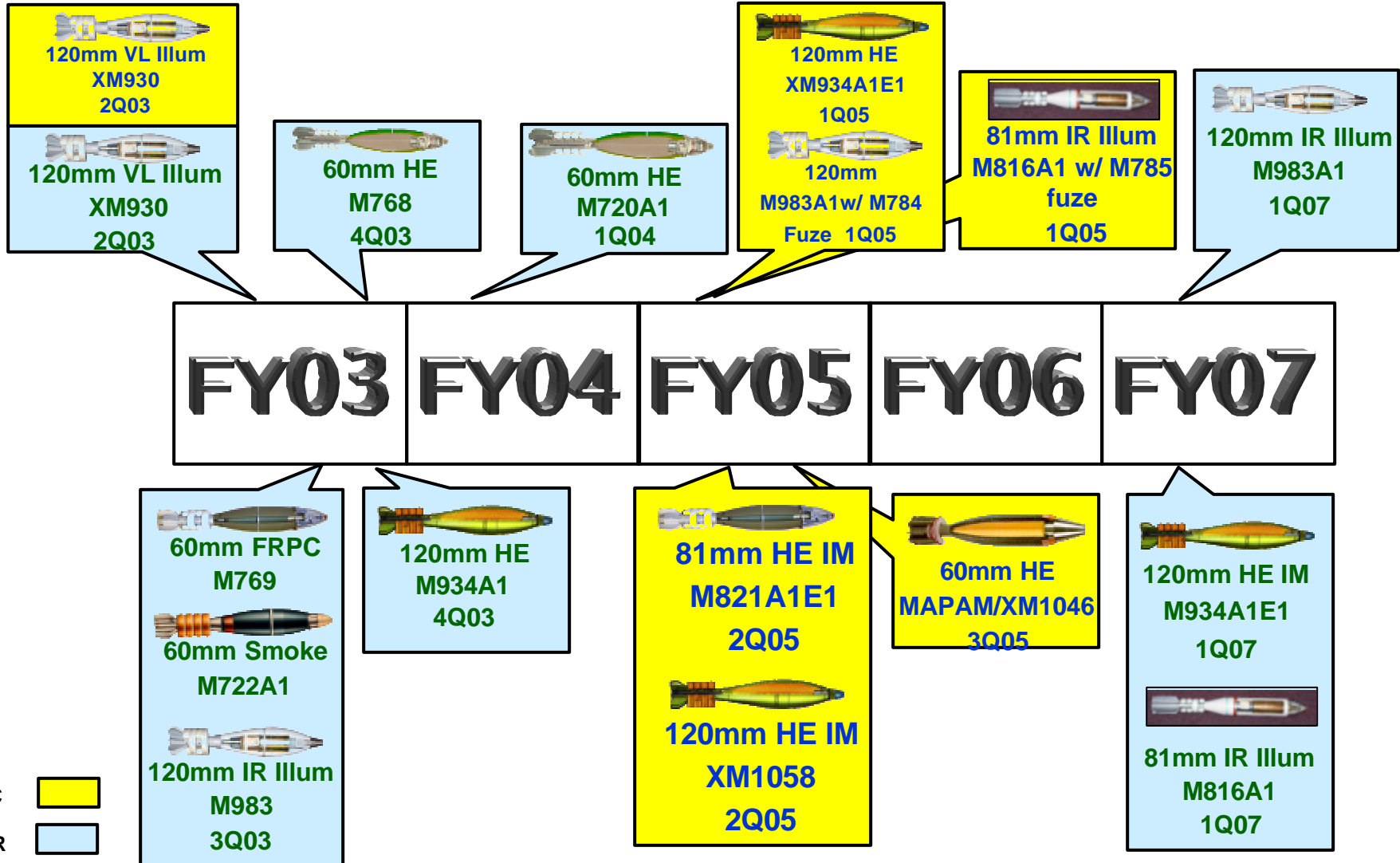


PGMM

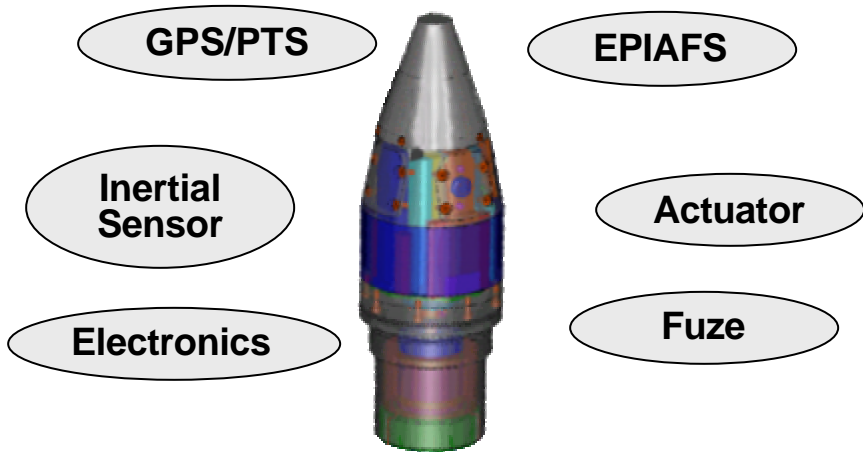


ER-DPICM

Type Classifications/Materiel Releases (Planned FY03 – FY07)



Artillery Course Correcting Fuze (CCF)



Course Correcting Fuze (CCF) for Artillery
Notional Concept

SYSTEM CHARACTERISTICS:

- Provides course correction for current stockpile, spin stabilized munitions and future extended range munitions
- Low cost, fuze sized module
- Used in lieu of standard fuze
- Enhanced effectiveness by reduced delivery error
- Reduced collateral damage and Logistics Burden

ACQUISITION PHASE:

- Component Advanced Development

SYSTEM DESCRIPTION:

A NATO-size fuze that provides ballistic course correction for spin stabilized artillery projectiles.

SPECIAL FEATURES:

- Improves effectiveness of artillery munitions by minimizing delivery errors.
- Adaptable to all 155mm ammo (stockpile and developmental).
- Reduces Collateral Damage & Logistics Burden.

CAPABILITIES:

- Analysis underway to determine optimum corrections 20-100 meters CEP.

MILESTONE:

- Prototype testing complete 2QFY05
- MS B 3QFY05

Smart Artillery Projectiles

Joint Ballistic Memorandum of Agreement (JBMOU)

SMArt 155 – GIWS/ATK



SPECIAL FEATURES:

- **SMArt155** - Product improved (longer stand-off) with millimeter wave radar, radiometer and infrared sensors currently in production.
- **Bonus** - Passive multi-channel IR, extended range version in production. Enhanced dual mode sensor version scheduled to enter production 2004.

ACQUISITION PHASE:

- **SMArt155** - Non Developmental Item
- **Bonus** - Non Developmental Item

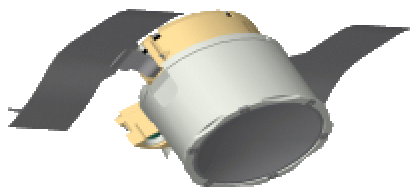
PRIME CONTRACTOR:

- **SMArt155** - Developed by GIWS with US marketing by ATK
- **Bonus** - Developed by: BOFORS Defence (a wholly owned subsidiary of United Defense) and GIAT Industries

CAPABILITIES:

- Accept performance as designed.
- Safety certification to US standard.
- Firing tables/software upgrades leverages foreign efforts.
- Assessing additional testing required.

Bonus – Bofors/UDLP



SYSTEM DESCRIPTION:

An advance “Fire and Forget” smart 155mm Artillery projectiles to defeat SPHs and lightly armored targets effective day or night, in all weather and environmental conditions.

Mortars Production Programs

- 60mm
 - ✓ High Explosive (HE), M720A1
 - ✓ High Explosive (HE), M768
 - ✓ White Phosphorous (WP), Smoke M722A1
 - ✓ Visible Light Illum, M721
 - ✓ Infrared Illum, M767
 - ✓ Full Range Practice Cartridge, M769
 - ✓ High Explosive (HE), M888

- 81mm
 - ✓ Red Phosphorous (RP), Smoke, M819
 - ✓ Visible Light Illum, M853A1
 - ✓ Infrared Illum, M816

- 120mm
 - ✓ High Explosive (HE), M934A1
 - ✓ White Phosphorous (WP) Smoke, M929
 - ✓ Visible Light Illum, XM930
 - ✓ Infrared Illum, M983

PM Mortars Overarching Conventional Ammo Acquisition Strategy

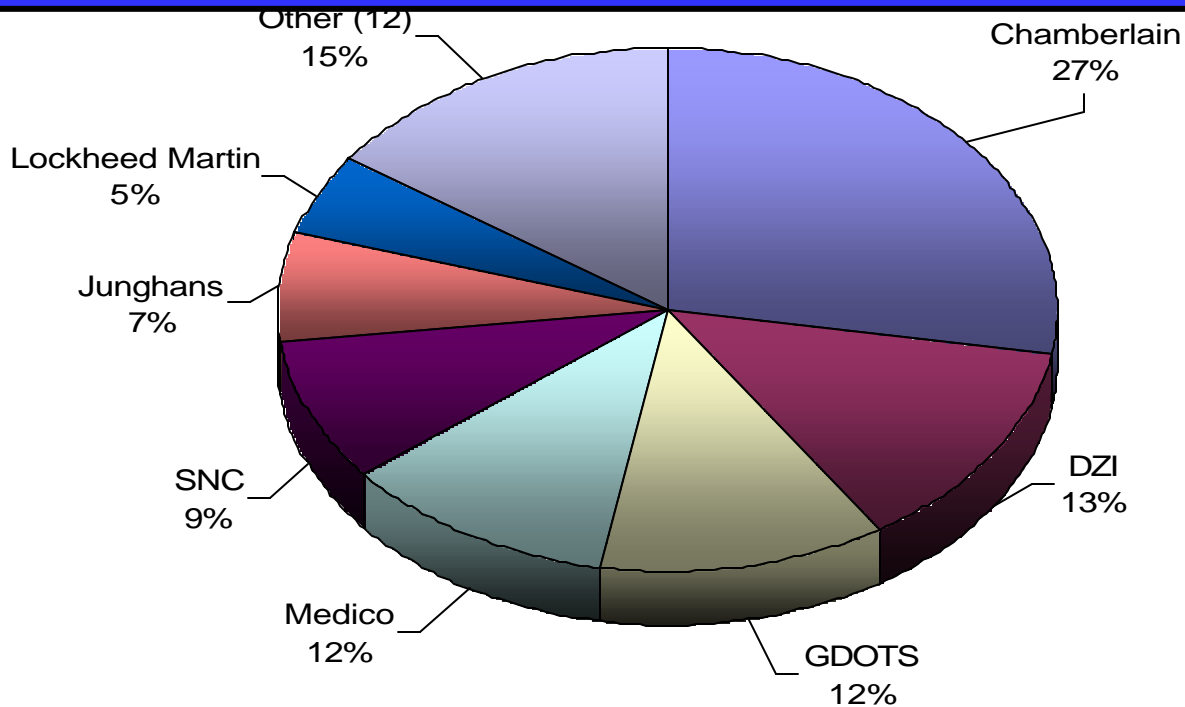
- Best Value Competition focused on quality
- Primarily “Multiple Year” contracts
 - ✓ Priced Options in ranged quantities
 - ✓ Use of Multi-year contracts where feasible
 - ✓ Multi-year floor
 - ✓ Options for program changes and replenishment
- Active partnership between Government Engineering Team & Suppliers
- Continuous evolutionary product improvement
- Active management of industrial base
- Achieve economy/standardize/insert technology throughout mortar ammo family

PM Mortars Overarching Ammunition Acquisition Strategy (cont)

- PM Mortars Acquisition Strategy Yields  Ongoing Production Contracts
Product/Process Improvements

	1 st Production Buy
➤ 120mm M934A1 HE Insensitive Munition Program	FY05
➤ XM784/XM785 Electronic Time Fuze MC	FY05
➤ 81mm HE Insensitive Munitions Program	ECP end of FY04
➤ Black Powder Coating	
➤ Generic Ignition Cartridge (60mm, 81mm, 120mm)	FY04
➤ 120mm Monopack	FY04

Currently Open Mortars Ammunition Contracts



**19 Contracts
Currently Open**

Contractor	Description
Chamberlain	120mm Shell Bodies
DZI	LAP - M720A1/M768
GDOTS	Propellant Charges
Medico	Shell Bodies - 60mm/81mm
SNC	Fuzes
Junghans	Fuzes
Lockheed Martin	Fins
Other (12)	Various

Family of Conventional Mortars Ammunition

14 rounds currently
in production

60mm, 81mm & 120mm



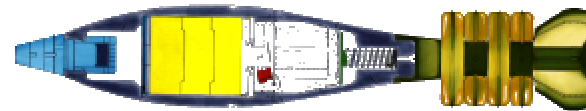
High Explosive:
Multi-Option Fuze
(Combat Round)



High Explosive:
Point Detonation Fuze
(Training)



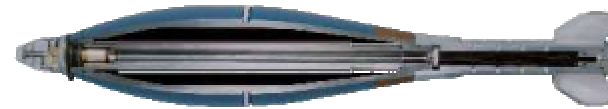
Smoke



Visible Light Illumination



Infrared Illumination



Full Range Training Round



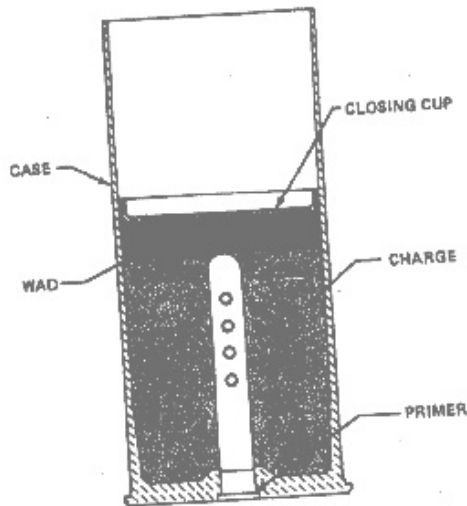
Short Range Training Round

Artillery Production Programs

- 75mm M337A2 Blank
- 105mm M1 HE Recap
- 105mm M1 HE Crimp (USAF)
- 105mm M314A3 Illum
- 105mm M915 DPICM Cartridge
- 155mm M107 HE
- 155mm M795 HE Projectile
- 155mm M110A2 WP Smoke
- 155mm M864 Recap
- 155mm M804A1 Practice
- 155mm M231/M232 MACS
- M782 Multi Option Fuze Artillery
- M762A1/M767A1 Electronic Time Fuze

75mm M337A2 Blank

- 75mm M337A2 Blank
 - Multiple Year contract (FY99-03) w/AO at IAAAP
 - FY03 Quantity = 92,070

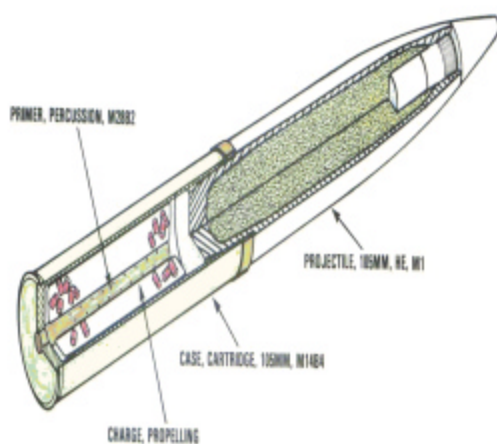


Consists of a cartridge case (brass or aluminum) containing loosely packed black powder and a press-fitted percussion primer. A fiberglass wad is inserted over the black powder and a polystyrene closing cup is cemented in place with a polyester resin adhesive. When the firing pin of the weapon strikes the primer, a flash is generated which ignites the black powder charge producing flash, smoke, and a loud report to simulate weapon firing.

105mm M1 HE Recap

- 105mm M1 HE Recap
 - Acquisition Strategy
 - ➔ Steel Ctg Case – North American Base
 - ➔ M67 Prop Charge – F&OC
 - ➔ Primers – TBD
 - Program Strategy
 - ➔ Component buy with maintenance performed at Depots; M1 Propellant provided as GFM
 - Current Status

requirements



The M1 is a semi-fixed 105mm Cartridge consisting of the M14B4 Cartridge Case, M28 Percussion Primer, M67 Propelling Charge, a fuze and a projectile containing a TNT or Comp B explosive filler. This recap effort will swap out the prop charges, primers, and cartridge case (as required). Maintenance is planned to be accomplished on-site at Blue Grass and McAlester.

105mm HE M1 Crimp

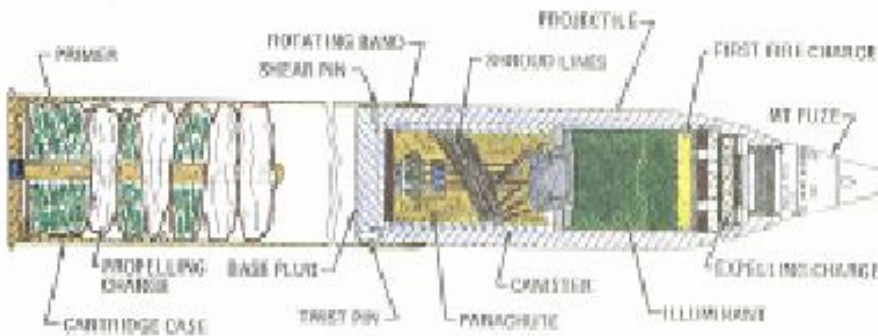
- 105mm HE M1 Crimp
 - **Inspection, Testing & Crimp Effort**
 - ➔ **Currently Single Year Contract w/SNC**
 - **Brass Cartridge Case**
 - ➔ **Single Year Contract w/NI Industries**
 - ➔ **Contract option available**
 - **Wirebound Box and Fiberboard Container**
 - ➔ **SBSA**
 - **Acquisition Strategy for Future Buys**
 - ➔ **Inspection, Testing & Crimp Effort – competitive**
 - ➔ **Brass Ctg Case – North American Base**
 - **Program Strategy**

105mm M1 Mod is an Air Force unique round where the cartridge is “crimped” to the projectile to prevent separation. The contractor is required to inspect, x-ray, chemical test, rework and crimp acceptable M1 rounds to become M1 (MOD). The M1 (MOD) program uses the M14 brass cartridge case, the M28A2 primer, the M67 prop charge, and the FMU-153.

105mm M314A3 Illum

■ 105mm M314A3 Illum

- Systems Buy
- Multiple-year contract w/SNC
 - ➔ Requirements contract
 - ➔ Expires Jul 05
 - ➔ FY03 Quantity = 7,900

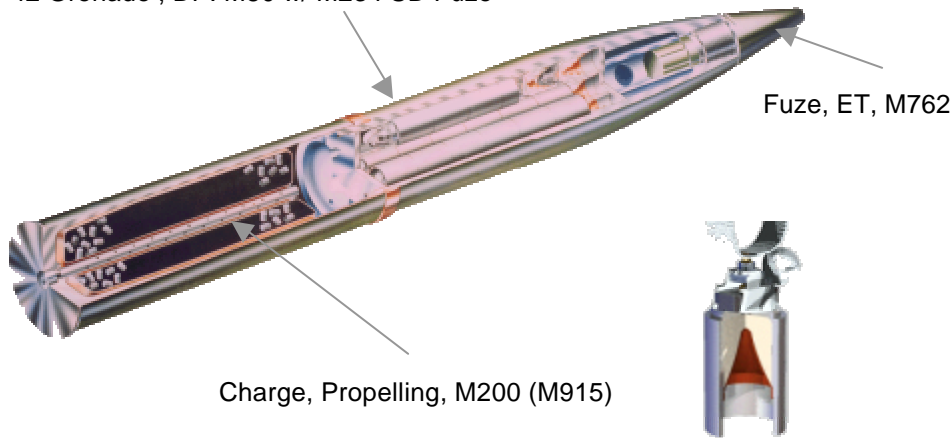


The M314A3 is a semi-fixed illuminating cartridge which includes an M14 Cartridge Case, M28 Percussion Primer, M67 Propelling Charge, the M577 or M762 Fuze, and a projectile which contains a pinned base plug, a black powder expelling charge, an illuminating canister with anti-rotational vanes, and a parachute assembly which is connected to the closed end of the canister. The canister contains an illuminating filler covered by a thin layer of first fire composition. The M314A3 is used to illuminate targets for engagement/observation or provide light for movement (navigation); provides an average luminosity of 450K candle power for 1 minute.

105mm, M915 DPICM

Program Milestones	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
CDR								
Battery Line Build								
M234 Production Readiness								
M915 Production Readiness								
M234 Battery FAT/Prod.								
M234 SDF FAT/Prod.								
M915 LAP & PQT								
TC STD & Full Materiel Release					11,000			
M915 LAP								

42 Grenade , DP: M80 w/ M234 SD Fuze



System Description

To Provide Light Infantry With Extended Range and Enhanced Lethality Against Personnel and Materiel Targets

Acquisition Strategy

- Demonstrate battery and fuze production line to meet rate.
- Build ~ 500k M234 SDFs
- Type Classify M915 Standard
- Full Materiel Release for M915
- LAP 11k M915 projectiles for inventory
- Seek funding for FY04-05 to prevent production break
- Planning for future buys using system contractor.

155mm M107 HE

➤ 155mm M107 HE

✓ Metal Parts

- Multi-Year contract (FY99-03) w/CMC at SCAAP
- FY03 Quantity = 214,005

✓ LAP

- Multiple Year contract (FY99-03) w/AO at IAAAP
- FY03 Quantity = 209,808

✓ Grommet

- Single-year contract with LC Industries/Signature Works
- FY03 Quantity = 216,104



✓ Acquisition Strategy for Future Buys

- Metal Parts – North American Base
- LAP - TBD
- Grommets and Lifting Plugs – SBSA

✓ Program Strategy

- 5 Year FY (FY04-08) f/Metal Parts
- Full Rate Production

✓ Current Status

- Preparing documents for approval

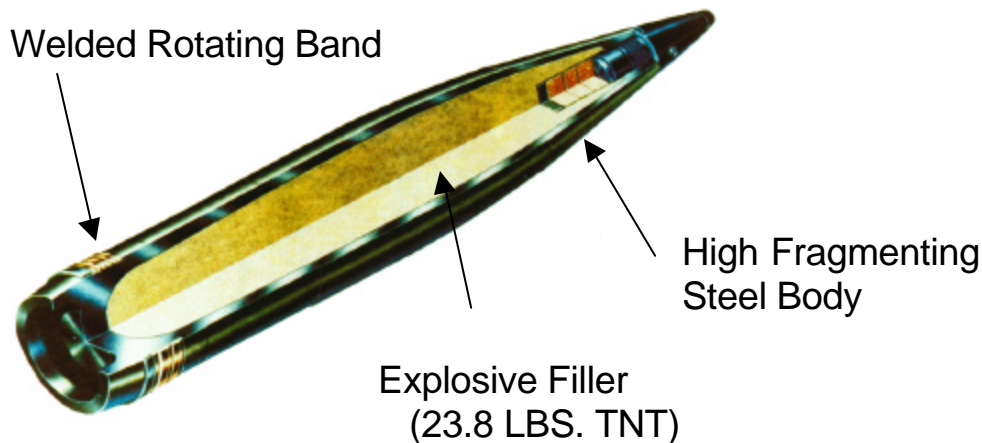
The M107 projectile was the Army's conventional standard HE projectile for all 155mm Howitzers and is being replaced with the M795 projectile. This projectile may be loaded with either TNT or Comp B explosives. The normal cavity model (D571) will not accommodate a proximity-type fuze. The deep-cavity model (D544) has a supplementary charge of 0.3 lbs which may be removed to allow the use of proximity fuzes.

Projectile, 155mm, M795

Program Milestone	FY01	FY02	FY03	FY04	FY05	FY06	FY07
US Army (416,000) Current	294,112		121,888				
USMC (344,000) Upcoming			32,856				
Award Contracts							

**US Army Requirements – 416,000 rounds
(All Under Contract)**

US MARINES CORPS Requirements – 344,000



System Description:

The M795 projectile is employed against personnel, trucks, electronic surveillance and target acquisition devices, supply points, command and control and communications (C3) installations, and mechanized and armored forces.

155mm M110A2 WP Smoke

➤ 155mm M110A2 WP Smoke

✓ Metal Parts

- Single year (FY 02) contract w/IMT
- Contract option available
- FY03 Quantity = 9,042

✓ M54A1 Burster

- Single year contract w/AO at MLAAP
- LAP performed at PBA



✓ Acquisition Strategy

- Metal Parts – North American Base
- M54A1 Burster - Competitive
- LAP performed at PBA

✓ Program Strategy

- Full Rate Production

✓ Current Status

- Preparing documents for approval

The projectile is a hollow steel shell filled with white phosphorous. An explosive burster runs down the center of the entire length of the shell. The M110A2 uses a Composition B5 explosive burster. A PD fuze is normally used with these projectiles. The ballistics of these shells are the same as the HE, M107 projectile.

M864 Recap

■ Acquisition Strategy –

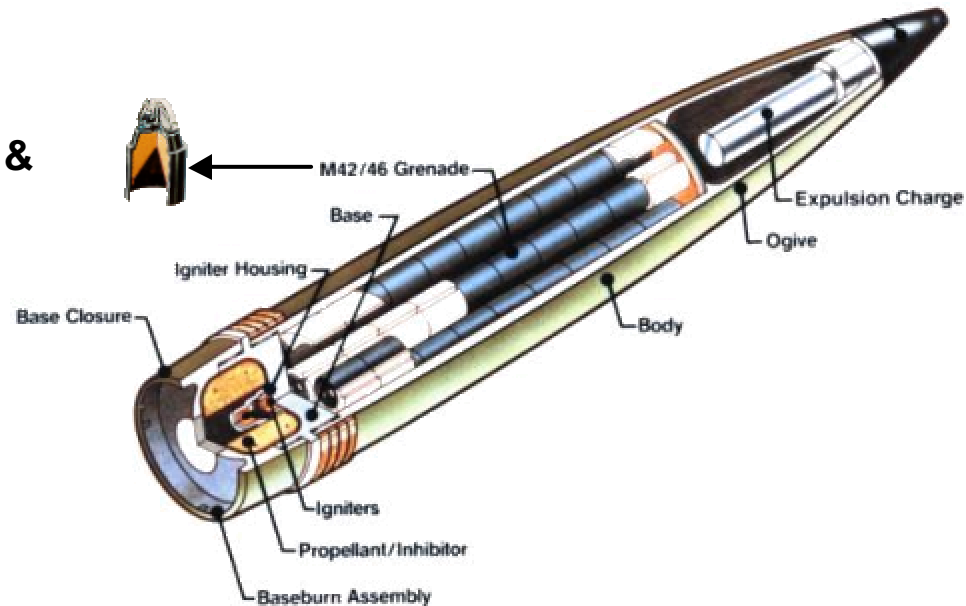
- Open Competition for LAP; though restricted to US/Canada
- Gov't vs. Contractor System Integration TBD
- Gov't Design/Test Data Provided for Info

➤ Current Status

- ✓ Three SDFs under development/evaluation (downselect to two by FY04)
- ✓ RFP in 2Q FY03 for Phase I w/ options for Phases II & III

■ Program Strategy

- FY03: Phase I - Feasibility Study
- FY04: Phases II & III: Materiel Change & Qual
- FY05: Production



155mm M804A1 Practice

- Acquisition Strategy
 - Metal Parts – Competitive
 - LAP – Crane
 - Miscellaneous Components - Competitive
- Program Strategy
 - Multiple year contract(s)
- Current Status
 - Preparing documents for approval



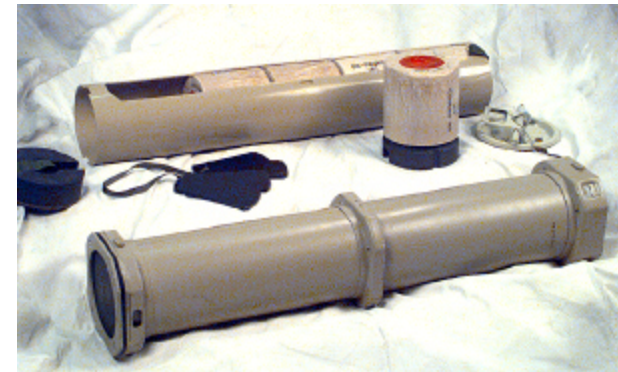
A heavy wall, hollow core forged steel shell with no explosive filler. It is similar in weight and external configuration of the M107. A small smoke canister produces a visible signature upon projectile impact

155mm M231/M232 MACS

➤ 155mm M231 & M232 (MACS) Propelling Charges

✓ Component Breakout

- Combustible Case Assemblies
 - Armtec Defense Products (Sole Source)
 - FY02 Option
 - 5-year MY Contract (FY03-07) Pending
- Core Igniter Propellant
 - GD-St. Marks Powder (Sole Source)
 - 3rd Year of 5-year MY (FY00-04)
- Metal Ammunition Containers
 - FY02 Basic with FY03 Option - Delfasco
 - Competitive Small-Business Set-Aside
 - 5-year MY Contract (FY04-08) Planned
- Main Charge Propellant (PAP7993) for M231
 - ATK-Radford AAP
 - Basic Year (FY03) with Options (FY04-05)
- Main Charge Propellant (M30A2) for M232
 - Expro Chemical (Sole Source)
 - Basic Contract (FY03) with 2 Options Years (FY04-05) Pending
- Load, Assemble & Pack (L.A.P.)
 - FY03 Option - GD-OTS
 - Basic Contract (FY04) with 2 Options Years (FY05-06) Planned
 - Limited to U.S./Canada, TDP, Best Value Award



Production Initiated FY00

FY02 L.A.P. QTY = 781,000 charges

FY03 L.A.P. QTY = 1,312,000 charges

M782 Multi Option Artillery Fuze / M762A1/M767A1 ET Fuze

➤ M782 Multi Option Artillery Fuze

- ✓ Contract w/Alliant
 - Contract Awarded 9/00
 - FY00-FY01
- ✓ Contract w / L3 - KDI
 - Multi Year Contract Awarded 9/02
 - FY02-FY05



➤ M762A1/M767A1 ET Fuze

- ✓ Contract w / L3 - BT
 - Contract Awarded 9/01
 - FY01-FY05



Summary Point of Contacts

■ PM CAS	COL Nathaniel Sledge	973-724-2003
■ DPM CAS	Mr. Patrick Serao	973-724-2110
■ XM 982 Excalibur	LTC Jeff Wilson	973-724-3152
■ Mortars 3636	LTC Larry Hollingsworth	973-724-
■ PGMM	Mr. Peter Burke	973-724-5802
■ Mortar Ammunition	Mr. John Slivovsky	973-724-3665
■ Artillery Ammunition Herrera	973-724-5247	Mr. Armando
■ MACS	Mr. Jim Rutkowski	973-724-2394
■ JMC Rep	Ms Celia Hadden	309-782-6491
■ Life Cycle Mgmt	Mr. Robert Goldberg	973-724-2713





ADVANCED PLANNING BRIEFING TO INDUSTRY



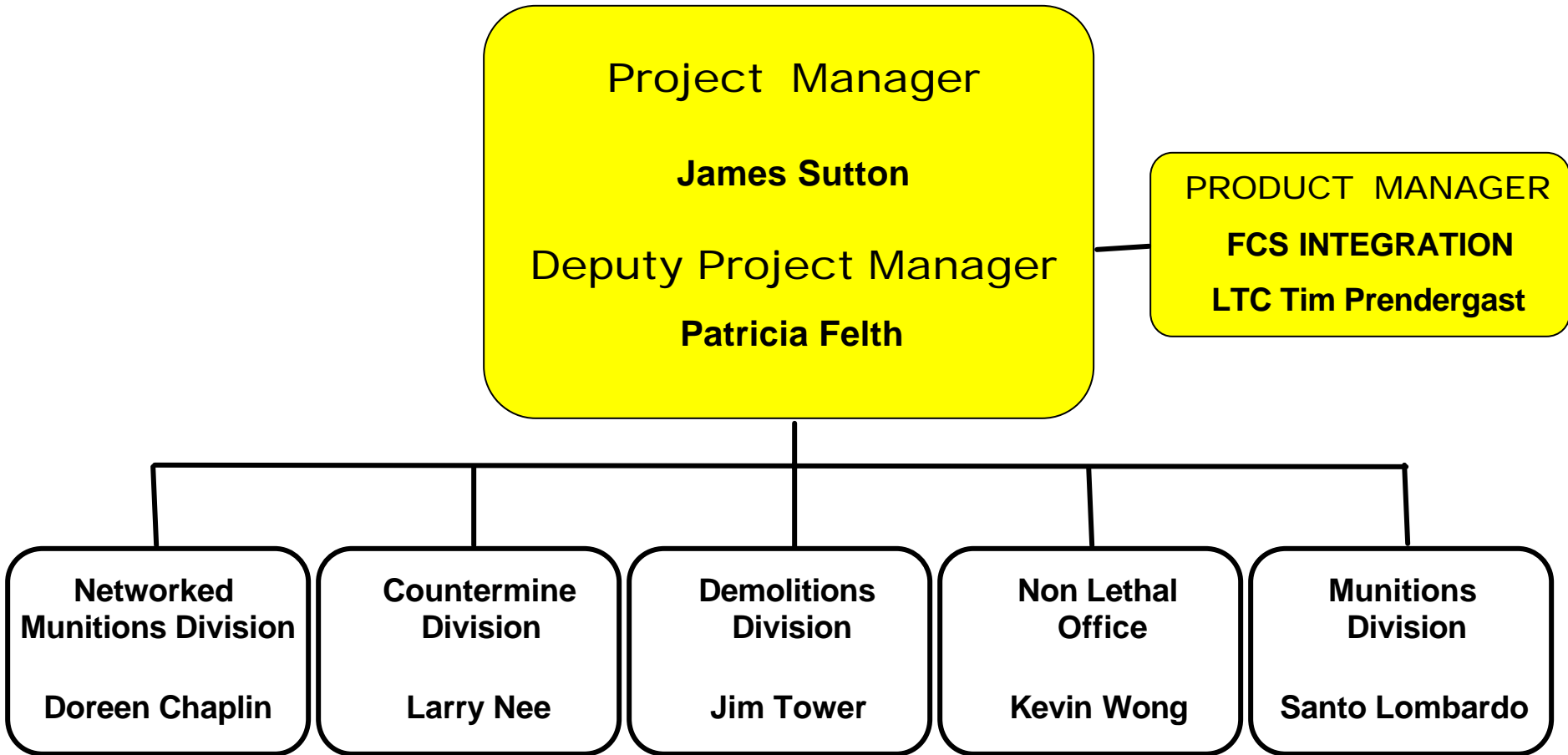
Office of the Project Manager for Close Combat Systems

Presented by Santo Lombardo
Chief, Munitions Division
OPM-CCS
973-724-6460
Lombardo@pica.army.mil

TOPICS

- Introduction
- PM CCS Overarching Acquisition Strategy
- FCS Related Programs
- Shoulder Fired Munitions
- Hand Grenades
- Networked Munitions
- Pyrotechnics
- Countermine
- Demolitions
- Non Lethal
- Summary
- Funding Profile

OPM CCS ORGANIZATION



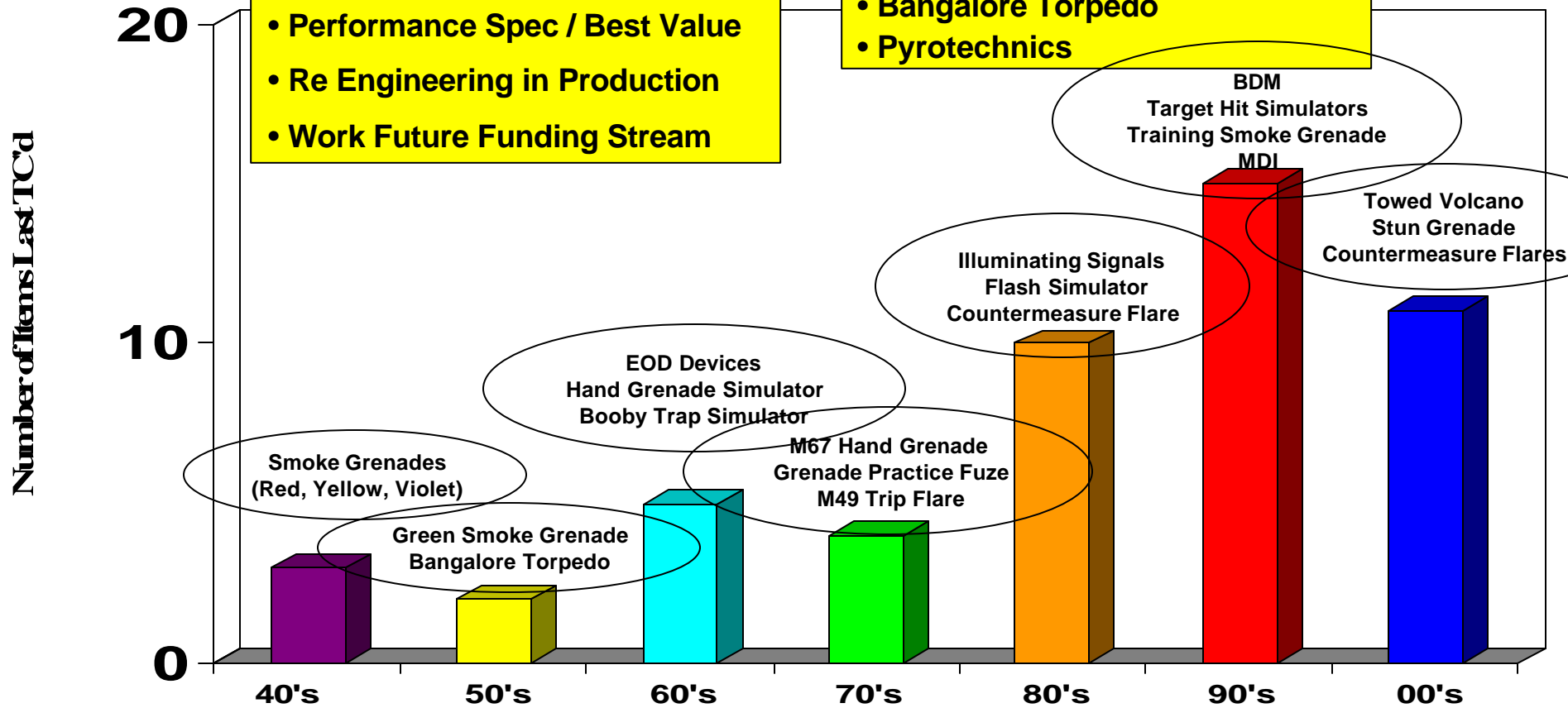
PM CCS In Stride Ammo Modernization

Lead Horses

- Shoulder Launched
- Hand Grenades
- Bangalore Torpedo
- Pyrotechnics

Strategies

- Performance Spec / Best Value
- Re Engineering in Production
- Work Future Funding Stream



Decade of Most Recent Type Classification

PM-CCS

PROGRAMS



PM-CCS



FCS RELATED PROGRAMS

- **IMS (FCS Core)**
 - **FCS-ASTAMIDS (FCS Complementary)**
 - **FCS-GSTAMIDS (FCS Complementary)**
 - **Mongoose (FCS Complementary: Pending)**
-
- **Synchronized W / FCS Schedule**
 - **First Unit Equipped 2008**
 - **Initial Operation Capability 2010**
 - **PM-FCS / PM-CCS/PM- NV/ RSTA MOA**
 - **Work with FCS LSI**

EXISTING R&D PROGRAMS

Future Combat System (FCS) Related: IMS (Core)

Technology Development Phase:

In Source Selection

Award up to 2 contracts

Start Date: FY03 Finish Date: FY05

SDD & LRIP Phase:

New Contract, Competition Limited to TD Contractors

Start Date: FY05 Finish Date: FY08

Full Rate Production Phase:

Option or Full & Open Competition:

Start Date: FY08 Finish Date: FY11

The IMS is an FCS Core System that is an integrated system of sensors, lethal and non-lethal munitions, software and communications that is capable of autonomous, unattended employment for the detection, discrimination, classification, identification and engagement of selected targets in accordance with the commander's intent. (FCS ORD, Annex E, Section 4, Appendix B, dated 22 Jan 03)

EXISTING R&D PROGRAMS

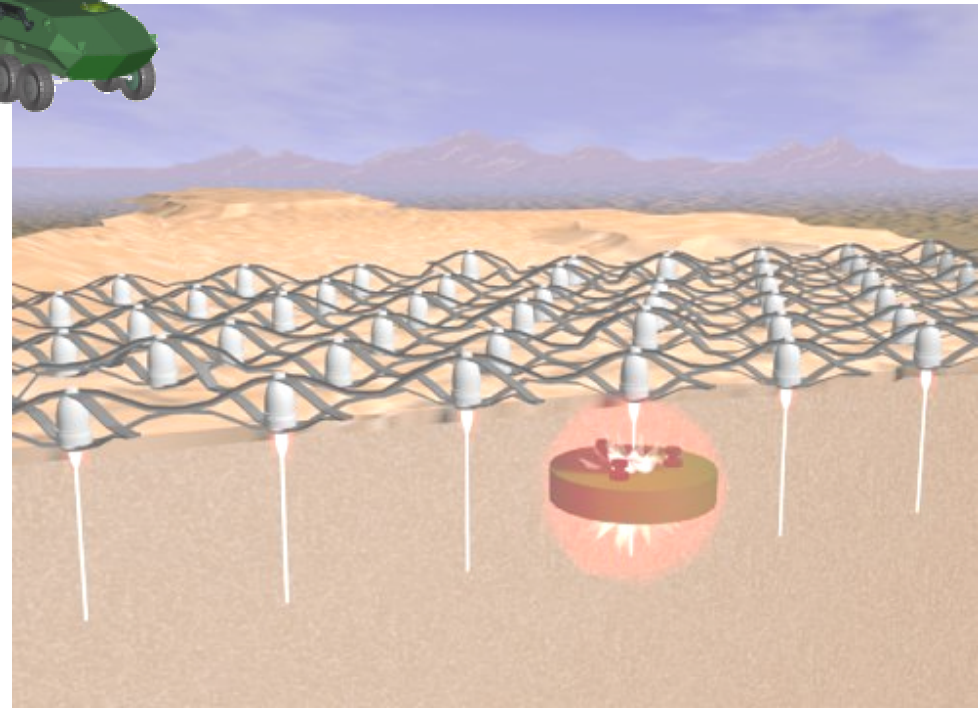
Mongoose (Explosive Standoff Minefield Clearer)

Contract Status: SD&D BAE Systems

Start Date: FY 01

Finish Date: FY 05

Production Start: FY05



Shoulder Launched Munitions

Best Value Bunker Defeat Munition (UAW Increment One)

XM141 Bunker Defeat Munition

AT- 4 (Confined Space)

EXISTING PRODUCTION PROGRAMS

Shoulder Launched Munitions

XM141 Bunker Defeat Munition

Sole Source Firm Fixed Price Contract
w/Talley Defense Systems

Last Year of 3 year contract

Fielding is in progress



POTENTIAL PRODUCTION PROGRAMS

Best Value Bunker Defeat Munition (UAW Increment One)

Competitive Best Value

Technical & Operational Capabilities Key Factors

5 year, Multi-year contract

R&D CLIN for additional improvements

Industry Day 5 Mar 03



XM141 Bunker Defeat Munition

Sole Source Firm Fixed Price Contract w / Talley Defense Systems

Continue Supply Pending Qualification of Best Value BDM

AT-4 (Confined Space)

Sole Source Firm Fixed Price Contract w/ATK & Saab Bofors

1 year contract w / options

Potential FY 04 Production



Grenades

M228 Practice Fuze

M67 Fragmenting Hand Grenade

M18 Smoke Grenade Family

M90 66MM Launched Smoke Grenade

M84 Stun Grenade

Lightweight Hand Grenade

EXISTING PRODUCTION PROGRAMS

Grenades

M228 Practice Fuze

Competitive Contract w/Martin Electronics
Year 3 of competitive 3 year contract
Army FY03 qty = 1765K



M67 Fragmenting Hand Grenade

Fuze – year 3 of 3 year contract w/Martin Electronics
Body – years 3 & 4 of 4 year contract w / Aerojet
LAP – Delivery Order with DZI Lonestar on Facility Use
Contract
Army FY01 Qty = 152K
Army FY03 Qty = 465K



EXISTING PRODUCTION PROGRAMS

Grenades

M18 Smoke Grenade Family

Work Order with Pine Bluff Arsenal
Army FY03 qty = 214K



M90 66MM Launched Smoke Grenade

Work Order with Pine Bluff Arsenal
Army FY03 qty = 24K



M84 Stun Grenade

Year 3 of 3 year contract w/Universal Propulsion Co
Army FY03 qty = 31K



POTENTIAL PRODUCTION PROGRAMS

Grenades

Production Grenade Fuze Increased Capacity

**Meet Increased Training Requirements For :
M228, M213, M201A1, 7M units / Yr Total**

Best Value Competition

Non-Recurring Effort For Producibility Improvements

Multiple Options For Production

Production Prove Out

Lightweight Hand Grenade

User Requirements Being Developed

Competition Based on Best Value

POTENTIAL PRODUCTION PROGRAMS

Grenades

Enhanced Pyrotechnic (EP) Grenade Fuze

Improved Storage Reliability Replacement for M213 Fuze

Interim Solution until Electro Mechanical Replacement

Non Developmental Item

Production Start FY05 Full & Open Competition

Electro Mechanical (EM) Grenade Fuze

Improved Storage Reliability Replacement for EP and M213 Fuze

Modified Non Developmental Item

Qualification Contract Award FY03

Production Start FY07

Pyrotechnics

M30 Main Tank Gun Simulator

M31 Direct/Indirect Simulator

M116A1 Hand Grenade Simulator

M117 Booby Trap Simulator

M206 Countermeasure Flare

M125/M127/M158/M159 Signal Illumination

M74A1 Projectile Airburst Simulator

M211/M212 Advanced Infrared Countermeasure Flare

EXISTING PRODUCTION PROGRAMS

Pyrotechnic Munitions

M30 Main Tank Gun Simulator

Sole Source to Comet

Option 2 of 3

Army FY03 Qty = 292K



Carries a simulated UBL and simulates a Main Gun Firing Signature

M31 Direct/Indirect Simulator

Sole Source to Comet

Option 2 of 3

Army FY03 Qty = 145K



Simulates a hit/kill by direct/indirect fire in a training environment (NTC/Home Station)

EXISTING PRODUCTION PROGRAMS

Pyrotechnic Munitions

M116A1, M117 Simulators

Competitive, Base with Options (Grucci)

Nov 02 Contract Award Date

M206 Countermeasure Flare

Restricted Competition (Kilgore(55%), Armtec (45%))

Contract Awarded Aug 02

Year 1 of 3 Options

POTENTIAL PRODUCTION PROGRAMS

Pyrotechnic Munitions

M125, M127, M158, M159 Signal Illum

**Small Business Set Aside Competitive 3 yr
Jul 03 Contract Award Date**



M74A1 Projectile Airburst Simulator

SBSA

Jul 03 Contract Award Date



POTENTIAL PRODUCTION PROGRAMS

Pyrotechnic Munitions

M211 Advanced Infrared Countermeasure Flare

Sole Source – 5 yr (Alloy Surfaces)

Feb 03 Contract Award Date

M212 Advanced Infrared Countermeasure Flare

Sole Source – Option for 4 th of 5 yr (ATK Thiokol)

Feb 03 Contract Award Date



Networked Munitions

APLA: Track 1 - Spider

APLA: Track 3 – Mixed Landmine System Alternatives (MLSA)

EXISTING R&D PROGRAMS

Networked Munitions

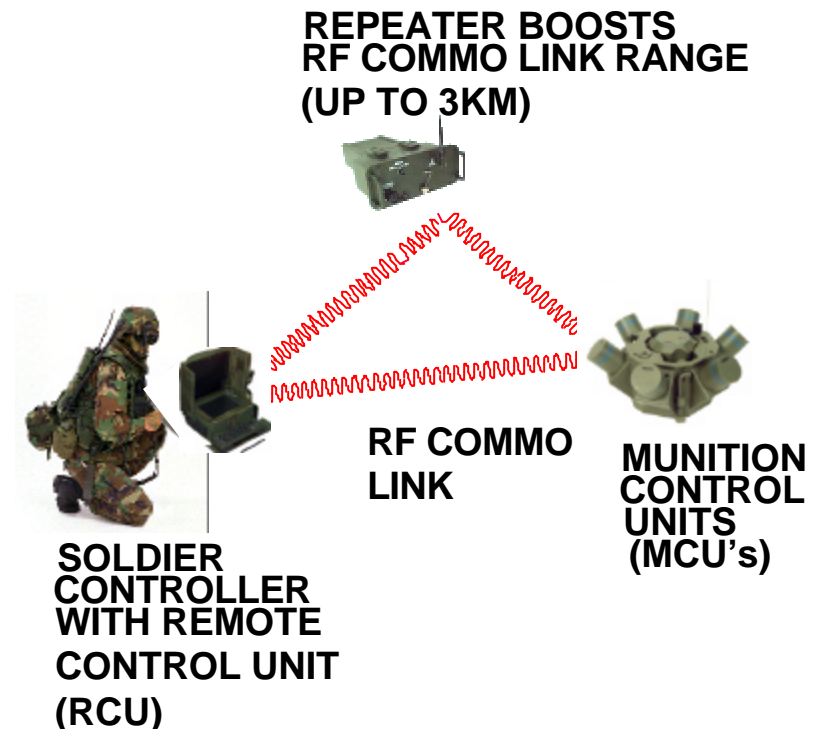
APLA: Track 1 - Spider

Contract Status: Joint Venture w/ATK & Textron Systems (50/50)

R & D SDD Phase : 33 Month effort (Sept FY02 – June FY05)

Milestone C (TC): Jul FY05

First Production Deliveries: Mar 07



POTENTIAL R&D PROGRAMS

Networked Munitions

APLA: Track 3 – Mixed Landmine System Alternatives (MLSA)

Contract Status:

Source Selection Complete

Plan to award up to two CAD phase development contracts

Program on hold

Countermine

Anti-Personnel Obstacle Breaching System (APOBS)

Bangalore Torpedo

EXISTING PRODUCTION PROGRAMS

Countermine

Anti-Personnel Obstacle Breaching System (APOBS)

USMC Competitive Contract w/Ensign Bickford

Year 3 of competitive 5 year contract

Army FY03 Qty = 401

Cut in non-electric initiator



Description

- Joint Program – USMC is Lead Service
- Rocket Propelled Line Charge, 45 meters in length, with 108 Fragmentation Munitions
- Certified Insensitive Munition (Class V Item)
- Two Actuation Methods
 - Delay (Initiate @ rocket - 23 sec min delay)
 - Command (Initiate from stand-off position)
- Inert Training Aids fielded to TSC's & Schools
- Two man portable/deployable (62 - 63 lbs each)
- Deploys (delay mode) < 2 minutes from 35 meter standoff
- Clears both AP Mines and Wire Obstacles
- Provides footpath 0.6 – 1.0 meters wide
- Partial Replacement for Bangalore Torpedo

POTENTIAL PRODUCTION PROGRAMS

Countermine

Bangalore Torpedo

Developed and fielded during WWII (1943). Used for countermine and obstacle clearing missions.

Current configuration A2 designed in late 1950's. Five foot long tubes.

User Requested Shorter Length for Soldier Load.

Materiel Change to shorten the length of each tube from 5 ft to 2 ½ ft.

FY03-FY09 to buy Qty of 25000 Units.

Award Full and Open Production Contract for New Configuration Dec 03



Demolitions

Rapid Wall Breacher Kit (RWBK)

M151/152 Boosters

M81 Igniter

M19 Dual Blasting Cap W/200ft Mini Tubes

M21/23 Blasting Caps W/ 500ft/ 1000ft Mini Tubes

M14/M15/M18 Delay Blasting Caps

M300 Fighting Position Excavator (FPE) Kit & M301 FPE Reload Kit

SLAM Improvement

POTENTIAL R&D PROGRAMS

Demolition Munitions

Rapid Wall Breacher Kit

Soldier Entry Through Wall Capability

Acquisition- Competitive Best Value

Performance Requirement Document

Status: Posted CBD Feb 03

Contract Award: FY03

Production Start FY05

EXISTING PRODUCTION PROGRAMS

Demolition Munitions

M151/152 Boosters

FY02 Production Contractor: Ensign-Bickford Aerospace & Defense

M19 Dual Blasting Cap W/200 ft Mini Tubes

In 2nd Year Of A 5 Year Competitively Awarded Contract With Shock Tube Systems, Inc.

Production: 25k Per Year

M21/23 Blasting Caps W/ 500ft/ 1000 ft Mini Tubes

In 2nd Year Of A 5 Year Competitively Awarded Contract With Ensign-Bickford Aerospace & Defense

Production: 20k/ 40k Per Year

M300 Fighting Position Excavator (FPE) Kit & M301 FPE Reload Kit

Current Contract with ATK

POTENTIAL PRODUCTION PROGRAMS

Demolition Munitions

FY04 ID/IQ Contract Will Be Competitively Awarded and Will Include The Following Items:

M151 & M152 Boosters FY03 Quantities: 260k M151 & 350k M152

M14 & M18 Delay Blasting Caps

M15 Delay Blasting Cap

Training Versions Of The M14, M15 & M152

M300 Fighting Position Excavator (FPE) Kit & M301 FPE Reload Kit

FY04 Production Contract Will Be Awarded Competitively

Quantities: 2000 M300 & 4000 M301

M81 Igniter

FY03 Contract To Be Awarded March '03

Full & Open Competition with Options

Supplies Army & Marines

POTENTIAL PRODUCTION PROGRAMS

Demolition Munitions

SLAM Improvement

Competitive 3 Year Contract FY03

Competitive Production FY06 - Currently Unfunded



Non-Lethal Munitions

XM102 Reloadable Stun Grenade

XM104 Non Lethal Bursting Hand Thrown Grenade

L96A1 66mm Anti-Riot Irritant Grenade

L97A1 66mm Anti-Riot Irritant Grenade

M98 66mm Canister (Diversionary Flash Bang)

M99 66mm Canister (Rubber Ball)

M84 Diversionary Flash Bang/Stun Hand Grenade

M1012 12 Gauge Non-Lethal Point Control Cartridge

M1013 12 Gauge Non-Lethal Crowd Dispersal Cartridge

M1006 40mm Non Lethal Cartridge

M1029 40mm Crowd Dispersal Cartridge (CDC)

Non-Lethal Munitions

EXISTING R&D PROGRAMS

XM102 Reloadable Stun Grenade

Contract Status: Sole Source Contract Awarded to UPCO, Phoenix, AZ

Start Date: Nov 02

Finish Date: Apr 03

Production Start: Feb 03 (2,658 units)

POTENTIAL R&D PROGRAMS

XM104 Non Lethal Bursting Hand Thrown Grenade

Contract Status: Not awarded (Program on Hold)

Start Date:

Finish Date:

Production Start:

EXISTING PRODUCTION PROGRAMS

Non-Lethal Munitions

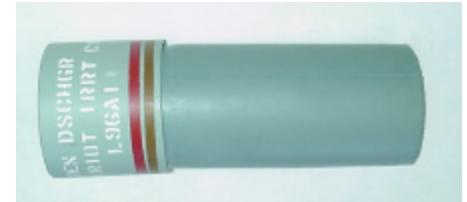
L96A1 66mm Anti-Riot Irritant Grenade

L97A1 66mm Anti-Riot Irritant Grenade (Practice)

Competitive Contract awarded

Contractor: PW Defence, UK

Year 2 Each (option up to 12,000) of competitive 2 year contract



M98 66mm Canister (Diversionary Flash Bang)

On-going Task Order Contract

Contractor: Pine Bluff Arsenal, Arkansas

Army FY03 Qty = 1167

M99 66mm Canister (Rubber Ball)

On-going Task Order Contract

Contractor: Pine Bluff Arsenal, Arkansas

Army FY03 Qty = 1167



EXISTING PRODUCTION PROGRAMS

Non-Lethal Munitions

M84 Diversionary Flash Bang/Stun Hand Grenade

Sole Source Contract with UPCO, Phoenix, Arizona

Option 1 of FY00 Contract

Army FY03 Qty = 24,500



M1012 12 Gauge Non-Lethal Point Control Cartridge

Competitive Contract to be awarded Feb 03

Contractor: Defense Technology, Casper, WY

Year 1 of competitive 3 year contract

Army FY03 Qty = 72,000 (Option #1 - 100,000; Option #2 - 100,000)



M1013 12 Gauge Non-Lethal Area Dispersal Cartridge

Competitive Contract to be awarded Feb 03

Contractor: Defense Technology, Casper, WY

Year 1 of competitive 3 year contract

Army FY03 Qty = 130,000 (Option #1 - 100,000; Option #2 - 100,000)



POTENTIAL PRODUCTION PROGRAMS

Non-Lethal Munitions

M1006 40mm Sponge Non Lethal Cartridge

Competitive Production Contract

Contractor: AMTEC, Minnesota

Army FY03 Qty = UFR



M1029 40mm Crowd Dispersal Cartridge (CDC)

Competitive Production Contract

Contractor: Defense Technology of America, Casper, WY

Army FY03 Qty = UFR



SUMMARY

- **CCS Programs Supporting FCS**
- **Still Assimilating Newly Assigned Ammo Families**
- **Best Value Competition & Technology Updates in Production are the Norm**
- **Programs Supported in the POM**
- **We Welcome and Encourage Industry Ideas**

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