2007 Munitions Executive Summit

“Sustaining Industrial Readiness”

Washington, DC

February 5–7, 2007

Conference Brochure and Agenda

TUESDAY, FEBRUARY 6, 2007

Creating a Balanced and Responsive Munitions Industrial Base – Mr. Mark DeYoung, President, ATK Ammunition Systems Group

A Warfighters Perspective – Col Al Kelly, USA, Commander, 1-17th Infantry Regiment (Stryker) “Buffalos”

Luncheon – BG Rebecca Halstead, USA, Chief of Ordnance / Commandant, USA Ordnance Center & Schools DCG for Ordnance, CASCOM

PEO Cross: Service Panel

Chair:
  MG Paul S. Izzo, USA, PEO Ammunition

Panel:
  - Brig Gen(S) Ken Merchant, USAF, Vice Commander, OGDEN Air Logistics Center
  - RDM (Sel) James P. McManamon, USN, Director, DON Weapons and Ordnance Safety (SEA 00V) and NAVSEA Deputy Commander for Warfare Systems Engineering (SEA 06)
  - BG James E. Rogers, USA, Commander, Joint Munitions Command
  - Brig. Gen. Michael M. Brogan, USMC, Commander, Marine Corps Systems Command

Sustaining Industrial Readiness – An Export Perspective – C.D. Wray, Director for Policy for Security Cooperation, Resources, and Exports, ODASA DEC

Industrial Committee of Ammunition Producers – Dr. Dean, Bartles, VP & GM Large Caliber Weapons and Ammunitions General Dynamics Ordnance & Tactical Systems

BRAC 05 Update – Mr. Steve Mapley, Director, Industrial Support, Joint Munitions Command

Partnership Opportunities with Industry – Mr. Ronald J. Davis, G-7, Deputy Chief of Staff for Business Transformation, US Materiel Command

WEDNESDAY, FEBRUARY 7, 2007

Munitions Logistics and JMC’s Role – Mr. Jyuji Hewitt, Deputy to the Commander, Joint Munitions Command

Health of the Industry: A Wall Street and K Street Perspective – Mr. Pierre A. Chao, Senior Fellow and Director Defense-Industrial Initiatives

OSD Perspective – Mr. Anthony J. Melita, Deputy Director, OUSD (Acquisition, Technology & Logistics), Portfolio Systems Acquisition, Land Warfare and Munitions

Congressional Perspective – Mr. Dick Ladd, CEO, Robinson International, Inc.

Munitions Manufacturing Technology Panel

Chair:
  Mr. Kevin Knotts, PMP, Principal Consultant, Federal Consulting Practice of Computer Sciences Corporation

PM – Acquisition Panel

Chair:
  Mr. Jim Sutton, Deputy, PEO Ammunition

Panel:
  COL John Koster, USA, PM Close Combat Systems
  COL Andre Kirnes, USA, PM Joint Services
COL Ole Knudson, USA, PM Combat Ammunition Systems
2007 Munitions Executive Summit

"Sustaining Industrial Readiness"

Crystal City Hyatt Regency - Washington, DC
February 5-7, 2007
CONFERENCE THEME: “SUSTAINING INDUSTRIAL READINESS”

CONFERENCE OBJECTIVE

The National Defense Industrial Association with support from the US Army’s Program Executive Officer for Ammunition, and the Army Field Support Command announce the 2007 Munitions Executive Summit. The 2007 Summit will be held on February 6-8, at the Hyatt Regency Crystal City, Arlington, VA.

The theme of this Summit is “Sustaining Industrial Readiness – Resetting a Responsive Industrial Base”. The objective is to examine the key dynamics that affect the long-term readiness of the munitions enterprise to meet the evolving needs of the US Armed Forces. This will include requirements definition, resourcing, acquisition planning, and the production and supply of ammunition for the war fighter.

Senior representatives from the US Government, US Armed Services and Industry will be sharing their perspectives on how best to create a balanced, responsive industrial base for munitions - within the framework of competing budget priorities. The Summit will consist of individual and panel presentations that will provide a forum for information exchange and discussion.
Monday, February 5, 2007

4:00PM - 6:30PM  On-site Registration

5:00PM - 6:30PM  Reception (Cash Bar)

Tuesday, February 6, 2007

7:00AM  Registration and Continental Breakfast

8:00AM  Welcome / Administrative Remarks

**Mr. Tim Bagniefski**, Chair, NDIA, Munitions Technology Division, Vice President, Marketing, General Dynamics-OTS / **MG Barry D. Bates, USA (Ret)**, Vice President, Operations, NDIA

8:15AM  Program Executive Officer Ammunition – Welcome and Opening Remarks

**MG Paul S. Izzo, USA**, PEO Ammunition

8:30AM  USG Keynote Address

**MG Vincent Boles, USA**, Assistant Deputy Chief of Staff, G4, Headquarters US Army

9:15AM  Industry Keynote Address

**Mr. Mark W. DeYoung**, President, ATK Ammunition Systems Group

10:00AM  Break

10:15AM  MES Keynote Speaker

**Hon C.W. (Bill) Young**, House Appropriations Committee - Defense, *Invited*

11:15AM  War-fighter Perspective

**COL AL Kelly, USA**, Commander 1st/17th Infantry, 172nd Stryker Bde

**BG Rebecca S. Halstead, USA**, Chief of Ordnance, *Invited*

12:00PM  Lunch

1:00PM  MES Awards

1:15PM  PEO Cross-Service Panel

Chair: **MG Paul S. Izzo, USA**, PEO Ammunition

Panel:

**Maj Gen Kevin J. Sullivan, USAF**, Commander, OGDEN Air Logistics Center

**RDMIL (s) James P. McManamon, USN**, Deputy Commander for Warfare Systems Engineering, SEA-06

**BG James E. Rogers, USA**, Commander, Joint Munitions Command

**RADM Alan S. Thompson, USN**, Director, Supply, Ordnance and Logistics Operations Division, Deputy Chief of National Operations (Logistics), *Invited*

**BrigGen Michael M. Brogan, USMC**, Commander, Marine Corps Systems Command, *Invited*

2:45PM  International Arena on Munitions

**C. D. Wray**, Deputy Assistant Secretary (Acting) of the Army for Defense Exports & Cooperation, *Invited*

3:15PM  Break

3:30PM  US Army Requirements Perspective

**COL David D. Dworak, USA**, Chief, Army Munitions Management Division (G-3), *Invited*

4:00PM  ICAP Report

**Dr. Dean Bartles**, VP & GM Large Caliber Weapons and Ammunition General Dynamics Ordnance & Tactical Systems
2007 MUNITIONS EXECUTIVE SUMMIT

4:30PM  BRAC Update
Mr. Perry C. Reynolds, Chief, JMC Transition (BRAC) Office

5:00PM  Public / Private Partnering
Mr. Ronald J. Davis, G-7, Deputy Chief of Staff for Business Transformation, US Army Materiel Command

5:30PM  Adjourn

5:30PM - 7:00PM  Hosted Reception

Wednesday February 7, 2007

8:00AM  Administrative Remarks
Mr. Tim Bagniefski, Chair, NDIA, Munitions Technology Division

8:15AM  Munitions Logistics
Mr. Jyuji D. Hewitt, Deputy to Commanding General, Joint Munitions Command

8:45AM  Wall Street Perspective
Mr. Pierre A. Chao, Senior Fellow, Center for Strategic & International Studies

9:30AM  Congressional Budget
Mr. Dick Ladd, CEO, Robinson International, Inc.

10:00AM  Industrial Base Update
COL André C. Kirnes, USA, PM Joint Services

10:30AM  Break

10:45AM  PM – Acquisition Panel
Chair: Mr. Jim Sutton, Deputy, PEO Ammunition
Panel:
- COL John Koster, USA, PM Close Combat Systems
- COL Mark Rider, USA, PM Maneuver Ammunition Systems
- COL Andre Kirnes, USA, PM Joint Services
- COL Ole Knudson, USA, PM Combat Ammunition Systems

11:15AM  Munitions Manufacturing Technology Panel
Chair: Mr. Kevin Knotts, PMP, Principal Consultant, Federal Consulting Practice of Computer Sciences Corporation
Panel:
- Mr. J. Jerry LaCamera, Jr., Technical Operations Manager, Naval Surface Weapons Center, Indian Head Division
- Ms. Patricia L. Felth, Deputy Project Manager for Close Combat Systems, Program Executive Office - Ammunition
- Mr. Andrew R. Wilson, Vice President for Research Development and Marketing, BAE Ordnance Systems Inc.
- Mr. Steve Dart, President, Mecar USA
- Mr. Rob Shenton, Vice President and Chief Operating Officer, Aerojet Corporation
- Mr. James J. Flaherty, Vice President and General Manager, General Dynamics–OTS Scranton Operations
- Mr. James Chew, Director for Science and Technology, Alliant Techsystems (ATK)

12:30PM  Closing Remarks - Conference Adjourn
GENERAL INFORMATION

Hotel Information: A limited block of rooms has been reserved at the Hyatt Regency Crystal City at Reagan National Airport, 2799 Jefferson Davis Highway, Arlington, Virginia, USA 22202, Tel: (703) 418-1234, Fax: (703) 418-1289. The government per diem and industry rates are $188 single/double occupancy. To ensure the discounted NDIA rate, please make your reservations early and ask for the NDIA room block. Rooms will not be held after January, 16, 2007 and may sell out before then. Rates are also subject to increase after this date. The government per diem rate is available only to active duty or civilian government employees. ID will be required upon check-in. Retired military or retired government civilians do not qualify for the government rate.

Registration Information:

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<th>Registration Fees</th>
<th>Early (before 12/22/06)</th>
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To register online visit the following link: http://ndia.org/meetings/7650 and follow the instructions. On-line registration will close at 5:00 p.m. on January 23, 2007. You must register on-site after this date. You can also download the registration form from the NDIA website and fax it to (703) 522-1885 or mail to: Event # 7650, National Defense Industrial Association, 2111 Wilson Boulevard, Suite 400, Arlington, VA 22201-3061. Payment must be made at the time of registration. Registrations will not be taken over the phone.

Registration fees for Non-NDIA members include a one year non-refundable NDIA membership of which $15.00 is for your subscription to National Defense magazine.

Cancellations Policy: Cancellations received before January 16, 2007 will receive a refund minus a cancellation fee of $100. NO REFUNDS FOR CANCELLATIONS AFTER January 23, 2007. SUBSTITUTIONS ARE WELCOME! Cancellations must be made in writing.

Inquiries: For questions regarding the conference contact Phyllis Edmonson at (703) 247-2577, pedmonson@ndia.org.


Attire: Appropriate dress for this Summit is business attire for civilian and military Class A uniform.

DoD Approval: The Department of Defense finds this event meets the minimum regulatory standards for attendance by DoD employees. This finding does not constitute a blanket approval or endorsement for attendance. Individual DoD Components commands or organizations are responsible for approving attendance of DoD employees based on mission requirements and DoD regulations.
SPONSORSHIP INFORMATION

Opening Reception Sponsor (limited to 2 sponsors)........Investment: $3,000
Benefits include:
• Company logo and link to your company on event web site
• Company description (250 words) and logo in on-site materials
• Hosted bar and hors d’ouvres for attendees
• Sponsor ribbons on designated badges
• Event specific signage and throughout conference

Grand Reception Sponsor (limited to 2 sponsors)........Investment: $7,500
Benefits include:
• Company logo and link to your company on event web site
• Company description (500 words) and logo in on-site materials
• Company name on cocktail napkins at the reception
• Hosted bar and hors d’ouvres for attendees
• Sponsor ribbons on designated badges
• Event specific signage and throughout conference

Continental Breakfast Sponsor (available to 2 sponsors)........Investment: $4,000 per breakfast
Benefits per Breakfast include:
• Sponsor logo on tent signs on buffet tables for one breakfast
• Sponsor ribbons on designated badges
• Event specific signage and throughout conference
• Logo in the conference on-site materials

Break Area Sponsor (available to 3 sponsors)........Investment: $3,000 per break
Benefits per Break include:
• Light refreshments for conference attendees during breaks (to include coffee, tea, sodas and water)
• Sponsor ribbons on designated badges
• Event specific signage and throughout conference
• Logo in the conference on-site materials
Munitions Executive Summit
Hyatt Regency Crystal City, Arlington, VA
February 5 - 7, 2007 • Event # 7650

Registration Fees

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¹Includes a free three-year NDIA membership and National Defense magazine for Military and Government employees.

²Registration fees for non-NDIA (or affiliate) members include a one-year non-refundable NDIA membership—$15.00 will be applied for your 12 month subscription to National Defense magazine.

Payment Options

- Check (payable to NDIA Ref #7650)
- Cash
- Government PO/Training Form #
- VISA
- MasterCard
- American Express
- Diners Club

If paying by credit card, you may return by fax to (703) 522-1885.

Questions? Contact Meeting Planner, Phyllis Edmonson
(703) 247-2577 email: pedmonson@ndia.org

Mail to:
NDIA, Event #7650
2111 Wilson Boulevard, Suite 400
Arlington, VA 22201

Fax to: (703) 522-1885
Industrial Committee
of
Ammunition Producers
Charter

Provide a forum for the open exchange of Government and Industry views related to Department of Defense ammunition requirements.

- Review and discuss Government ammunition acquisition plans, policies, procedures.
- Report on the health of the ammunition industry.
- Identify impediments to sustaining a responsive ammunition industrial base.
- Provide a platform for cooperation and collaboration in resolving issues related to the ammunition life-cycle, from development through disposal.
Membership

NDIA corporate member producers of ammunition and ammunition components, by invitation.

Chairman

Sector Representatives

- Large Caliber/Bombs
- Small/Medium Caliber
- Propellants and Explosives
- GOCOs
- Warheads and Rockets
- Pyrotechnics
- Fuzes & Timers
- Systems, Electronics and Sensors
- Demilitarization

Chairman Emeritus
Government Liaison Participants

- PEO, Ammunition
- PEO, Tactical Missiles
- CG, Joint Munitions Command
- Senior Technical Executive, U.S. Army ARDEC
- Associate PEO, Ammunition – Industrial Base
- G3, U.S. Army Joint Munitions Command (JMC)
- Deputy G3, U.S. Army Materiel Command (AMC)
- PARC, U.S. Army Sustainment Command (ASC)
- Ombudsman, U.S. Army Sustainment Command (ASC)
- PM-JS (Joint Services)
- PM-MAS (Maneuver Ammunition Systems – Direct Fire)
- PM-CAS (Combat Ammunition Systems – Indirect Fire)
- PM-CCS (Close Combat Systems)
Other Participants

- NDIA Vice President, Operations
- Chairman, NDIA Munitions Technology Division
- Assigned NDIA Operations Director
- Director of Operations, Munitions Industrial Base Task Force (MIBTF)
- Guest Presenters & Others Periodically Invited by Chairman
Focus Areas

The ICAP may focus their interests and discussions on any aspect of Government munitions programs. Categories of topics undertaken include:

- Contract / Subcontract Management
- Development of Insensitive High Explosives and Propellants
- Safety
- Demilitarization
- Foreign Military Sales
- Acquisition Streamlining
- Value Engineering
- Partnership Efforts
- Industrial Base Issues
- Facility Contracting
Meetings

- At the call of the Chairman – normally three times per year

- Format:
  - Structured Agenda
  - Informational Presentations
  - Topical Discussions
  - Action Item Update
  - Sector Status Reports
Summary

The Industrial Committee of Ammunition Producers is:

- An industry organized, populated, sponsored and led forum;
- Fulfills one of NDIA’s primary missions:
  “Create forums for the exchange of information between government and industry on matters related to national security”
- Mutually beneficial forum for government and industry
National Defense
Industrial Association

“Your Premier Defense Association!”

The Voice of the Industrial Base
Demilitarization

✓ Ralph Hayes - President
  ✷ El Dorado Engineering, Inc.
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  ✷ Salt Lake City, UT 84118
  ✷ 801-966-8288
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Bulova Technologies LLC
CH2M Hill Inc.
CH2M Hill Demil International Office
Daimler Chrysler Corporation
Day & Zimmerman Munitions & Defense
Dyno Nobel, Inc.
Earth Resources Corporation
EBV Explosives Environmental Company
Ecology and Environment, Inc.
El Dorado Engineering, Inc.
Energetic Materials Research & Testing Center
Engineering Technology, Inc.
ERM Program Management Company
Fluor Corporation
General Atomics
General Dynamics Ordnance & Tactical Systems
Demilitarization (cont’d)

- Gradient Technology
- Indiana Ordnance Works, Inc.
- Jacobs Engineering Group, Inc.
- Lasker, Inc.
- Lockheed Martin Corporation
- Lockheed Martin Energy Technology
- Meridian International Research
- MSE Technology Applications, Inc.
- Munters Corporation
- Nammo
- Parsons Brinckerhoff
- Parsons Brinckerhoff PB/NAMMO
- Radian International LLC
- Reliable Mechanical, Inc.
- Rooney Group International
- Safety Consulting Engineers, Inc.
- Safety Management Services
- Southwest Research Institute
- Talon Manufacturing Co., Inc.
- Tetra Tech, Inc.
- Thiokol Propulsion (ATK)
- Toxco, Inc.
- TPL, Inc.
- Universal Tech Corporation
- UXB International, Inc.
- Valantec Systems, Inc.
- Woerner Engineering, Inc.
Fuzes/Timers

✓ Joe Homko - President
  ✦ BT Fuze Products
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  ✦ joe.homko@L-3com.com

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L-3 Communications/BT Fuze Products
L-3 Communications/KDI Precision Products, Inc.
Martin Electronics, Inc.
Kaman Fuzing
GOCOs

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- 620-232-9238
- jgregory@aollc.biz

Hawthorne AD
Day & Zimmerman Hawthorne Corporation

Holston AAP
BAE Systems Ordnance Systems Inc.

Iowa AAP
American Ordnance LLC

Kansas AAP
Day & Zimmerman Munitions and Defense

Lake City
Alliant Techsystems, Inc.

Lone Star AAP
Day & Zimmerman Munitions and Defense

Milan AAP
American Ordnance LLC

Radford AAP
Alliant Techsystems, Inc.

Riverbank AAP
NI Industries, Inc.

Scranton AAP
GDOTS
Large Caliber/Bombs

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  - Los Angeles, CA 90058
  - 323-588-7111
  - jmaniataki@aol.com

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General Dynamics Ordnance and Tactical Systems
Medico Industries
NI Industries, Inc.
Talley Defense Systems
Valentec International

The Voice of the Industrial Base
Propellants & Explosives

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  ✪ Kingsport, TN  37660
  ✪ 423-578-6375
  ✪ Jerry.hammonds@baesystems.com

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Armtex Defense Products
Chemring North America
EURENCO Bofors, Inc.
Energetic Materials Research & Testing Center
Ensign-Bickford Aerospace and Defense Co.
BAE Systems Ordnance Systems Inc.
General Dynamics Ordnance & Tactical Systems (St. Marks Powder)

OEA Aerospace Inc.
Quantic Industries Inc.
Southwest Research Institute
Stresau Laboratory, Inc.
Technical Ordnance, Inc.
Thiokol Propulsion (ATK)
Pyrotechnics

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  ✦ Coachella, CA 92236
  ✦ 760-398-0143
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Action Manufacturing
Alliant Ammunition Systems Company
ATK Ammunition Systems Group
Alliant Kilgore Flares Company, LLC
ATK Lake City Ammunition
American Ordnance LLC
Chemring North America (Alloy Surfaces)
Esterline Defense Group

General Dynamics Ordnance & Tactical Systems
Pyrotechnic Specialties
Quantic Industries, Inc. (Pacific Scientific)
Security Signals
Stresau Labortory, Inc.
Technical Ordnance, Inc.
Thiokol Propulsion (ATK)
Small/Medium Caliber

✓ Mark W. DeYoung
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  - Senior Vice President, ATK
  - ATK Ammunition Systems Group
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ATK Lake City Ammunition
ATK Medium Caliber Systems
American Ordnance LLC
Amron, Division of AMTEC Corporation
Chemring North American
Galion LLC
General Dynamics Ordnance and Tactical Systems

The Voice of the Industrial Base
Systems, Electronics & Sensors

✓ LTG James Riley – Vice President
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Day & Zimmerman Munitions and Defense
Lockheed Martin Corporation
Northrup Grumman Corporation
Raytheon Missile Systems

The Voice of the Industrial Base
Warheads & Rockets

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Aerojet
American Ordnance, LLC
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General Dynamics Armament and Technical Products

General Dynamics Ordnance & Tactical Systems
Kaman Dayron, Inc.
KDI Precision Products, Inc.
Talley Defense Systems
Textron Systems Corporation
U.S. Army / Government

✓ MG Paul S. Izzo
   - Commanding General, Picatinny Arsenal

✓ BG S. M. (Mike) Cannon
   - Program Executive Officer, Missiles and Space

✓ COL Andre C. Kirnes
   - Project Director, Joint Services

✓ BG James E. Rogers
   - Commander, U.S. Army Joint Munitions Command

✓ Ms. Patricia A. Huber
   - Deputy of Munitions and Logistics Readiness Center

✓ COL Ole A. Knudson
   - Project Manager, Combat Ammunition Systems

✓ COL John L. (Jack) Koster
   - Project Manager, Close Combat Systems
U.S. Army / Government (cont’d)

✓ Mr. James G. Loehrl
   ➤ Principal Assistant responsible for Contracting (PARC), U.S. Army Sustainment Command

✓ COL Mark D. Rider
   ➤ Project Manager, Maneuver Ammunition Systems

✓ Mr. Matthew T. Zimmerman
   ➤ Deputy Director, PM Joint Services

✓ Mr. Gregory A. Kwinski
   ➤ Chief, Business Relations/Command Ombudsman

✓ Mr. James C. Dwyer (acting)
   ➤ Deputy G3, Support Operations

✓ Mr. Patrick Serao
   ➤ Senior Technical Executive, Armament Systems Integration Center
Additional Members

- MG Barry D. Bates
  - Vice President, Operations, NDIA

- Mr. Michael A. Dauth
  - Director, Operations, NDIA

- Mr. Timothy J. Bagniewski
  - Chairman, Munitions Technology Division, NDIA
  - VP, Marketing & Business Development, GD-OTS

- COL Richard G. Palaschak, USA (Ret.)
  - Director of Operations, Munitions Industrial Base Task Force (MIBTF)
U.S. Marine Corps position on the Munitions Industrial Base

Sustaining Industrial Readiness

Brig. Gen. Michael M. Brogan
Commander, Marine Corps Systems Command
GWOT, USMC, and the Munitions Industrial Base

Marine Corps INVESTMENT and EXPENDITURE

Investment ($2.8B)…
- $1,599,000,000 - Baseline Corps Investment FY03-FY08
- $1,274,570,000 - Supplemental Funds thru FY03-FY08

Expenditure ($2.2B)…
- $1,518,000,000 - Live Fire Training FY03-08 ($918M actual thru FY06 / $600M projected FY07 & FY08)
- $739,630,000 - Combat Related Expenditures ($545.4M actual thru FY06 / $194M projected FY07 & FY08)
The Warfighter...

Our Ultimate Customer...

Our Inspiration for Excellence
MISSION

To serve as the Commandant’s principal agent for equipping the operating forces to accomplish their war-fighting mission.
PEO Ammunition – Single Manager for Conventional Ammunition (SMCA)

“Industrial Base Strategic Plan: 2015”

Munitions Industrial Base Task Force (MIBTF)

“Ally to the Services and Industry”
“Sustaining Industrial Readiness”

- One of, if not THE most critical segment of industry in support of DoD!
- It is your products that provide the firepower for our weapon systems, for our Marines and for our training and combat readiness.
Global War on Terror:

- Annual Live-Fire Training growth
- Pre 9/11: Average approx. $220M annual
- Post 9/11: Average approx. $300M annual
- Change in TTP and new Pre-deployment Training Packages (PTP)
- Combat Expenditures average $1M/week
UUNS :

- Portable Lightweight Assault Rocket (PLAR) = M72A7 LAAW
- 5.56mm & 7.62mm Armor Piercing Small Arms Ammunition
- Vehicle Non-Lethal Munition (VENOM) System (Smoke, flash bang, rubber ball)

- 120mm M1028 Anti-Personnel (CANISTER) Tank cartridge
- 155mm Excalibur PGM (FY08 Supplemental)
USMC Special Operations Command:

- Additional 2,400 Marines

Marine Corps End Strength:

- Will grow from current ~180K to ~202K by 2010.

Sea Basing:

- Sea Basing will allow Marine forces to strike, commence sustainable operations, enable the flow of follow-on forces into theater, and expedite the reconstitution and redeployment of Marine forces for follow-on missions.
Requirements:

- 30mm ISO Expeditionary Fighting Vehicle (EFV)
- 120mm Mortar ISO Expeditionary Fire Support System
- 120mm High Explosive Plastic (Material Breeching) for Tank
- Foot print reduction (weight/cube, packaging, etc.)
Quality Products:

- Keenly aware and strongly support the many quality initiatives being worked in a collaborative fashion between Industry/DoD munitions managers (i.e. LSS).

- Many production “anomalies” still occur regarding quality production that ripples throughout the munitions’ lifecycle, leaving the services to fund for reworking material.

- SMCA Metrics: Production Quality Index – Your Report Card!

- (LAT, % of Deliveries in Non CC “A”, #QDR’s, Stockpile Quality @3yrs).
Product Cost:

- Concerned with cost growth in product lines, which adds to product cost and translates into less product/readiness.

Material Cost:

- Concerned with cost and availability of raw materials.

Post Hostility Environment:

- Planning for Industrial Base (IB) “soft landing” -- Industry must prepared for downtrend commensurate with reduction in current tempo.
Tank Ammunition:

- USMC concerned with future of tank cartridge production... Currently split between two producers with limited buys. Can this be sustained?

Future challenges:

- New products, energetics (Insensitive Munitions), and policy.
- Paradigm shift from 80 percentile to something measure greater.
Summary

- USMC relies heavily on the capabilities of the Industrial Base.
- Our Readiness is clearly linked to IB readiness.
- Supports Modernization & Facilitization efforts for the IB.
- Will work closely with U. S. Army SMCA and Services to align procurements that best supports IB management.
- Industrial Base Assessment Tool (IBAT) – USMC, per SMCA Long-Term Study recommendation, has incorporated Service retained items into the IBAT.
- Provides better visibility of Munitions Supply Chain Management of Ammo Production and Base; supports NTIB planning.
- Questions?
Health of the Industry:
A Wall Street and K Street Perspective

National Defense Industrial Association
2007 Munitions Executive Summit
“Sustaining Industrial Readiness”
Washington, DC

February 7, 2007

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Senior Fellow and Director Defense-Industrial Initiatives
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“The Issues of Our Time”: Defense Budgets and Future Growth
## FY07 Request Sustained Growth Contrary to Predictions of Slowdown, FY08 Decelerating...

**FY08 Budget Request and FY07, FY06 Authorizations ($ Billions)**

<table>
<thead>
<tr>
<th></th>
<th>FY2008</th>
<th>FY2007</th>
<th>FY2006</th>
<th>FY08-07 % Change</th>
<th>FY07-06 % Change</th>
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</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>102</td>
<td>82</td>
<td>77</td>
<td>24.4%</td>
<td>6.5%</td>
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<tr>
<td>RDT&amp;E</td>
<td>75</td>
<td>75</td>
<td>71</td>
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<td>5.6%</td>
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<tr>
<td>Total Investment</td>
<td>177</td>
<td>157</td>
<td>148</td>
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<tr>
<td>Other</td>
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<td>115</td>
<td>253</td>
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<td>Top Line</td>
<td>471</td>
<td>372</td>
<td>401</td>
<td>26.6%</td>
<td>-7.2%</td>
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(With Supplmnts)

<table>
<thead>
<tr>
<th></th>
<th>FY2008</th>
<th>FY2007</th>
<th>FY2006</th>
<th>FY08-07 % Change</th>
<th>FY07-06 % Change</th>
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</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>134</td>
<td>126</td>
<td>105</td>
<td>6.3%</td>
<td>20.0%</td>
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<tr>
<td>RDT&amp;E</td>
<td>77</td>
<td>77</td>
<td>73</td>
<td>0%</td>
<td>5.5%</td>
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<tr>
<td>Total Investment</td>
<td>211</td>
<td>203</td>
<td>178</td>
<td>3.9%</td>
<td>14.0%</td>
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<tr>
<td>Other</td>
<td>403</td>
<td>390</td>
<td>356</td>
<td>3.3%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Top Line</td>
<td>614</td>
<td>593</td>
<td>534</td>
<td>3.5%</td>
<td>11.0%</td>
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</table>

Source: DoD Comptroller
Wall Street Has Certainly Altered Expectations…
Wall Street Continues To Value the Sector As Having Growth...

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Year End 2006</th>
<th>Year End 2004</th>
<th>Cycle Range</th>
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<tbody>
<tr>
<td>Alliant Tech</td>
<td>8.7x</td>
<td>8.6x</td>
<td>10.7x</td>
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<tr>
<td>General Dynamics</td>
<td>9.6x</td>
<td>9.1x</td>
<td>8.7x</td>
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<tr>
<td>Defense Average</td>
<td>9.0x</td>
<td>8.7x</td>
<td>9.3x</td>
<td>4 - 10x</td>
</tr>
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</table>

Sources: JPMorgan, Credit Suisse
**Approaching One of Longest Upramps in Defense Spending in U.S. History…**

**Defense Outlays**

<table>
<thead>
<tr>
<th>Period</th>
<th>Duration</th>
<th>Period</th>
<th>Duration</th>
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<tbody>
<tr>
<td>1797-1800</td>
<td>4 years</td>
<td>1902-1904</td>
<td>3 years</td>
</tr>
<tr>
<td>1804-1814</td>
<td>10 years</td>
<td>1907-1919</td>
<td>12 years</td>
</tr>
<tr>
<td><strong>1822-1837</strong></td>
<td><strong>16 years</strong></td>
<td><strong>1926-1931</strong></td>
<td>6 years</td>
</tr>
<tr>
<td>1843-1847</td>
<td>5 years</td>
<td>1934-1945</td>
<td>12 years</td>
</tr>
<tr>
<td>1852-1858</td>
<td>7 years</td>
<td>1948-1953</td>
<td>6 years</td>
</tr>
<tr>
<td>1860-1865</td>
<td>6 years</td>
<td>1956-1969</td>
<td>13 years</td>
</tr>
<tr>
<td>1871-1874</td>
<td>4 years</td>
<td><strong>1976-1989</strong></td>
<td><strong>14 years</strong></td>
</tr>
<tr>
<td>1880-1883</td>
<td>4 years</td>
<td><strong>1996-2009??</strong></td>
<td><strong>14 and counting</strong></td>
</tr>
<tr>
<td><strong>1886-1899</strong></td>
<td><strong>14 years</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistical Abstract of the United States and Budget of the United States Government Historical Tables
The Long Term Budget Pressures Continue…
(O&M Death Spiral, Personnel Costs, Deficits)

Percentages of DoD Total Outlays 1962-2012E

Recapitalization Cycles

This An O&M Cycle

R&D vs Procurement “Mix Issue”

Sources: DoD 2006 Greenbook, CSIS analysis
Strategy Take Aways…

• Two major thrusts
  – The Long War against terrorist extremists
  – Dissuade near peer competitors – possess unquestioned military superiority so that armed conflict is unthinkable

• Service moves
  – Marines – lighter, fill in SOF roles
  – Army – more expeditionary, lighter, more trigger pullers
  – Navy – swap capital for labor, focus on the Pacific
  – Air Force – the near peer insurance policy

• Will have to be accomplished in resource constrained environment
Market Implications…

“Bar-bell” Shaped Markets

The Long War: rapid acquisition, Off the shelf/short development, quick response is key, COCOM centric

Dissuade: very long cycle, Technology development, platform oriented but limited production, service centric

“Slice” #1

“Slice” #2

Reset/Retrofit: Install “black boxes” in existing equipment to plug into network, maintenance/repair

Transformation: Desire for large, horizontally integrating networks, leverage the IT revolution

Strategic Question #1: How Do You Organize to Address Is it one or two industrial bases? Can they be the same suppliers?
Market Implications (Services)…

- Once Iraq/Afghan surge moderates, what will replace growth?
  - Aging of federal workforce
  - Increased outsourcing
  - Increased complexity of tasks

- What area of services

- What new models
  - Public-private partnerships
  - PFI

Strategic Question #2: How Much Services and What?
Strategic Questions…

• #3 What strategy do you adopt for a slowing market

From a policy standpoint what markers/guideposts does government want to leave for industry as it decides?

- Consolidation constrained
- Investors afraid of commercial diversification “unblemished by success”
  - Have a successful model with TRW tech spin outs
- “Sticking to the plan” requires discipline
“The Issues of Our Time”: Industry Financial Performance and Strategies
Why Care About Wall Street?

In the last 20 years, financial markets have provided 40-80% of the capital needed to operate...

Defense Industry Cash Inflows (Percent), 1980-2005

Operating Cash Flows = From the Customer

Sources: FactSet, S&P Compustat, Annual Reports, CSIS Analysis
Overall Defense Industry Margins Near Highs...
From A Return Standpoint, Second Tier Does Better…

Operating Margin by Company Type (weighted by revenue),
1980-2005

Sources: FactSet, S&P Compustat, Company Reports, CSIS Analysis.

Note: CSIS Defense Index comprises 36 publicly-traded companies with majority revenues derived from US defense business. Boeing Military results have also been included here.
However, Compared to Its Peers the Defense Industry Has the Lowest Returns…

Industry Average Operating Margin, 1980-2005 (weighted by revenue)

Sources: FactSet, S&P Compustat, Energy Information Administration, Company Reports, CSIS Analysis.

Notes: 1) CSIS Defense Index comprises 36 publicly-traded companies with majority revenues derived from US defense business. Boeing Military results have also been included here. (2) S&P Sub-sector constituents accurate back to 1994; composition held constant for years 1980 to 1993.
Policy Realities Leave Industry With Few Levers to Pull…
If margins cannot be increased, then lower volatility – multi-years, O&M, political

Industry Revenue Volatility versus Average Operating Margin, 1980-2005 (weighted by revenue)

Target Margins Given the Risk
Massive Risk-Reward Disconnect in the Defense Market

Financial Response to the Policy and Market Realities...

Defense Industry Cash Outflows (Percent)

Sources: FactSet, S&P Compustat, Energy Information Administration, Congressional Reports, CSIS Analysis
With This Strategy Industry “Returned To the Line” and Retained the Interest of Investors ...

Industry Revenue Volatility versus Cash Flow Return on Investment (HOLT CFROI) 1987-2005 (weighted by invested capital)

Sources: FactSet, S&P Compustat, Energy Information Administration, Congressional Reports, CSIS Analysis
It’s *That Time of the Cycle Again…*

- At this point in every defense cycle, attention is turned to defense industry profitability, program performance, contracting scandals
  - “Look at how much they are making” – conflating of revenues and profitability
  - Award fees
  - “Let’s bring back fixed price development”

- “Caesar’s Wife” is a competitive and strategic advantage for industry and program managers
- Program execution is key!, key!, key! for industry and PMs
Strategic Questions…

• #4 If everyone is adopting the same strategy, how do you differentiate?

• #5 What does industry do with the cash? What incentives does government want to establish to shape decisionmaking?
“The Issues of Our Time”: Changing Relationship With the Customer
Changing Nature of the Relationship...

- Customer unsure about what it wants (very fluid environment)

- Future of LSI model

- Vertical Integration and organizational conflict of interest
  - General Dynamics/Anteon transaction

- Rise of new, more distributed customers
  - Regional CoComs – increased input into acquisition
  - Global CoComs – some with pots of money
Strategic Questions…

- #6 How to organize to address a new customer set and increased complexity
  
  - Large, horizontally integration projects (GIG, etc.) demand wide-spanning structures
  - Ambiguous, fluid, chaotic environment with distributed customers demand strong vertical structures
  - Shaping environment critical
Questions/Discussion
About CSIS

For four decades, the Center for Strategic and International Studies (CSIS) has been dedicated to providing world leaders with strategic insights on—and policy solutions to—current and emerging global issues.

CSIS is led by John J. Hamre, formerly deputy secretary of defense, who has been president and CEO since April 2000. It is guided by a board of trustees chaired by former senator Sam Nunn and consisting of prominent individuals from both the public and private sectors.

The CSIS staff of 190 researchers and support staff focus primarily on three subject areas. First, CSIS addresses the full spectrum of new challenges to national and international security. The Defense Industrial Initiatives Group (DIIG) is part of the CSIS International Security Program and focused on issues related to the global defense-industrial enterprise. Second, we maintain resident experts on all of the world's major geographical regions. Third, we are committed to helping to develop new methods of governance for the global age; to this end, CSIS has programs on technology and public policy, international trade and finance, and energy.

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Partnership Opportunities with Industry

6 Feb 07

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”

UNCLASSIFIED
What is a Partnership?

- Agreement between an Army facility and one or more private industry entities to perform work or utilize the Army’s facilities and equipment.

- Includes one or more of the following:
  - Use of public sector facilities, equipment and employees to perform work for public or private sector.
  - Work sharing arrangements.
Partnerships

Industry

Government

Mutually Beneficial Relationships

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
Benefits to Partners

- Access to advanced-technology equipment/facilities.
- Potential use of hard-to-receive hazardous waste permits.
- Leverage long-term use agreements.
- Reduce investment costs

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Armament Retooling and Manufacturing Support (ARMS) Program

Goals: Provide for commercial use of Army facilities and equipment to:

✔ Sustain Army manufacturing capability for Armed Services national security requirements.
✔ Reduce ownership, facility operations and maintenance costs.
✔ Reduce product costs.
✔ Accelerate private sector economic growth, employment and investment.

ARMS Funding Profile FY08-13 ($Ms), PAA Activity 2

<table>
<thead>
<tr>
<th>Year</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.9444</td>
<td>3.014</td>
<td>3.137</td>
<td>3.181</td>
<td>3.251</td>
<td>3.322</td>
</tr>
</tbody>
</table>

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
“Need to be faster, more agile, less bureaucratic – Need to fight this every day”

93 Total Tenants Generated $12.6M in FY05 Rent Revenue

Validated Benefits & Savings (Cumulative 1993-2005)

- Jobs Generated: 2,584
- ARMS Investment & Incentives: $269.7 Million
- Estimated Private Investments: $250+ Million
- Savings to the Government: $322.7 Million
- Economic Impact (Direct/Indirect): $5.4 Billion

$ = FY05 Validated Tenant Rent (Millions)
(#) = FY05 ARMS Tenants, * = BRAC Facility
“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
What’s Available

- Facilities:
  - Warehouses
  - Manufacturing/repair facilities
  - Ranges (firing & test)
  - Secure locations

- Equipment (specialized equipment and tooling):
  - Foundry and rotary forge
  - Seven axis machining centers
  - Guided boring of thick wall cylinders
  - Tool, die & gage development/production

- Trained workforce
  - Competent & competitive
  - LEAN Six Sigma experience

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
Enterprise Capabilities

- Overhaul/repair/remanufacture
  - Ground vehicles & helicopters (including components)
  - Radios, radars & other electronic items
- Product design, development, engineering & fabrication
- Heavy and light machining

- Heat treatment, plating & finishes
- Wood pallet manufacturing
- Explosive and propellant production
- Chemical/Biological protective equipment repair/rebuild

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
**Non-Traditional Partnership Examples**

<table>
<thead>
<tr>
<th>Pine Bluff Arsenal</th>
<th>McAlester Army Ammunition Plant</th>
<th>Milan Army Ammunition Plant</th>
<th>Bluegrass Army Depot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railcar Storage</td>
<td>Wood Pallet Manufacturing</td>
<td>Commercial Plant Nursery</td>
<td>Logging, Forestry and Cattle Grazing</td>
</tr>
</tbody>
</table>

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
Partnership Examples

<table>
<thead>
<tr>
<th>Tobyhanna Army Depot</th>
<th>Red River Army Depot</th>
<th>Letterkenny Army Depot</th>
<th>Anniston Army Depot</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAI Corp</td>
<td>Armor Holdings</td>
<td>Lockheed Martin</td>
<td>General Dynamics</td>
</tr>
<tr>
<td>Shadow UAV</td>
<td>FMTV</td>
<td>TADS/PNVS</td>
<td>M1 Abrams Stryker</td>
</tr>
</tbody>
</table>

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”

UNCLASSIFIED
Challenge

- How can Army create greater opportunities to partner with industry?
  - Right laws?
  - Right regulations?
  - Right policies?

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
Back Up

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
### General Statutory Authority

**10 USC 4544: Army industrial facilities: cooperative activities with non-Army entities**

### Reutilization of Army Manufacturing Plants

**10 USC 4551-4555:**

- Armament Retooling and Manufacturing Support (ARMS) Initiative
  - PL 106-398:
- Arsenal Support Program Initiative (ASPI)

### Sale of Articles and Services to Persons Outside DOD

**10 USC 2208(h)**

- 10 USC 2539b
- 10 USC 4543
- 22 USC 2770
- 10 USC 4544

### Participate in Public Competitions

- **10 USC 2208j**
- **10 USC 2470**
- Section 8026 PL 109-289
- **10 USC 4544**

### Lease or Use Army Property

- **10 USC 2667**
- **10 USC 2474**
- **10 USC 4544**
- FAR Subpart 45.3

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“Need to be faster, more agile, less bureaucratic – Need to fight this every day”

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Since its inception in FY 1993, the ARMS Program has saved the Government $322.7M, with investments in the amount of $269.7M.

“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
“Need to be faster, more agile, less bureaucratic – Need to fight this every day”
Creating a Balanced and Responsive Munitions Industrial Base

Presented by:
Mark DeYoung
President, ATK Ammunition Systems Group

2007 Munitions Executive Summit
6 February 2007
“The health of the defense industrial base is key to the Army’s ability to continue to provide innovative technology and technologically excellent systems…”
Claude Bolton, ASA for Acquisition, Logistics, and Technology

“Africa under funds its military. Strategically, our country's industry base is not geared to support Army's requirements…Active engagement with Congress to resource - Congress is open and willing.”
GEN Schoomaker, CSA
Current State of the Munitions Industrial Base

• Competitive pressures and past declines in ammunition procurement have shaped a more concentrated base
  • 90+ Commercial Suppliers
  • 10 GOCOs – underutilized capability, excess capacity, overhead absorption issues
  • 8 Ammunition Logistics/Depot Operations
  • 3 GOGO Army Ammunition Plants
  • 1 Naval Facility – Allegheny Ballistic Lab, Rocket Center, WV
• Replenishment driving size of base – minimal USG investment initiatives
• Minimal incentives for Contractor investment
  • Cost reduction vs. modernization
  • Lack of long-term production stability due to volatile requirement forecasting
• Manufacturing capability currently focused on legacy systems
  • Marginal future munitions capability
  • Aging infrastructure not positioned to support transformation objectives
• Disjointed industrial base and program acquisition strategies
  • Must consider critical production capabilities and technologies
• BRAC 05 will help rationalize but does not modernize the base
• Projected out-year USG funding expected to decline
  • Will it support a soft landing?

We must plan the objective state of the munitions industrial base – now!
Industrial policy should include modernizing the base to assure:

- **Readiness**
  - Meet ammunition requirements for both conflict and peacetime
  - Support short notice contingency requirements
  - Stockpile inventory at appropriate levels as buffer to surge requirements

- **Sustainment**
  - Replenish training and war reserve stocks post conflict
  - Maintain a technological edge and supports future weapon systems
  - Retain critical skills
  - Mitigate single point failure risk

- **Affordability**
  - Reduce facility ownership cost – operations, maintenance, compliance
  - Reduce product cost – quality, uptime, efficiency, throughput

**Historical lack of investment threatens readiness of munitions industrial base**
Keys to Portfolio Management

• **What do we need?**
  • Demand – *Requirements*
    - Sustainability
    - Predictability
    - Stability
  • Affordability
  • Diversify vs. Divestiture
    - Commercial Utilization

• **How do we utilize the assets?**
  • Production
  • Storage
  • Out-loading
  • Distribution
  • Tenants

• **How do we mitigate deterioration of the assets?**
  • Modernization program
  • Product acquisition strategy
  • Investment – Risk vs. Reward
    - Return on Investment
    - Cash Flow
  • Maintenance
  • Critical skill retention
  • Technology integration

*We must value the portfolio in terms of Readiness*
GOCO Industrial Base Strategic Planning

An advanced weapon and space systems company

Today

Riverbank AAP
Holston AAP
Kansas AAP
Milan AAP

Lone Star AAP
Scranton AAP
Iowa AAP
Mississippi AAP

Future

Lake City AAP
Radford AAP
Strategic Planning Factors

- Workload
- Skill Retention
- Flexible Manufacturing
- ARMS
- Modernization
- Lean Manufacturing
- Safety
- Consolidation
- Environmental
- Investment
- Balanced Requirements
- Contraction
- Affordability
- Partnering
- Privatization
- Competition
- Incentives
- Single Point Failure
- Best Value
- Facilities Use
- Section 806
- BRAC 05
- Operational Efficiency
Single Manager for Conventional Ammunition (SMCA)

Industrial Base Strategic Plan: 2015

3 November 2003
(Updated November 2004)

Program Executive Office
Ammunition
SFAE-AMO
Picatinny, NJ 07806-5000
• **DoD must determine its long-term product requirements**
  • Provides predictable production base

• **DoD must budget for, and commit to long-term funding**
  • Re-shape the base
    – Product
    – Process Technology
    – Modernization – critical [aging] infrastructure to mitigate operational risk

• **DoD must enforce Section 806 authority**
  • Link industrial base needs with program acquisition strategies
  • Production *sustainment* is not just work loading the GOCOs
  • Offer long-term production contracts
    – Promotes industry investment, efficiency, critical skill retention

• **Industry must determine product minimum sustaining rates**
  • Leads to right sized sustained capacity with surge flexibility

• **Industry must gain Congressional support to sustain GOCO modernization plans**

• **Industry must reduce Total Ownership Cost through efficient operations**

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*DoD and Industry must partner to harmonize requirements and capacity*
Industrial Readiness = Military Readiness
BG Rebecca Halstead
Chief of Ordnance / Commandant, USA Ordnance Center & Schools
DCG for Ordnance, CASCOM
6 February 2007
Presented by: Major Shane Upton
PURPOSE: To discuss with the NDIA Leadership the Warfighters perspective on Ammunition during OIF-05-07 (Oct 05-Sep 06)
AGENDA

- Class V Operation Overall
- Force Protection Challenges
- Non-Lethal Munitions
- Retrograde
- Questions
- Conclusion
3rd COSCOM
Class V Operation Overall
ARMING THE FORCE

- Managed over 400 Ammunition Types
- Directed 4 Ammunition Storage Points
- Cross-leveled 12,660 short tons worth $400 million
- Retrograded 3,500 short tons
- Expanded from 2 Ammunition Transfer Holding Points to 11
- Provided quality assurance for FOB closures
- Fielded 13 SAAS-MOD systems for Army Transformation
Forecasting, storing and transporting ammunition in a counter-insurgency (COIN) Environment.

**Containers:**

**Challenge** - We are still currently using non-hardened 20’ metal containers.

**Recommendation** - Develop a container that would mitigate the explosive affects of a Hazard Class Division 1.1 munition.

**Transportation:**

**Challenge** - The ability to quickly and safely respond to ammunition requirements is a joint expeditionary environment.

**Recommendation** - Continue to develop a containers and packaging system such as the Joint Modular Intermodal Container (JMIC) that eliminates a ammunition signature and the requirement for further containerization.

**Storage:**

**Challenge** - The breadth of ammunition to support counter-insurgency operations (COIN) from forward operating bases requires a significant footprint.

**Recommendation** – Develop a lightweight, air transportable revetment system that can be rapidly established. 1 System 6 x 20’ and 30K NEW
There was an increase use of non-lethal munitions during the deployment for operational reasons.

**Challenge** - Supply vs. Demand… not enough availability in the manufacturing base due to single source vendors

**Recommendation:**

- Expand the current manufacturing base to produce more non-lethal munitions.

- Recommend industry develop a menu of non-lethal configured loads that covers our current breadth of weapon systems.

- Continue the aggressive pursuit of developing non-lethal ammunition options for future weapons systems.
As we departed theater we had completed the retrograde of 209 MILVANS of ammunition with 106 in the queue.

**Challenge** - The retrograde of unserviceable ammunitions is resource intensive: security, Soldiers, transportation, and line-haul operations

**Recommendation:**
- Continue development of an accurate, deployable and durable ammunition counting and assessment machine to expedite the counting and inspection process like the Automated Tactical Ammunition Classification System (ATACS).

- Consider possible an electronic means for tagging and identifying unserviceable ammunition

**Challenge:** Durability of our ammunition after it leaves the packaging

**Recommendation** - Continue the development of a light weight cartridge from non-porous material, possible a polymer, that reduces oxidation and weight by 30%. (Lightweight Small Arms Technology)
CONCLUSION

- Feedback from the perimeter

- Synchronize our efforts...minimize stove pipe systems

- Success on the battlefield is a TEAM sport...Military / Civilian / Industry...

- Leverage Technology used by other Services

- Forecasting unpredictable respond/surge

- Industry enables us to.....
Major Shane Upton

DSN: 298-4195
COMM: 410-278-4195
Email: shane.upton@us.army.mil
Ammunition Adage
A Soldier can survive in Combat...

- ✔ Forever Without Mail
- ✔ 30 Days Without Food
- ✔ 3 Days Without Water
- ✔ 3 Minutes Without Air

But not one second without ammunition!
GO ORDNANCE!
Munitions Logistics and JMC’s role

Mr. Jyuji Hewitt
Deputy to the Commander
AMSJM-DC
(309) 782-8885
Supplying the Warfighter

- Supply chain
- Cross level retail
- Redistribute OCONUS assets
- ARFORGEN
- Prepositioned assets

Leaning Forward to support operational ammunition requirements
Worldwide Asset Posture

Total: 2,762,664 Tons
Wholesale Stockpile Acquisition Costs:
Conventional Ammunition: $26.56 Billion
Missiles: $12.40 Billion

Notes:
OCONUS = AMC Accountable (Army Only)
CONUS = AMC Accountable (All Services)
*Missiles
Sources: Conventional Ammunition: CCSS/SAAS
Missiles: NLAC
Primary ILS Project Objectives and Deliverables
(JMC – George Group Team Effort)

Primary objectives:
- Creation of an integrated logistics strategic framework to improve munitions logistics efficiency while maintaining or improving readiness
- Taking another large step toward a Supply Chain strategy that integrates munitions production and logistics

Deliverables:
- Codification of ILS Framework in a ‘play-book’ to guide key operational and strategic decisions
  - Network sizing and structure
  - Ammo positioning
  - Workloading
- Project roadmap toward development of a larger Integrated Supply Chain Strategy
- Listing of recommended LSS projects

This is a JMC & George Group effort. JMC = HQ, Installations & DAC

More than just a plan, it is an “Actionable” Document
The Larger Supply Chain

Distribution Process Owner

Requirements
- Capability, production/stockpile, and COCOM time-phased outload requirements

Acquisition
- Development and sourcing of assets to meet capability and stockpile requirements

Logistics (CONUS)
- Receipt, storage, maint., dist., and demil of assets

Power Projection (into theater)
- Movement of all assets OCONUS (training, current operations, pre-positioning, contingency)

Integrated Supply Chain Strategy
- Dependencies
- Completed projects
- Other potential future projects
National and Tactical Ammunition Logistics Systems

Ammo Data Requirements:
- Receipts/Sales
- Gains/Losses
- Shipping/Transportation
- In Transit Visibility
- Condition Code Changes
- OP Code Changes
- Balance Adjustments
- Stock/Lot# Changes
- Serial Number Changes
- Test Data

SALE End - State

National - LMP

Installation Stocks Depots/GOCO/COCO/War Reserve

CONUS ASP Stocks Inst Fixed Base (IMA)

TAMIS-R

GCSS Army – Tactical

OCONUS Tactical ASPs

PLM+
Munitions Readiness Assessment

“S” On Hand

Near Term ‘S’ Serv Assets Only

Worldwide View Data as of 31 Dec 2006

TANK/AT/ACFT

- TANK MAIN GUN
- ANTITANK
- 105MM
- 120MM
- TOY
- SHOULDER FIRED RKT
- 2.75 INCH ROCKET
- 30MM

ARTILLERY/MORTARS

- CANNON ARTILLERY
- MLRS
- 50MM
- 81MM
- 120MM
- 155MM FRP CHARGES
- FUZES

LEGEND

- Current Overall
- Measurement Area
  - S - On hand
  - R - Serv/Quality
  - P - Prod. Rate
  - C - Composite

SMALL/MEDIUM CALIBER

- SMALL CALIBER
- SHOTGUN
- 50 CAL
- 5.5MM SAW
- 40MM MK 19
- 40MM M203

SUPPORT ITEMS

- MUNITIONS & PVRO
- DEMOLITION
- GRENADERS
- DEMO CHARGES
- SIGNALS
- CAD/PAD
- FLARES
- INITIATION DEVICES
- SIMULATOR
- MODERN MUNS
- SMOKES AND NON-LETHAL
- MODERN DEMO

NETWORK MINES

- CTM MUNITIONS
- MODERN MINES
- AP MINES
February 6, 2007

MG Paul S. Izzo

“Sustaining Industrial Readiness”
Life Cycle Management Commands

- Tank-Automotive LCMC
- Aviation & Missile LCMC
- Communications-Electronics LCMC
- Joint Munitions & Lethality LCMC

<table>
<thead>
<tr>
<th>Aug 04</th>
<th>Oct 04</th>
<th>Feb 05</th>
<th>Nov 06</th>
</tr>
</thead>
</table>

- Cradle-to-Grave Materiel Solutions to Warfighter
- Improved Responsiveness and Support to the Field
- Better Product, Delivered Quicker and More Cost Effectively to the Warfighter
Ammunition Community Communications Study Hierarchy

PEO AMMO

JMC

DA

ARDEC

ACQ. CNTR.

Points of Contact

© 2005 Netform, Inc.
© 2005 Karen Stephenson
Ammunition Community
Communications Study

Formal Structure

Informal Network
Ammunition Portal
(Est. 2004)

- Bridge Across Ammunition Enterprise Sites
- Face to Joint Customers
- Cross-functional user base of 2308 with 105 different organizations represented
JM&L LCMC Initiatives

- Single Manager for Conventional Ammunition
- Integrated Logistics Strategic Framework
- Armament RDEC Integration
- Bridge for BRAC
- Demilitarization
At the End of the Day . . .
WHY WORRY?
KEY LESSONS LEARNED/CONCERNS

• KNOCK DOWN POWER OF MUNITIONS

• INCREASED AVAILABILITY OF LESS THAN LETHAL MUNITIONS FOR EXISTING WEAPON SYSTEMS

• ILLUM RESIDUE
LESS THAN LETHAL

- FN 303 (Paint Ball)
- 12 gauge rubber shotgun rounds (dirigible/pellets)
- M203 (Foam head/rubber pellets)

- Considerations
  - Children
  - Crowds
  - Transitions
KNOCK DOWN POWER

• M4
• M249 SAW
• M9 Service pistol
• Glass deflection (5.56)
ILLUM RESIDUE

- 120mm
- 81 mm
- 60 mm
- OH58

- LU-22 (best)
  - Requires fixed wing delivery (extensive planning)
  - Difficult to get in theater
  - Easily pulled away
ADDITIONAL ISSUES

• Subsonic rounds for suppressed weapons
• Composite links that need less maintenance
• Need greater ability to disable vehicles
QUESTIONS?
BACK UP SLIDES
9mm

- **Service Pistol**
  - Used to show “position” in culture
  - Value added as a threat weapon if doctrine permitted
  - Standard magazine spring is useless after several weeks, extended spring must be used
  - Knock down power is poor
5.56mm Ball

- **M4**
  - Range less but excellent for close quarters
  - Reliable, maintained easily
  - Knockdown power is poor, particularly at distances greater than 50m
5.56mm Linked

• M249 SAW
  - Good range
  - Reliability excellent
  - “Nut sack” preferred over drum
  - Tracer is excellent
  - Knock down power poor but compensated by rate of fire
  - Link maintenance
7.62mm

• M24 Sniper

  - Match ammo must be standard issue for all snipers in Infantry battalions - HARD TO GET

  - Reliability excellent

  - Knock down power is awesome
7.62mm 4/1 Linked

- M240B
  - Reliability and feed are simply excellent
  - Knock down power is awesome
  - Links rust easily
  - Difficult to get in some cases
.50 Caliber

- M2 HB
  - Outstanding – RWS increases 1st round hit immensely
  - Shock and impact of round decides any contest
  - Destructive power is incredible

- Barrett is awesome
Hand Grenades

• M67 Baseball
  – Design great for throwing over walls and onto roofs
  – With proper training, soldiers have great confidence in them

• Smoke & Thermite
  – Thermite used for destroying equipment and denying enemy use of equipment
Helicopter Mini-Gun

Guns and platform are accurate

- Performance and flight excellent
- Destructiveness awesome and effective against rooftop and upper floor enemies
40mm Grenade

- **M203**
  - Awkward in close quarters and ammo is tough to carry with body armor
  - Round is accurate and reliable
  - Blast, shock and fragmentation are excellent

- **MK-19**
  - Single-point link can twist and cause misfeeds
  - Rate of fire and accuracy are excellent
  - Links rust easily
Anti-tank Missiles

- **TOW 2B**
  - Accurate/lethal
  - Still wire guided
  - Reload vulnerabilities

- **Javelin**
  - Great for ambushes on overwatch sites
  - System is easy to use and soldiers have high confidence in it
120mm Mortar

• 120mm HE
  – Accuracy from MC-B remarkable
  – Penetration with delay fuse goes through concrete & rebar
  – Bang and Blast are great deterrents in H&I fires

• 120mm WP
  – Collateral burn damage must be considered in Urban fight and environmental hazards from residuals

• 120mm Illum
  – All weather dependability
  – Burn time excellent
  – Radius and reliability excellent
  – SDZs a limitation in MOUT
12 GAUGE SHOTGUN

• Buckshot
  – Excellent for wooden door breaches
  – Angle of breach must be considered
  – Other side of the door considerations

• Rubber Pellets/dirigible
  – Excellent for crowd control
  – Need additional LTL rounds
Project Director
Joint Services
Presentation
Munitions
Executive Summit
February 06, 2007
COL Andre' Kirnes
Project Director
Joint Services
PM JS Strategic Planning Integration
(Improve Coordination, Communication, Partnerships/Leveraging Opportunities between Strategic Plans)

Collective Vision of Strategic Plans

Four Overarching Goals

**Balance Capabilities with Cost and Risk**
Ensure required core capabilities are available to support current Joint Warfighter requirements at an affordable price and acceptable risk

**Modernize/Establish Required Capabilities**
Modernize or establish required capabilities through investment or incentive to support current and future Joint Warfighter requirements at affordable cost while synchronizing with total system improvements

**Transform to Meet Future Requirements**
Transform management strategies, processes and tools for life-cycle support to future Joint Warfighter requirements

**Continuously Improve Effectiveness and Efficiency**
Continuously evaluate and improve effectiveness and efficiency through customer and stakeholder involvement, data driven analysis, and effective communication

Mission/Business Process Matrix

<table>
<thead>
<tr>
<th>GOAL VS GOAL MATRIX</th>
<th>PM Demil G1</th>
<th>PM Demil G2</th>
<th>PM Demil G3</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS G1 - Balance capabilities with cost and risk (Ensure required core capabilities are available to support current Joint Warfighter requirements at affordable price and acceptable risk; Optimize logistics network strategy - balance capabilities of regional distribution, contingency outbbing &amp; ammo storage)</td>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS G2 - Modernize/establish required capabilities (Modernize or establish required capabilities through investment or incentive to support current Joint Warfighter requirements at affordable cost while synchronizing with total system improvements)</td>
<td>R</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>LS G3 - Transform to meet future reqmts (Transform management strategies, processes &amp; tools for life-cycle support to future Joint Warfighter requirements; Focus depot network based on future training &amp; out bad reqmts of Warfighter &amp; provide transition strategies to place stocks &amp; capital assets in optimum positions)</td>
<td>R</td>
<td>R</td>
<td></td>
</tr>
</tbody>
</table>

Improves Overall Effectiveness and Efficiency
JOCG Joint Conventional Ammunition Policies and Procedures (JCAPPs) replace DoD Manual 5160.65-M.

- Jointly developed guidance for SMCA and Military Services to execute responsibilities in support of the SMCA mission.
- 15 JCAPPs align with life-cycle management responsibilities described in DoDI 5160.68.

Transition Management
- Developed Transition Process Map
- Established Transition Management Teams
- Created draft Transition Plan format

Preliminary Areas of Concern/Lessons Learned
- Transition Planning Mechanics
- Transition Process Deterioration Over Time
**New Demilitarization Law Effective FY2007**

**Resource Recovery and Recycling (R3)**

**BEFORE**
1. Installations execute demilitarization.
2. Salvageable material sold.
3. Proceeds sent to US Treasury.

**AFTER**
1. Installations execute demilitarization.
2. Salvageable material sold.
3. Proceeds reinvested into R3 Programs.

**THE LAW**
The Law allows the Army to sell recyclable munitions materials resulting from demil and to reinvest the proceeds into demil Resource Recovery and Recycling (R3).

**THE BENEFIT**
Estimate $2-3M annually to support Demil R3 Program execution, RDTE and APE.
Modernization Approach

- Implement SMCA Industrial Base Strategic Plan Goal #4: “Modernize Required Manufacturing & Logistics Capacity”
  - Key Strategies:
    - Identify, consolidate and prioritize production deficiencies, aligning with Joint Warfighter needs
    - Establish robust modernization funding lines
    - Establish Science Based Production methodologies at critical Single Point Failure locations
- Objectives:
  - Increase Manufacturing Readiness to Meet Current and Future Requirements
  - Reduce AAP Operating Costs & Footprint
  - Effectively and Efficiently Meet POM Requirements
- Plan and Resource by “Capability Sectors”:
  - Propellants; Explosives; Small Caliber; Metal Parts; Load, Assemble & Pack (LAP)
- Categorize into “Critical” and “Essential” Modernization
  - Critical: Investment Necessary to Avoid Significant Supply Disruptions or to Provide an Immediate and Essential Improvement to Operating Efficiencies
  - Essential: Investment Necessary to Minimize Operating Costs, Reduce Operating Footprint, Reduce Operating Inefficiencies and Minimize Supply Disruption Risk

$153.8M
For FY07 Industrial Base Modernization Efforts
General Purpose Bomb Requirements

- Reduced Service Training Requirements
- Challenge to maintain a viable supply chain and production base
The Panel

- Mr. Steve Dart  President of MECAR USA
- Ms. Patti Felth  Deputy Project Manager Close Combat Systems
- Mr. James Flaherty  VP and General Manager GD-OTS (Scranton Operations)
- Mr. Kevin Knotts  Principal, CSC, Federal Consulting Practice (Defense Logistics)
- Mr. Jerry LaCamera Jr.  Technical Operations Manager, NSWC Indian Head Division
- Mr. Thomas Rockne  VP Mission Assurance ATK
- Mr. Rob Shenton  VP and Chief Operating Officer, Aerojet
- Mr. Andrew Wilson  VP Marketing and R&D, BAE Systems, Ordnance Systems
Panel’s Objective

- Highlight some of the key Industrial Base (IB) drivers for change
- Address how requirements/needs impact a robust and modern manufacturing base
- Identify the goals & responsibilities of the Government and industry
- Discuss options on achieving a balance as we transition from traditional/legacy to emerging munitions
- Answer questions resulting from this briefing
Manufacturing Technology – Meeting the Evolving Needs of the U.S. Armed Forces

War Fighter’s Needs & Theoretical R&D

Ammunition Requirements

Networked, Precision, New and Old Ammunition
e.g. IM, Thermobaric, Excalibur, Intelligent Munitions System

Applied R&D & New Manufacturing Requirements
e.g. Melt Pour, Press, Electronics, MS 1916, Flexible Manufacturing

Suppliers of the Ammunition Requirements
COCO, GOCO, GOGO

Acquisition Strategies

Systematic . . .
Drivers for Change

Military/USG:
- Changing face of the enemy
- Worldwide trend toward lighter more mobile forces
- Maintenance of the NTIB

Political:
- Buy American Act
- Elections
- Defense expenditures
- Export license approval
- Local Congressional support, plus-ups, ear marks etc

Economic:
- Consolidation of defense contractors
- Industry Shakeups - Reduction in competitors
- Reduction in suppliers
- BRAC

Technical:
- Insensitive munitions
- Thermobaric
- High strength materials
- Performance propellants
- Non-lethal
- Higher more stringent quality requirements
- Precision Guidance
- Critical Materials

Social:
- Security/Terrorist threat
- Local Skills/Jobs

Environment:
- Green munitions
- Eventual demil (life cycle management)
- Security requirements in view of terrorist threats

NTIB = Commercial & Government = COCO, GOCO, GOGO
Maintaining a Balance; While Executing a Transition

Traditional to Emerging

Component break-out contracts
Single-use production lines
Government owns tools of production
Production capacity influences product
High-quantity conventional munitions
Oversized capacity (peacetime / surge)

Systems contracts
Multiple/flexible-use production lines
Government owns product; industry owns tools
Product drives production process
Low quantity smart munitions
Focused but reconfigurable capacity
Goals of Government and Manufacturers/Industry

- **Goal of Government – Sustain Industrial Readiness**
  - Timely, high quality products to the Warfighters
  - Innovative products & rapid technology insertion
  - Continuous product and process improvement
  - Healthy, modern, responsive industrial base, capable of meeting wartime and peacetime demands – (Surge based on the 2nd shift)

- **Goal of Manufacturers/Industry**
  - Ability to compete; to provide quality munitions at a reasonable cost
  - Long term investments need reasonable assurance investments are recovered
  - Support the Warfighter and the National Defense of our Country
  - Bottom line
    - Must satisfy the stakeholders
    - Must survive the peaks and troughs
Government’s Responsibilities

Customer/Government should:
- Pursue best value acquisition strategies that reward/encourage
  - Improving production process, quality, technical & technical insertion over price
  - Providing for innovation and rapid technology insertion
  - Maintain needed capability and capacity
- Structure long term contracts with resources for modernization
- Effectively manage change through:
  - Providing current, production proven Technical Data Packages (TDPs)
  - Expediting and funding the qualification process
  - Accommodating the manufacturers recommendations for technology insertion
- Leverage WW technology insertion though smart NTIB procurement restrictions
- Invest in basic (6.1) and Advanced (6.2) RDT&E and transition technology into:
  - Legacy product developments
  - Emerging products
  - Manufacturing processes
- Maintain the capability and capacity (Surge based on the 2\textsuperscript{nd} shift)
Manufacturers Responsibilities

Manufacturers should:

- Maintain awareness of product/process and technological advances worldwide
- Propose technological insertion to the customer
- Maintain customer awareness of supply chain and facility vulnerabilities
- Provide quality, munitions on time and at a reasonable cost
- Conduct Applied R&D
- Maintain flexibility and responsiveness
Challenges We Face – Merging the Drivers, Goals, and Responsibilities

- How do we incentivize & fund modernization of IB capabilities?
  - Facilities
  - Equipment
  - Processes

- What key capabilities need to be retained and where should they be?

- How do you strike the right “Capability” and “Capacity” balance that is flexible to dynamic changes in needs – Peacetime and Wartime?

- What are the right Acquisition Policies/Strategies to promote a “Right-sized” Industrial Base (IB)?

- What key ingredients/materials, technologies, and capabilities are critical to sustaining IB readiness?
  - TNT, Nitroguandine, Binders
  - High Energy Nitramines
  - Nano-energetics
  - Melt-Pour, Cast Cure, TSE Continuous Processing
  - Chemical Scale up

How do we ensure continuity of supply and industrial base viability?
Selected Topics for Discussion

- Roles and responsibilities of Government Acquisition Managers
  - How to Integrate acquisition approaches with industrial base management
  - How acquisition strategies can promote modernization

- Roles and Responsibilities of Ammunition Producers
  - Ammunition manufacturing
  - Modernization

- Flexible Manufacturing
  - Metal Parts
  - LAP – Melt Pour and Cast Cure
  - Energetics

- Research and Development
  - Energetics
  - LAP

- Insensitive Munitions
PM Combat Ammunition Systems
Focus Areas

- **Precision Capabilities**
  - Excalibur Fielding Mar/Apr 07
  - Precision Guidance Kit
  - Precision Guided Mortar Munition

- **Ongoing Ammo Production**
  - Reducing Backlog and Improving Order to Delivery Times
  - Delivery Schedule Adjustments to Avoid Production Breaks
  - Concerns About Maintaining Minimal Funding Requirements in POM for Fuze Industrial Base
  - Reducing Artillery and Mortar Costs
  - Relatively Level Artillery and Mortar Ammo Production Quantities Expected Throughout the POM

- **Improving Artillery and Mortars Munitions**
  - Type Classifying the Denel 105mm Pff and IM 155mm HE
  - Exploring Low Cost IM Melt-Pour Explosives
  - Demonstrating Hybrid Propellant for 105mm
  - Artillery IR Illumination Qualification
  - Self Destruct Fuze Qualification DPICM
  - Material Release/Deployment of 60 MAPAM for USMC
NDIA
2007 Munitions Executive Summit
PM Close Combat Systems
7 February 2007

COL J. Koster
Project Manager
(973) 724-7041
jkoster@pica.army.mil
Organization & Programs Managed

210 Products Managed in FY06

Networked/Demolitions
Doreen Chaplin
- Spider Networked Munitions System
- Legacy Mines
  - Claymore
  - MOPMS
  - Volcano
- Demolitions
  - MDI
  - Det. Cord
  - Blasting Caps
  - Fuzes
  - Bangalore Torpedo
  - Block Explosive
  - Sheet Explosives
- APOBS
- CAD/PAD
- EOD Ammo

Munitions/Pyrotechnics
S. Lombardo
- Grenades
  - Lethal Grenades
  - Smoke Grenades
  - Launcher Grenades
- Pyrotechnics
  - Flares
  - Signals
  - Simulators
- Shoulder-Launched Munitions
  - AT4-CS
  - BDM
- Non Lethal Capability Set
- VLAD
- PVAB
- Non Lethal Ammo
  - MCCM
  - 40 mm
  - 12 gauge
  - NL Grenades
- Tactical NL Munitions
- Special Projects
  - MI RAMS
  - GDS
  - GMENS
  - TD-SYDET
  - SOF Demo Kit
  - RWBK
- (IMS) Intelligent Munitions System*

Protect Force
Kevin Wong

PM IMS
LTC J. Winbush
Joe Pelino DPM
- Standoff Mine Detection Systems:
  - HSTAMIDS*
  - GSTAMIDS*
  - ASTAMIDS*
- Aardvark Med Flail
- Berm Sifter
- Hydrema Flail
- EOD Equipment
- IED Mine Rollers
  - FSEP*
  - (Provisional)
  - OVERSIGHT:
    - VOSS*
    - Husky Ferret Arm
    - Sparrow Cache Detection

PM Countermine
LTC Lozis
Phil Purdy DPM
- IED Mine Rollers
- FSEP*

PM IED Defeat
LTC Karl Borjes
R. Gullifer DPM

Business Management
Bob Wisser

COL Jack Koster
Project Manager

Patricia Felth
Dep. Project Manager

Chief System Engineer
Ross Benjamin
Technology Associate
Harold Schliesske

* FCS Program
PM CCS FY06 vs. FY07 Program Funding

### Product Line Funding Comparison

<table>
<thead>
<tr>
<th>Product Line</th>
<th>FY06 #Lines</th>
<th>FY07 #Lines</th>
<th>FY06 Total Funding</th>
<th>FY07 Total Funding</th>
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</thead>
<tbody>
<tr>
<td>Pyrotechnics</td>
<td>54</td>
<td>34</td>
<td>465.2</td>
<td>344.5</td>
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<tr>
<td>Grenades</td>
<td>26</td>
<td>9</td>
<td>91.6</td>
<td>71.0</td>
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<tr>
<td>Shoulder-Launched</td>
<td>3</td>
<td>3</td>
<td>23.2</td>
<td>39.6</td>
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<tr>
<td>Networked Munitions</td>
<td>6</td>
<td>6</td>
<td>39.4</td>
<td>118.9</td>
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<tr>
<td>IMS</td>
<td>1</td>
<td>3</td>
<td>30.9</td>
<td>82.0</td>
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<tr>
<td>EOD</td>
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<td>1</td>
<td>26.4</td>
<td>43.9</td>
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<tr>
<td>Countermine</td>
<td>4</td>
<td>5</td>
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<td>Demolitions</td>
<td>42</td>
<td>50</td>
<td>86.6</td>
<td>81.1</td>
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<tr>
<td>Non-Lethal</td>
<td>25</td>
<td>12</td>
<td>101.0</td>
<td>90.4</td>
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<tr>
<td>Special Projects</td>
<td>13</td>
<td>9</td>
<td>46.0</td>
<td>8.3</td>
</tr>
</tbody>
</table>

**Total All Product Lines:** 175 FY06 $975.3 vs. 132 FY07 $978.3

### FY06-FY07 Program Funding Differences

- **PYRO:** 48%
- **Non-Lethal:** 10%
- **Grenades:** 9%
- **Countermine:** 7%
- **Demolitions:** 9%
- **EOD:** 4%
- **IMS:** 3%
- **Networked Munitions:** 4%
- **Special Projects:** 5%

**FY07 Funding Highlight:** $1006M w/IED-D in FY07
Intelligent Munitions Systems (IMS) Operational Challenges

- **Urban Complex Environment**
  - Meeting operational effectiveness requirements in urban and built-up areas

- **Ability to Deliver Sensors**
  - Artillery, Mortars, Airdrop

- **Network Centric**
  - Lethal & Non-Lethal

- **Developing scaleable effects that are effective at all stand-off**

- **Networked Systems require secure and always available communications (IA, DITSCAP)**
  - To enable capabilities like safe passage, software controls safety critical functions
Shoulder Launched Munitions (SLM) Operational Challenges

**Capability: Portability**
Minimize Weight and Size

**Challenge:**
Fragmentation

**Capability: Minimum Range**
Lethal effects at short ranges encountered in street-to-street fighting

**Capability: Survivability**
Fire from enclosures to allow gunner use of existing cover

**Capability: Lethality**
Incapacitate Personnel Within:
- Light Armored Vehicles
- Field Fortifications
- Masonry Structures

**Challenge:**
Multi-purpose Warhead/Fuzing

**Challenge:**
Physical Performance Limitations

**Challenge:**
Health Hazard Reduction
- Noise
- Back-blast
- Toxic Fumes
Rapid Acquisition Process

CLOSE COMBAT SYSTEMS

Gap Analysis

Technology Assessment

Transition to Life Cycle Manager

ATOs, ACTD, SIBRs
REF, JIEDDO Initiatives
RDECOM/ Lab/ Industry Initiatives

Lead

Support

RDECOM/JIEDDO/REF

Support

ONSO/JUONS

Lead

Support

PM

PM Roles During Life Cycle

Early PM Oversight

- Identify Requirements
- Seek Funding
- Develop Schedule
- Develop Test Plan
- Initial ILS Assessment

Initial Assessment/ Program Planning

- Refine requirements
- Finalize Acquisition Plan/ Obtain funding
- Finalize Program Plan/ Schedule
- Coordinate Test & Evaluation
- Develop Sustainment Plan

Program Execution

- Finalize Requirements
- Manage Funding & Schedule
- Manage Sustainment
- Transition Technologies

POR

Niche

Transition

Terminate
Stakeholders & Teaming Relationship

Requirements & Funding Come From:
- Theater / TRADOC (JRAC)
- JIEDDO
- Army Staff
- SOCOM
- Industry

Coordination with multiple organizations leads to Mission Success
Summary

- New Warfare → New Challenges
  - Decreasing effectiveness of older products

- Modernization through Acquisition
Congressional Perspective

NDIA Munitions Executive Summit
February 7, 2007
The Congressional side of Defense Budgets
--The next 30 minutes

• What we know
• What I think we know
• What I think
• Questions

Bottom Line: FY08-13 better than “forecasted” due to “budgeted” end strength increases -- *Ammo will continue to be well supported at requested level by new 110th Congress*
What we know
% Discretionary / Mandatory Federal Outlays
(FY2008 Budget Historical Table 8.2 – FY 2000 $B)

Mandatory & Interest
$1,484 B (63.4%)

Non-Defense (Discretionary)
$ 399 B (17%)

National Defense (Discretionary)
$ 457 B (19.5%)

1962
$592 B

2008
$2,342 B

2/13/2007
FY08 FEDERAL BUDGET (Table S-3)
($ 2.9B Trillion in BA)

Discretionary
($ 930 Billion)

Defense
($ 481 Billion)

Ammo
($ 3.9B + $0.9B ’07 Supp)

2008 Election Year Positioning

Domestic programs NO REAL GROWTH
FY 2008 Budget Cycle
DoD View

• FY 2008 Budget (051) submitted
  – Approx $481B with ~8.7% real growth (>2X forecast growth)
  – FY07 Iraq $93B Supplemental attached
  – FY08 Iraq $142B full year GWOT, Supplemental attached

• Buying power continues to be impacted by increase in end strength, Health Care and Fuel Costs

• Continuing issue of balance between near term readiness and investing for the future
## FY 06/07 Appropriations
### FY 08-13 Budget/POM ($B)

<table>
<thead>
<tr>
<th>Year</th>
<th>‘06</th>
<th>‘07</th>
<th>‘08 (last Bush budgets)</th>
<th>‘09</th>
<th>‘10</th>
<th>‘11</th>
<th>‘12</th>
<th>‘13</th>
</tr>
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**FY 08 AMMO Request ($B):**
- Army $2.2
- USN/USMC $0.8
- USAF $0.9

**Missle Request:**
- Army $1.6
- USN/USMC $3.0
- USAF $3.9
## Supplementals ($B)

### '04 thru '07 Bridge & '07-'08 Requests

<table>
<thead>
<tr>
<th>Year</th>
<th>'04</th>
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</table>

FY 09 $50M supp may be last supplemental enacted prior to '08 elections
Life Cycle Costs of Army & USMC End Strength  
(after initial capitalization)

• Army permanent ES grows 65,000 to 547,000 (+13.5%)
• USMC permanent ES grows 27,000 to 202,000 (+15.4%)
• +92,000 ES increase costs $10B/year in just personnel costs

Estimated top line, out year increase over FY07 PB:

   Army ~$15B (+13.5%)
   USMC ~$2.5B (+15.4%)

++ some marginal help to Ammo program
110th Congress
Defense Committee “Ammo” Leadership

• HASC: Ike Skelton  Duncan Hunter
  – Air-Land: Neil Abercrombie  Jim Saxton

• HAC-D: Jack Murtha  Bill Young

• SASC: Carl Levin  John McCain
  – Readiness: Daniel Akaka  John Ensign

• SAC-D: Dan Inouye  Ted Stevens
110th Congress
Defense Committee Key “Ammo” SDs/PSMs

• HASC: Doug Roach & Jesse Tolleson
• HAC-D: Dave Morrison    John Shank
  – PSMs: Paul Terry (USA)  Josh Hartman
    Tim Prince (USN)
    Kris Mallard (USMC)
    Greg Lankler (USAF)
• SASC: Michael McCord    Greg Kiley
• SAC-D: Charlie Houy    Sid Ashworth
  – PSMs: Nicole Di Resta  Brian Wilson

Some new faces with little ammo background
What I think we know?
Washington Political Environment

• 2008 election tactics and media coverage
• FY07 Domestic Funding/Continuing Res
• Iraq Strategy and Strategic direction
  – FY07 Iraq Supplemental Funding & “surge policy”
  – FY08 and beyond “Supplemental” budgeting
• Lobbying, “earmarks”, energy, prescription drugs
  – Pressure to increase domestic funding
• Tax adjustments for deficit control and a balanced budget -- $50+T USG “fiscal exposure” today
• FY08 Approps – domestic/defense shares

*Members adjusting to new earmarking and ethics rules*
Congressional Budget Schedule -- 2007

- Iraq and other oversight hearings underway
- February 5th – President submitted Budget
- By mid-February – Complete FY07 Continuing Resolution
- Early March – Start FY07 Iraq Supplemental
  - House moves quickly: Senate slower going
  - Probable completion: late April/early May
  - Veto resolution by late May, if necessary
- March 15- April 1 – House & Senate pass Budget Resolutions
- April 15 – Concurrent Budget Resolution done and HASC/SASC start Authorization Bills
- May 15th – FY08 Appropriations process starts
  - Defense early start & early finish
  - Defense early start & late finish
  - Defense late start & late finish

FY08 Defense bill and FY08 “GWOT” (as must pass legislation) done late in cycle pending resolution of domestic funding issues
FY08 FEDERAL BUDGET (Table S-3)
($ 2.9B Trillion in BA)

Discretionary
($ 930 Billion)

Defense
($ 481 Billion)

Ammo
($ 3.9B + $0.9B Supp)

2008 Election Year Positioning

$471B + $46B +$13B = $481B
+11%  +3%

Domestic programs NO REAL GROWTH
FY 2008 Budget Cycle
-- Congressional Results

• Democratic Congress unlikely to change FY08 Defense (051) top line
  – Likely to alter funding priorities/allocations
  – Could fund some items in GWOT
  – Possible hot button issues:
    • Shipbuilding
    • More C-17s
    • JSF Alternate Fighter Engine
    • National Guard equipment/readiness

• FY08 GWOT could be adjusted based on FY07 Iraq performance/situation & other needs

• Continue to press to get Iraq costs on budget?
Procurement vs DoD Budget ($B)

“can have all the defense we want, just have to pay for it” – Senator Rudman

Trade space: cut defense, cut domestic, raise taxes, deficit financing
Trade Space is **Tough**

Chairman “Skelton said he does not yet know where the billions of dollars needed to refit the armed services will come from. He declined to commit himself to recommending such tradeoffs as killing weapons designed for the Cold War, like the Air Force F-22 fighter, to free up money to replace trucks, tanks and helicopters worn out in Iraq.” – George Will, Congressional Daily, Feb 5, 2007

If funds tight, will USA/USMC give up End Strength?
Acquisition likely bill payer and ammo is lowest priority
Policy level preparations? **“SOFT LANDING”**
What I think?
FY08 Ammo Funding

• Total of $4.8B is quite robust & profitable
  – By historic standards, very good
• Isolated problem areas exist:
  – Numerous single sources points of potential supply chain failure
  – Softness in demand for some items, e.g., artillery fuzes
• Looming challenge of again returning to peace time procurement levels while restoring readiness levels
• After Desert Storm, little preparation; Congress helped; start of MIBTF
  – How to prepare this time?
  – Engage defense think-tanks on issues?
  – Congressional Ammunition Caucus?

Heading for procurement cycle down side along with many others
Soft Landing Policy Options
(We’ve been here before -- $ are only part of the answer)

• Continue consolidating industry into larger organizations with shared overhead
• Move to more flexible manufacturing – facilities and personnel
• Move to “stop and start/batch production”
• Recognize critically of “artful” work force
• Adopt “Best of World” production models for variable “run” sizes
• Stockpiling components
• Layaway
• Design out low density obsolescent parts/components
• Recognize industry globalization
• Enforce Section 806
• Recognize “Wall Street” factor: stock prices, earnings, ROI, …
• Balance capacity – requirements – demand – MSR – Surge – available $ - risk

Need “consensus building” Service-PEO-industry concept talks to prepare for competition for Congressional support
BRAC 05 Update

Mr. Steve Mapley
Director, Industrial Support
Joint Munitions Command

Presentation to

2007 Munitions Executive Summit
6 February 2007
Ammo Plants: BRAC 2005

**GOGO, all others GOCO**

- Holston (TN)
- Radford (VA)
- Lake City (MO)

**Energetics/Propellants**
- Holston (TN)
- Radford (VA)

**Small Arms**
- Holston (TN)
- Radford (VA)
- Lake City (MO)

**Load, Assemble & Pack**
- Iowa (IA)
- Milan (TN)
- Crane (IN)**
- McAlester (OK)**
- Pine Bluff (AR)**

- Mortars
- Artillery
- Tank
- ICM
- Bombs
- Smokes

**Metal Parts**
- Scranton (PA)
- Riverbank (CA)
- Mississippi (MS)

**Close Riverbank, Mississippi, Lone Star, Kansas.**

**Reduction 23%**

Joint Munitions & Lethality Life Cycle Management Command
AMC BRAC 05 Focus

- Joint Service Readiness
  - Minimize warfighter impacts during moves
  - Ensure adequate post-BRAC munitions capability/capacity
- Compliance with BRAC Legislation
  - Transfer capabilities
  - Moves completed by Sep 2011

Welfare of workforce
- Government
- Contractor
AMC/JMC BRAC 05 Guidelines

Overarching Principle

- The Army is required to transfer the capability to perform the ammunition production function from the closing installation to the gaining installation.

- The Army has the discretion, consistent with the above, to determine the level of capacity that is transferred to the gaining installation.

- The Army may complete performance of existing production contracts at the losing installation during the BRAC implementation period.
BRAC 05 Challenges/Opportunities

- **Readiness**
  - All Services
  - BRAC and Post-BRAC

- **Equipment**
  - Moves
  - Rehab/Buy New

- **Improvements**
  - Modernization
  - Safety

- **$ Timing - Adequacy**

- **Business Case Analyses**

- **Intellectual Property**

- **Design and Engineering (D&E)**
Summary

- **BRAC 05 Implementation**
  - Monitoring Joint Readiness
  - Using BCAs to Determine Equip Requirements
  - Improving Industrial Base, Consistent with BRAC Requirements
  - Key to Success – Resourcing and Timing
Questions/Comments/Ideas

- JMC BRAC 05 POC: Perry Reynolds
  - JMC BRAC email box: perry.reynolds@us.army.mil
  - Phone Contact: 309-782-1040

- JMC Industrial Base POC: Steve Mapley
  - email: steve.mapley@us.army.mil
  - Phone: 309-782-1611
NDIA 2007

Munitions Executive Summit
“Sustaining Industrial Readiness”

RDM (Sel) James P. McManamon
Director, DON Weapons and Ordnance Safety (SEA 00V)
and
NAVSEA Deputy Commander for Warfare Systems Engineering (SEA 06)
Agenda

• Introduction
• Current SMCA Investment
• Sea Basing
• Navy Initiatives
• Joint Participants
• Challenges to Community
• Summary
Introduction

• SEA-00V assigned NAVSEA responsibilities including technical authority for:
  ✓ Weapons and Ordnance Safety
  ✓ Performing platform/strike force interoperability engineering and certification
**Explosives Safety Authority**

**Section 172 of Title 10, United States Code**
- Requires DoD to establish and maintain an explosives safety program

**DoD Directive 6055.9**
- Requires services to maintain an explosives safety program

**SECNAVINST 5100.10H**
- Directs CNO/CMC to establish safety programs

**OPNAVINST 8020.14/MCO P8020.11**
Explosives Safety Policy
NAVSEA Serve as DON Technical Authority for Expl Safety

**NAVSEAINST 5450.117**
- Assigns Technical Authority to NOSSA
  OP-4, OP-5, WSESRB, HERO, ESI, SOP, QUAL/CERT...
DoN-Wide Explosives Safety Program

- WSESRB
- Ship Weapons Integration
- Site Approval
- Publications
- HERO
- Lightning/Grounding
- Standard Operating Procedures
- Hazard Classification
- Reviews/Assists Afloat
- Inspections Ashore
- Waivers/Exemption Review
- AMHAZ Board
- Explosives Safety Training
- Qualification/Certification Program
- Ordnance Transportation Safety
Current SMCA Investment

• Today’s requirements
  ✓ GWOT
  ✓ Annual training
  ✓ RDT&E
  ✓ International Programs

FY06 - FY08 Navy SMCA Procurements by Ammunition Family

- Small Arms, 28%
- Medium Caliber, 13%
- Navy Gun, 8%
- Bombs, 34%
- Grenades, 1%
- Rockets, 5%
- Mines, 0.05%
- Pyrotechnics, 3%
- Fuzes, 2%
- Misc (Propellant), 4%

Current SMCA Investment

• Today’s requirements
  ✓ GWOT
  ✓ Annual training
  ✓ RDT&E
  ✓ International Programs
Sea Basing

- Enhanced operational independence and support for joint forces provided by networked, mobile, and secure sovereign platforms operating in the maritime domain.
  - Aviation
    - Amphibious assault
    - Ballistic Missile Defense
- Future Technologies
  - International data-sharing networks
  - Heavy equipment transfer capabilities
  - Intra-theater high-speed sealift
  - Improved vertical delivery methods
  - Integrated joint logistics
  - Rotational crewing infrastructure
  - Enhanced sea-based joint Command/Control
Sea Basing

New Development

- Maritime Prepositioning Force (Future) - MPF(F)
  - MLP, LMSR, T-AKE, LHA, T-AKR
- JHSV
- LCS
- DDG 1000
Navy Initiatives

- **Operations**
  - **GWOT**
    - Anti-terrorism/Force Protection measures
      - Shore installations and naval vessels
      - Transit Protection System
      - Remotely Operated Small Arms Mount (ROSAM)
    - USNS Stockham
  - **Ballistic Missile Defense**
    - AEGIS SM-III
    - Sea-mobile Kinetic Energy Interceptor
  - Armed helo operations aboard naval vessels
  - Future shipboard build-up of amphibious assault systems
Joint Force level operations

Safe Weapons in joint warfighting environments

System & Safety Engineering
Joint Participants

• **Acquisition**
  - JHSV
  - Non-Line-Of-Sight (NLOS) system w/57MM Gun aboard LCS
  - Joint Common Missile

• **Operations**
  - AT/FP
    • C-RAM
  - Ballistic Missile Defense
    • AEGIS SM-III defense
  - Joint Warfighting/Training
    • JSWORD Memorandum of Agreement
Net-Centric Weapons
Challenges to Community

• Ensure safety approach addresses ‘system of systems’ operations
  – Common understanding of attributes constituting a safe weapon
    • Operating environment, transportation, storage, demil
  – Open architecture of systems
  – Keeping pace with technology – standards obsolescence
Heavy reliance on ammunition wholesale base for annual training and contingency re-supply

Increased readiness and survivability through Joint Service shipboard environment testing/characterization efforts

Joint Design and Development of Today’s Weapon Systems and Platforms is Paramount for Joint Force interoperability
Discussion Topics

– OSD / AT&L Organization
– DoD Business Processes
  – AT&L Goals and Initiatives
– Budget Trends
– Munitions Interest Areas
  – DOTC and Joint Munitions Program
  – Modeling & Simulation
  – Insensitive Munitions
  – Low Collateral Damage
  – Emerging Contaminants
  – Standardization
DoD Business Processes
DoD Business Processes

Joint Capabilities Integration & Development System (JCIDS)
VCJCS/Service Chief Oversight

Defense Acquisition System
Milestone Decision Authority (MDA) Oversight

Planning, Programming, Budgeting & Execution Process (PPBE)
DEPSECDEF Oversight

CJCS 3170.01E 11 May 05
MID 913 PPBS to PPBE 22 May 03

DoD 5000 Series 12 May 03 Revision
DoD End-to-End Capabilities-Based Process

Capabilities Based Assessment

- Capabilities
- Tasks
- Attributes
- Metrics
- Gaps
- Shortfalls
- Redundancies
- Risk areas
- Non-materiel solutions
- Materiel solutions
- S+T initiatives
- Experimentation

Refined concept
Analysis of Alternatives
Technology Strategy
Systems Engineering Plan
Initial KPPs
Affordable military-useful increment
Technology demonstrated
Initial KPPs
Revise KPPs
LRIP
Detailed design
System integration
DT&E/IOT&E

Select a Joint Integrating Concept
Develop Concept
Functional Area Analysis
*Functional Needs Analysis
*Functional Solutions Analysis

ICD
Analysis of Alternatives
Technology Development

Capability Area Reviews (CARs)

MS “A”
MS “B”
Incremental Development
MS “C”

COCOM
OSD/JCS
Joint Staff / OSD

SecDef
Joint Chiefs & Joint Requirements Oversight Council

Strategy
Capabilities Definition
Concept Refinement
Acquisition and Test

OSD (AT&L, PA&E), Services and OSD (DOT&E) -- Joint Staff (JROC)
USD (AT&L) Goals

**Goal 1** - High Performing, Agile, and Ethical Workforce

**Goal 2** - Strategic and Tactical Acquisition Excellence

**Goal 3** - Focused Technology to Meet Warfighting Needs

**Goal 4** - Cost-effective Joint Logistics Support for the Warfighter

**Goal 5** - Reliable and Cost-effective Industrial Capabilities Sufficient to Meet Strategic Objectives

**Goal 6** - Improved Governance and Decision Processes

**Goal 7** – Capable, Efficient, and Cost-Effective Installations

Goal 2: Strategic and Tactical Acquisition Excellence

2.1 Acquisition agenda aligned with the Department’s core values, policy objectives, joint capability needs, and available resources to attain best value solutions.

Success:
- We establish and institutionalize a concept decision/time defined acquisition process which brings together the requirements, acquisition, and programming/budgeting communities. This ensures we start affordable programs, at the right time, for the right capability with predictable performance.
- We establish an operating tempo that synchronizes AT&L’s acquisition decision and oversight processes with the defense enterprise. This ensures the Department is providing consistent and coherent tactical and strategic direction.

2.2 Risk, outcomes, schedule, and cost balanced when planning and adjusting portfolios, programs, and procurements.

Success:
- We establish and institutionalize the EOA process. This ensures a proper balance of cost, schedule, performance, risk and technological maturity is established for identified capability solutions to guide the CD/ID processes.
- We establish and institutionalize Small Business Program Initiatives that are cross-cutting to the Department. This improves program and procurement alignment with Department policy objectives, joint capability and balanced portfolios.
- We establish and institutionalize IBR process to adjust portfolios, programs and procurements to align with the department’s policy objectives, joint capability needs and available resources. This supports the work of the Joint Capability Portfolio Managers.
Goal 2: Strategic and Tactical Acquisition Excellence

2.3 Acquisition execution improved across the total life cycle through the use of sound business and technical practices.

Success:

- We have revitalized DoD Systems Engineering, Software Engineering, and Developmental Test and Evaluation competencies, by establishing these processes as core competencies within DoD.
- We have implemented a department-wide Risk Based Source Selection methodology that properly quantifies risk, and ensures a comprehensive risk assessment in preparation for the source selection process.
- We have restructured and institutionalized the DAES process to better provide value-added oversight of selected programs. This enables the surfacing of program execution problems as soon as possible, thus allowing early and effective resolution.
- We have restructured and institutionalized the DAB process to better provide value-added oversight and coherent strategic direction in an effective, efficient, and timely manner.
- We have ensured the appropriate and policy-compliant use of award/incentive fees, better motivating industry to execute contractually compliant programs and services.
- We have established funding stability via the use of capital accounts.

2.4 Customer demands and warfighter Joint Urgent Operational Needs (JUON) promptly and efficiently fulfilled.

Success:

- We have refined the Tri-Chair gatekeeper function to ensure the most appropriate acquisition path and processes based on urgency of need, technological maturity, requirements stability and affordability are consistent with life cycle support initiatives.
- We have created a Strategic Sourcing for acquisition policy, allowing effective and economic use of DoD’s significant leverage as an “enterprise buyer” of services.

2.5 Capability fielded to meet warfighter needs.

Success:

- We have established leading indicators for Acquisition Program Baselines (APBs), ensuring programs delivered to the warfighter provide predictable performance.
Goal 3: Focused Technology to Meet Warfighting Needs

3.1 Investments deliver innovative, product-ready technology.
Success:
   • We have driven the DoD research and engineering investment to reduce risk in programs, and to take advantage of technology opportunities, to affordably and rapidly add military capability and address warfighting gaps.

3.2 Joint and Interoperable is the way of doing business.
Success:
   • We constantly review investments of taxpayer dollars to ensure that the driving imperative is to deliver value for the DoD enterprise and the Combat Commander who must synchronize military might.

3.3 Vibrant S&T program which delivers results and attracts highly capable people.
Success:
   • We ensure the future of this nation through an active and aggressive research and engineering portfolio which attracts the best and brightest in America—scientists, engineers, students.

3.4 S&T processes deliver maximum value for the tax dollar.
Success:
   • We take personal responsibility for boundary-less coordination of research and engineering investments and ruthlessly refine our processes to eliminate any action that does not support producing technology that provides warfighting advantage.
Goal 5: Reliable and Cost-Effective Industrial Capabilities Sufficient to Meet Strategic Objectives

5.1 Effects of DoD policy and program decisions on the industrial base, and the extent to which industry decisions limit or expand DoD options, understood.

Success:
- We established baseline criteria from which to evaluate and define desirable attributes for the Defense industrial base, and develop methodology to assess industry progress towards desirable attributes.

5.2 DoD research and development, acquisition, and logistics decisions expand and sustain the industrial base to encourage competition and innovation for essential industrial and technological capabilities.

Success:
- We have identified and implemented policies to prevent DoD contractors from inappropriately favoring in-house capabilities.
- We have engaged with industry for targeted improvement in the DoD industrial base workforce.
- We have encouraged participation of non-traditional suppliers, including small business, in DoD procurement.
- We have maintained a competitive environment within industry segments supporting DoD acquisition of services.

5.3 Statutory processes and decisions leveraged to enable a capable, competitive, and reliable industrial base.

Success:
- We have ensured that DPAS decisions provide materials to the most important users, first.
- We have leveraged the benefits of globalization to increase competition and enhance access to global markets.

5.4 Contract finance and profit policies drive desired results.

Success:
- We have promoted DoD industry industrial/technological capability improvements.
- We have improved results of contract profit and award/incentive fee policies.
### Initiatives For Strategic and Tactical Acquisition Excellence

#### STRATEGIC “Big A”

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<td>• Affordable, Feasible Investments</td>
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<td>• Tri-Chair Concept Decision / Time-Defined Acquisition</td>
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<td>• Evaluation of Alternatives</td>
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<td>• Synchronize Existing Processes</td>
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<td>• Tri-Chair Investment Balance Reviews</td>
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#### TACTICAL “Little A”

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<td>• Improved, Up-Front Planning</td>
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<td>• Awareness of Risk / Improved Source Selection</td>
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<tr>
<td>• More Responsive Acquisition Solutions</td>
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<tr>
<td>• Risk-Based Source Selection</td>
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<td>• Small Business Innovative Research</td>
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<td>• Acquisition of Services Policy</td>
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<td>• Systems Engineering Excellence</td>
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<td>• Award Fee and Incentives</td>
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<td>• Common Data / DAMIR</td>
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<tr>
<td>• Restructured DAES</td>
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<table>
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<td>• Issue Awareness</td>
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<td>• Program Baseline Assurance</td>
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<td>• Capital Accounts</td>
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Budget Trends
Planning, Programming, Budgeting, and Execution

**4 Administration Years with 2-year PPBE Cycle**
Past and Projected Resources for Defense
(Billions of 2007 dollars)

Source: Congressional Budget Office.
Note: FYDP = Future Years Defense Program; OMB = Office of Management and Budget.
Past and Projected Resources for Investment

(Billions of 2007 dollars)

Source: Congressional Budget Office.
Note: FYDP = Future Years Defense Program; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.
Smart Munitions vs. Other Munitions
Procurement Trend

FISCAL YEAR

FX07 $M (CONSTANT)

05 06 07 08 09 10 11

Other Munitions

Smart Munitions
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<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammo (A)</td>
<td>1,903</td>
<td>2,191</td>
<td>2,405</td>
<td>2,414</td>
<td>2,327</td>
<td>2,452</td>
<td>2,532</td>
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<tr>
<td>Ammo (N)</td>
<td>790</td>
<td>760</td>
<td>1,101</td>
<td>1,175</td>
<td>1,216</td>
<td>1,134</td>
<td>1,272</td>
</tr>
<tr>
<td>Ammo (AF)</td>
<td>1,072</td>
<td>869</td>
<td>913</td>
<td>914</td>
<td>931</td>
<td>949</td>
<td>969</td>
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<tr>
<td>Missiles (A)</td>
<td>1,350</td>
<td>1,645</td>
<td>1,695</td>
<td>1,621</td>
<td>1,560</td>
<td>1,696</td>
<td>1,881</td>
</tr>
<tr>
<td>Missiles (AF)</td>
<td>4,204</td>
<td>5,131</td>
<td>5,614</td>
<td>3,859</td>
<td>3,710</td>
<td>4,035</td>
<td>4,335</td>
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<tr>
<td>Weapons (N)</td>
<td>2,555</td>
<td>3,084</td>
<td>3,626</td>
<td>4,054</td>
<td>3,941</td>
<td>3,932</td>
<td>3,777</td>
</tr>
<tr>
<td>($ M)</td>
<td>11,874</td>
<td>13,680</td>
<td>15,354</td>
<td>14,037</td>
<td>13,685</td>
<td>14,198</td>
<td>14,766</td>
</tr>
</tbody>
</table>
Munitions Interest Areas
DoD Ordnance Technology Consortium

DoD Ordnance Laboratory Center

- OSD (AT&L) DS/LW&I
- Department of the Army
- Department of the Navy
- Department of the Air Force
- Special Operations Command
- Defense Advanced Research Project Agency
- Defense Threat Reduction Agency
- Department of Energy
- Other Agencies and Departments

Section 845 Other Transaction

Task Order Sub Agreements
CRADAs
DEAs
Contracts
Test Service Agreements

National Warheads and Energetics Consortium

- Small Businesses
- Defense Contractors
- Academic Institutions
- Non-Profit Organizations
- Not-for-Profits Organizations

DoD and NWEC... Partnering to Leverage Capabilities and Investment
DOTC VISION

An integration of Government, Industry, and Academia into a single enterprise executing co-funded initiatives, sharing and developing goals and objectives, resources and assets, and utilizing existing personnel, facilities and equipment.
Number of DOTC Joint Projects

- 2000: 1
- 2001: 2
- 2002: 4
- 2003: 6
- 2004: 9
- 2005: 13
- 2006: 26
DOTC Resources

![DOTC Resources Graph](image-url)

- Yearly dotc resources from 2000 to 2006.
Joint DoD/DOE Munitions Program

Scope
• Approx. 50 projects at DOE NW labs in 10 Technology Coordinating Groups encompassing 5 focus areas:
  • Modeling & Simulation
  • Energetic Materials
  • Initiation, Fuzing, & Sensors
  • Warhead Tech
  • Munitions Lifecycle
• FY07 total funding ~$45M – DoD & DOE combined

Recent Accomplishments
• AFRL is transitioning multiphase blast explosive and composite case to Focused Lethality Munition JCTD
• Mini-SAR prototype with 5x reduction in size/cost successfully flown in UAV; technology is transitioning to industry
• Stockpile data analysis tool used by MC for TOW annual assessment
• Robotic demil system proven at DAC for Aerial Denial Artillery Munitions
• New IHE (LLM-105) transitioning to NSWC-Indian Head for production

DOTC is Transition Vehicle
Predictive Modeling and Simulation (M&S)

**Purpose**
- Establish DoD M&S capability focused on munitions safety and performance
- Enable system level, physics/chemistry-based design

**Approach**
- Build initial capability to support IM
  - Address violence of response of large rocket motors to IM insults
  - Start with bullet/fragment impact then address cook-off
  - Tools applicable to all munitions
- Address multiphase blast munitions for urban terrain
- Build Users Group

**Structure**
- M&S Initiative comprised of three elements
  - Joint DoD/DOE Munitions Technology Program
  - Multiphase flow, target interaction portfolio (DoD HPCMO)
  - IM Hazards Project Arrangement with UK

DOTC is Transition Vehicle
Insensitive Munitions (IM) Update

• IM Strategic Planning
  – Allows the PEOs and PMs to manage their IM investments on a portfolio basis while informing OSD and the JROC on the IM posture of the Department’s entire munitions portfolio
  – After two submissions, improvement has been noted (Small Diameter Bomb and M829A3 are IM compliant); however, over 80% of FY07 procurements remain non-compliant. Lack of technology is the primary roadblock to achieving compliance.
  – Plan submission moving to a two-year cycle beginning in FY08

• Joint Insensitive Munitions Technology Program
  – A robust 6.2/6.3 S&T program focused on putting demonstrated IM technology into the hands of PEOs and PMs,
  – Total FY08-13 Funding is $202M
  – Program is focused on developing and demonstrating enabling technologies in 5 munition areas – High Performance Rocket Propulsion, Minimum Smoke Rocket Propulsion, Blast/Fragmentation Warheads, Anti-Armor Warheads, Large Caliber Gun Propulsion

DOTC is Mechanism for Engaging Industry
Focused Lethality Munition (FLM)  
Joint Capability Technology Demonstration

- Technical Approach
  - Composite warhead case filled w/Multiphase Blast Explosive (MBX)
  - Modeling and simulation being used to characterize design in environments
- SDB I Low Collateral Damage Variant
  - Integrated w/ SDB I common airframe components
  - Limited far-field lethality (no warhead case frags)
  - For prosecution of urban targets
- Joint Capability Technology Demonstration (JCTD) Initiated in FY06
  - Contract awarded to Boeing on 31 Aug 06
  - JCTD hinges on AFRL technology development
  - Prototypes being tested at AFRL/Eglin AFB

New Technology from Joint DoD/DOE Munitions Program
- Composite Case Warhead
- Multiphase Blast Explosive
Emerging Contaminants

- Emerging contaminants (ECs) are chemicals or materials that are characterized by:
  - A perceived or real threat to human health or environment
  - A lack of published health standards or a standard that is evolving or being reevaluated
  - A contaminant may also be “emerging” because of the discovery of a new source, a new pathway to humans, or a new detection method or technology
- DoD is putting in place a process to constantly identify and assess the impacts of ECs on people, the environment, and on the DoD mission.
- Risk management options will be developed for those ECs with significant potential impacts on people or the DoD mission.

DoD Lead is ODUSD(Installations & Environment)
DoD Emerging Contaminants Action List

• Materials that have been assessed and judged to have a significant potential impact on people or the DoD mission
  – Perchlorate
  – Trichloroethylene
  – RDX
  – Naphthalene
  – Hexavalent chromium

• “Watch List” includes tungsten, nanomaterials

More information at: www.dodmeritinfo.net
Standardization

ASSIST Online

• A robust, comprehensive web site providing access to current information associated with military and federal specifications and standards in the management of the Defense Standardization Program.

• Provides public access to standardization documents over the Internet.

Register at:  http://assist.daps.dla.mil/online/start
Questions?
Back-Up Charts
DoD Fuze IPT

• Fuze Technology
  – Sponsored an OSD Fuze Technology Investment Issue for PR07 & POM 08
  – Failed on both attempts
• Fuze Acquisition Assessment
  – Completed an assessment of the projected health of the NTIB
  – Developed a Fuze Acquisition Database and Analysis Tool
  – Significant Trends noted:
    • Consolidation expected, some financial risk expected, some sustained by
      single program, competing for legacy work, few contractors capable of
      developing and producing wide range of advanced fuzes.
• Industrial Base
  – Completed DCMA study of 12 sub-tier suppliers
  – Observations Noted:
    • Majority are sole source suppliers, no critical single point failures, several
      outsourcing assembly, fuze components account for <10% of their business
      base, diminished R&D funding
• Briefing to the DUSD (Industrial Policy)
• Hard Target Fuzing
  – Joint Hard Target Penetration Fuzing Technology Exchange (November
    2006)
  – Secured $1.9M Joint Quick Reaction Funding (QRF) Proposal for FMU-152
    Characterization Testing against harder targets
Overview

- Air Force Armament Enterprise
- Contingency Sourcing
- Munitions Enterprise Challenges
- What are We (AF) Doing?
- How Can Industry Help?
Air Force Armament Enterprise

Hill AFB UT
- Air-to Ground Weapons
- Air Intercept Missiles
- GP Bombs
- CAD/PAD JPO
- Countermeasures
- APF
- Small-Med Cal AMMO

Oklahoma City AFB
- ACM, ALCM, CALCM

Pentagon
- SAF AQ
- USAF HQ A3, A4, A5,
- CAD/PAD JPO

Indian Head, MD
- CAD/PAD JPO

Kirtland AFB NM
- Nuclear Weapons Center

Eglin AFB FL
- JASSM, JASSM-ER
- WCMD
- JDAM
- SDB I and II
- Fuzes
- SFW

Robins AFB GA
- Air Superiority Munitions
- Handling Equipment
- Guns and Racks

Over 9,400 NSNs with Inventory Value > $22B

Expenditures of ~$645M Annually
Contingency Sourcing

Base X
- Analyzes On-Hand Assets vs Requirements
- Submits Re-supply Requests For Shortages

HAF/A4MW/A5RW
- Cross-Theater Support, Coordinate with Joint Staff
- Analyzes On-Hand Assets to Requirements
- Submits Re-supply Requests For Shortages
- Develop Sourcing Options
- Make Sourcing Recommendation
- Submit to AF CAT for Decision
- Execute to Sourcing Decision

MAJCOM A4WM
- Assess Requests for Inter-Theater Support
- Submit to ACP for Unsupportable Requests

UTC for JOPES PID

Approved Sourcing

The Real World

Shipping Information

BE AMERICA'S BEST
The Real World…

• Requirements are driven by the Warfighter.
• Can’t always wait for protocol!
• FMS can be a Driver!
• Industry Partnering is essential!
Munitions Enterprise Challenges

- Very limited vendor base due to explosive product
- Majority of assets are time sensitive
  - Service/shelf-life considerations
  - Asset age-outs lead to reprocurements
- Requirements for insensitive munitions (IM)
- Data systems based on aircraft and flying hrs
- Long-term storage and condition maintenance
- Growing (unfunded) demilitarization opportunities
What Are We (AF) Doing?

- Organizational Transformation
  - Consolidated Ammunition Control Point (CACP)
  - Established lean IPTs to work forecasting, allocation, sustainment & distribution
  - Focused on reducing duplication & improve flow times
- Implementing Item Unique Identification (IUID) for improved asset management
  - 784th CBSG has developed software tool that assists munitions managers in deciding which assets to mark
How Can Industry Help?

- Identify vendors capable of improving specialty components (GPS, communications, batteries, etc.)
- Participate in development of improved, more reliable fuzes for weapons
- Partner with us on production and process control improvements for our systems
- Knock down barriers that prevent information sharing among the Services and our contractors!
- Assist with Item Unique Identification (IUID) compliance
QUESTIONS??
**Joint Munitions Command**

**Mission Statement:** Execute Acquisition Support, Readiness, and Logistics sustainment through a Team of dedicated Professionals who Provide Effective, Available, and Value Added Munitions for the Joint Warfighter

**Vision:** Battlefield Dominance for the Warfighter with Superior Munitions

**JMC Core Competencies**

- DOD, Foreign Military Sales & Other Government Agencies Common Service Provider for Munitions
- Global Contingency Operations Support
- Joint Worldwide Asset Posture
- Munitions Readiness Reporting
- Industrial Base Management & Transformation
- Centralized Ammunition Management
- Munitions Logistics Assistance

**Single Logistics Provider for JOINT Munitions Readiness**
Munitions and Logistics Readiness Center
Field Operating Activity for the Single Manager

**We:**
- **Readiness**
  - Munitions Readiness
  - Assessment
- **Procure**
  - Operate the Industrial Base
- **Store**
  - Train
  - Maintain
  - Inventory
  - Surveillance
- **Distribute**
  - Training
  - War Reserve
- **Demil**
  - All Services
  - 442K STONS = 22% of Storage

**Mission Accomplished With:**
- 16* Organic Facilities
- 158 Commercial Facilities

**Conventional Ammo Value $26.6B**

**Storage/Supply Depot Operations**
- 2.554M STONS

**FY2006 Examples:**
- Maintenance Performed on 13.3K tons
- Demilitarized 30K tons
- Support to OEF/OIF & Trng 194K tons
- Retrograde/New Production 216K tons
- 16 Ammo LAR Unit Deployments

* Mission Accomplished With:
  - OCONUS
  - Direct Support to All Combatant Commanders
  - 638K STONS War Reserve
  - Army Prepositioned Stocks

* Post BRAC
Network, Positioning, & Transition Strategies

The Network and Positioning Strategies define the future state; the Transitioning Strategy lays a path toward that state.

1. **Network Strategy** addresses how to best employ the current installation base in carrying out the wholesale logistics function.
   - Capable of meeting Warfighter Contingency and Training Requirements
   - Economically Efficient

2. **Positioning Strategy** addresses how much of each DODIC should be stored at each depot.
   - To Support Regional Training
   - To Support Contingency Operations
   - Regional vs Centralized Storage

3. **Transitioning Strategy** prescribes actions that over time move the current state toward the target future state balanced and coordinated manner – reflected in Programming, Budgeting, and Execution decisions.
   - Linked back to Warfighter Requirements

Keeping the Warfighter in mind . . . .
The ILS Framework

Guides definition of a future state and transition toward that state

Regions
Outload
Storage

Selective investment

Upfront decision rules

Simultaneous assessment of key drivers

Characterization of current state

Ad-hoc political decisions

Network strategy

Positioning strategy

Training
War Reserve
Deep sto./Demil

Workload balance/ramp up

Check

Misalignment

Demand
Space
Capability

Workload/Outload

Transitioning strategy

Stockpile
Workload

Single DODIC Lever
Aggregate Lever

1 and 5-Year Plans
Prime value chains (PVC) are interrelated value streams that – when combined – deliver war fighter capability. They are the starting point for strategic transformation.
Thoughts I want to leave you with...

- JMC is logistics and readiness provider for ammunition
- Proving our relevance to the warfighter
- Transforming through LSS
- Emphasis on safety
Ammo Commercial & Organic Base Views

**Strategic**
- Ammo Sourcing Study
- Relative Niches

**Operational**
- Army FORMAL
- Radford Business Case Path
- Milan / Iowa Competition

**Support of DA and Joint Objectives**
- Radford Niche
- Methodology / Model
- LAP Facility use
- Model for AAP Competition

**Tactical**
- Radford Energy
- Ammo Production Delivery System

**Energy Services**
- Reduce Overhead
- Utilize Government Area

**Contracting Data Feed to Munitions Readiness Report**
- AMC BRAC 05
- PEO Ammo Follow & Support
SUSTAINING INDUSTRIAL READINESS – AN EXPORT PERSPECTIVE

C.D.WRAY
DIR FOR POLICY FOR SECURITY COOPERATION, RESOURCES, AND EXPORTS, ODASA DEC
Our Core Mission Areas

Export Controls/Tech Transfer
- Weapon Systems Export Policies
- Technology Transfer/Foreign Disclosure
- Munitions Licenses
- Direct Commercial Sales
- Leases (Title 10)

Security Assistance
- Foreign Military Sales
- International Military Training & Education
- Presidential Drawdowns
- Excess Defense Articles
- Co-production
- Leases (Title 22)

Armaments Cooperation
- Cooperative Research & Development
- Data/Information Exchange
- Personnel Exchanges
- Foreign Comparative Test
- Equipment Loans

Representation
- Joint Military Conferences
- NATO Army Armaments Group
- OSD/Bilat/Multilat Fora
- Senior National Rep (Army)

Policy
- Resources
- Approvals

G-2: Disclosure Authority
Sustaining the Base

Sustainment Presents A Huge Challenge

What? Products, Technologies, Capabilities?

Who? How much capacity do you need to sustain? Preserve competition?

Where? What mix of domestic and international (sales, tech transfer, off-shore capacity) is acceptable? Buy America?

How? Darwin? Welfare? Other?

What role can or should “exports” play in industrial base health?
Sustaining Industrial Readiness

• Requires Decisions and Commitment from Industry and the Government
  + Strategy
  + Action Plan
  + Discipline

CULTURE CHANGE
Leveraging International Opportunity

OPEN INVITATION

• To Partner on Solutions
• Share Market Intelligence
• Discuss ITAR Exemptions
• To Discuss Army Export Policy
  + Consider Waivers
Army Export Policy

**WHY**

- Presidential Decision Directive (PDD 34)
  - Sets criteria to evaluate potential arms transfers
- SECDEF Strategic Vision
  - Maintain U.S. forces’ operational edge
  - Increase access to foreign facilities
  - Continue to pursue coalition building
- CSA Campaign Plan
  - Operationally and tactically agile
  - Dominate in all operating environments
  - Ensure protection to the warfighter
  - Preserve / protect Army’s technology overmatch

**HOW DEVELOPED**

- Support international programs; while protecting national security equities / Army’s technology overmatch
  - Balance “share” and “protect” interests
- Technology Protection is a front-end function for weapon systems
  - Program Protection Plan
    - Technology Assessment Control Plan
- Critical Program Information
  - Security Classification Guide
  - Delegation of Disclosure Letter
  - Risk assessment / foreign availability
  - LO/CLO Policy
  - National Disclosure Policy

**WHO DECIDES**

- CSA
- ASA (ALT)
- G-2 / 3 / 4 / 8
- Army Export Policy* (DASA DEC)
- PEO / PM

**HOW IMPLEMENTED**

- Issued to Army stakeholders
- Army Position of Record
  - Country / Configuration Release
  - Export variants
  - Transfers of hardware / software / information / Data
  - Special Security Protection / Procedures
    - Anti-tamper
    - No software source code for sensitive systems
    - Limit maintenance test procedures/equipment
- Embedded in Army Foreign Military Sales (FMS), Direct Commercial Sales (DCS) and International Cooperation Program processes

* Developed by DASA DEC
Leveraging International Opportunity

THE POSSIBLE SUSTAINMENT PATH FORWARD

• Conduct meaningful dialogue with industry (IPT?) involved in international sales – led by the Army acquisition community and supported by Army export policy staff
• To determine “how” to implement the international piece of the choices (what, who, where) made
• To produce an international action plan that engages all equities – industry and government towards a coherent industrial base sustainment goal

NOT MARRIAGE COUNSELING SESSIONS
Leveraging International Opportunity

OBSERVATIONS

• The Army munitions industrial base is a unique industry-government partnership providing high quality, reliable capabilities that are generally available from foreign sources of supply. Niche capabilities not avail from other sources are generally low volume, medium to high cost.

• The “base” consists of suppliers who range in source from arsenal-based to solely commercial facilities/plants and in size from small independent manufacturers to major primes.

• The “base” manifests the worst and best traits of its variety in size and supplier base (regarding international sales).
QUESTIONS