

Industrial Base Management



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Munitions Executive Summit
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Industrial Base Management Overview



Bi-Monthly Meetings
Bi-Weekly Telecons

Integrated Product Team

- | | | | | |
|-----------|-----------|----------------|-----------|------------|
| •PEO | •AMC | •Army G3/G4/G8 | •USMC | •ACSIM/AEC |
| - Ammo | •JMC | •OUSD(AT&L) | •USAF | •DCMA |
| -Tact Mis | •ARDEC | •GSA | •USN | •CMA |
| •PMs | •Industry | •ASA(ALT) | •ASA(I&E) | |

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

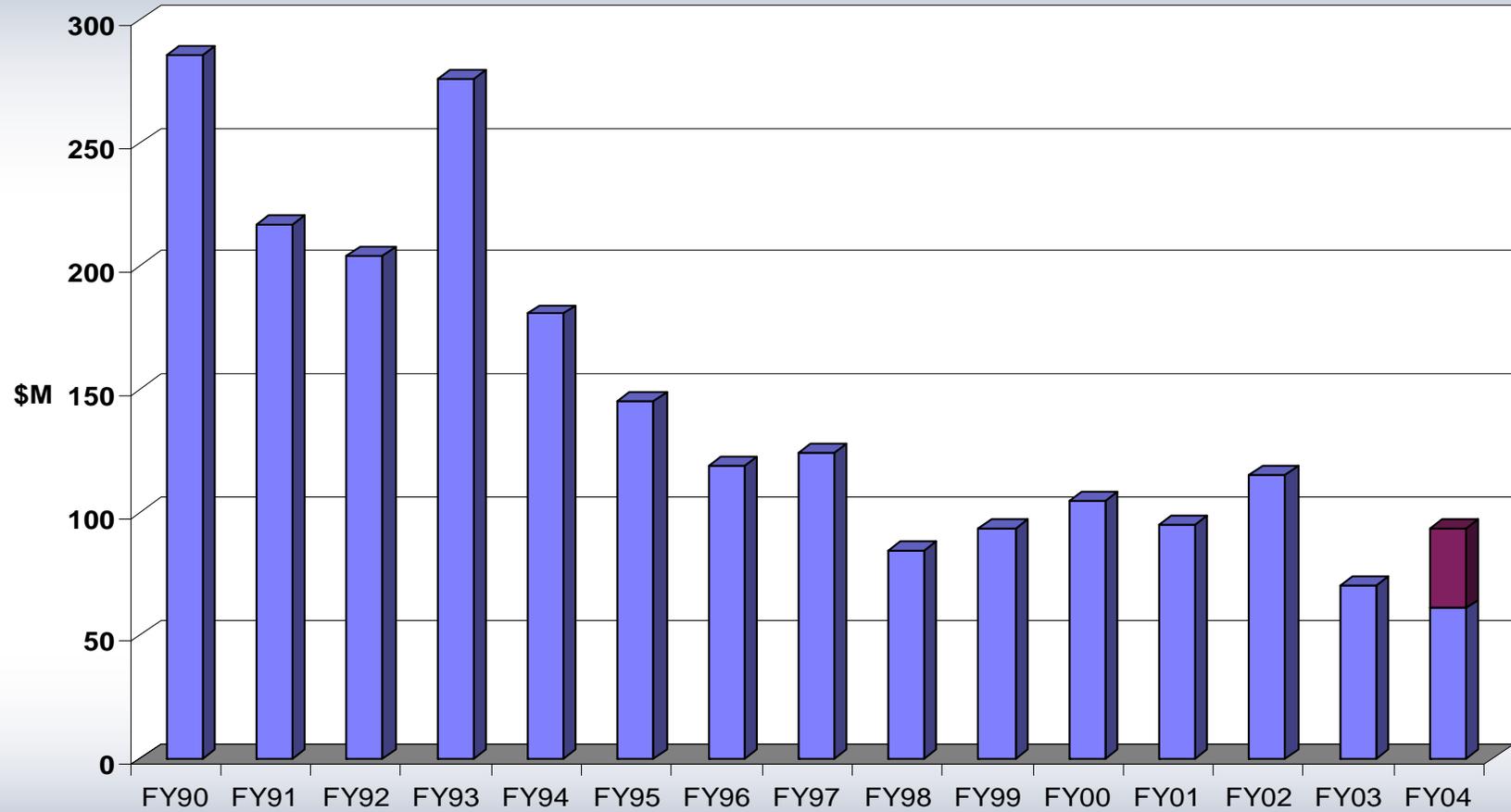
General Responsibilities:

- 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



FY90-FY04 Production Base Funding

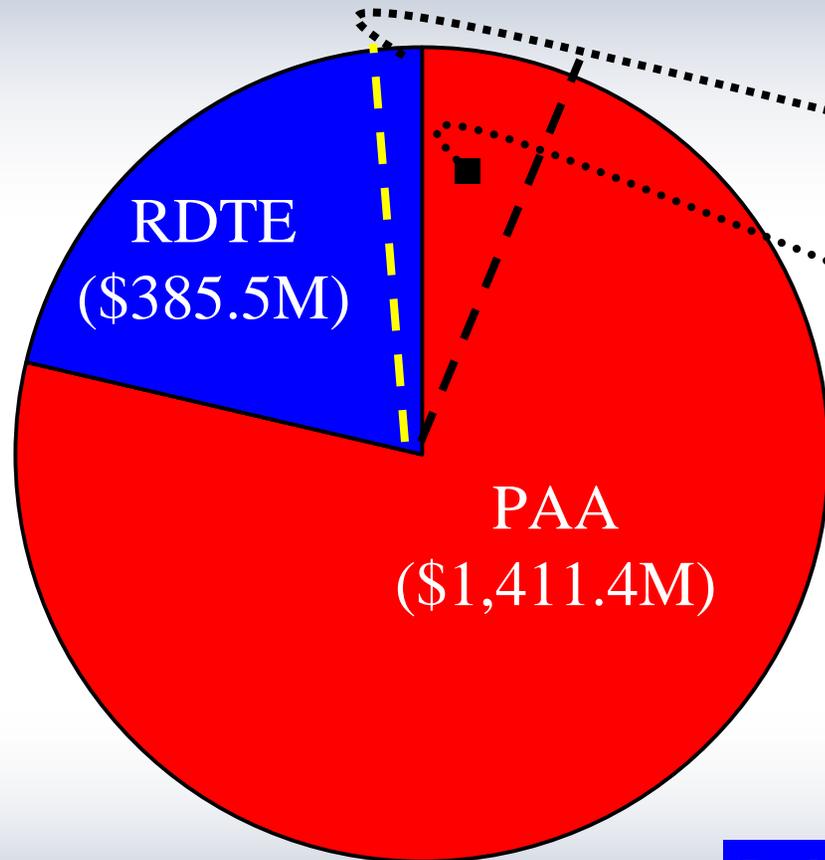




FY04 PEO Ammo Funding (\$M)

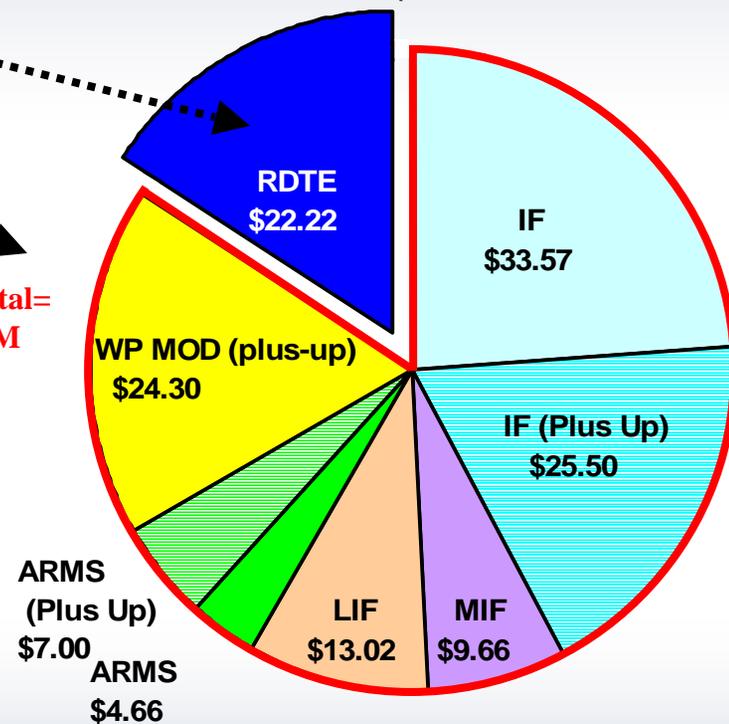


**PEO Ammo
Total=\$1.797B**



**Industrial Base
Total=\$139.93M**

**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



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
- **GOCO 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



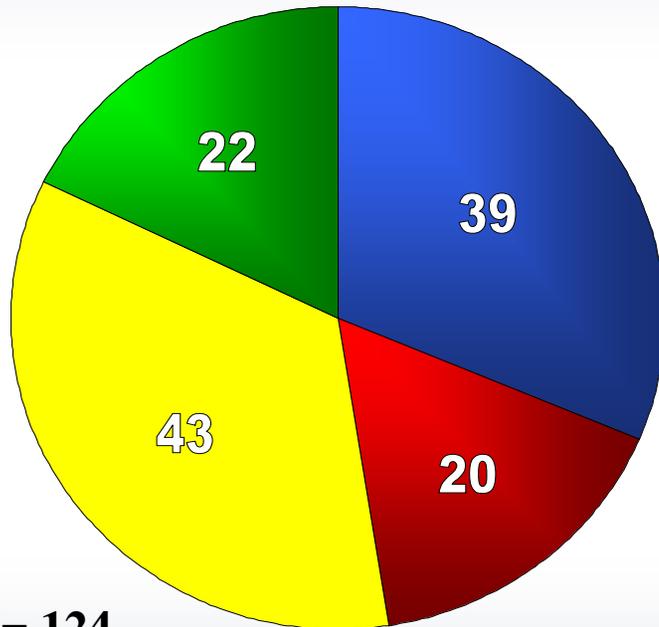
Section 806 Summary



Procurement Approach Distributions (All Services)

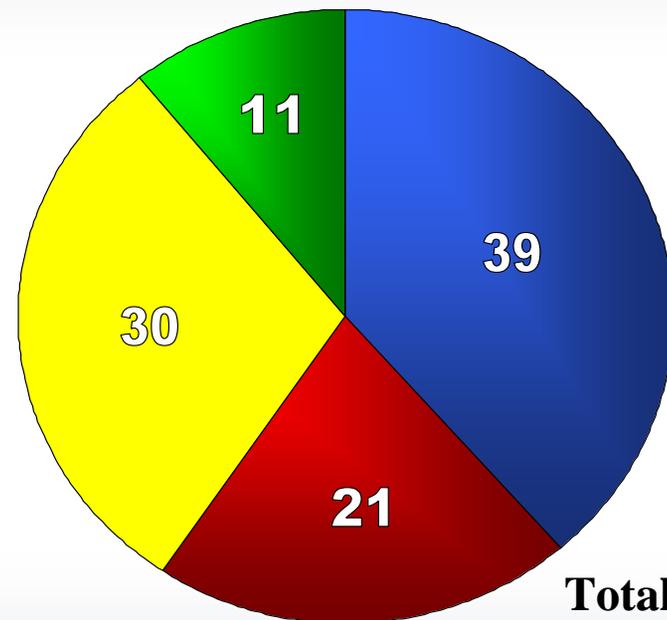
Section 806:

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



Total= 124

FY03



Total= 101

FY04 (Projected)





Industrial Base Challenges



Block 1

- ✓ 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**

6 Sigma/QFD Criteria

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



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



Family		Rating
Artillery	B3	B-3
Bombs	B2	B-3
Cannon Caliber	B2	B-3
Demo,Mines,Grenades	B2	B-3
Dispenser	B1	B-1
FASCAM	B2	B-3
Fuzes	B2	B-3
Mortars	B2	B3
Navy Gun	B2	B-4
Prop Charges	B2	B-3
Pyrotechnics	B2	B-2
Rockets & Missiles	B2	B-3
Small Caliber	B3	B-3
Tank Ammo	B2	B-2

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 <i>and</i> replenishment demands
B 4	No facilities to produce.



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

Overall Ammunition Production Base – B3



Industrial Base Metrics



Data Collection Method

- 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)



Industrial Base Strategic Plan



**6 Overarching
Strategies**

**30 Tactical
Strategies**

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



Sample Strategies

3.1 Objectives	3.2 Outcomes	3.3 Strategies
<ul style="list-style-type: none">• Ensure critical manufacturing capabilities are available to meet requirements.b. Balance cost, schedule, risk, and performance with need to have capability.c. Establish right-sized ammunition industrial base.	<ul style="list-style-type: none">• Industrial base is prepared to respond to all requirements.• Increased industrial base stability.• Improved surge capabilities.	<ul style="list-style-type: none">• 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	5.2 Outcomes	5.3 Strategies
<ul style="list-style-type: none"> • Maintain a financially viable industrial base to respond to current and future requirements. 	<ul style="list-style-type: none"> • Increased supply chain readiness • Improved quality • Increase competitiveness and innovation. 	<ul style="list-style-type: none"> • Establish multi-year contracting strategies by ammo family. • Promote long term relationships/partnerships with Industry. • Explore indemnification on a selected basis.
<p>b. Increase industry investment in equipment and facilities</p>	<ul style="list-style-type: none"> • Increased supply chain readiness • Improved quality • Increase competitiveness and innovation. 	<ul style="list-style-type: none"> 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.
2. Reduce Army Ammunition Plant Cost-of-Ownership.
3. Reduce excess physical capacity and infrastructure.
4. Identify and implement opportunities for greater joint service activity.



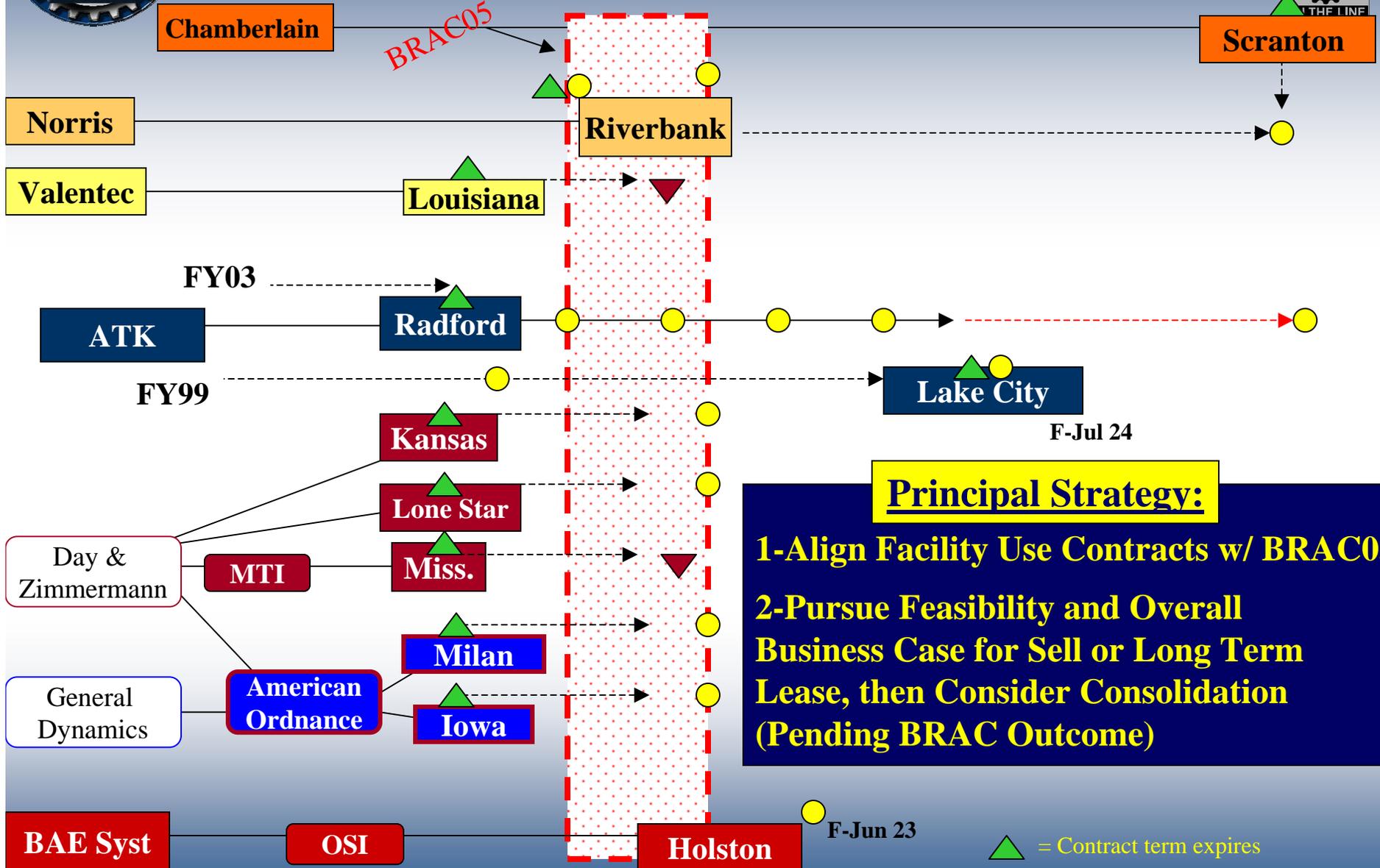
**Acquisitions Structured to Sustain
Required Manufacturing Capabilities**



GOCO AAP Strategy Outlook



FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12



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)

▲ = Contract term expires
 ● = Decision or actionable point



SMCA Industrial Base Assessment Tool



- **Prototype Demonstrated: Sep 2003**
- **Production Version Complete: Sep 2004**

The Problem:

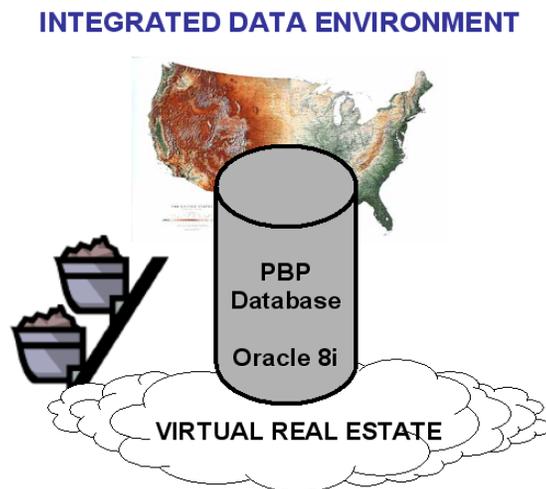
- **Legacy Databases**
 - Do not Correlate
 - Developed Independently

The Challenge:

- **Modernize IB Data System**
- **Integrate Data and Create Decision Support Systems for Planners and PMs**

Example Data Sources

Risk Rating	MRR
Inventory	WARS
Contract Schedules	APMRS
POM Data	RDAISA
Engr. Changes	ECPs
AAP Data	BARDS
Prod. Schedules	PRODSTAT
POM Data (RIA)	ICAPP
War Reserve	QWARRM



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**



Welcome DEWULFJ - ADMIN

Items Facilities Reports Admin Logout

ITEM DETAIL
105MM HC SMOKE CTG M84A1 (1315012680384) P

ITEM DATA

NOMENCLATURE	105MM HC SMOKE CTG M84A1	DODIC	C479	NSN	1315012680384	FAMILY	ARTILLERY CALIBER
PART NUMBER	12902717	UNITS OF ISSUE	EACH	MRR ITEM B RATING	B-3	MRR FAMILY B RATING	B-3
PLANNER	SMITH, ROGER (R09)	PM		PM SUBGROUP		MAP	
WAR RESERVE	13,169	CURRENT STOCKPILE AND	61,979	WR SURPLUS	48,810	PREFERRED ITEM	Y

CURRENT MANUFACTURING DATA

Estimated Unit Prices				TRAINING STD. <input checked="" type="checkbox"/>	SINGLE SOURCE <input type="checkbox"/>
Service	ICAPP	ICAPP Calculated		TRAINING UNIQUE <input type="checkbox"/>	SOLE SOURCE <input type="checkbox"/>
No Data Available				WAR RESERVE <input checked="" type="checkbox"/>	FOREIGN SOURCE <input type="checkbox"/>

PEACETIME PRODUCTION	ICAPP DATE:
NO DATA FOUND	

BILL OF MATERIALS

GOES INTO REPORT

[Expand All](#) | [Collapse All](#)

	NSN	PROD FACTOR
[-] 105MM HC SMOKE CTG M84A1		
[-] 105MM HC SMOKE CTG M84A1 LAP	<u>1315012680384</u>	<u>1</u>
[-] CASE CTG M14B1 F/105MM	<u>1315000772129</u>	<u>1.03</u>
[-] CHARGE PROP	<u>1315008251384</u>	<u>1</u>
[-] LEAD AZIDE (SP)	<u>1376010558569</u>	<u>0.0002</u>

PLANNING DATA

PRODUCING FACILITY	FACILITY ITEM DETAIL	CAGE CODE	LINE	STAND ALONE 1-SHIFT	CONCURRENT 1-SHIFT	STAND ALONE MAX	CONCURRENT MAX
Facility Name Not Available		<u>55768</u>	33-630	12,000	3,144	0	0

PLANNED QTY	ALL (14,220)	SUBSTITUTE ITEM					
PLANNED	Y	PENDING ECPS		MANTEC & PRODUCIBILITY EFFORTS		SKILLS & TECHNOLOGY	
SECTION 806 DATA		ITEM NOTES/ISSUES		SMCA FORECAST		CONTRACT DELIVERY SCHEDULE	

NSNs WITH SAME DODIC

NOMENCLATURE	NSN	CONTAINS PBP PLANNING DATA	CONTAINS ICAPP FUTURE BUY DATA



Welcome DEWULFJ - ADMIN

[Items](#) [Facilities](#) [Reports](#) [Admin](#) [Logout](#)

FACILITY DETAIL FOR SELECTED ITEM

SELECTED ITEM

NOMENCLATURE	105MM HC SMOKE CTG M84A1	DODIC	C479
NSN	<u>1315012680384</u>	FAMILY	ARTILLERY CALIBER

PRODUCING FACILITY DATA

NAME	FACILITY NAME NOT AVAILABLE		
CAGE CODE	55768	PLANNER	SMITH, ROGER (R09)
LOCATION	NOT AVAILABLE		
RISK		NOTES	INFORMATION
CUSTOMER SATISFACTION		FINANCIAL HEALTH	ENV COMPLIANCE
SAFETY/OSHA ISSUES		CPK	% SCRAP RATE
ITEM	33-	OTHER ITEMS SHARED ON	

CAPACITY

SHIFT DESCRIPTIONS		STAND ALONE 1-SHIFT	12,000	CONCURRENT 1-SHIFT	3,144	STAND ALONE MAX	30,000
CONCURRENT MAX	7,860	MIN SUSTAIN RATE	1,000	PLANNED QTY	14,220	CONTRACT DELIVERY SCHEDULE	
CAPACITY REMARKS							

SCHEDULES

MONTH	PLANNING SCHEDULE	MAXIMUM CONCURRENT	MAXIMUM STAND ALONE
1		0	0
2		0	0
3		0	0
4		0	0
5		0	0
6		0	0
7		0	0



IBAT Mapping



Chamberlain Mfg Corp
Scranton AAP (Scranton, PA) SCAAP

Shell (Projectile Body)

Artillery
Navy Gun
Mortar

Day & Zimmermann
Lone Star AAP (Texarkana, TX) LSAAP

Charge Assembly, Expulsion M915

Artillery
Mortars

RFAAP (Radford, VA) Propellant SBM10 RFAAP

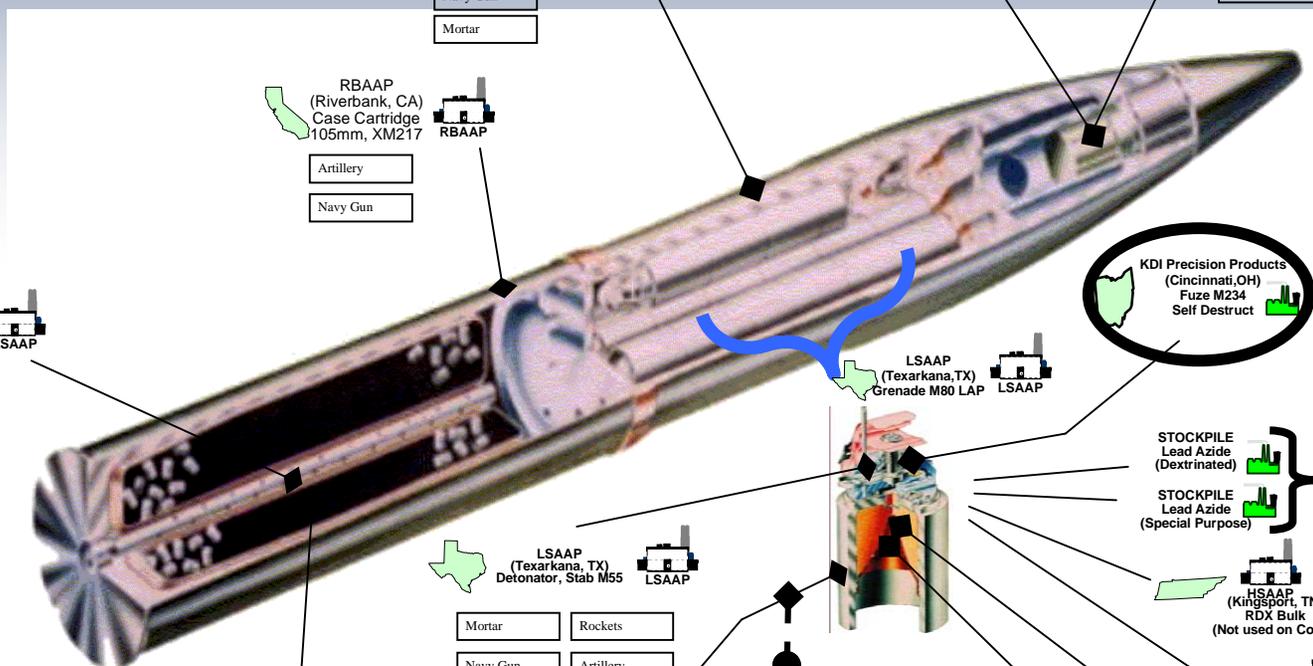
Artillery
Mortars
Rockets

RBAAP (Riverbank, CA) Case Cartridge 105mm, XM217 RBAAP

Artillery
Navy Gun

LSAAP (Texarkana, TX) Primer Perc, M28B2 LSAAP

Artillery
Navy Gun



KDI Precision Products (Cincinnati, OH) Fuze M234 Self Destruct

Artillery
Rkts/Warhds
Mortar
Navy Gun

STOCKPILE Lead Azide (Dextrinated)

Artillery
Rockets
FASCAM
Tank
Navy Gun
Mortar

STOCKPILE Lead Azide (Special Purpose)

Fuzes
Med Cal
Missile

LSAAP (Texarkana, TX) Detonator, Stab M55 LSAAP

Mortar
Rockets
Navy Gun
Artillery

HSAAP (Kingsport, TN) RDX Bulk (Not used on Comp) HSAAP

Artillery
Rockets
FASCAM
Pyro
Navy Gun
Mortar
Demo
Med Cal
Grenade

RFAAP (Radford, VA) Propellant, TB M30A1 RFAAP

Artillery
Prop Charges

Amron LLC (Antigo, WI) Grenade Metal Parts f/ Grenade M80

MSAAP (Bay Saint Louis, MS) Grenade Metal Parts f/ Grenade M42/M46

RBAAP (Riverbank, CA) Grenade Metal Parts f/ Grenade M42/M46

LSAAP (Texarkana, TX) Lead Cup Assembly LSAAP

Mortar
Rockets
Navy Gun
Artillery

HSAAP (Kingsport, TN) Composition A-5 HSAAP

Artillery
Rockets
Mortar
Med Cal
Missile
Demo

Olin (East Alton, IL) Cone, Copper f/ Grenade M80

ITW Highland (Waterbury, CT) Cone, Copper f/ Grenade M80

Rkts, Warheads
Navy Gun
Artillery
Mortar

**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

UNCLASSIFIED



Production Base Modernization

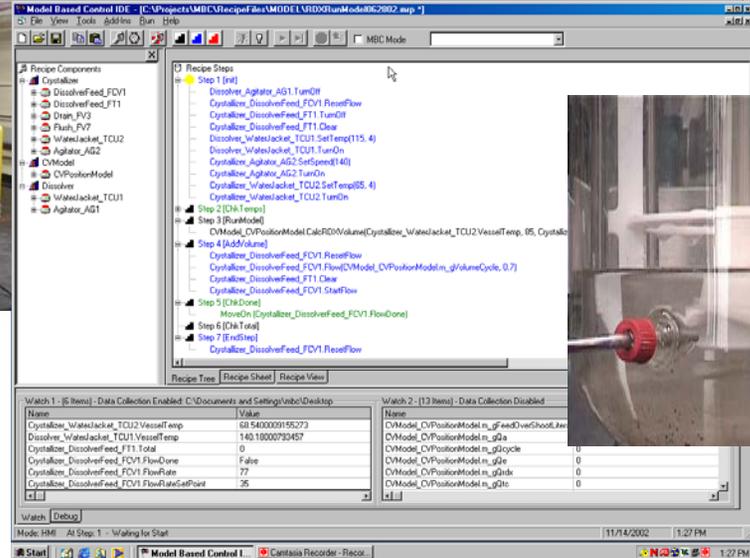
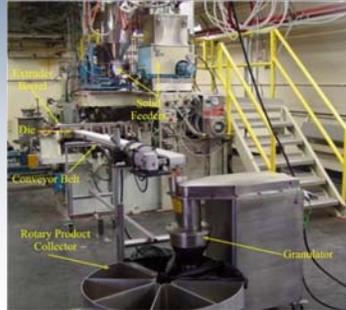


➤ Focused Sectors:

- ✓ 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





Ammunition Industrial Base Management Summary



**PEO Ammo and JMC Continue to
Work Together Prioritizing and
Resolving Critical Industrial Base
Challenges**