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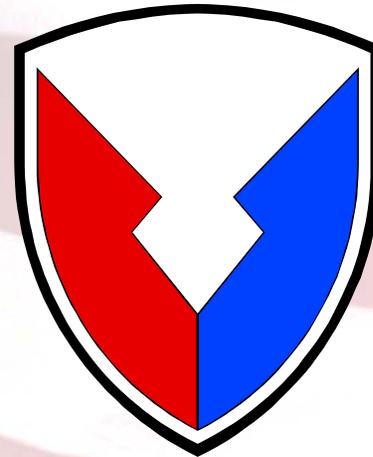
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# **U.S. Army Materiel Command**

## ***AMC Organic Base Overview***

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***25 February 2004***



# Report Documentation Page

*Form Approved  
OMB No. 0704-0188*

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1. REPORT DATE <b>25 FEB 2004</b>	2. REPORT TYPE <b>N/A</b>	3. DATES COVERED <b>-</b>	
4. TITLE AND SUBTITLE <b>AMC Organic Base Overview</b>		5a. CONTRACT NUMBER	
		5b. GRANT NUMBER	
		5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)		5d. PROJECT NUMBER	
		5e. TASK NUMBER	
		5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>U.S. Army Materiel Command</b>		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)	
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>			
13. SUPPLEMENTARY NOTES <b>See also ADM001865, Industrial Process and Energy Optimization. Proceedings of the Industry Workshop Held in Gettysburg, PA, 25-27 February 2004., The original document contains color images.</b>			
14. ABSTRACT			
15. SUBJECT TERMS			
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>	<b>UU</b>
			18. NUMBER OF PAGES <b>14</b>
			19a. NAME OF RESPONSIBLE PERSON



# *Outline*

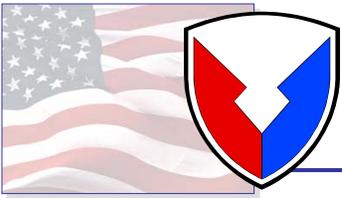
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❖ *Industrial Base Definition*

❖ *Organic Base Today*

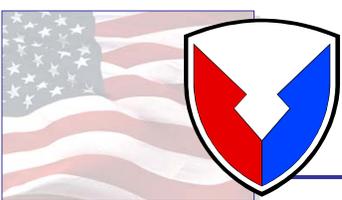
❖ *Organic Base Examples*

❖ *Lean Implementation*



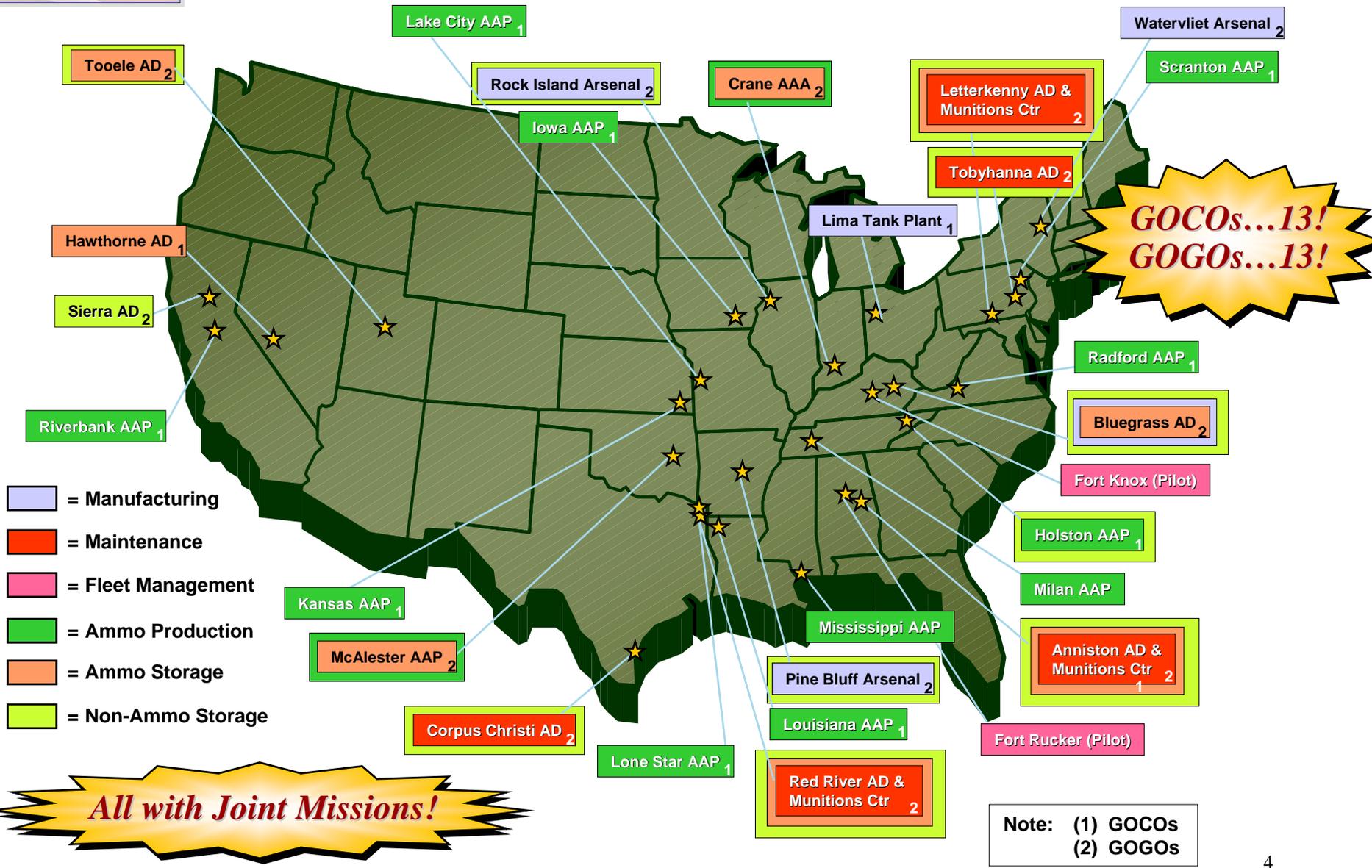
# *Industrial Base Definitions*

- ❖ *10 USC 2500 -- “national technology and industrial base” ... persons and organizations engaged in research, development, production, and maintenance activities conducted within the U.S. & Canada.*
- ❖ *50 USC 2152 -- “domestic defense industrial base” ... domestic sources providing, or which would be reasonably expected to provide, materials and services to meet national defense requirements during peacetime, graduated mobilization, national emergency, or war.*
- ❖ *FARS 208.7201 – “industrial base”... that part of the total privately-owned and Government-owned production and maintenance capacity of the U.S. & Canada, which will be available during national emergencies to manufacture and repair items required by the Department.*
- ❖ *AR 700-90 -- “Industrial Base” ... the privately owned and Government-owned industrial capacity available for manufacture, maintenance, modification, overhaul, and/or repair of items required by the United States and selected allies, including both the production base and the maintenance base.*



# U.S. Army Materiel Command

## - Today's Organic Base -





# *Rock Island Arsenal*

*- Products/Programs -*

- ❖ *155mm Howitzer, M198*
- ❖ *105mm Howitzer, M119*
- ❖ *Recoil Mechanism, Carriage -- Howitzers*
- ❖ *Final Assembly - Light Towed Howitzer (105mm)*
  - M101A1
  - M102
  - M119
  - M198 (155mm)
- ❖ *Gun Mounts*
  - 105mm: M140A1 (M60 Tank)
  - 120mm: M1 (M1A2 Tank)
  - 155mm: M178/M182 (M109 Self-Propelled Artillery)
- ❖ *Howitzer*
  - 165mm: M150 (M728 Combat Engineer Vehicle)
- ❖ *Mobile Shop Sets & Tool Outfits*
- ❖ *Forward Repair Systems*
- ❖ *Contact Maintenance Truck, Heavy*
- ❖ *Explosive Ordnance Disposal*
- ❖ *Aircraft weapons sub-systems*
- ❖ *Spare and repair parts*

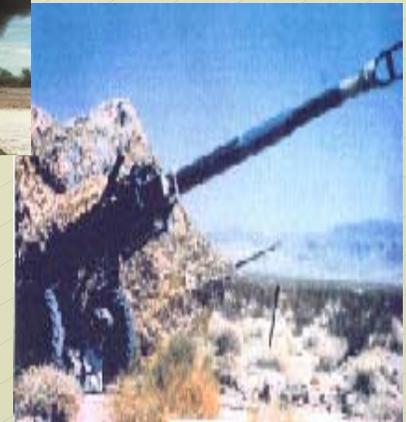




# *Anniston Army Depot*

*- Products/Programs -*

- ❖ *M1 Abrams Family of Vehicles*
- ❖ *Armored Vehicle Launched Bridge (AVLB)*
- ❖ *M88 Recovery Vehicle*
- ❖ *Self-propelled Artillery*
  - M109A5 Paladin
  - M109A6 Paladin
  - FAASV
- ❖ *Towed Artillery*
  - M119 Howitzer
  - M102 Howitzer
  - M198 Howitzer
- ❖ *M9 Armored Combat Earthmover (ACE)*
- ❖ *M113 Family of Vehicles*
- ❖ *Small Arms*
  - M16 Rifle
  - M2 MG 50 cal
  - M60 MG 7.62 mm
  - M240 MG
  - M4A1 Carbine
  - MK19 MG
  - M16A2 Rifle
  - 30MM Gun Auto
  - M249 SAW
  - Pistol 9MM
- ❖ *Mortars and Grenade Launchers*
  - 120MM Mortar





# McAlester Army Ammunition Plant

- Products/Programs -

## ❖ *Insensitive Munitions Filled Bombs*

- 500 lb
- 1,000 lb
- 2,000 lb

## ❖ *Non-Insensitive Munitions Filled Bombs*

- 1,000 lbs
- 2,000 lbs (three types)
- 5,000 lbs

## ❖ *Navy Gun Propellant Charges*

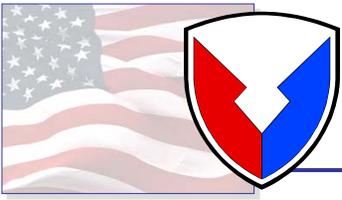
- 5 inch/38 Cal (two types)
- 5 inch/54 Cal (two types)
- 5 inch/62 Cal (two types)

## ❖ *Inert Bombs*

- 500 lb (two types)
- 2,000 lb

## ❖ *TNT Reclamation*





# *Lean is a Management Philosophy*

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*“...it is a philosophy of manufacturing that seeks to minimize unnecessary time, materials, and effort in the production process”*

Standard and Davis, *Running Today's Factory*, 1999



# 5 Principles of “Lean Thinking”

*from "Lean Thinking" by Jim Womack and Dan Jones*

- ❖ *Value* (from the customer’s perspective)
- ❖ *Value Stream* (the steps that add value)
- ❖ *Flow* (no stops, piles, or back-ups)
- ❖ *Pull* (on-demand)
- ❖ *Perfection* (waste-free)

*“Lean Thinking” is a mindset relentlessly focused on identifying and removing waste from a value stream*



# Lean Implementation

## ❖ Lean Implementation results in...

- Improved efficiencies
- Improved customer satisfaction
- Reduce overall resources per project
  - - *People & facilities*
- Continuous process improvement

## ❖ Depots obtain competitive edge to compete

- Reduce surcharges/rates
- Improved quality
- Encourage partnerships

## ❖ Productivity = Redeployment, not Unemployment

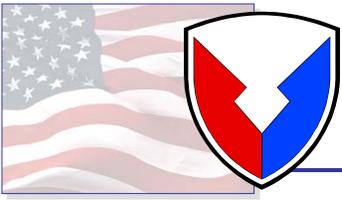
- Reduce overtime
- No attrition replacement
- In-source components
- Grow sales (*quality, cost, and delivery*)
- Large temporary improvement teams

### Why Lean?

**Its about performance!**

- Quality
- Cost
- Delivery

**Help speed improvements  
to the bottom line by  
growing productivity  
faster than attrition**



# Transforming AMC's Business Philosophy and Practices

Vital to Army Transformation and the Industrial Base



## UH-60 A to A Recap Corpus Christi Army Depot

- ✓ Plan to reduce Turn-around Time from an estimated 327 days to 150 days
- ✓ Reduced distance traveled from 5.5 miles to 1 mile
- ✓ Reduce the number of buildings from 8 to 4

**Lean is...**  
*“a philosophy of manufacturing that seeks to minimize unnecessary time, materials, and effort in the production process”*  
 Standard and Davis, Running Today's Factory, 1999



## Sidewinder Tobyhanna Army Depot

- ✓ Unit Maintenance Cost was reduced by 46%
- ✓ Improved productivity by 12%



## PATRIOT Launcher Letterkenny Army Depot

- ✓ Savings: 476 Hrs/unit reduction in FY04
- ✓ Personnel Redeployment: 12 = savings of over \$1M
- ✓ Customer Realized FY03 Savings: \$1.2M
- ✓ FY04/FY09 Program Savings = \$16,181,209



# Lean Projects/Processes = Efficient Depots

## Lean Initiatives

**Objective...**  
Integrate in Business Processes,  
both manufacturing &  
non-manufacturing

*GAO Report from July 03  
Cites efficiency and productivity  
improvements in Army depot  
maintenance operations resulting  
from Lean implementation*

### ANNISTON ARMY DEPOT:

- ✓ 1790-2DR Engine
- ✓ AGT 1500 Turbine Engine Process
- ✓ M1 Fwd Module
- ✓ M1 Rear Module

### CORPUS CHRISTI ARMY DEPOT:

- ✓ UH 60 A to A Recap
- ✓ UH 60 Transmission
- ✓ T700 Engine (Six Sigma)

### LETTERKENNY ARMY DEPOT:

- ✓ Patriot Antenna Mast Group (AMG) Recap
- ✓ Patriot Radar Recap
- ✓ Patriot Launcher Components
- ✓ Patriot ECS; CRG; ICC

### RED RIVER ARMY DEPOT:

- ✓ 903 Engine
- ✓ MLRS Vehicle Remanufacturing
- ✓ SEE Recap
- ✓ Kingpin Fabrication
- ✓ Bradley Vehicle Overhaul
- ✓ HEMTT Vehicle Overhaul

### TOBYHANNA ARMY DEPOT:

- Sidewinder Missile
- Firefinder Recap
- AN/TRC-170
- AN/VPQ-1

### ROCK ISLAND ARSENAL

- ✓ Forward Repair System

### SIERRA ARMY DEPOT:

- ✓ Class VIII-Medical Supplies

### BLUE GRASS ARMY DEPOT

- ✓ Ammunition Shipping & Receiving

### WATERVLIET:

- ✓ 81MM Barrel Process
- ✓ M185 Rebuild Program
- ✓ 155mm Split Ring

### MCALESTER ARMY AMMUNITION PLANT:

- ✓ CAM/Outloading Process
- ✓ TNT Reclamation Line
- ✓ Tritonal Reclamation Line

### CRANE

- ✓ DO Surveillance Inspection Process
- ✓ ME Dragon Demil Operations

### PINE BLUFF ARSENAL

- ✓ M485
- ✓ M40 Mask
- ✓ M295 Decon

### HQ AMC:

- ✓ Materiel Release Process
- ✓ National Maintenance Program
- ✓ AWCF Process

**Lean Increases  
Efficiencies & Competitiveness!**



**Increase  
Public-Private Partnerships!**



# AMC Lean & Six Sigma - Integration -

Command-wide  
Process Improvement  
Program

## Two Powerful Business Improvement Approaches!

Lean  
Speed + ~~Waste~~ +  
Implicit Infrastructure

+

Six Sigma  
Quality, Cost +  
Explicit Infrastructure

Maximize  
Process  
Velocity

Minimize  
Process  
Variation

Lean & Six Sigma  
Accelerated Rate of Improvement in Customer  
Satisfaction, Cost, Quality and Process Speed

**Lean is...**

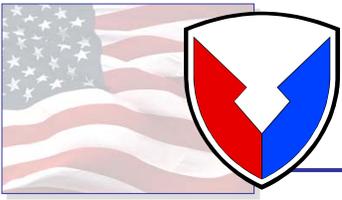
*“a philosophy of manufacturing that seeks to minimize unnecessary time, materials, and effort in the production process”*

Standard and Davis, Running Today’s Factory, 1999

**6 Sigma is...**

*“a disciplined, structured approach for process and product optimization that provides the tools and methodology for achieving robustness and effectiveness of processes.”*

The Quality Management Forum, Fall 2003



# *Depot Workload - Percent Leaned -*

