Industrial Base Management

NDIA
Munitions Executive Summit
Tampa, FL
17-19 Feb 2004

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Mission:

- Provide Integrated Supply Chain Management of the Ammunition Production Base
- Optimize Planning, Coordination & Decision Making that Affects the Preparedness of the National Technology & Industrial Base

General Responsibilities:

- SMCA Directives & Army Regulation 700-90, Army Industrial Base Process
  - Develop & Maintain an Overarching Industrial Base Strategic Plan
  - Maintain GOCO Army Ammunition Plant Production Capabilities
  - Maintain a Production Base Plan (Supplier Capabilities, Capabilities, Deficiencies)
  - Insert Manufacturing Technology into the Industrial Base
  - Plan, Budget & Implement PAA-Activity 2 and RDT&E

- Implement Section 806, Public Law 105-261, Procurement of Conventional Ammunition

**Industrial Base Support Agreement (IBSA):** 2 PEO Ammo-ARDEC; 1 PEO Ammo-JMC
FY04 PEO Ammo Funding ($M)

PEO Ammo Total=$1.797B

- **RDTE ($385.5M)**
- **PAA ($1,411.4M)**

Industrial Base Total=$139.93M

- **RDTE $22.22**
- **WP MOD (plus-up) $24.30**
- **ARMS (Plus Up) $7.00**
- **ARMS $4.66**
- **LIF $13.02**
- **MIF $9.66**
- **IF $33.57**
- **IF (Plus Up) $25.50**

PAA Total= $117.71M

**Production Base Support Program**

- **IF=** Industrial Facilities
- **MIF=** Maintenance of Industrial Facilities
- **LIF=** Layaway of Industrial Facilities
- **ARMS=** Armament Retooling & Manufacturing Support (ARMS)
- **WP MOD=** White Phosphorous Modernization

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Recent/Ongoing Activities

- **SMCA Industrial Base Assessment Tool**
  - Facilitates Industrial Base Considerations into Acquisition Planning

- **Supply Chain Single Point Failure Identification & Mitigation**
  - 200+ Items Identified and Being Prioritized
  - Formulating Risk Mitigation Plans & Programs

- **GOPO AAP Cost & Footprint Reduction Initiatives**
  - Goal: Minimize Government Subsistence
  - Targeting AAPs with Most Challenging Infrastructures and Operating Costs

- **Industrial Base Baseline & Supplier Assessment Tool**
  - Metrics and Data Collection to Characterize Supply Base

- **Environmental Characterization**
  - MS and LA AAPs Earmarked in FY2004/2005
Activities (Cont)

- **GOCO AAP Divestiture Concept Planning**
  - Timelines, Activities and Resource Planning for Post BRAC05

- **GSA/Army Twin Cities AAP Excess to Ownership Effort**
  - Medium Cal Fuze Base Challenge
  - Expected Divestiture by FY2006

- **Disaster Recovery Planning**
  - Strategic Planning to Mitigate Catastrophic or Single Point Failure Risk
  - Goal: Maintain Business Continuity Under Adverse Scenarios

- **Revision of Planning/Replenishment Requirements**
  - Production Base Investments Focused on POM Sustainment
Section 806 Summary

Procurement Approach Distributions (All Services)

Section 806:
- Public Law 105-261, Procurement of Conventional Ammunition
- Permits SMCA to Restrict Procurements to Sources within NTIB

FY03
- Competition Limited to the NTIB: 22
- Full and Open: 39
- Sole Source: 43
- Small Business Set Aside: 20
Total= 124

FY04 (Projected)
- Competition Limited to the NTIB: 11
- Full and Open: 39
- Sole Source: 30
- Small Business Set Aside: 21
Total= 101

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Industrial Base Challenges

- Industrial Base Strategic Plan
- Production Base Modernization
- Small Cal Production Risk Mitigation
- Self Destruct Fuze & Reserve Battery High Volume Production
- Single Point Failures & “Critical-Risk” Supply Chain
- Foreign Source Vulnerabilities
- Medium Caliber Cartridge Case Supply Chain
- Managing Supply Chain at Sub-System Level
- GOCO AAP Operating Costs, Inefficiencies & Rightsizing
- Mitigating Volatile Procurement Buys
- Redefining Replenishment/Surge Requirements
- Next Generation Materials for Future Combat System
- Industry’s Escalating Insurance Costs
- Post Retirement Benefits Bills at AAPs

IPT Identified 30 Key Challenges

- Impact to Meet Requirement if Not Resolved in 3 Yrs
- Impact on Ability to Operate Effectively & Efficiently

6 Sigma/QFD Criteria
Concerns for the Ammunition Industrial Base

- Peacetime buys drive the base yet peacetime buys exist for only 93 of 200 critical end items
- Buy quantities fluctuate which means:
  - Breaks in production
  - Lost critical skills
  - Increased start-up costs
- Single source exists for 105 of 361 critical components
- No US/Canada source for certain critical components and ... others at high risk
- Surge capability virtually non-existent ... can only affect 10% of the “go to war” shortfalls
- Minimal incentive for capital investment, new technology
- Ongoing operations, Homeland Defense, and small scale contingencies will increase production base demands
The Ammunition Industrial Base is at a Critical Juncture – How Did We Get Here?

- Peacetime training requirements cannot sustain the base
- Competition can have unintended consequence – must include consideration/preservation of unique/ critical capabilities, i.e., nurture the base
- Budget affordability versus warfighter needs
- Policy changes diminish capabilities, e.g., mobilization surge → resupply → replenish in 24 months → replenish in 36 months → 1 vs 2 MTW’s → ?
- Focus on price versus price and readiness
The Ammunition Industrial Base Is At A Critical Juncture – What Are We Doing About It?

- Focus on continual support to our primary customer – the warfighter
- Continue to perform industrial preparedness planning and maintain plans/provisions for production demands
- Increase level of focus to second and third tier producers
- Market Surveys
- Capability Assessments
- Financial Viability Analysis
- Predict next items at risk/avoid “next crisis”
- JMC now working under the umbrella of PEO Ammo. Enterprise look at industrial base and acquisition strategies.
## Munitions Production Base Readiness-FY07

### Table: Ammunition Production Base Readiness

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<tr>
<td>Mortars</td>
<td>B2</td>
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<td>Pyrotechnics</td>
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<td>Rockets &amp; Missiles</td>
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<tr>
<td>Small Caliber</td>
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<tr>
<td>Tank Ammo</td>
<td>B2</td>
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</table>

### Ratings:

- **B 1**: Continued / reliable production source for both peacetime buys and replenishment demands
- **B 2**: Currently can meet peacetime and replenishment demands but continued producibility at risk
- **B 3**: Can not meet peacetime and replenishment demands
- **B 4**: No facilities to produce.

### Overall Ammunition Production Base – B3

Evaluations made at component as well as the end item assembly level, then factored into end item & further considered in family ratings.

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Industrial Base Metrics

- Operational
  - Munitions Readiness Assessment B-Ratings (POM/Surge) [JMC/IPT]
  - Engineering
    - Supplier Production Delivery Adherence [JMC/ProdStat]
    - % Capacity Utilization [JMC/ARDEC]
    - Facility Condition [JMC]
    - Min Sustaining Rate [IPT]

- Quality
  - Requests for Waiver Submitted [PM]
  - Quality Deficiency Reports [PM]
  - % Tests Passing Lot Acceptance Tests [PM]

- Financial
  - Corporate Financial Risk Assessment [DCMA/JMC]

- Facility Safety
  - Number of OSHA violations [DCMA]

- Environmental
  - Violations [AEC]
  - National Priorities List/Hazardous Rating Score [AEC]
  - Off-Site Contamination [AEC]

- Supplier Assessment Rating
  - Customer Satisfaction [PPIRS] (Service, Schedule, Cost, Relations, Mgmt of Key Personnel)

Data Collection Method:
- JMC/IPT
- JMC/ProdStat
- JMC/ARDEC
- JMC
- PM
- DCMA
- DCMA/JMC
- AEC
- AEC
- AEC
- PPIRS

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Industrial Base Strategic Plan

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

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

Outlines Goals and Tactics to Shape the Industrial Base
# Strategic Goal #3: Balance Industrial Base & Acquisition Management Risk

**3.1 Objectives**

- Ensure critical manufacturing capabilities are available to meet requirements.
  
- Balance cost, schedule, risk, and performance with need to have capability.
  
- Establish right-sized ammunition industrial base.

**3.2 Outcomes**

- Industrial base is prepared to respond to all requirements.
  
- Increased industrial base stability.
  
- Improved surge capabilities.

**3.3 Strategies**

- Synchronize ammunition procurements to sustain required manufacturing capabilities.
  
- Partner with industry and academia to assist in advancing the state of manufacturing readiness.
  
  e. IAW Strategy 1.1, reduce GOCO AAP operating costs through privatization, long term leasing, or consolidation (excess if not needed), focusing on preserving critical capabilities.
  
  - Use Science Base Production and prototyping for attaining surge capabilities and emergency requirements.
### Goal #5: Incentivize Industry to Reinvest in Capital Equipment and Processes

#### 5.1 Objectives

- **Maintain a financially viable industrial base to respond to current and future requirements.**

#### 5.2 Outcomes

- Increased supply chain readiness
- Improved quality
- Increase competitiveness and innovation.

#### 5.3 Strategies

- Establish multi-year contracting strategies by ammo family.
- Promote long term relationships/partnerships with Industry.
- Explore indemnification on a selected basis.

- **b. Increase industry investment in equipment and facilities**
  - Increased supply chain readiness
  - Improved quality
  - Increase competitiveness and innovation.

- **e. Match government funds for contractor investment in capital equipment.**
  - Facilitate use of Science Based Production modeling and process controls.

- **h. Initiate a Manufacturing Modernization Loan Program to provide low interest rates to the ammo supply chain.**
Overarching GOCO AAP Strategies

1. No GOCO AAP consolidation or divestiture implementation other than as part of the FY2005 Base Realignment and Closure Process (BRAC) without Secretary of the Army approval.


3. Reduce excess physical capacity and infrastructure.

4. Identify and implement opportunities for greater joint service activity.

Acquisitions Structured to Sustain Required Manufacturing Capabilities
Principal Strategy:

1-Align Facility Use Contracts w/ BRAC05
2-Pursue Feasibility and Overall Business Case for Sell or Long Term Lease, then Consider Consolidation (Pending BRAC Outcome)
The Problem:
- Legacy Databases
  - Do not Correlate
  - Developed Independently

The Challenge:
- Modernize IB Data System
- Integrate Data and Create Decision Support Systems for Planners and PMs

Example Data Sources:
- Risk Rating
- Inventory
- Contract Schedules
- POM Data
- Engr. Changes
- AAP Data
- Prod. Schedules
- POM Data (RIA)
- War Reserve

Data Mining
- Bill of Material Trees
- End Item Data Sheets
- Facility Data Sheets

Metrics
- End Item
- Supplier
- Facility

Reports / Analysis
- Pacer (P)- Supply Chain Choke Points
- Pacer “What-If” (PW)
- Capacity Report (C)
- Single Point Failures

Prototype Demonstrated: Sep 2003
Production Version Complete: Sep 2004

17-19 Feb 2004
ITEM DETAIL
105MM HC SMOKE CTG M84A1 (1315012680384) P

ITEM DATA

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<tr>
<th>NOMENCLATURE</th>
<th>105MM HC SMOKE CTG M84A1</th>
<th>DODIC</th>
<th>C479</th>
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### PEACETIME PRODUCTION

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**GOES INTO REPORT**

- 105MM HC SMOKE CTG M84A1
- 105MM HC SMOKE CTG M84A1 LAP
- CASE CTG M1481 F/105MM
- CHARGE PROP
- LEAD AZIDE (SP)
**PLANNING DATA**

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**PLANNED**

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### Facility Item Detail for Selected Item

#### Selected Item

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<tr>
<th>NOMENCLATURE</th>
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#### Producing Facility Data

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### SCHEDULES

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</table>
CARTRIDGE, 105MM, HEDP (ICM) M915, LAP- Lone Star AAP

Summary: Item has 16 major components representing 10 producers (6 gov't + 4 commercial) operating in 10 states.

Base Capability Constraints:
- Self-Destruct Fuze - battery under development
- ICM grenade capability inactive/laidaway
- No US source for Lead Azide; stockpile is dwindling
Production Base Modernization

- Focused Sectors:
  - Propellant
  - Explosives
  - Small Caliber
  - Metal Parts
  - Electronics/Sensors/Fuzing
  - Load, Assemble and Pack

- Some Ongoing Activities:
  - Twin Screw Extruder Propellant/Energetic Manufacturing Process
    - Black Powder ARDEC Science Based Production/Transfer to Industry
  - Automated Combustible Mortar Increments Fabrication @ ARMTEC
    - 120mm/81mm/60mm Mortars
  - Sheeted Cotton Linters for Nitrocellulose Manufacturing @ RFAAP
  - White Phosphorous LAP Production Line @ Pine Bluff Arsenal
  - GOCO AAP Cost Reduction & Modernization Planning
  - Prototype Lead Azide Reactor
Automated Combustible Mortar Increments Assembly

• Automated Assembly for 60mm/81mm/120mm Mortar Increments @ ARMTEC

• Mantech/Life Cycle Pilot Process Initiative to Improve Safety, Increase Quality and Reduce Costs

• Prototype Demonstrated: 1QFY04

• Production Assembler Demonstration: 4QFY04
PEO Ammo and JMC Continue to Work Together Prioritizing and Resolving Critical Industrial Base Challenges