



U.S. ARMY
MATERIEL
COMMAND



AMC Industrial Capabilities Partnership Opportunities



AMC Industrial Capabilities Partnership Opportunities



www.amc.army.mil/amc/partnershipopportunities

AMC Provides the Best
Manpower, Facilities and Technology
that will Exceed Your Expectations



For additional information on Public-Private Partnerships, please contact
AMC Industrial Base Capabilities Division at:
usarmy.redstone.usamc.mbx.partnership@mail.mil.
Army Materiel Command Partnership Web Site:
<http://www.amc.army.mil/amc/partnershipopportunities.html>

ARMY'S PREMIER PROVIDER OF MATERIEL READINESS



From the Commander...

The Army's Organic Industrial Base (OIB) is a national resource that is the centerpiece of Army Readiness. To preserve and enhance the unique capabilities, facilities and personnel that form the OIB, we must fully leverage the power of Public-Private Partnership (PPP). Our accomplishments exemplify the command's motto: ***AMC Provides!***

AMC organic capabilities are critical to sustaining readiness for the current and future force, and partnerships clearly enable AMC to provide superior Warfighter support. Partnering has a range of possibilities which includes the Army's installations providing articles and/or services to industry, industry leasing equipment and/or facilities to perform work for either the public or private sector, work-sharing arrangements, and teaming arrangements where the installation and industry jointly contract with a Program Manager.

PPP is an innovative approach that has helped the Army preserve its unique capabilities and reduce cost while sustaining critical skill sets in our workforce. Therefore, as part of our sustainment strategy to set the conditions for development and implementation of complementary capabilities between the organic depots, arsenals, and ammunition plants, and the private sector, we must continue to aggressively pursue new partnership opportunities.

The Army's industrial capabilities and capacities should make us an attractive partner. Ultimately the best, most successful partnerships are those that add value to the OIB and bring profit to the private sector partner. We must team with industry to create ***Win-Win Opportunities***.

You are invited to explore ***Partnership Opportunities*** or how industry can partner with an AMC depot, arsenal, or ammunition plant, please view the AMC website: www.amc.army.mil/amc/partnershipopportunities.html, or contact the HQ AMC P3 Program Manager at: usarmy.redstone.usamc.mbx.partnership@mail.mil.

Both the government and the private sector benefit from the ability to leverage core competencies, capabilities and technologies.

Partnering is a ***Cooperative*** Effort ***Not a Competitive Engagement***.

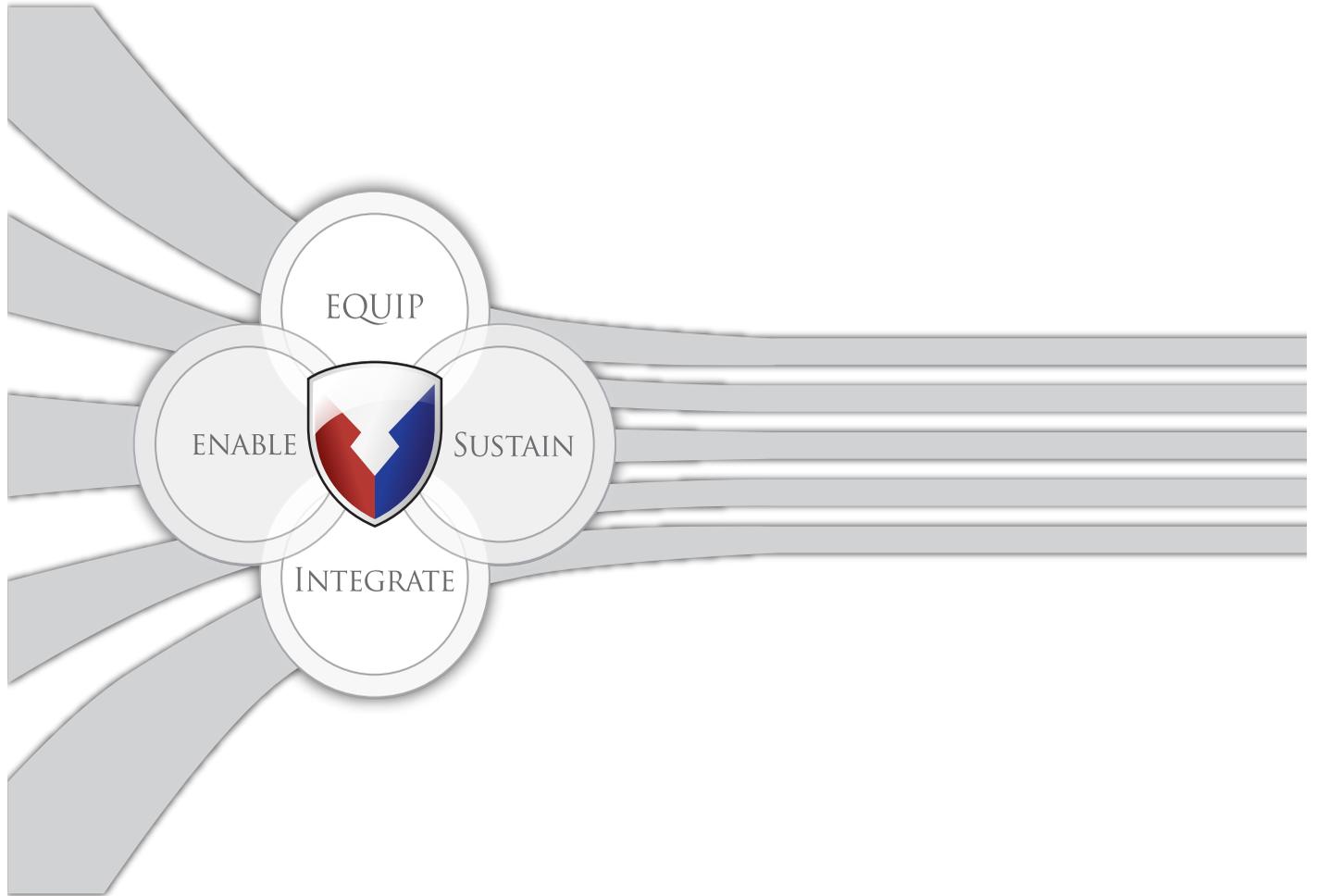
Army Strong!

DENNIS L. VIA
General, USA
Commanding



Table of Contents

AMC Partnership Opportunities	2
Headquarters, U.S. Army Materiel Command (AMC)	5
Anniston Army Depot (ANAD)	11
Anniston Munitions Center (ANMC)	27
Blue Grass Army Depot (BGAD)	31
Corpus Christi Army Depot (CCAD)	37
Crane Army Ammunition Activity (CAAA)	49
Letterkenny Army Depot (LEAD)	55
Letterkenny Munitions Center (LEMC)	69
McAlester Army Ammunition Plant (MCAAP)	77
Pine Bluff Arsenal (PBA)	87
Red River Army Depot (RRAD)	95
Rock Island Arsenal - Joint M&T Center (RIA-JMTC)	109
Sierra Army Depot (SIAD)	121
Tobyhanna Army Depot (TYAD)	129
Tooele Army Depot (TEAD)	145
Watervliet Arsenal (WVA)	155



Headquarters, U.S. Army Materiel Command (AMC)

AMC is the Army's premier provider of materiel readiness to ensure dominant land force capability for the U.S. Warfighter and our allies.

AMC Vision

The Premier Provider of Army and Joint Readiness to Sustain the Strength of the Nation!

AMC Mission

AMC Develops and Delivers Global Readiness Solutions to Sustain Unified Land Operations ... Anytime, Anywhere..

AMC Strategic Priorities

1. Provide Army Materiel Readiness and Support Unified Land Operations.
2. Provide Responsive Global Logistics, Acquisition Support, and Technology.
3. Assure the Army's Technological Advantage through Innovative Research and Development.
4. Optimize the Organic Industrial Base, Global Supply Chain, and Materiel Life-Cycle Support.
5. Sustain a Ready and Resilient Workforce and Develop Adaptive Army Leaders.

Whenever and Wherever Our Forces Need it: AMC provides



The Army's Organic Industrial Base (OIB) is a national resource that is the centerpiece of Army Readiness. To preserve and enhance the unique capabilities, facilities and personnel that form the OIB, we must fully leverage the power of Public-Private Partnership (PPP). Our organic capabilities are critical to sustaining readiness for the current and future force, and partnerships clearly enable AMC to provide superior Warfighter support. PPP is an innovative approach that has helped the Army preserve its unique capabilities and reduce costs while sustaining critical skill sets in our workforce.

For additional information on Public-Private Partnerships, please contact AMC Industrial Base Capabilities Division at usarmy.redstone.usamc.mbx.partnership@mail.mil.

Army Materiel Command Partnership
Web Site: <http://www.amc.army.mil/amc/partnershipopportunities.html>



What is a Partnership?

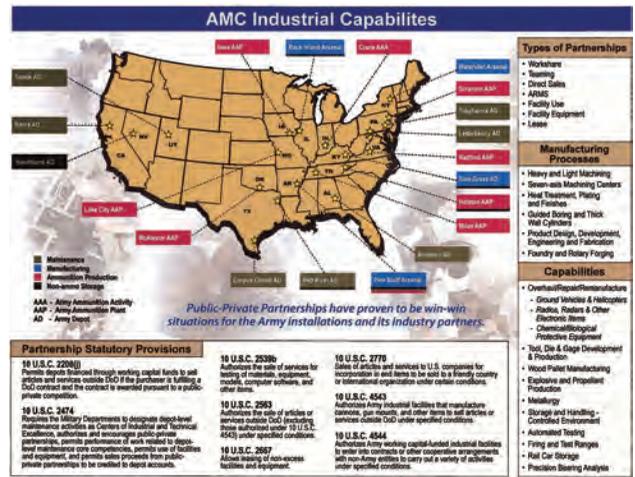
An agreement between an Army facility and one or more private industry entities to perform work or utilize the Army's facilities and equipment. Partnering is a Cooperative Effort Not a Competitive Engagement.

The Army Materiel Command (AMC) takes great pride in ensuring that partnerships are an important part of our portfolio. The power of partnering provides a superb opportunity for government and industry to collectively and collaboratively build a unified relationship, resulting in the timely acquisition and production of high quality equipment for the Joint Warfighter at a reduced cost. Partnering is the single most effective tool we have to protect AMC capabilities in both public and private sectors.

The AMC Enterprise supports two types of partnerships. The first partnership type is Public-to-Private Partnerships, or what is commonly referred to as a P3. For instance, 10 United States Code, Section 2474, enables Centers of Industrial and Technical Excellence (CITE) to engage in partnerships with private industry. A P3 establishes a funded and/or operated partnership between the government and one or more private sector companies. In simpler terms, if there is a mutual opportunity to work together, the AMC Enterprise wants to partner with you! The second partnership type is Public-to-Public Partnership, or what is commonly referred to as a P2. A P2 partnership is normally engaged by the government sector and is built on an agreement between two government entities for the sale of its products and/or services through a Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU), and is executed through a Statement of Work (SOW). Both Public-to-Public and Public-to-Private Partnerships provide endless benefits for all parties involved while ensuring the final production of quality equipment and systems for the Army.

AMC Industrial Base

AMC Partnership Opportunities with the Army's Industrial Base: Manufacturing Arsenal, Maintenance Depots, and Ammunition Plants.



Purpose

This book was designed to display partnership opportunities with the Army's Organic Industrial Base facilities. It gives the reviewers a complete look into the Army Partnership program. It highlights partnerships that are significantly benefitting DoD Services, Foreign Governments and Private Industry partners. This Book highlights the AMC Partnership opportunities with the Army's Industrial Base consisting of Manufacturing Arsenals, Maintenance Depots, and Ammunition Plants and Centers. Partnerships are voluntary, collaborations between Army and Non-Federal Entities (NFEs) through which both parties leverage the expertise, resources, and incentives of the other to achieve a mutually agreed goals. It also provides the reader with a complete look at AMC's industrial base to include the installations' mission, capabilities and contact information.

AMC installations may partner with one or more private industry entities to perform work or utilize the Army's installations and equipment. They may also partner with the private sector and other parts of the public sector under multiple legal authorities. Partnership types range from direct sales, public-private teaming and work share arrangements, and leases of facilities or equipment.

Type of Partnerships

Arrangements for utilizing the capabilities of a depot maintenance activity, a manufacturing arsenal, ammunition plant, or center can take numerous forms:

- Teaming or work sharing – Work sharing incorporates a combination of Army depot and contractor facilities and employees to produce or repair weapons systems, equipment, and components.
- Purchasing – Private-sector firms can purchase articles or services from DoD's depots. This applies to goods or services that end up in products sold to the U.S. government or friendly foreign governments.
- Leasing – Private-sector firms can lease facilities and install their own equipment, or they can lease facilities and equipment. The leased facilities and equipment can then be used by private-sector firms to produce goods and services for either government or commercial customers.

Partnering agreements can even include bartering and “in kind” arrangements. In addition, weapon system program offices may permit access by defense contractors to Army facilities and equipment as government-furnished property.

Statutes and Regulations (partial list)

Numerous statutes and regulations govern public-private partnerships. Below is a list of a few key examples. Refer to the actual text in the applicable law or regulation for specific language.

- Armament Retooling and Manufacturing Support Programs – 10 USC 4551-4555
- Center of Industrial and Technical Excellence – 10 USC 2474
- Cooperative research and development agreements – 15 USC 3710a
- Direct Sales – 10 USC 2563, (Outside DoD)
- Direct Sales – 10 USC 2208(h) (Support of DoD contracts)
- Direct Sales – 10 USC 4543 (Outside DoD)
- Direct Sales – 10 USC 4544 (Outside of DoD contracts)
- Enhanced Use Leasing – 10 USC 2667
- Facility Use Agreements – 10 USC 2474;

Part 45.3 & 45.4

- Subcontracting – 10 USC 2208(j)
- Samples & Test Services – 10 USC 2539b (Labs)
- Support of Defense Exports – 22 USC 2770
- Public-Private Partnerships for Depot-Level Maintenance – DoDI 4151.21

Goal and Execution

The goal of the Partnership Program is to fully leverage the power of partnerships to enhance and preserve the Army Materiel Command's unique organic industrial facilities, processes, and personnel while offering private industry access to those capabilities for their mutual benefit.

In executing partnerships, the Army depots, arsenals, plants, and centers provide services not available in the private sector or are not cost effective for the private industry to provide. These services have generated significant revenue and jobs for the Army leading directly to sustainment and expansion of organic industrial capabilities. Partnership arrangements result in more effective fulfillment of Army contracts by private industry at lower cost and reduced risk to industry partners.

Army Objectives

- Improve operational efficiencies
- Lower cost of products and services
- Accelerate innovation
- Leverage public-private investment
- Sustain critical skills and capabilities

How to Partner with the U.S. Army

Identify Product or Service

- Purchasing
- Leasing Facilities or Equipment
- Teaming or Work Sharing

Determine which Army installation suits your need

- Center of Industrial and Technical Excellence (CITE) Designation



- Other Statutes and Authorities
- Consult AMC Metal Book or AMC website: <http://www.amc.army.mil/amc/opportunities.html>

Contact Installation's Business Development Office

- Request a Visit
- Present Proposal
- Develop a Partnering Arrangement with Installation Commander's Approval

Execute Partnership Agreement/Contract

Benefits to Industry

- Access to advanced-technology equipment
- Potential use of hard-to-receive hazardous waste permits
- Leverage long-term use agreements
- Decrease capital investment cost
- Leverage ISO-certified facilities and Lean Six Sigma processes
- Access to diversified and deployable workforce
- Secure locations

Both the government and the private sector benefit from the ability to leverage core competencies, capabilities and technologies.



Significant Achievements

To develop, acquire, and maintain materiel for the Army, AMC works closely with industry and colleges & universities, to ensure that state-of-the-art technology is effectively leveraged for the defense of the nation. As the place in the Army

where superior technology, acquisition support, and logistics are integrated to assure readiness for today and tomorrow, AMC is heavily involved in making the Army more responsive, deployable, agile, versatile, lethal, survivable, and sustainable. AMC organizations have adopted the philosophy of Operational Excellence by applying continuous improvement methodologies, such as Lean Manufacturing, Six Sigma and Certifications for manufacturing, repair, overhaul, and warfare maintenance equipment. AMC organizations have achieved world-class operational excellence status from several organizations and Lean processes.

ISO 9001 Certification



International Organization for Standardization (ISO) standards ensure that products and services are safe, reliable and of good quality. For Army Installations, ISO standards are strategic tools that reduce costs by minimizing waste and errors, thereby increasing productivity. The Army Organic Industrial Base (AOIB) organizations have achieved ISO certifications such as ISO 9001 for Quality Management System, as well as many other ISO certifications.

Shingo Recognition



The Shingo Prize is to create excellence in organizations through the application of universally accepted principles of operational excellence, alignment of management systems and the wise application of improvement techniques across the entire organizational enterprise.

Business Week magazine has referred to Shingo as

the “Nobel Prize of Manufacturing.” Public Sector Prizes are awarded by Shingo to organizations that “promote world-class manufacturing strategies and practices to achieve world-class results in the public sector/government owned facilities.” Organizations can be awarded at three levels; Shingo Bronze Medallion, Shingo Silver Medallion and the Shingo Prize. Many AOIB organizations have received several Shingo Medallions for Excellence in Manufacturing and other operational excellence.

Lean Six Sigma



The U.S. Department of Defense has dictated the implementation of Lean Six Sigma to achieve the highest level of cost-wise readiness. Lean Six Sigma provides the framework for making fact-based decisions, enabling processes to be positively changed within the military ranks, and driving continuous improvement using a structured approach. The Army has achieved sustainable readiness increases and cost-control with the LEAN SIX SIGMA approach.

With Lean Six Sigma methodology, the Value Engineering Program and the Army Suggestion Program has optimized waste removal, reduced turnaround time, and improved First Pass Yield. Establishment of standardized processes and material management has resulted in reduced cycle times as well as a reduction of in-process inventory.

10 USC § 2474 - Centers of Industrial and Technical Excellence (CITE)



The Secretary of the Army shall designate each depot-level activity or military arsenal facility as a CITE in the recognized core competencies of the designee. Core competencies include those capabilities that are necessary to maintain and repair the weapon systems and other military equipment required for strategic and contingency plans in accordance with 10 U.S.C. 2464 and is considered the capabilities required to support the maintenance or manufacturing core requirements.

A depot or arsenal can be designated a CITE to allow for work on additional systems requiring technical competencies similar to those required for systems that are within its core mission.

CITE designation usually includes authorization to enter into public-private partnerships in accordance with 10 U.S.C. 2474(b). The purposes of partnering are to maximize the use of CITE capability to support partnership opportunities, fostering cooperation between the armed forces and private industry, leveraging private sector investment into the CITE, and reducing DoD cost of products that are produced at CITE facilities.

Secretary of the Army Approved CITEs:

- Anniston Army Depot, Anniston, AL – CITE for Combat Vehicles (Wheeled and Track) (except Bradley) including Assault Bridging, Artillery and Small Caliber Weapons, 24 Oct 2002.
- Corpus Christi Army Depot, Corpus Christi, TX – CITE for aviation structural airframes & blades, advanced composite technologies, flight controls & control surfaces, aviation engines, transmissions & hydraulic systems including sub-system accessory components, armament, electronics, and support equipment (less avionics), 24 Oct 2002.
- Letterkenny Army Depot, Chambersburg, PA – CITE for Air Defense and Tactical Missile Ground Support Equipment (less Missile Guidance and Control) and Mobile Electric Power Generation Equipment, 27 Sep 2005.
- Red River Army Depot, Texarkana, TX – CITE for Tactical Wheeled Vehicles, Small Emplacement Excavator, Bradley



Fighting Vehicle Series, Multiple Launch Rocket System chassis, Patriot Missile Re-certifications, and for Rubber products necessary for sustainment & support to the United States and Allied forces and Agencies, 24 Oct 2002.

- Tobyhanna Army Depot, Tobyhanna, PA – CITE for Command, Control, Communications, Computers, Intelligence, Surveillance & Reconnaissance (C4ISR), Electronics, Avionics, and Missile Guidance & Control, 08 Mar 2006.
- Pine Bluff Arsenal, Pine Bluff, AR – CITE for Chemical & Biological Defense Equipment, 27 Sep 2005.
- Sierra Army Depot, Herlong, CA – CITE for 622623 Reverse Osmosis Water Purification Units (ROWPUs), 09 Jan 2007.
- Rock Island Arsenal-Joint Manufacturing Technology Center (RIA-JMTC), Rock Island, IL - CITE for Mobile Maintenance Systems (MMS) 06 May 2009.
- Tooele Army Depot, Tooele, UT – CITE for Ammunition Peculiar Equipment (APE) 01 March 2010.
- Sierra Army Depot, Herlong, CA - CITE for Petroleum and Water Storage and Distribution Systems 25 May 2011.
- Letterkenny Army Depot, Chambersburg, PA – CITE for Route Clearance Vehicles (RCV) and Patriot Missile Recertification 17 Mar 2012.
- Rock Island Arsenal-Joint Manufacturing Technology Center (RIA-JMTC), Rock Island, IL - CITE for Add-on Armor (AoA) design, development and prototype fabrication 17 Jul 2012.
- Watervliet Arsenal Joint Manufacturing and Technology Center (WVA-JMTC), Watervliet, New York CITE for Manufacturing Cannons and Mortars Systems 29 Jan 2013.
- Rock Island Arsenal-Joint Manufacturing Technology Center (RIA-JMTC), Rock Island, IL - CITE for Foundry Operations 13 Feb 2013.

- Anniston Army Depot Defense Non-Tactical Generator and Rail Equipment Center (DGRC), Anniston, AL – CITE for maintenance and overhaul of non-tactical generator, including locomotives and rail equipment 29 July 2014.



Anniston Army Depot (ANAD)

Purpose

To provide world-class refurbished major end items, components and forward readiness support to the Warfighter

Vision

To be the best value Department of Defense Center for Industrial and Technical Excellence for current and future weapon systems by being vital, technologically superior, cost effective and unconditionally responsive to all customers worldwide

Mission

Provide superior industrial expertise, products and services to support America's Warfighters, allies and commercial customers



ANAD



Anniston Army Depot's commitment to providing the best possible support to the Warfighter extends well beyond its base location in Anniston, Alabama. Our support and services are extended on-site to military units and other locations throughout the United States and beyond.

ANAD provides on-site support through various types of field missions. Small Arms Readiness Evaluation Teams (SARET) travel to unit sites to inspect and repair small caliber weapons for pre/post deployments, bringing the weapons to fully mission capable status. Fielding and Rapid Repair Support Teams perform vehicle repair and handoff for M1, M88 and Paladin vehicles. Forward Repair Activity teams perform a range of services including, engine, transmission and generator repair; welding and fabrication; and other functions to maintain operational equipment. Anniston's rail mission; Defense Non-tactical Generator and Rail Equipment Center (DGRC) - inspects, repairs and rebuilds locomotives for the Army and other customers. In three different OCONUS locations, self-contained machine shops, Mobile Parts Hospital (MPHs) have been set up with the capability to build any small parts a Warfighter



needs. To support ANAD's M1 customers, Total Integrated Engine Revitalization Field Support Representatives, or TIGER FSRs, travel to various locations to perform AGT1500 turbine engine repair on site.

Current and Future CONUS and OCONUS Fielding Missions (not all-inclusive):

- Mobile Parts Hospital
- Assault Breacher Vehicle FSRs
- Paladin/FAASV FSRs
- M88 Handoff De-processing
- TIGER Engine FSRs
- M1A1 Vehicle Support Off-Load/On-Load

Significant Achievements

ISO 9001 Certification

In order to provide quality service, support and products, the depot recognizes its role in supporting the American Warfighter and the importance of continuous process improvement. After working diligently to implement an International Organization for Standardization (ISO) based quality management system, ISO 9001 certification was obtained throughout five value streams in the Nichols Industrial Complex.

On May 3, 2007, the depot received a Certificate of Registration confirming the quality management system for the overhaul, remanufacturing, repair and testing of vehicle platforms, gasoline, diesel and turbine engines, weapons and fire control systems, and other supporting systems used in U.S. Army combat vehicles had been assessed and was in compliance with requirements for ISO 9001: 2000.

Shingo Recognition

Anniston submitted two candidates for the 2007 Shingo Prize Award, an annual award that recognizes excellence in manufacturing throughout the public and private business sectors. The award criterion is based on a point system to

include employee empowerment, vision, strategy, partnership, quality, cost and delivery.

Anniston's Field Artillery Ammunition Support



Vehicle (FAASV) assembly process was a recipient of a Shingo Silver Medallion. AGT 1500 Turbine Engine's entire process from disassembly to final test was a recipient of a Shingo Bronze Medallion.

Lean Six Sigma



Anniston submitted a Lean Six Sigma (LSS) award package through TACOM Life Cycle Management Command and Army Materiel Command to the Department of the Army for an M1 Abrams vehicle assembly project.

By applying Lean Six Sigma tools to the processes in both the hull assembly and turret assembly operations, Anniston received the 2008 Department of the Army LSS Award. Not only was waste removed, but as part of the project, the depot gained enough floor space to accommodate Paladin cab assembly, which once was completed wherever space could be found. Now, the workers in Paladin cab assembly have a designated space to accomplish their mission, just like M1 turret assembly.

Through the use of Lean Six Sigma methodology, the Value Engineering Program and the Army Suggestion Program, waste removal has been optimized, vehicle turnaround time has been reduced, and First Pass Yield has improved. Establishment of standardized processes and material management has resulted in reduced cycle times as well as a reduction of in-process inventory.

Secretary of the Army Approved CITEs:



Anniston Army Depot, Anniston, AL – CITE for Combat Vehicles (Wheeled and Track) (except Bradley) including Assault Bridging, Artillery, Small Caliber Weapons, Non-Tactical Generators, Locomotives

and Rail Equipment.

Why Partner with Anniston?

ANAD’s experience has proven that these arrangements are win-win opportunities not only for industry and the depot but also for our warfighters by capitalizing on the strengths and efficiencies of both sectors.



A highly skilled and diversified workforce, updated facilities and equipment, competitive prices, coupled with our industry knowledge, have proven Anniston Army Depot to be a prime target for teaming and partnership arrangements.

Anniston seeks and encourages all opportunities to partner with industry, especially those potentially new and unique opportunities. A full-time staff is dedicated solely to developing these arrangements with local, regional and global public and private businesses.

Examples of current partners/programs include General Dynamics Land Systems (Stryker, M1 vehicles and components), BAE Systems (M113,

M88, PIM, AMPV), Honeywell (M1 Turbine Engines, Egyptian Turbine Engines) and RTI International (M1 Turret Trainers).

For more partnering information, visit our website: www.anad.army.mil and select the Public Private Partnership link under the Business header or call (256) 235-6512.

Capabilities



Although Anniston Army Depot is a multi-mission installation, it is most frequently recognized for its heavy combat vehicle expertise. From the M48 tank of the 1950s to the M1 series battle tank of today, the depot has rightfully earned its reputation as the “Tank Rebuild Center of the World.”



The 1.5-million-square-foot Nichols Industrial Complex, located in the eastern area of the depot, has both the capacity and capability to completely overhaul any combat vehicle. This process consists of completely disassembling a battle-damaged



or worn vehicle, repairing or replacing any or all components, and reassembling the vehicle to a like- new condition, at a fraction of the cost of a new vehicle.

- M1 Family of Vehicles
- M88 Recovery Vehicle
- Assault Breacher Vehicle
- Armored Vehicle Launched Bridge
- Stryker Family of Vehicles
- M113 Family of Vehicles
- Paladin/FAASV Vehicles
- M9 Armored Combat Earthmover



The flexibility of its workforce, equipment and facilities has given Anniston Army Depot the competitive edge in the defense industry. The technology of its industrial complex includes the integration of:

- Five-acre Floor Space Facility (flexible-use; fourteen 20- to 60-ton bridge cranes; 9 1/2-inch reinforced concrete floors; six-axis machining center)
- 9 1/2-inch Reinforced Concrete Roads
- 1.1-mile High Speed Test Track (banked turns; slope and bump course; 50- foot width; illuminated)
- Laser Range
- Firing Range
- 85-ton Gantry Crane
- Railhead and Illuminated 85-ton Loading Dock

- Test Facilities and Equipment
- Ingersoll Gantry Machining Center
- Cincinnati Gilbert Dual Column Horizontal Machining Center
- Special Armor Facility
- Full Vehicle X-Ray Capability

Personnel supporting the depot's combat vehicle mission possess a diversity of core skills:

- Artillery Repairers
- Electroplating Workers
- Automotive Mechanics
- Fabric Workers
- Ballistic Welders
- Heavy Mobile Equipment
- Electronic Component Repairers
- Equipment Repairers
- Machine Tool Operators
- Electronic Integrated
- Metal Forming Machine
- System Mechanics Operators
- Electronic Mechanics
- Pneudraulic Workers
- Electro-Optic Repairers
- Tool and Die Makers
- Small Arms Repairers

Many welders hold specialized certifications for various armor welding, non- destructive testing and soldering.

Artillery

The depot has a Towed Howitzer Overhaul Facility for the M198 Medium Towed Howitzer. As such, ANAD has overhauled M198 weapons and secondary items for the M198 stock system for the Army, U.S. Marine Corps, and the National Guard since 1997.

The depot was certified to overhaul the M102 Light Howitzer and related secondary items in February 2002. In fiscal year 2011, the depot completed the certification process to overhaul the M119

Howitzer. In August 2012, the depot completed a pilot overhaul of the M777A2 Lightweight Howitzer which developed overhaul capabilities for the entire weapon system.

Components:

- Recoil Cylinder
- M45 Recoil Mechanism
- Replenisher
- Friction Clutch
- Fire Control
- Equilibrator
- Air Cylinder
- Breech and Cannon
- Speed Shift
- Recuperator
- Suspension Actuator

Anniston Army Depot is the rebuild center for Towed Howitzer weapons. The rebuild criterion used in its processes parallels, and often exceeds that of the original manufacturer.

Our experience ranges from small component repair to complete weapon disassembly, repair, modification, conversion, reclamation, refinishing, reassembly and functional testing. The artillery journeymen employ the latest technology to provide only the safest and most reliable weapons to the customer, the Soldier in the field.

- Antifriction Machining
- Magnetic Particle Inspection Equipment
- Artillery Function Firing Range
- Borescoping Equipment
- Materials Analysis Lab
- Fabrication Machining Facility
- Oil Analysis Lab
- Honing Facility
- X-ray Facility
- Gymnasticator

Anniston Army Depot is the Center for Technical Excellence for the M109A6 Paladin 155mm self-propelled Howitzer and its Ammunition Carrier,

the M992A2 Field Artillery Ammunition Support Vehicle (FAASV).

In addition to processes and practices involved with towed artillery, the Paladin requires a number of other specialized capabilities. These include

an Integrated Family of Test Equipment (IFTE) diagnostics, Battery Computer System (BCS) testing for the fully automated fire solution, ranging and computer automated gun drive, and a Navigation Course Test to confirm the accuracy of the Global Positioning Sensor (GPS) system. Overhaul and conversion of the 155 mm howitzer and recoil system involves special brush plating and hydraulic support as well as specialized electronic gymnastication equipment. Various welding and machining fixtures and processes are instrumental in the conversion of the M109A5 to the M109A6 Paladin Configuration. Anniston Army Depot is the certified Installation for performing overhaul or conversion of the Paladin Vehicle System.

Small Arms

Whether it's rifles, pistols, or weapon-related hardware, Anniston Army Depot's Small Arms Repair Facility employees possess the skills and equipment necessary to satisfy all of the customer's needs.



- M1 Series Rifle
- M2 Series Machine Gun
- MK19 40mm Machine Gun
- M9 Pistol
- M16 Series Rifle



- M60 Series Machine Gun
- M134 Mini Gun
- M240 Series Machine Gun
- M249 Squad Automatic Weapon
- M1911 Pistol
- M230 Chain Gun
- Grenade Launchers
- Mortars
- Gun Mounts
- Shotguns
- Sniper Rifles

Anniston Army Depot is a Small Arms Rebuild Center within the Department of Defense and overhauls weapons for all branches of the Armed Forces. The rebuild criteria used in the overhaul processes parallel, and often exceed that of the original manufacturer.

ANAD's experience ranges from small component repair to complete weapon disassembly, repair, modification, conversion, reclamation, refinishing, reassembly, functional testing and target accuracy testing. Our small arms journeymen employ the latest technology to provide only the safest and most reliable weapons to our customer... the Soldier in the field.

- Acoustical/Computerized Targeting and Accuracy Testing
- Borescoping Equipment
- Closed Circuit Cameras
- Computerized Serialization Process Equipment
- Degrease/Cleaning-Finishing/Plating Shop
- Heavy Fire Outdoor Range
- Intrusion Detection Devices
- Liquid Dye Penetrant Equipment
- Machine Shop
- Magnetic Particle Inspection Equipment
- Paint Booth
- Two Indoor Firing Ranges up to 100 meters
- Water Turbine Function Firing Booths
- Welding Booth

DoD's primary Small Arms Rebuild Center

Small Arms Repair Facility:

The facility is co-located next to the Defense Logistics Agency's small arms storage facility at ANAD, which reduces transportation costs and weapon movement (improved security). The facility's flexible floor plan improves ANAD's ability to quickly change processes to satisfy workload modifications and enhances surge capacity to meet warfighters' small-caliber weapon requirements. Other features include an indoor test firing facility (a vast improvement from an outdoor range located six miles from the old repair facility) and modernized cleaning and finishing processes.

All small arms repair processes have been consolidated; the resulting operational efficiency means a lower per weapon cost for the customer!

Reciprocating Engines



Based on Lean manufacturing principles and green initiatives, the Powertrain Flexible Maintenance Facility was built with flexibility in mind. It is comprised of thick concrete floors, bridge cranes, humidity controlled manufacturing environment, electric material movers, portable work stations and more.

Occupying 142,500 square feet of prime engine production space, the facility brings processes that were previously performed at various locations across the installation under one roof. Within the state-of-the-art engine repair facility, employees repair, reclaim, modify and overhaul some of the world's largest, most sophisticated reciprocating engines. Ranging from a turbocharged engine that produces as much as 1,050 hp, these engines are capable of powering large vehicles.

Reciprocating engines are used to the operation of the Department of Defense ground legacy

vehicles: M113, M88, Paladin, AVLB, FAASV and M9ACE.

Each engine (whether rebuilt, repaired or modified) is cycled through one of 13 dynamometer test cells by qualified technicians. Tested and calibrated to ensure maximum performance, they all must meet rigorous standards before being placed in the hands of our valued customers.

The consumer base for these hearty engines extends far beyond the depot's support to U.S. military services. By repairing and overhauling engines for foreign military allies, Anniston's reputation has been positively sounded abroad.

Co-located with the Powertrain Flexible Maintenance Facility, the transmission facility contains work areas for every process involved in the overhaul and remanufacture of in-line and cross-drive transmissions, from disassembly through final testing procedures for a variety of combat vehicles. At maximum capacity, the Powertrain Transmission Facility can rebuild 1,675 transmissions.

Turbine Engines

Within the walls of the 110,000-square-foot Turbine Engine Facility, employees inspect, repair, reclaim and overhaul complete turbine engines as well as their associated components. The highly skilled workforce is equipped with the latest technological equipment.



- Computerized Dynamometer Test Facility
- Computerized NDT Equipment
- Electro Mechanical Fuel System Test Facility
- Laser Balancing Equipment

- Laser Inspection Equipment
- Laser Welding
- Oil Pump Test Equipment
- Recuperator Repair and Test Facility
- Vacuum Brazing Repair and Test Facility

Proficiency and talent best describe Anniston's workforce. There is no better example than the AGT1500 Turbine Engine Facility for the M1 Abrams to relate the significance of those attributes. The tireless dedication and priceless skill of those who work in this facility have culminated in the depot achieving the coveted position of leader in turbine engine repair. Anniston provides M1 Abrams engines worldwide. Our track record speaks for itself:

- 80% cost savings for rebuild
- 26% reduction in engine repair cycle time
- Contractor performance certification
- ISO 9002 certified
- Personnel certifications
- Vendor qualification
- Shingo Bronze medallion

Much of this expertise has been gained through initiatives to extend and improve the durability and life of these engines.

- Durability Testing
- Endurance Testing
- Engine Failure Investigation/Analysis
- On-site Assistance
- Research and Development for Component Reclamation
- Condition-based overhaul
- Total Integrated Engine Revitalization (TIGER) Program

The current customer base includes the Army, Marine Corps, National Guard, Reserve Components, Honeywell, and General Dynamics. A continuous interface is maintained through regular customer site visits.

- Aberdeen Proving Ground, MD
- Lima Army Tank Plant, OH



- Fort Hood, TX
- National Training Center, CA
- Fort Riley, KS
- On-Site Contractor Support
- Fort Knox, KY
- Yuma Proving Grounds, AZ
- Fort Stewart, GA
- Korea

Manufacturing

For many years, when seemingly unsolvable design, fabrication, manufacturing, or reclamation problems arose, the rallying cry has always been “Let Anniston do it!” And, without exception, Anniston did.



Anniston has proven itself time and time again by providing low cost one-of-a-kind orders, accurate cost and delivery estimates, rapid diversification of product lines, immediate status of orders and access to critical information.

Its greatest asset is its highly skilled workforce, providing the depot with capabilities seldom found elsewhere.

- CAD/CAM Technicians
- Planners
- Certified Welders
- Plating & Painting Operators
- CNC Programmers and Operators
- Sheet Metal Workers
- Engineers
- Tool and Die Makers

- Chemists
- Machinists

Within the 102,062 square feet of manufacturing/fabrication facilities, these highly skilled craftsmen are equipped with the latest state-of-the-industry tools and equipment. These facilities and craftsmen are dedicated solely to the design, manufacturing and reclamation of quality products.

- CNC 4-Axis Lathe (29 x 60-inch capacity)
- CNC 6-Axis Horizontal Boring Mills (70 x 9 x 12-foot capacity)
- CNC Abrasive Water Jet Cutting Machines
- CNC & Conventional Grinder (cylindrical, centerless, surface)
- CNC Gantry Machining Center (100-hp spindle, 60 x 20 x 10-foot, 30-ton capacity)
- CNC Laser (120 x 244 x 1-inch capacity)
- CNC Milling Machinery (both vertical and 5-axis horizontal,
- 72 x 48 x 36-inch capacity, pallet changers, 5-ton capacity)
- CNC Oxy-Fuel & Plasma Cutting Machine
- CNC Punch/Laser Cutting Machine
- CNC Robot and Electron Beam Welding Machines
- CNC Turning Machinery (20-inch diameter x 44-inch length)
- CNC Vertical Milling Machine (280 x 36 x 36-inch capacity)
- CNC Water Jet (268 x 60 x 6-inch capacity)
- Fabricators/Punch Press and Brakes
- Heat Treating (both vacuum and air)
- HVOF and Flame Spray Coating
- Laser Engineered Net Shaping (powder metal deposition)
- Plating (chromium, cadmium, zinc, manganese phosphate, nickel, oxide, silver and more)
- Precision Plasma Cutting Machine

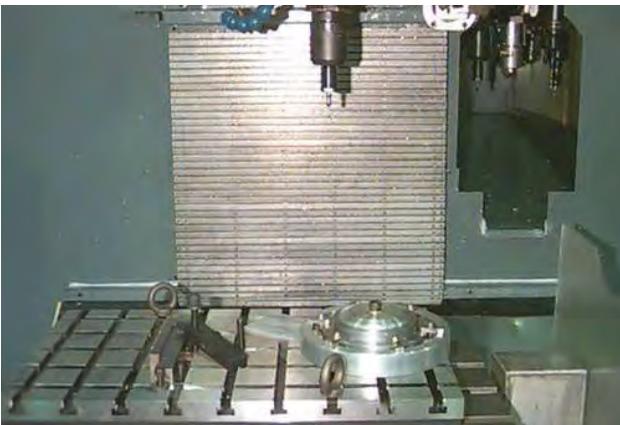
The depot’s high-tech manufacturing is also supported by the latest technological concepts and control systems to include ISO 9000, metal-

lurgical and chemical analysis, metrology and nondestructive testing.

Computer Aided Manufacturing



Anniston's posture as a leader in the defense industry is most readily demonstrated by the use of its computerized execution system. On the leading edge of technology, two high-tech manufacturing capabilities [Flexible Computer Integrated Manufacturing (FCIM) and Rapid Acquisition of Manufactured Parts (RAMP)] serve as models in the defense industry. FCIM RAMP - integrated, not simply connected, permits utilization of state-of-the-market hardware, software, and communications.



FCIM RAMP forms an extremely responsive and powerful enterprise. It focuses on the "above the shop floor" activities by integrating the engineering, production planning, tracking, monitoring and fabrication functions through a multilayered computer architecture. It also allows Anniston to produce difficult-to-procure items and one-of-a-kind, normally high cost, items at a reduced price.

FCIM RAMP provides Anniston Army Depot with the world-class capability necessary in a

global marketplace where agile manufacturing is a prerequisite.

FCIM RAMP Features:

- Computer controlled information with common data accessible by all elements
- Configurable System Controller and application control interfaces
- Connectivity to the machine controllers
- Electronic textual and graphical instructions on the floor
- Generative Process Planning Environment to manufacture parts using Standard for the Exchange of Product (STEP) model data ISO 10303
- Generic Site Interface module, tailored to the interface requirements within the depot and other locations
- Multifunction process planning, including variant techniques
- Real-time system control and status update, from order entry through product delivery
- User friendly man-to-machine interfaces

Unique Fabrication



By organizational title alone, one might think that the "Upholstery Shop" is limited to sewing and repairing various fabrics, but the capabilities extend far beyond upholstery repair.

- Chemical, Biological and Radiological Particulate Repair



- Hydraulic Hose Fabrication
- Glass Cutting
- Data Plate Fabrication
- Rubber Coating Application
- Gasket Fabrication
- Toolmaking
- Unique Identification (UID)

Precision toolmaking capabilities permit Anniston Army Depot to fabricate gaskets, grommets, pads, jigs and fixtures from a variety of materials to include nylon, Teflon, cork, rubber, steel, aluminum and phenolics.

The depot also fabricates low, medium or high pressure industrial hoses ranging in size from 3/16 to 2 inches in diameter.

Upholstered items such as seats, straps, cushions, tarpaulins and ballistic shields used in the repair, reclamation and manufacturing efforts are crafted from Naugahyde, ballistic nylon, vinyl nylon, leather, canvas and a variety of other materials. Additionally, windshields, window glass and other glasses can be custom cut from both tempered and non-tempered glass.

Anniston's Photo Data Plate Lab is capable of fabricating practically any decal or data plate on any material. From silk screening on vinyl or metal photo processing to data plate engraving, Anniston can do it.

- Diffusion Transfer Copying
- Metal Photo Processing
- Metallography Lithographic Processing
- Photo Etching
- Silk-Screening

The rubber coating process applies either a hot or cold rubber coating to a host of items, including headrests and optical eye pieces. In addition, color guarding can be applied to various fabrics.

The Chemical, Biological, Radiological, and Nuclear (CBRN) unit, another aspect of the Upholstery Shop, tests and repairs filtration systems used in combat vehicles.

Production Profile

Combat Vehicles



M1 Abrams Family of Vehicles

- M1A1 SA
- M1A2 SEP
- Assault Breacher Vehicle (ABV)
- Joint Assault Bridge (JAB)
- WOLVERINE



M113 Family of Vehicles

- M113
- M113 A2
- M113 A3
- M548A1/A3 Cargo Carrier
- M577A2/A3 Command Post Carrier
- M1064/A3 Mortar Carrier
- M1068 Standard Integrated Command Post Carrier
- Opposing Force Surrogate Vehicle (OSV)

M88 Family of Vehicles



- M88A1
- M88A2 (HERCULES)

Armored Combat Earthmover

- M9 (ACE)

M60 AVLB

- M60A1/M60A2 Armored Vehicle Launched Bridge

Self Propelled Howitzer

- M109A6 Paladin



- M992A2 Field Artillery Ammunition Support Vehicle

STRYKER Family of Vehicles

- M1126 Infantry Carrier Vehicle
- M1128 Mobile Gun System
- M1134 Anti-Tank Guided Missile Vehicle
- M1135 Nuclear, Biological, and Chemical Reconnaissance Vehicle
- M1133 Medical Evacuation Vehicle
- M1132 Engineer Squad Vehicle
- M1131 Fire Support Vehicle
- M1129 Mortar Carrier Vehicle
- M1130 Commander's Vehicle
- M1127 Reconnaissance Vehicle

Artillery



- M198 Towed Howitzer
- M119 Towed Howitzer
- M102 Towed Howitzer
- M777A2 Lightweight Howitzer

Small Arms

- Rifles
- Machine Guns
- Pistols
- Grenade Launchers
- Gun Mounts
- Mortars
- Shotguns



Bridges

- 60-Ton Bridge
- 70-Ton Bridge
- Assault Bridging

Major Secondary Items

- M1 Turbine Engine
- M1 Forward Module
- M1 Rear Module
- M1 Accessory Gear Box
- M1 Reduction Gear Box
- 1790 Engine
- 6V53T Engine
- Diesel In-Line 6 Cylinder Engine
- V8 903 Cummins
- 8V71 Engine
- M1 X1100 Transmission
- XT-1410 Transmission
- CD-850 Transmission
- M113 Transmission
- M9 ACE Transmission
- Final Drives
- Transfer Cases
- Differentials
- Wheel Drives
- Tires/Wheels
- Brakes
- Auxillary Power Units
- Fire Extinguisher Systems
- Hydraulic Components
- Fire Control Components
- Electronic Components
- Wiring Harnesses/Cables

Quality Commitment

Anniston Army Depot maintains a worldwide reputation for producing quality products with the goal to remain number one. Producing quality products and services on time and at competitive prices has been Anniston's business model since the beginning. Through its world-class quality program, trust by its customers is maintained.



The depot's quality program, based on ISO 9001: 2000, is structured for customer satisfaction through process improvement. All production operations within Anniston Army Depot are currently certified to the ISO 9001: 2000 Quality Standard.

Quality functions are performed under the Directorate of Engineering and Quality (DEQ). In addition to engineering, this directorate is responsible for quality methods and standards.

The primary focus of DEQ is customer expectations, rather than just acceptable product quality. Customers expect a reliable quality product that is delivered on time and within cost. The depot consistently meets these expectations.

Within Anniston's production operations, everyone is responsible for the quality of the products produced and for meeting both internal and external customer expectations. They take whatever action is necessary to provide their customers with the best product at the best price.

Organizational Responsibilities

Production Organization:

- Corrective and Preventive Action
- Defect Data Reporting and Analysis
- Product Acceptance
- Product Inspection
- Worker Accountability

Quality Assurance Organization:

- Customer Support Program
- Methods and Standards
- Product Verification (Sampling)
- Quality Audit Program

Quality Objectives:

- Increase Customer Satisfaction
- Increase Product Conformity
- Deliver Products on Time
- Deliver Products within Cost

Engineering

Anniston Army Depot has a dynamic technical staff able to meet the challenge of aggressive overhaul, manufacturing, design and testing programs.

- Chemical Engineers
- Chemists
- Electronic Engineers
- Engineering Technicians
- Environmental Engineers
- Industrial Engineers
- Materials Engineers
- Mechanical Engineers
- Physical Science Technicians

Anniston's engineering disciplines work together to achieve innovative solutions to complex problems. These solutions are a way of life in a manufacturing facility with such a diversity in mission and capabilities. The technical staff continues to refine the expertise necessary to meet the specific needs of valued customers.

- Composition Analysis
- Computer Aided Design and Computer Aided Manufacturing (CAD/CAM)
- Equipment Specifications
- Failure Analysis
- Industrial Cleaning and Finishing
- Laboratory Testing
- Mechanical Property Testing
- Microscopic Analysis
- Nondestructive Testing
- Process Certification
- Process Flows and Shop Layouts
- Special Skills Certification Program (Welding, Nondestructive Testing and Soldering)

ANAD engineering provides manufacturing and assembly support for research and development programs within the Department of Defense. The support to the customer includes design, Engineering Change Proposal (ECP) submission & review, prototype fabrication, testing, assembly, operational evaluation, tooling & fixture design, tolerance evaluation, and process optimization.

Over the years, support to R&D projects have included the M1 Bridge Launcher (Joint Assault Bridge), M1 mine field and obstacle clearing vehicle (Assault Breacher Vehicle), retrofit of Tank Thermal Sight/Driver's Night Viewers, Soviet Vehicle Simulators for target and training application (Opposing Forces Surrogate Vehicle), Armor System Fabrication, Mine Roller Mounting Kits, Auto-Loader Installation, Complete Turret Fabrication and Armor Penetration Devices as well as various classified R&D projects.

The Materials Lab

The Materials Laboratory provides support to Army equipment life cycle management processes and personnel from conception to failure analysis. The laboratory is a resource used by engineering, production, quality, procurement and safety personnel in product development, manufacturing and reclamation processes, material



properties, conformance to drawings & standards, procurement of materials, failure analysis, and problem solving. The lab supports both destructive and nondestructive testing capabilities.

Chemical and Environmental Lab



Anniston's Chemical and Environmental Laboratories routinely meet the challenge of changing technology by providing laboratory analyses on all current manufacturing processes.

The Chemical Lab is capable of accomplishing sophisticated chemical testing and consulting services in support of a wide range of industrial processes. Capabilities include physical, chemical and functional testing of paints, platings and coatings as well as a host of other industrial processes, such as mechanical and chemical cleaning.

Of particular interest is the oil analysis capability. This capability allows Anniston Army Depot to evaluate samples from virtually any vehicle or piece of equipment. The oil analysis lab is certified through the Joint Oil Analysis Program.

Oil Analysis Equipment

- Oil Analysis Standard Interservice System (OASIS) Internet- Based Operating System
- Automated High Speed Viscometer
- Atomic Emission Spectrometer
- Fourier Transform Infrared Spectrometer
- Fuel Dilution Meter
- Karl Fisher Coulometer
- Crackle Test
- Pall Water Sensors
- LaserNet Fines
- Ferrography
- Optical Particle Counter
- Total Acid Number
- Total Base Number
- Blotter/Patch Test
- Open Cup Flash Point

Anniston's Environmental Lab is staffed with highly qualified personnel and modern equipment. They test, monitor and analyze the water quality of influent and effluent wastewater and treated sewage along with stormwater and groundwater. These tests and analyses support the National Pollutant Discharge Elimination System (NPDES) permit issued by the Alabama Department of Environmental Management (ADEM).

Technical Publications

Since the establishment of the depot's Technical Publications (Tech Pubs) organization in May of 1982, thousands of documents and publications have been developed in support of Major Subordinate Commands (MSCs) and ANAD's own depot maintenance requirements. Its mission is to provide technical publications support for

combat vehicles, optics, weapons, artillery, missiles, automotive electronics, machining, test equipment and other programs. Valued customers include:

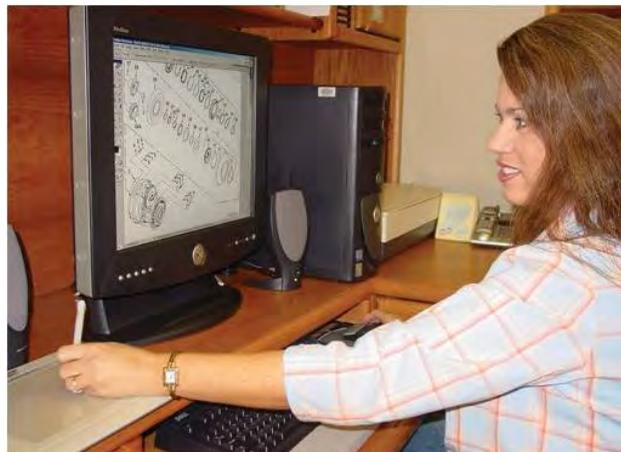
- ANAD production value streams
- Public-Private Partnerships with ANAD
- U.S. Army Communications and Electronics Life Cycle Management Command
- U.S. Marine Corps
- U.S. TACOM Life Cycle Management Command
- TACOM, ARDEC



Tech Pubs is staffed with professional technical writers/editors and visual information specialists. Their pricing structure is competitive with other defense and non-defense publication developers. They can produce a finished product in hardcopy, camera ready, electronic and multimedia video with audio. Anniston has the distinct advantage of a broad maintenance arena of Department of Defense assets to validate and verify developmental efforts. The staff can support equipment technical publication needs in the form of text, technical illustrations and digital video maintenance processes. They can produce multimedia digital electronic format on CDs, DVDs, video tape or embedded in portable document format (PDF).

Listed below are examples of publications Tech Pubs produces:

- National Maintenance Work Requirements (NMWRs)
- Lean and Six Sigma Initiatives
- Depot Maintenance Work Requirements (DMWRs)
- New Equipment Training (NET) Manuals
- Technical Manuals (TMs)
- Rebuild Standards (RS)
- System Maintenance Manuals (SMMs)
- Modification Work Orders (MWOs)
- Physical and Functional Configuration Audits
- Integrated Logistics Support (ILS)
- Fabrication Drawings
- Depot Manuals (DMs)
- Depot Process Control Pamphlets
- Shop Instructions (SIs)
- Booklets and Brochures



The Tech Pubs office is located within the Nichols Industrial Complex, with close proximity to engineering and design support activities. Data retrieval capabilities and Internet access to various sources of data and information are available.

Tech Pubs employees strive to produce state-of-the-art work that enhances current capabilities. They work to meet the customer's needs, while providing timely customer service.



Safety

Safety is an integral part of the core business at Anniston Army Depot. Focus based educational programs are in place to train the entire workforce in new/refresher courses. While most training is conducted live, the depot's weekly Morning Show hosts guests on a wide variety of safety and health topics, along with a safety training video. The show is broadcast throughout the day on the local area network. Training topics are broad and include ergonomics, fire safety, electrical safety and behavior modification.



Safety has also been integrated into the Lean and Six Sigma efforts. Facilitators are trained in the use of risk management tools, and each team is challenged to identify and improve three safety issues along with three production issues during all improvement events.

Anniston is particularly proud to be the first in North America to have attained fence-to-fence certification to the OHSAS 18001: 2007 standard. The goal is continuous improvement. Statistics show Anniston is meeting this goal. Injury rates have continued to decline in spite of the challenges inherent with a sustained high operational tempo and the introduction of new work. The overall performance of the entire workforce earned Anniston Army Depot the Secretary of Army/Chief of Staff Industrial Safety Award in 2010.

Risk Management

ANAD recognizes the importance of its role as an environmental steward. The depot is strongly committed to long-term sustainability, improved mission performance and environmental protection using the following core principles:

- Compliance with environmental laws and regulations
- Conservation of natural and cultural resources
- Preservation of resources through pollution prevention and affirmative procurement
- Restoration of affected natural resources

Risk Management consists of the following groups: Environmental Compliance, Environmental Management and Restoration, Wastewater Treatment Plants and the Hazardous Waste Storage Facility.



Anniston Munitions Center (ANMC)

Purpose

To provide America's Joint Forces with ready, realizable and lethal munitions at the right place and time in a cost effective manner to enable successful military operations.

Vision

Multi-capable and modernized munitions activity providing first class support to diverse customers.

Mission

Anniston Munitions Center provides timely and accurate receipt, storage, issue, maintenance, inspection, demilitarization and recycling of ammunition and missiles in support of the Joint Warfighter.



ANMC



Anniston Munitions Center's commitment to providing the best possible support to the war fighter extends well beyond its physical location on Anniston Army Depot property in Anniston, Alabama. In October 1999, the facility was placed under the command and control of Blue Grass Army Depot in Richmond, Kentucky. ANMC is a multi-functional ammunition facility with its support and services being extended to all branches of the military and other agencies. The organization received its first on-site Commander in June 2004. Previously these operations were conducted under the auspices of Anniston Army Depot's Commander in the Directorate of Ammunition.

ANMC is a site for missile and rocket maintenance, demilitarization, and disposal.

ANMC is an ammunition storage site, with more than 1,124 storage igloos. Of these storage igloos there are 450 earth covered Stradley igloos, these igloos can store some of the Army's largest munitions.



Significant Achievements



ISO 9001 Certification

In order to provide quality service, support and products, ANMC recognizes its role in supporting America's joint forces and the importance of continuous process improvement. After working diligently to implement an International Organization for Standardization (ISO) based quality management system, ISO 9001:2008 certification was obtained through Blue Grass Army Depot (BGAD) on 22 May 2008 and recertification was conducted on 19 May 2011.



Lean Six Sigma

ANMC currently has four certified green belts, and they have achieved over \$750,000 in cost savings in fiscal year 2013 through lean initiatives. Anniston Munitions Center supports environmentally friendly programs such as recycling. According to Anniston officials, 18 operators work to break down the missiles into several recyclable parts including copper, steel, and aluminum parts. It's been the worker's job since 2003.

Why Partner with ANMC?

ANMC experience has proved that these arrangements are win-win opportunities not only for industry and the organization but also for our Warfighters by capitalizing on the strengths and efficiencies of both sectors.

ANMC has partnered with several industrial entities for the following:

- Missile Recycle Center Phase I
 - On facility and operation
 - Direct Sales and tube testing
 - R3 program for complete disassembly of TOW missile into reusable, reclaimable and scrap components

- ANMC supplies various ammunition for testing Static Detonation Chamber (SDC), including all repacking requirements.
- ANMC provides application of ablative coating to inside of flight motor nozzles of TOW Missiles.

For information on partnerships or doing business with ANMC, please contact our Capabilities Development Office @ usarmy.anad.tacom.list. anmc-partnerships@mail.mil

Capabilities

ANMC is the pilot location for environmentally sound demil and recycling technologies such as recovery and processing of missile energetics and components while maintaining robust OB/OD capabilities supporting PM Demil efforts including development of MLRS recycling capability and JMC's Integrated Logistics Strategy.

ANMC is well poised to capitalize unique and modern munitions maintenance and demil capabilities as the Anniston Chemical Activity completes its demil mission. ANMC integrally supports Lockheed's missile maintenance facility.



Quality Commitment

At the Anniston Munitions Center, we believe quality is the key to ensuring that our support to the war fighter will stand the test of time. We don't cut corners for the sake of expediency, but we do the job right and have satisfied customers.

Our commitment to quality extends to all operations, designed in meeting the customer's needs. We provide our customers world-wide support from DoD's ammunition experts, modernized capabilities, efficiency, lower costs, and stewardship of critical resources.

Many of our continued quality improvements include:

- ISO 9001, OSHAS 18001
- Corporate philosophy of empowerment
- Logistics Modernization Program focused process re-engineering
- Rewarding the workforce
- Cost culture and Continuous Process Improvement techniques
- Leveraging use of enterprise best practices

Production Organization

The Anniston Munitions Center emphasizes quality at all levels. The organization's Management Division consists of personnel who oversee workload execution to ensure ANMC meets customer requirements of cost, schedule, and quality.

Quality Assurance Organization

The Anniston Munitions Center is ISO9001:2008 certified and maintains a full time quality program analyst and additional duty quality auditors.

Quality Objectives

The Anniston Munitions Center's Quality policy is to consistently provide high quality and responsive products and services to our world-wide customers through efficient, effective, and evolving processes. ANMC has three quality objectives:

High Quality:

- Customer satisfaction rate of 99%, measured by discrepancy report rate

Responsive:

- Meet shipment dates 99% of the time measured by meeting customer required delivery dates

Efficient:

- Perform work to at least 65% of the daily standard measured by daily production reports

Safety



Safety is at the forefront of all ANMC operations, and we went 4-years (FY09-FY12) between lost-time-injuries.

ANMC is OSHAS 18001 certified through Anniston Army Depot's certification, and is committed to minimizing the risk to its employees.

ANMC is working toward OSHA Voluntary Protection Program (VPP) Star Status in conjunction with Anniston Army Depot.

ANMC received the 2010 Army Materiel Command Industrial Operations Battalion Level Safety award and was nominated by JMC for the Army Materiel Command's Industrial Operations 2012 Safety Award.



Blue Grass Army Depot (BGAD)

Purpose

Blue Grass is a multifunctional Class V facility with both regional and national conventional support missions.

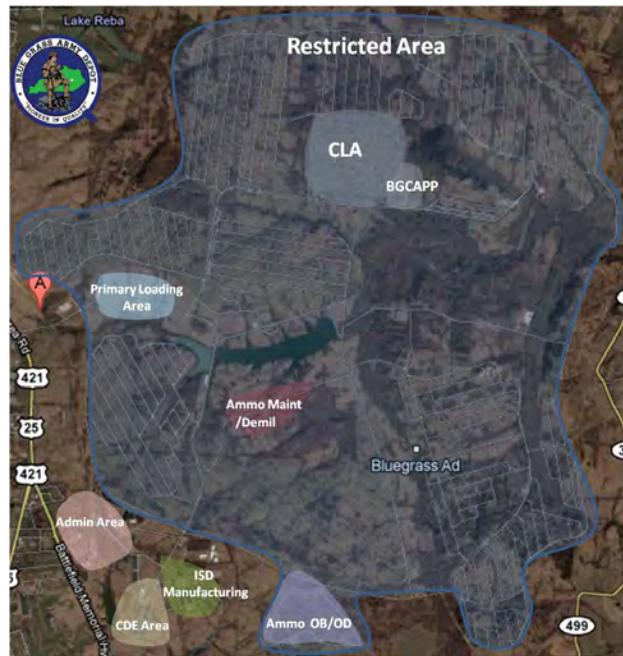
Vision

To provide munitions for America's warfighters through world-class global logistics.

Mission

Blue Grass Army Depot provides Centralized Ammunitions Management for training ammunition and mobilization and Ammunition Basic Load for Army units in the Southeast region.

BGAD



Richmond, KY is home to the Blue Grass Army Depot, or BGAD. The Depot provides conventional ammunition services for all armed services. It also provides management of chemical defense equipment and limited manufacturing capabilities for the Army. The Depot covers more than 14,500 acres and contains more than 1,100 structures, including ammo igloos, warehouses, industrial facilities and administrative buildings. It is a major distribution center for the Army, taking advantage of its central location and immediate access to interstates, railways and airlift access.

Blue Grass Army Depot now has a regional mission for centralized ammunition management. The commander is now responsible for the Anniston Munitions Center in Alabama and the Scranton Army Ammunition Plant in Pennsylvania.





In addition, BGAD supports the Blue Grass Chemical Activity in their mission of guarding and monitoring stored chemical weapons and the Assembled Chemical Weapons Alternatives and Blue Grass Chemical Agent-Destruction Pilot Plant in their chemical weapons demilitarization missions. In October 2006, ground was broken on a chemical weapons destruction plant at BGAD. Construction is currently set to be completed in 2014 and upon the completion of testing, chemical destruction should begin in 2017.

BGAD's prime mission is to receive, store, issue, maintain, renovate and demilitarize both conventional and non-standard ammunition for all DoD services. BGAD supports U.S. Warfighters by providing immediate response and operational readiness support to joint units engaged in Overseas Contingency Operations.

Significant Achievements

- Integrated Management System (IMS)
- ISO 9001-2008 Certified
- ISO 14001 Compliant
- Lean Six Sigma Processes
- Value Engineering Program
- OHSAS 18001 Certification (in process)
- OSHA VPP Safety Certification (in process)
- IMS – Integrated Management System

BGAD's Quality Management System (ISO9001-2008) was recently integrated with the ISO 14001 Environmental, OHSAS 18001 Occupational Health and Safety, and the ISO 50001 Energy Management Systems to establish an Integrated Management System (IMS). The IMS reduces redundancy and cost associated with the separate programs. The IMS seeks continuous improvement in all BGAD processes. This endeavor helps ensure BGAD gives its best to BGAD employees, customers, and public stakeholders.

ISO 9001 Certification



BGAD obtained International Organization for Standardization (ISO) 9001:2002 Quality Management System (QMS) certification in May of 2007. BGAD was recertified to the ISO 9001:2008 standard

in May of 2010. The QMS was established in accordance with internationally recognized quality system principles that include a strong focus on the customer. The QMS uses a process approach and seeks continuous improvement. Objectives and processes were established to ensure BGAD's world-wide customers get consistent high quality products and services at the right place, right time, every time.

The Blue Grass Army Depot (BGAD) recently reached a significant milestone by achieving its International Organization for Standardization ISO 14001:2004 Environmental Management System (EMS) certification. An EMS is a means by which the depot manages its environmental responsibilities, in addition to identifying and controlling environmental impacts of depot activities, products and services. The ISO 14001:2004 specifies the conditions for an EMS that allows the depot to develop and implement environmental policies, while taking into account legal and other requirements. BGAD continues to achieve new environmental management milestones. KY EXCEL is the Kentucky Department for Environmental Protection's voluntary environmental leadership program that allows participants to increase their environmental commitment and reduce their environmental footprint through the completion of environmental projects. Since 2006, the depot has partnered with federal, state and local agencies, as well as universities and colleges. These efforts protect the environment and health of the depot's workforce; prevent and reduce pollution; comply with federal, state and Army regulations; and conduct the depot's missions in the most effective and efficient manner possible.

Lean Six Sigma



BGAD implemented the Lean Six Sigma (LSS) program in 2006 as a way to improve the quality and efficiency of its products and processes. Since that time, the LSS methodology has allowed BGAD to avoid over \$28M

in costs while supplying the Warfighter quality products when they need it. LSS is another arm of BGAD's robust Continuous Process Improvement (CPI) program. LSS combines the concepts of Lean and Six Sigma. Lean seeks to eliminate waste in processes. Six Sigma uses a statistical approach to improve the quality of process outputs, by minimizing variability in processes with a goal of eliminating defects. LSS allows BGAD to eliminate waste, improve quality and efficiency, and to reduce costs associated with conducting business. BGAD has conducted LSS project on container repair, munitions renovation and maintenance, and pallet production as well as a variety of other munitions, and manufacturing processes.

Value Engineering Program

BGAD maintains a Value Engineering program that uses a systematic approach that analyzes products, processes, equipment, facilities, and services to ensure they are achieving their required reliability, quality, safety, and cost effectiveness. The program seeks to increase performance, and efficiency while maintaining or reducing associated cost. VE's purpose is to ensure the Warfighter receives high quality products and services, while the public receives optimum value for every tax dollar invested. In FY13 BGAD's VE program saved over \$1.66 million while improving efficiency, and ensuring that Soldiers, Sailors, Airmen, and Marines received high quality products on time.

OHSAS 18001 Certification

BGAD is working toward establishing the requirements of the OHSAS world-wide standard for managing health and safety more effectively, including parts 18801 and 18002. The goal is to establish certified BGAD policies and procedures

via an established Occupational Health & Safety (OH&S) management system to eliminate or minimize employee exposure to employees to risks associated with workplace activities. Once established, BGAD will be seeking certification/registration of its OH&S management system by an external organization.

Other Awards for the Installation

U.S. Army's Top 10 Inventions 2009/MRAP Overhead Wire Mitigation Kit

Why Partner with BGAD?



BGAD wants to team with private industry to develop solutions to difficult projects. We provide industrial capability, because we are a rapid response, quick turnaround, small batch industrial production facility. BGAD has hundreds of acres of storage available. We are environmentally permitted for explosives and munitions capabilities. BGAD has experience working with other government agencies on quick turnaround projects.

For more information, visit our website: www.bgad.pao@us.army.mil or call (859) 779-6941.

Capabilities

BGAD has become involved in the manufacture of specialized armor components for armored vehicles. International Organization for Standardization (ISO) and manufacturing certifications, combined with metal-working capabilities, have enhanced BGAD's value to both the warfighter and DoD.



Expansion of BGAD's capabilities, credentials and demonstrated performance all enhance its long-term viability as an Army Working Capital Fund organization. BGAD also provides support to tenants, including the privately contracted aircraft modification and repair by L3 Communications.



Receive, Store, Maintain, Issue Conventional Munitions

Blue Grass is a multifunctional Class V facility with both regional and national conventional support missions. As part of this capability, we offer industrial services support; ammunition maintenance, renovation, disassembly, and demilitarization; thermal arc coating of Air Force bombs; water washout facility with flaker belt; ultrasonic testing for mortar ammunition; quality assurance and joint logistics support; and ammunition life-cycle management.



Industrial Services Division

BGAD provide a unique industrial capability, because we are a rapid response, quick turnaround, small batch industrial production facility. We are leaders in metal cutting, welding and bending. BGAD provides a premier painting/coating service.

Non Hazardous Inert Munitions Metal Shredder



Blue Grass maintains a shredder that performs destruction/size reduction on items from current DoD inventory for demilitarization. All processed material goes through final disposition at the BGAD R3 Quality Recycling Program (QRP). We can also process pallets/crates, PVC, fiberglass, plastics, tires, drums and other general plant waste.

Chemical Defense Equipment

We provide worldwide support to chemical defense equipment through storage, inspection, testing and shipment of needed materials.

Quality Commitment



Blue Grass emphasizes quality in all products delivered to customers, everything produced goes through quality inspections. BGAD manages and maintains depot Chemical Materiel Surveillance Program (CMSP) database for lot management, manages stock condition, assigning receipt condition codes and reclassifying stock. We manage the issue, inventory and certification of protective mask testers and calibration of CDE test equipment. BGAD inspects shipments for proper lot selection, packaging and markings by performing surveillance tests in accordance with serviceability standards and customer requirements. Coordinates the Test, Measurement and Diagnostic Equipment (TMDE) calibration and repair program.



BGAD develops quality management plans and interprets technical data package requirements assisting management in building quality into the process. BGAD serves as the liaison with process engineers, technical personnel, production

controllers, production supervisors and leaders in defining quality product and program requirements during inception, engineering and preproduction phases, in preparation for execution of new production programs assigned to the depot. BGAD investigates and resolves any quality problems.



BGAD identifies and classifies defects of end items based on their potential to cause performance failure or degradation of quality and reliability characteristics. The depot ensures compliance with ISO standards and requirements in all phases of operations. BGAD's continuous improvement programs (ISO 9001, 14001, 50001, and OHSAS 18001) and other management processes into one management system.

This simplifies the ISO/OHSAS systems by reducing redundancies, consolidating audits, and having one preventive and corrective action system. For example, instead of having one ISO 9001 quality and one ISO 14001 environmental audit, the ISO office will conduct one audit that audits those programs as well as the ISO 50001 and OHSAS 18001 standards. This will allow BGAD to meet the requirements set forth in the standards, and reduces interruption of work.

Production Organization

We are ISO 9001 certified. We practice Lean Six Sigma throughout the organization.

Quality Assurance Organization: We have quality assurance teams that inspect all products at the installation.



Quality Objectives

To send out nothing but quality product and provide quality services.

Engineering

We have an active value engineering program that analyzes most production jobs to ensure efficiency.

Equipment

Ammunition peculiar equipment is available as well as any equipment necessary for metals fabrication and recycling.

Safety

Safety is at the forefront of all BGAD operations. Blue Grass Army Depot has a strong safety program.



Risk Management

Blue Grass Army Depot looks at every single job opportunity and does a thorough risk matrix to ensure success.



Corpus Christi Army Depot (CCAD)

Purpose

To provide Full Spectrum Support to the Fleet and to the Joint Warfighter.

Vision

To provide America's Warfighter the best value solution for modification, repair and overhaul of rotary wing and unmanned aircraft components and platforms. CCAD is the Army's Cornerstone of Aviation Readiness.

Mission

Our mission is achieved through a shared desire to support the American Warfighter.

Return Army rotary wing aircraft and components to the fight with uncompromising quality, at the lowest possible cost, in the shortest amount of time possible. Support the Army's accident investigation processes with subject matter expertise and reliable laboratory analysis anywhere in the world. When required, assess, evaluate and repair forward-deployed aircraft and components anywhere in the world, to include forward capabilities as required. Support Active, Reserve and National Guard maintenance skill development with hands-on experience at the depot.



CCAD



The Corpus Christi Army Depot, the largest tenant at Naval Air Station – Corpus Christi (NAS-CC), was established at NAS-CC in 1961 and is a large industrial employer in the Coastal Bend:

- Overhaul, repair, modify, retrofit, modernize, recapitalize and test helicopters, engines and components for all U. S. armed forces and foreign military customers.
- Serve as the depot training base for active duty Army, National Guard & Reserves
- Provide worldwide, on-site maintenance services, aircraft crash analysis, lubricating oil analysis and chemical, metallurgical and training support.

Corpus Christi Army Depot is the industry leader of repair and overhaul for helicopters, engines and components in Army Aviation. As the largest rotary wing repair facility in the world, the depot excels by delivering the highest quality product on time at the lowest possible cost.



CCAD is focused on the customer, providing global support with accident investigations, troubleshooting and repairing deployed aircraft anytime, anywhere. Support for the Warfighter ensures maximum sustainability through interactive training programs available at the depot. Soldiers work alongside depot artisans as they learn how to repair deployed aircraft in their unit.

Though CCAD remains the preferred business solution for rotary wing repair and overhaul, it continues to find ways to reduce cost while increasing production and maintaining superior quality of all its products. Cost-consciousness has become a culture at the depot with leaders, office professionals and artisans finding ways to lower costs at all levels.



Corpus Christi Army Depot (CCAD) is an asset to the Army's Organic Industrial Base (OIB) as a rotary wing repair facility. The depot has a unique set of capabilities in helicopter, Unmanned Aerial System (UAS), and component support that is essential for all branches of Department of Defense (DoD), Department of Homeland

Security Customs and Border Patrol, and foreign military. CCAD's repair and overhaul capabilities are matched by a commitment to the customer, the Joint Warfighter, and to the American public by providing support that is better, faster and cost effective.

Skilled depot artisans take existing aircraft and transform it into an elite flying machine packed with maximum capabilities and cutting-edge technologies to handle anything on the battlefield. The Joint Warfighter not only depends on CCAD to get them to the fight, but also to get them home; that is why the depot is committed to quality. Everything that leaves CCAD's hangars is in the best condition it has ever been in, delivered faster than ever and at the lowest possible cost.

CCAD understands the needs of the customer and that is why it has a team of the most skilled helicopter experts ready to deploy at a moment's notice. CCAD makes a promise to do what it takes to get its products back in the air through accident investigations, troubleshooting and repair anywhere in the world.

Significant Achievements

ISO 9110 Certified



The best artisans have expertise and knowledge accumulated from decades of service, but CCAD consolidates it into intense and engaging training for Warfighters throughout DoD, including Active, Reserve and

National Guard. Newly renovated barracks put Soldiers steps away from hands-on training that cannot be found elsewhere. Each Soldier returns to his or her unit with a unique skill set that is critical to the field.

By ensuring customer satisfaction through these elements and by forecasting future needs, the depot postures itself for years of continued service to the Joint Warfighter and the American people.

CCAD considered themselves validated when they received certification from the International Organization for Standardization (ISO).

The certification not only indicates the caliber of work being done by depot employees, but might also indicate more job opportunities. Although government operated, the depot competes for jobs from both the private and government sectors. The ISO certification strengthens the long-term outlook for one of the city's largest employers. "Being certified to the ISO standard puts CCAD on a new level with added opportunities for corporate partnerships, additional workload and more support for the troops."

Corpus Christi Army Depot is the first military facility in the world to be certified to the AS 9110 standard for aerospace industry Maintenance Repair and Overhaul (MRO) facilities. CCAD was AS 9110 recertified in March 2013.

Shingo Recognition



Corpus Christi Army Depot is the proud recipient of the Shingo Public Sector Bronze Medallion. CCAD received the honor based on the stellar accomplishments made on its H-60 JDLM Pavehawk Program.

CCAD submitted the H-60 JDLM Pavehawk Program due to the stellar success the Depot has had on the line in regards to shaving cost and turnaround-time on the H-60 JDLM Pavehawk line, while drastically improving quality.

Lean Six Sigma



CCAD has the ability to apply a variety of Lean Six Sigma tools throughout the depot. We are equipped and trained in the use of advanced statistical modeling software. CCAD's in-house Master Black Belt trains and mentors new belt candidates. We have a fully trained staff of certified green and black belt Lean

Facilitators. CCAD has an ongoing benchmarking of industry leaders to improve our Lean practices. Lessons learned and industry best practices are applied to every new program. Continuous value stream mapping and process improvement is applied to all ongoing workload. CCAD maintains an on-time-delivery at or below customer cost while maintaining the highest standards of quality. All validated savings are returned to the customer for redeployment. LEAD employees' vested interests are the key to continued Lean success. All employees participate in a four-hour Lean Six Sigma basic skills training. CCAD welcomes all input and strives to strengthen customer cooperation.

Thanks in part to Lean Six Sigma, as well as other complimentary Depot initiatives such as Process Based Leadership (PBL) and a commitment to certification into the ISO family of standards (ISO 9001:2000, AS9100, AS9110) CCAD continues to improve services.

Center of Industrial and Technical Excellence (CITE)



Corpus Christi Army Depot is the Center of Industrial and Technical Excellence (CITE) for aviation structural airframes and blades, advanced composite technologies, flight controls and control surfaces, aviation engines, aviation transmissions and hydraulic systems (including sub-system accessory components), and aviation armament, electronics, support equipment (less avionics).

Awards

For FY12 CCAD won two prestigious awards for depot support, the Department of the Army Combined Logistics Excellence Award (CLEA) and the Secretary of Defense Robert T. Mason Award for Depot Maintenance Excellence.

The CLEA award recognize organizational achievement in the areas of deployment, maintenance, and supply operations for all components—Active Army, Army National Guard, and Army Reserve.



The Robert T. Mason Award is presented to an outstanding program from a major organic depot-level maintenance facility that exemplifies responsive and transformed depot-level maintenance support to DOD operating units.

CCAD earned these two awards for the UH-60 Black Hawk recapitalization line, achieving an unprecedented 50 helicopters in FY12.

Why Partner with Corpus Christi?

CCAD is a modern, reliable, fiscally conservative, cost-effective and highly responsive enterprise that is flexible enough to meet Army requirements in both war and peacetime while retaining a continuous improvement mindset. Since 2003, the depot has saved taxpayers over \$20 billion through a number of programs designed to cut time and costs while making smarter choices in workload.

A focus on continuous improvement means that CCAD takes a critical look at its processes and programs for opportunities to reduce turnaround time and cost while increasing performance to leverage its return on investment. State-of-the-art technology and systems maximize proficiency throughout the organization while a focus on leadership development and employee empowerment guarantees a workforce that truly cares for the Warfighter. Dynamic public-private partnerships also increase efficiency of operation at CCAD. Combined, these elements achieve the highest possible return on capital assets and investments.

Under the highest level of certification, CCAD has completed world-class maintenance on more than 544 aircraft; 2,986 engines and 111,785 helicopter components since 2003. CCAD continues to adapt to a change in military tempo by utilizing the best business practices within the commercial sector to posture itself as an elite organization prepared to handle the needs of the future.

Corpus Christi Army Depot operates as a premier business partner within the Aviation and Missile Command and Army Materiel Command to support every Soldier, Sailor, Airman and

Marine. Partnerships with Original Equipment Manufacturers is part of ongoing efforts for continuous improvement. CCAD has successfully partnered with General Electric Aircraft Engines, Sikorsky Aircraft Corporation, the Boeing Company and Honeywell International. Through sharing ideas with these Original Equipment Manufacturers and the technical engineering logistics supply support they provide to depot artisans, CCAD has met and exceeded production schedules.

CCAD has symbiotic partnerships with key players in private industry. In FY12, there were a total of 1,561 contracts worth more than \$100 million that allowed CCAD to be better, faster and cost-effective.

The following are just some of our amazing partnerships.

Technical, Engineering and Logistical Services and Supplies (TELSS): our Original Equipment Manufacturers work closely with CCAD to ensure quality support to America's Warfighter. In turn, these partnerships look to CCAD as a needed resource when it comes to our unique capabilities. Our main partnerships are well-known in the aviation industry.

Additionally, CCAD's Business Development Office utilizes Commercial Services Agreements with an array of private businesses in order to showcase our depot as a competitive entity that produces a quality product. The depot understands that its success relies on the continuation and development of key partnerships that will result in a top-quality product at the lowest price with the quickest turnaround.

Contact the Business Development Office to discuss opportunities to do business with CCAD (361) 961-2560 or (361) 961-4712, usarmy.ccad.usamc.mbx.pao@mail.mil or www.ccad.army.mil.

Capabilities

CCAD is the largest helicopter overhaul and repair facility in the world. In addition to Army aircraft, we overhaul/repair helicopters and components for the Air Force, Navy, Marines, and Department of Homeland Security Customs and Border Patrol. As

the Cornerstone of Army Aviation Readiness, our multi-skilled and dedicated workforce, backed by state of the art facilities and equipment, supports a wide range of weapon and component systems. CCAD's capabilities are backed by extensive test facilities. Equipment and maintenance hangars are required to support multi-weapon systems such as UH-60, HH-60, AH-64, CH-47, and OH-58 aircraft platforms and related components.



CCAD maintains a wide range of component test facilities (cells) necessary to overhaul/repair mechanical, electrical, hydraulic components, instruments, rotor blades, rotor heads, transmissions, gearboxes, and turbo shaft engines. CCAD's capabilities at a glance include Test Inspection, Metal Processing, and Fabrication & Repair performed by CCAD artisans to support Multi-Service Weapon System Readiness, an ISO 9110 Certified Facility.

CCAD provides depot level maintenance to Army, National Guard, U.S. Marine Corps, Foreign Military Sales, Special Operations Command, Tactical Army Command, and Joint Program Office.

Cleaning and Stripping

- Chemical Stripping
- High Pressure Water Washing, Steaming
- Ultrasonic, Vapor Degreasing
- Water Jet Stripping
- Wheat Starch, Glass and Plastic Media Blasting

Welding Technology

- Arc Dabber TIG
- Electron Beam
- Plasma
- Resistance TIG, MIG
- Shielded Metal Arc

Bearing Refurbishment

- DoD Level II Facility
- Bearing Gauging, Reballing and Honing
- Repackaging
- Service Life Extension

Test and Inspection

- Aircraft Flight Testing
- Aircraft Rigging
- Automated Test Cells
 - Electrical Generators
 - Engines
 - Gear Boxes
 - Hydraulic Components
 - Transmissions
- Bearing Inspection
- Coordinate Measuring Machine Inspection
- Dynamic Blade Testing and Balancing
- Dynamic Component Inspection
- Electronic Automated Testing Equipment
 - Analog and Digital Testing
 - Electronic Testing
 - Wiring and Wiring Harness Testing
 - Other Electrical Testing
- Hot Air and Air/Fuel Flow Testing
- Laboratory Capabilities
 - Electron Microscope Examination
 - Chemical Analysis
 - Bonding Testing
 - Failure Analysis



- Non-Destructive Inspection/Testing
 - Spectrographic Analysis
 - Fluorescent Penetrate
 - Magnetic Particle
 - Ultrasonic
 - Eddy Current
 - Video Inspection
 - X-ray (Film and Real Time)

Fabrication and Repair

- Advance Composites
- Engine, Component and Rotor Blade Container
- Fluid Cell Press (Sheet Metal Forming)
- Graphic Art Design and Stenciling
- Heat Treating
- High Speed Precision Balancing
- ION Vapor Deposition
- Item Unique Identification Data Tag Manufacturing
- Limited Metal Casting
- Metal Spray Robotics
- Optical Precision Measurement
- Sheet Metal Fabrication
- Shot Peening
- Soldering
- Tool and Die Manufacturing
- Tube and Hose Manufacturing
- Vacuum Brazing
- Wiring Harness Replication

Coatings: Plating, Thermal Spray and Special Methods

- Aluminum Conversion
- Anodizing
- Black Oxide
- Cadmium, Cadmium/Chromium
- Chromic/Phosphoric Acid, Copper Gold
- Flame Spray, Powder Coating, Ion Vapor Deposition
- Hard Chromium
- Magnesium
- Nital Etch
- Nickel, Nickel-Watts and Sulfamate
- Phosphate
- Silver
- Zincates
- Passivation for Stainless Steel
- Combustion Thermo Spray
- Plasma Spray (Titanium and Stainless Steel)

Machining and Milling Technology

- Abrasive Water Jet Cutting
- Adaptive Manufacturing Prototyping
- Computer Numerical
- Control Programming
- Drilling, Lathing, Punching and Grinding
- Five Axis Machining (Milling and Forming)
- Laser and Plasma Cutting

Corrosion Prevention and Painting

- Large Booths (Entire Aircrafts)
- Small Booths (Special Processes and Components)
- Engine and Component Preservation
- Airless and Air-Assisted Painting

Electrical

- Linear Actuators
- Generators

- Line Replaceable Units
- Rotary Wing Electrical Components

Engineering

- Engineering Analysis
- Engineering Design
- Process Engineering
- Repair Bill of Materials
- Engineering Support of Aircraft Accident Investigation
- Laboratory Analysis
- Chemical Composition
- Material Composition
- Design and Implementation of Special Tooling

Hydraulics

- CH-47 Absorbers
- Hydraulic Actuators
- Hydraulic Servos
- Pneumatic and Electro-Mechanical Components
- UH-60/AH-64/CH-47 Hydraulic Pumps

Ultrasonic Shot Peen

Due to space limitations at the shot peen shop, repairs to the UH-60 main rotor blades could not be accomplished. CCAD refurbished the blades at Original Equipment Manufacturing facilities which incurred a higher repair cost, along with more time spent away from the depot. We had the skilled artisans, we just didn't have the space. So the idea for a portable shot peen machine was born.

This technology will ensure what the depot is doing for the flight components to meet the requirements of our depot's maintenance and overhaul standards. Our ultrasonic shot peen technology allows us to take the machine to the blade, when they can't bring the blade to the machine.

Ultrasonic peening has been recently considered an alternative to conventional shot peening due to its versatility in establishing localized repairs on the field. The new computerized technology has the

ability to shot peen small localized process areas in seconds. This capability increases our readiness and reduces turnaround time.

In the last year CCAD has saved 28 rotor blades from becoming scrap, resulting in a cost avoidance of approximately \$160K per blade.

Laser Cutter

Depot artisans are a step closer to automating the entire sheet metal manufacturing process at CCAD with a new laser cutter. The fixture is a high performance linear motor that delivers high-speed cutting for fast, continuous processing of high quality parts.

The laser cutting fixture cuts sheet metal patterns that are later formed with the fluid cell flex press or power brakes before they are put on a helicopter. With a cutting speed of 40 meters per minute, the laser is faster than producing patterns by hand. The laser can cut through several thicknesses of different material, including plate steel, stainless steel and aluminum. Patterns are guaranteed to cut with repetitive accuracy.

In the past, a sizeable product like a UH-60 bulkhead required the part to be pressed by hand in multiple sections. Now, the laser cutter can cut a pattern in as little as five minutes. The laser cutting fixture and the subsequent automation implementations will allow CCAD to schedule accurately and allow the training of a more technologically-proficient workforce to meet unpredicted surges in demand.





Fluid Cell Press

CCAD's new Fluid Cell Press forms vital parts for the UH-60, CH-47, AH-64 and OH-58 aircraft in-house. Replacing the 67-year old Farquhar Press that was in constant need of repair with limited parts availability, the modernized press streamlines production with a continuous flow of parts in less time, at a lower cost and with higher accuracy than ever before.

Now, CCAD has more capabilities to sustain aircraft with the fluid cell press' ability to form larger airframe parts and to press multiple parts at once at a fraction of the time. It also eliminates a number of processes and requirements that eat up production time. The new forming process maximizes efficiency by reducing turnaround time and cost by 95% while producing at nearly 100% sell quality. This new technology has revolutionized the way CCAD works. An aircraft former that used to cost \$17K and take more than 300 days of lead time now takes only \$1K and a fraction of a day to produce.

Engines and Components

Engine and Transmission Repair:

The Engine and Transmission Test Facility is the facility to test AH-64D Apache transmissions along with UH-60A/L, CH-47D and OH-58 transmissions. Additionally, nearly 3,000 General Electric T701Ds and 400 Honeywell T55-714 engines have been produced with a significantly reduced turn-around-time since the workloads were assumed.

Component Repair:

Eighty percent of the total revenue is component repair. Components Production plans, coordinates and executes hydraulic, mechanical, electrical, avionics, instruments, bearings, aircraft rotor systems, rotary wing, rotor heads, rotor controls and related aircraft component production at CCAD to meet scheduled maintenance requirements of the DA, DoD and other U.S. and foreign customers. Component Repair programs continue in the implementation of Lean Six Sigma manufacturing and production methodologies, Continued Process Improvements, Value Stream Mapping (VSM), Rapid Improvement Events

(RIEs), and Lean Six Sigma events. In 2009, Lean events netted a total cost avoidance of \$12,798,765.

Components:

- Avionics/Electronics Repair
- AH-64 Transmission and Gearboxes
- AH-64 Rotorhead/Rotor Control



- CH-47 Transmissions and Gearboxes
- CH-47 Rotorhead/Rotor Control
- Main Rotor Blades
- OH-58 Transmission and Gearboxes
- OH-58 Rotorhead/Rotor Control
- Select Legacy Transmissions and Gearboxes
- Select Legacy Rotorhead/Rotor Control
- T55 Engines
- T701D Engines
- T700 Cold Section Module
- T700 Power Turbine Module
- Tail Rotor Blades
- UH-60 Transmission and Gear Boxes
- UH-60 Rotorhead/Rotor Control

Production Profile

Platforms and Programs:

- AH-64 Cabin Modification
- AH-64 Crash and Battle Damage Repair
- CH-47 Crash and Battle Damage Repair
- CH-47 Overhaul and Recapitalization

- OH-58 Crash and Battle Damage Repair
- OH-58 Structural Upgrades
- UH-60 Recapitalization
- UH-60 Crash and Battle Damage Repair

CCAD's helicopter repair mission involves the following helicopters: UH-60 Black Hawk, HH-60 Pave Hawk, AH-64 Apache, CH-47D Chinook, and OH-58D Kiowa Warrior, and components for joint services. To facilitate its repair mission, CCAD receives on-site guidance and technical support from the following partners: Boeing, GE, Honeywell, and Sikorsky.



CCAD provides maintenance, repair and overhaul services to more than just Army Aviation, to support every Soldier, Sailor, Airman and Marine. The Joint Service Aircraft Maintenance status helps ensure the depot's future, along with the Lean and Six Sigma initiatives implemented during the past nine years. Since the early 1990s, the depot has returned more than 170 Air Force HH-60 Pave Hawks and thousands of components for Air Force, Navy and Marine helicopters to the fight. CCAD is the only location that services engines for the Presidential helicopter fleet through the Navy Gold Stripe Program. CCAD also repairs UH-60 helicopters for the Customs and Border Patrol. In addition CCAD also provides support to allied nations through the Foreign Military Sales (FMS) program. The joint effort is in addition to the hundreds of joint service, federal government and FMS UH-60 Black Hawks and HH-60 Pave Hawks and related components that have found their way to the frontlines. Each helicopter and

component is given the same high-level priority as each Army aircraft. The cost and time consumed would be substantially greater if the components or aircraft were purchased new. CCAD brings all military branches together to serve the same mission, which is supporting the Joint Warfighter.

Aircraft

UH-60 Black Hawk Recapitalization (RECAP):

CCAD sold 56 UH-60s in FY12. Recapitalization Program adds years to the life of each UH-60 and loads it with the latest and best technology and systems, creating a chopper that is equal to or better than a new one. By continuing to invest in aircraft already in their inventory, the Army is able to provide the Warfighter with a state-of-the-art aircraft that is a proven game-changer in combat. During a time when budgets are tight, CCAD delivers a superior aircraft for millions less than the cost of a new one, making CCAD as practical as it is economical.

UH-60 Black Hawk Crash Damage:

Trusted as the front-line utility helicopter of choice for combat, the UH-60 Black Hawk is pushed to its limits every time it takes flight. This makes the UH-60 susceptible to damage both in and out of combat, but the Army cannot afford to ground a helicopter, nor can they afford to risk a Soldier's life by giving him a damaged aircraft. CCAD's Crash Damage Program repairs and rebuilds damaged UH-60 Black Hawks and sends it back into action. CCAD's skilled artisans also perform and install the latest structural and technological upgrades to give the American Soldier the edge in combat.

HH-60 Pave Hawk:

CCAD sold 9 HH-60s in FY12. The HH-60 Pave Hawk is a highly modified version of the UH-60 Black Hawk that is used by the United States Air Force for combat search and rescue. Dedicated CCAD artisans perform depot-level maintenance and prolong the life of each aircraft through its Structural Integrity Program that either replaces or modifies parts on the HH-60 Pave Hawk's airframe.

OH-58 Kiowa Warrior WRA/Overhaul/Crash Damage/Repair & Return:

CCAD sold 20 OH-58s in FY12. The Army



continues to rely on the OH-58 Kiowa Warrior as the primary air reconnaissance helicopter though production ceased 2001. The Army now counts on CCAD to sustain and improve the fleet at least until 2025. In the past year, CCAD launched a new program and upgraded its first Wartime Replacement Aircraft (WRA) Kiowa Warrior. The WRA Program is the Army's initiative to replace those lost. The program is a joint effort with CCAD, the Armed Scout Helicopter (ASH) Project Office, the Aviation Field Maintenance Directorate (AFMD) and Bell Helicopter providing the Army a cost-effective and efficient way to replenish lost aircraft.

CH-47 Chinook RECAP/Crash Damage:

CCAD sold 5 CH-47s in FY12. The CH-47 Chinook is the Army's heavy-lift transport helicopter designed to move troops, weapons and essential equipment during combat and support missions. The recapitalization effort modernizes onboard electronics, restores airframe integrity and improves flight performance. The depot supports the D and F Model Chinooks and the MH-47G Special Operations Aviation version. Through recapitalization and crash damage repair, CCAD continues to drive down the cost of Army aviation by maintaining the current fleet.

AH-64 Apache Pre-Mod/Repair & Return/Crash Damage:

CCAD sold 17 AH-64s in FY12. CCAD is Department of Defense's only depot capable of AH-64 Apache support. The Apache is the Army's primary attack helicopter, capable of defeating a wide range of targets with highly mobile and effective firepower. CCAD artisans recently completed its 128th AH-64 Pre-Modernization Aircraft, completing the program. They continue with Crash Damage and Repair & Return efforts to ensure the Joint Warfighter is armed with the most advanced and effective aircraft that delivers superior performance and lethality on the field.

Quality Commitment

- Meet the command schedule coordinated with AMCOM.
- Improve production process management including master data.



- Apply Depot Transformation Team concepts to other activities and departments.
- Improve the effectiveness of quality oversight.
- Communicate the value of CCAD to key stakeholders and customers.

Environmental

CCAD implemented an Environmental Management System (EMS) to reduce its impact on the environment. EMS identifies environmental concerns exclusive to CCAD operations, and enables CCAD to strive towards its goals to reduce waste, material use and energy consumption. The system not only guarantees consistent environmental results, it also achieves significant cost avoidance.

In its first full audit year, CCAD performed 88 EMS performance audits and issued 34 environmental Corrective Action Reports (e-CARs), establishing a baseline for future improvements. Since its inception, CCAD has made strides through many pollution prevention initiatives including recycling, wastewater screening and by reducing waste toxicity.

Safety

CCAD is so well known for its safety that the Department of Army (DA) recognized it with a DA Industrial Operations Safety Award and a DA Safety Award for Excellence – Civilian. As a model of Safety throughout the Department of Defense, CCAD continues its obligation towards a safer work environment.

CCAD created safety audits as a more comprehensive and internal replacement of conventional safety inspections. With over 1,600 hazards corrected so far, these safety audits have increased hazard identification and effective hazard elimination throughout the depot.

Organizational Improvement

- Improve efficiency of support processes.
- Increase our proficiency and discipline in LMP and shop floor automation tools.
- Synchronize policy and documentation to CCAD innovations, certifications and strategy.
- Implement proactive infrastructure sustainment plans and management.
- Improve the acquisition process for required materials and services.

Logistics Modernization Program

During a time when Department of the Army is experiencing massive budget cuts and workforce reductions, CCAD is producing more, spending less and maintaining its manpower. Within one fiscal year, nearly 6,000 CCAD employees, contractors, and industry partners underwent a series of changes to become a government entity focused more on cost and performance and less on budget.

The Logistics Modernization Program (LMP) better allows organizations, like Army Aviation and Missile Command (AMCOM), to have total asset visibility of inventory and a single common view of inventory, while improving communication with the depot. It also allows for visibility over contractor-managed inventories that legacy systems did not allow. LMP allows the Army to order inventory on a just-in-time schedule thus improving efficiency within repair processes and cutting down on storage costs.

LMP has allowed the Army to maintain and strengthen its Organic Industrial Base by allowing CCAD to focus on and improve process in their workload, while Headquarter staff pulls necessary

reports and data. Through LMP, the CCAD workforce catalyzed an enterprise approach to operations to affect the overall costs of Army Aviation and turn every dollar saved into more capability for the Army.

Future Workload

Unmanned Aerial System Shadow

CCAD recently inducted its first new platform in decades, a non-rotary wing program, the UAS Shadow. This new program will include Modification, Repair and/or Overhaul associated with the Tactical Unmanned Aerial System Shadow 200. The Shadow gives superior capabilities without risking the Soldier's life, making CCAD's mission to maintain "Ready- For-Issue" Shadows critical.

OH-58 Kiowa Warrior CASUP

CCAD was awarded the Cockpit & Sensor Upgrade Program (CASUP) in December 2011 to convert the OH-58D Model to an F Model. In the process, CCAD artisans will address additional capabilities, safety enhancements and obsolescence issues. CCAD artisans will give the Warfighter an edge in combat by upgrading aircraft with cutting-edge sensing technologies. By FY15, depot artisans expect to produce 27 aircraft and 40 in FY17.





Crane Army Ammunition Activity (CAAA)

Purpose

To provide “Only Our Best For The World’s Best”

Vision

We are and will remain the best producer and supplier of conventional munitions to the fighting ground, sea and air forces. Our commitment to quality will make our customers demand our services above all others. We are committed to continuous measurable process improvement throughout the organization.

Mission

To receive, store, ship, produce, renovate and demilitarize conventional ammunition, missiles and related components to meet contingency requirements in support of the warfighter.



CAAA



Crane Army Ammunition Activity (CAAA) is a Government Owned/Government Operated ammunition production, storage and maintenance facility located in southern Indiana. Co-located with Crane Naval Surface Warfare Center, CAAA has over 4.8 Million square feet of explosive storage and production space.

CAAA’s mission is to receive, store, ship, produce, renovate, and demilitarize conventional ammunition, missiles, and related components. CAAA has a long history of producing pyrotechnic items, countermeasures, and a variety of other ordnance items dating back to the 1940’s.

CAAA’s current efforts include shipping and receiving conventional ammunition in support of operations overseas as well as training in CONUS. CAAA containerizes pre-configured ammunition loads which are delivered directly to troops on the ground, to ships afloat, and to pre-positioned stocks.



We support our magazines with both rail and truck access, blocking and bracing, and two modern containerization facilities to support Sea/ Land Containers.

Significant Achievements



ISO 9001:2000 Certification

Crane Army Ammunition Activity and Letterkenny Munitions Center (LEMC) are certified jointly to the the International Organization for Standardization (ISO) Quality Management System Standard. The scope of our multi-site Certification of Registration is: Manufacture, Storage, Demilitarization, Renovation, Maintenance, and Shipment of Ammunition, Missiles, and Related Components. CAAA has been certified to the ISO Quality Standard since 1998.

Voluntary Protection Program Star Status



Crane Army Ammunition Activity earned a Star Status designation in the Voluntary Protection Program in 2010 after follow-up inspections by the Occupational Safety and Health Administration, making it at that time only the second organization in the Army Materiel Command to earn this distinction.

The Star Status reflects the overall commitment to employee safety fostered at Crane. VPP promotes effective worksite-based safety and health. In the VPP, management, labor, and OSHA establish cooperative relationships at workplaces that have implemented a comprehensive safety and health management system. Approval into VPP is OSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health.

Lean Six Sigma



Crane Army Ammunition Activity has a fulltime staff of Lean Six Sigma specialists committed to continuous improvement. Our efforts focus on the elimination of waste and non-value added action. Continually improving our processes allows us to provide our customers with quality, responsive products at a very competitive price. These savings are passed along to our customers.

Why Partner with CRANE?



Our unique capabilities, skilled workforce, equipment, and secure facilities, coupled with our willingness to work with the customer, have made Crane Army Ammunition Activity and Letterkenny Munitions Center valued members of teaming and partnering arrangements for defense and non-defense items.

We have a full time business staff dedicated to providing our Industry partners with quality products and services in support of the warfighter. We continue to seek new opportunities to team with private industry to establish "win-win" arrangement.

For additional information, visit the CRANE website: <http://www.crane.army.mil/> and select the Business Opportunities or call (812) 854-5455.

Capabilities

Logistics

CAAA's Logistics Operations' Team is a recognized leader in providing support to America's war fighters. With consistent focus on safe and excellent execution, Logistic Operations' personnel perform the receipt, storage, preparation for shipment, transportation, shipment, inventory and intra-depot movement of ammunition and related items.

The Logistics' Team execute a highly effective containerization mission to include a state of the art container repair facility which also has a mobile repair capability. Logistics Operations Team strategically plans and executes the activity's ammunition surveillance program and function testing for the Ammunition Stockpile Reliability Program.

Shipping and Receiving



Crane Army Ammunition Activity ships to the Joint Warfighter an average of over 40,000 short tons of conventional ammunition per year in support of the world wide operations. Additionally, CAAA receives and stores over 50,000 short tons of conventional ammunition per year.

Logistics Facilities



We support our magazines with both rail or truck access, blocking and bracing, and two modern containerization facilities to support Sea/Land Containers.

Pre-Configured Containers

CAAA containerizes pre-configured ammunition loads in support of our military. The containers are delivered directly to troops on the ground, to ships afloat or to pre-positioned stocks.

Short Ton Storage Capacity

We store approximately 20% of the prime warfighting and training assets for the DoD. Storage facilities include above ground storage magazines that can accommodate projectiles, high explosives, black powder, fuzes, and detonators.



Material Handling

Specialty transporters on hand to facilitate material movement include super stackers, 50K lb rough terrain container handler, auto railer, and hi-lo trailers.

Production Profile

CAAA's Manufacturing and Engineering team is responsible for all ammunition explosive manufacturing operations performed by the Activity including production, renovation, modification, demilitarization of conventional ammunition and ammunition related components and machine shop functions. This highly effective team provides key engineering services and prepares associated plans for the Activity. The demilitarization and renovation efforts are a critical part in the management of ammunition stockpiles.



Pyrotechnics



CAAA is a recognized center of technical expertise in the production of pyrotechnic devices including signal, smoke, illuminating and infrared (IR) items, illuminating projectiles, marine location markers, and IR flares for illumination in conjunction with night vision devices. CAAA has the experience, capacity, and responsiveness to provide multiple, quality pyrotechnic products to the warfighter.

Cast Load



CAAA has the ability to produce cast loaded explosives utilizing production lines to mix, melt, and hold kettles. Our diverse processes and expertise enable us to melt and pour explosives with many different characteristics. We produce bombs, mines, shock test charges, demolition charges, underwater sound signals, cluster bombs, and projectiles. Equipment is also available to thermally coat munitions.

Press Load

With the availability of several presses our workforce can press load various compositions. From a single ram 500 ton press, to multiple ram high volume presses, operators can load 76mm, through 155mm projectiles, missile warheads, pyrotechnic items, and a variety of actuating devices and boosters.

Aircraft Decoy Flares



Aircraft Decoy Flares are vital to the safety of our fixed and rotary winged pilots and aircraft. CAAA has produced a variety of aircraft decoy flares.

Mortar Illuminating/IR Candles



Crane Army Ammunition Activity annually produces thousands of Illuminating and Infrared Mortar Candles for m mortars as well as artillery projectiles.

Machining Center

CAAA's machine shop is equipped with the latest manufacturing technologies and equipment. A full complement of modern computer numerical control (CNC) machines (mills, lathes, laser fabrication center, wire electrical discharge machine, waterjet, etc.) offers versatility to machine a multitude of configurations. We have specialized and unconventional machine equipment which gives us formidable manufacturing capabilities for all types of materials including tough alloys and exotic metals. Cleaning and finishing processes include chemical cleaning, ultrasonic cleaner, turbo washer, plating, titration, atomic absorption, powder coating, statistical process control, and workstation automated data collectors.

Bomb Renovation

Precision guided bombs have been vital to our warfighter's success. Crane Army Ammunition Activity renovates bombs up to 2000 lbs.

Demilitarization



Disposing of excess or obsolete ammunition and explosives is critical for the safety of the ammunition stockpile and maintaining storage space for "go to war" items. Current methods utilized include: automated high pressure washout, breakdown, steam-out, open burning, and open detonation. We have facilities and capability for white phosphorous conversion, incineration, yellow-D conversion, APE 1236 deactivation furnace, depleted uranium demil, and magnesium reclamation.

Renovation/Maintenance



Ordnance and pyrotechnic renovation work is accomplished in any number of flexible manufacturing units. Remote defuzing and refuzing capabilities are available for a variety of items. Propellant charge renovation is accomplished in multiple facilities configured with powder lofts. Exterior maintenance is performed on ordnance and ordnance related items such as containers, metal pallets, and wire cages using grit blasting, high pressure water cutting, degreasing, and painting.

Quality Commitment

Environmentally Sound Processes

Our ongoing goal is to minimize waste streams and maximize resource recovery and recycling (R3). Our White Phosphorus to Phosphoric Acid Conversion Plant represents one effort in this direction. At full-scale operational level since 1989, the facility has a maximum capacity to process up to many pounds of white phosphorous a day, producing thousands of pounds of phosphoric acid with a 75 percent concentration.



Letterkenny Army Depot (LEAD)

Purpose

To support the Warfighter in defense of our Nation's Constitution and National interests.

Vision

LEAD is the depot of choice for Industry, Government, and the Greatest Warfighters in the world.

Mission

Deliver superior maintenance, manufacturing, logistics, life cycle support and service worldwide to the Joint Warfighter and our International partners.



LEAD

Letterkenny Army Depot (LEAD) is a capabilities-based versus a commodity-based depot located in south central Pennsylvania. Its geographical location provides easy accessibility to rail transportation, major interstate routes and airport access.

LEAD is the organic maintenance facility for Tactical Missile Air Defense System refurbishment and maintenance support, Electric Power Generation Systems reclamation and the manufacturing/fielding of various armored vehicles and Counter Explosive Devices for various private and public customers.

LEAD manages and directs the administrative and operational control of CONUS and OCONUS Theater Readiness Monitoring facilities and Patriot missile facilities engaged in assessing the readiness and recertification of Homing All the Way Killer (HAWK) and Patriot missiles deployed by the US Army, NATO, and selected Foreign Military Sales (FMS) customers. Highly skilled electronic integrated systems mechanics provide onsite support and repair services for the Soldier deployed with their military unit anywhere.

The depot also provides overhaul and repair of power generation equipment and provides mobile repair teams for onsite maintenance assistance. LEAD rebuilds repairs and performs modifications on Ground Mobility Vehicles, customized Special Operations vehicles, tactical wheeled vehicles, Biological Integrated Detection Systems (BIDS), Material Handling Equipment, and Force Provider soldier support systems (i.e., mobile kitchens, containerized chapels). LEAD machines and fabricates armor for various protection kits.



Significant Achievements



- ISO 9001 Certification
- ISO 14001 environmental certification
- ISO 18001 safety certification

Shingo Recognition



LEAD is a nine-time winner of the Shingo Public Sector Prize:

- Patriot '05
- High Mobility Multipurpose Wheeled Vehicle (HMMWV) '06
- HMMWV '07
- Power Generator '07
- Biological Integration Detection Systems (BIDS) '08
- Patriot Missile Recertification '08
- Patriot '10
- Aviation Ground Power Unit (AGPU) '11
- Force Provider '13

Voluntary Protection Programs (VPP) Certification

Star-level certified in 2012. The star-level certification is the highest level of recognition and indicates that all VPP elements/sub-elements are in place and injury/illness rates are below the national average.

Lean Six Sigma



Letterkenny Army Depot was the first DoD depot to compete and win a Shingo Prize. All validated savings are returned to the customer for redeployment. All employees participate in a four-hour Lean Six Sigma basic skills training. Lean savings from 2009-2013 = \$88,223,340

Center of Industrial and Technical Excellence (CITE)



- Air Defense and Tactical Missile Ground Support Equipment
- Mobile Electric Power Generation Equipment
- Patriot Missile Recertification
- Route Clearance Vehicles (RCV)

Depot Source of Repair (DSOR)

- Patriot Missile Systems: Antenna Mast Set, Engage-Controller, Radar Set, Launch Vehicle, Info Coordinator, Communication Relay, Electric Power Plant
- Mobile Kitchen Trailer
- AN/TPY-2: Radar
- Multiple Launch Rocket Systems: High Mobility Artillery Rocket System, Improved Launcher Mechanical System, Improved Fire Control System

- Route Clearance Vehicles: Medium Mine-Protected Vehicle (MMPV) Panther, Vehicle-Mounted Mine Detection systems (VMMD) Husky, Mine Protected Clearance Vehicle (MPCV) Buffalo, Joint EOD Rapid Response Vehicle (JERRV), RG31 MKIII, RG33 Foreign Military Sales
- Sentinel: Ground Support Equipment

Other Awards for the Installation

- Two-time winner of the Army Superior Unit Award
- Department of Defense Award for Continuous Process Improvement
- Defense Logistics Agency Customer of the Year Award
- Secretary of the Army Environmental Awards

Why Partner with Letterkenny Army Depot?

Since 2003, Letterkenny Army Depot (LEAD) has been a leader in Public Private Partnerships with private industry. The successful accomplishments and positive collaboration of a partnership expands new workload opportunities as well as providing mutual partner success, reduced cost and improved Soldier readiness.

LEAD Partnership advantages:

- Lowers cost of products and services
- Sustains critical skills and capabilities
- Improves operational efficiencies
- Maintains core capability
- Maximizes facility utilization
- Provides industry with flexibility and options
- Leverages the strength of industry partners
- Opens the door for more business to industry opportunities

Types of partnerships include: workshare, teaming, direct sales, facility use and lease. Partnership discussions involve non-disclosure agreements,

requests for proposal, contracts of sale and invoicing.

The depot has partnerships in place that enable it to quickly and cost effectively lease facilities to accommodate workload requirements if those needs could not be met within the confines of its existing infrastructure. These partnerships examples include:

- High Mobility Artillery Rocket System (HIMARS) Component Repair involving the diagnostics of mechanical, hydraulic and electronic components and the disassembly, repair, resealing, testing and certified inspection of select HIMARS components.
- Javelin Joint Venture required Testing and repair of the Command Launch Unit, optical interface and forward looking infrared circuit card testing and repair, programming and CAT 3 storage.
- Patriot Recap/Reset/New Build
- Avenger Electronic Command Control repair, verification and test
- Unmanned Aerial System reset program

Partnerships Ensures Warfighter Readiness

For more information, visit our website at www.lead.army.mil and select the Partnership link.

Capabilities

Letterkenny Army Depot is a depot focused on Soldier support missions. From the intricate electronic components of Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) to the de-canning and canning of missiles to the 9-layer circuit card refurbishment to the customization and testing of a wheeled vehicle to the rebuild of a power generator to the reverse engineering of a one-of-a-kind component, Letterkenny is recognized as a 'one-stop shop' and the 'depot of choice' for the Warfighter.

The depot encompasses more than 18,667 acres and has over 1.4 million square feet of shop floor space at its disposal. In addition, the depot has a 28-acre state-of-the-art radar test facility. The test facility has the capability to map the Patriot radar.



Letterkenny is fortunate to have a highly skilled, flexible and dedicated workforce intent on providing the best product at the best price in the least amount of time. Supporting the Warfighter in peace time or in times of conflict is what the Letterkenny employee is all about.

LEAD Capabilities:

- Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I)
- Electronic Systems Integration
- Missile Maintenance
- New Build
- Radar test site
- Antenna Array Radar Pattern Testing
- Thermal Chamber Testing
- Ground Support (Vehicle, Equipment and Mechanical Support)
- Electric Motor Rebuild
- Shelter Repair/Upgrade
- Hydraulics
- Automotive Repair/Upgrade, including: FMTV, RG-31, GMV, etc.
- Trailer Repair/Upgrade
- Cable/Harness
- Wiring Harness Fabrication
- Wiring Harness Repair
- Fiber Optic Cables
- Testing & Quality Control
- Diagnostic Testing
- DITMCO Testing
- Clean/Shielded Room Environment
- Non-destructive testing
- Precision Measurement
- Engineering Services
- 3D Printing
- Reverse Engineering of legacy systems
- Material and Process solutions
- Circuit Cards & Circuit Boards

- Multi-Layer Circuit Board Repair
- Fabrication
- Sheet Metal Fabrication
- Machine Shop
- Armor Kits
- Welding
- Heat Treatment
- Upholstery Fabrication
- Power Generation
- Generator Overhaul
- New Build
- Process Support
- Metal Pretreatment
- Metal Plating
- Painting
- Blasting
- Epoxy Application
- Certifications
- J-STD-001 Soldering
- 13+ Weld Certifications
- Star4D Certification

Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I)



LEAD is the depot with capability to repair the Patriot radar set antenna array backplane and align it to electrical bore site. We refurbish, fabricate, modify, diagnostic and repair; as well

as provide system integration, test and validation to technical data pack (TDP) specifications. LEAD installs configuration updates through the application of maintenance work orders (MWOs) and engineering change proposals (ECPs). Our refurbishment methods include system overhaul (A1), RECAP (A3) and reset of ground support equipment. LEAD recapitalizes Patriot system to refresh and extend weapon system life cycle. We offer fly-away modification installation teams that field enhanced weapon system capabilities directly to the Warfighter. LEAD has emergency technical and maintenance assistance response teams to mitigate non-mission capable events in CONUS and OCONUS. Depot Maintenance plant equipment (DMPE) necessary to test to TDP specifications in simulated track, electronic counter-measure and temperature environments is available.

Patriot major end items:

- Engagement Control Station, Radar Set, Electric Power Plant, Antenna Mast Group, Launching Station, Information Coordination Central, Communications Relay Group, Battalion Maintenance Equipment, Battery Command Post, Guided Missile Transporter, Small Repair Parts Transporter, Large Repair Parts Transporter, Battery Maintenance Center.
- HAWK major end items: High Powered Illuminator, Continuous Wave Acquisition Radar, Platoon Command Post, Pulse Acquisition Radar, Missile Launcher, Missile Loader.

- HAWK secondary repair items: circuit card assemblies, receiver assemblies, nutating scanner, control bridge, pre-amplifier assembly, local oscillator, slip ring assemblies, HPI rotary pump, transmitter, analog receiver.
- RADAR SYSTEMS 28-acre test facility on the depot.

Patriot Test Site:

- Patriot radar and Antenna Mast Group (AMG) systems tested
- Includes a pattern range for radar performance testing
- High thermal chamber to simulate temperature extremes
- HAWK Test Site: Designated free space radiate zone used to test the HAWK Missile System and Counterfire Target Acquisition (CTA) and tracking system.
- System Integration Check Out (SICO)
- Live target tracking
- Systems alignment and bore sighting

Missile Maintenance Operations:

- Missile safety test
- De-canning and canning of missiles
- Explosive handling
- Patriot Missile Integration Test system
- Pressure testing
- Quality Assurance
- Built-in temperature, humidity and dust controls for sub-assembly test areas

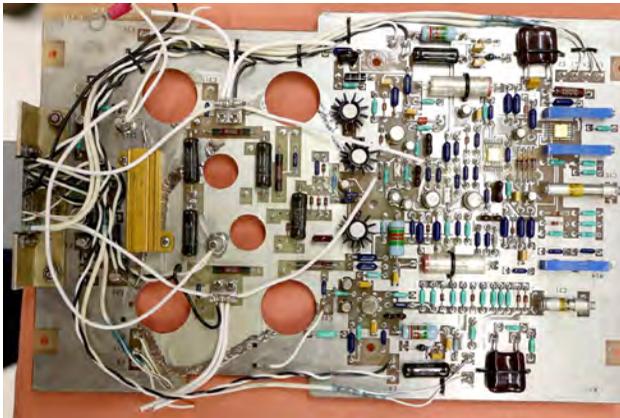




- Complete Patriot and HAWK storage, disassembly, testing and recertification
- Explosive weight limitations up to 10K lbs.
- 20K square feet of inert storage
- 3K square feet of classified storage

Circuit Card Testing and Repair:

- Inspect
- Disassemble
- Microblast
- Clean
- Repair/Modify
- Surface Mount
- Power zoom stereo- microscope
- General Electric Test Set (GETS) consoles
- Process, repair, and/or reconstruct circuit boards up to 9 layers per side
- J-STD-001 soldering and micro miniature soldering performed
- ESD certified area. Electronically grounded workstations. Employees attached to a continuous monitoring system.



Cable Harness Fabrication and Repair:

- Environmentally controlled production area
- Full-service wire harness repair and fabrication on assemblies ranging from small jumpers to multi-branched assemblies
- Thermal shrink and laser etch marking manufacturing
- Harness layout process

- Reel-to-reel spooling for fiber optic and copper cables
- Assembly of connectors, pins and hardware
- T-Foca fiber optic termination and testing
- Environmental thermal shock testing up to 210c
- Final mechanical installation, testing and inspection
- Splicing, assembly and attachment of connectors
- Transmission efficiency testing
- Full range of Data Information Test-Material Checkout (DITMCO)



- Automated testing
- Thermal shock / thermal cycling testing
- Laser, thermal and ink jet wire marking and marker manufacturing
- Total wire reeling: reel-to-reel, reel-to-cable, coiling
- Wire braiding: long length and short run
- Long cabling capability
- Complete original equipment manufacturing (OEM)
- J-Std-001E soldering certification
- IPC/WHMA-A-620 accreditation
- Specialize in fabrication / repair of low volume, one off, specialty harness assemblies
- Design and reverse engineering
- Full service cable and harness design, fabrication, repair and testing

Power Generators:

- Production area
- Complete A1—overhaul and reset direct support and depot-level repairs
- LEAD generator reset includes 54 variants of skid and trailer mounted. Shipped ‘Condition Code A’
- New builds
- Complete load testing on skid and trailer mounts, 5-400kw
- Components overhauled include: engine, generator, control deck, input, switch boxes, trailers, fuel components, electrical cables
- Program support includes: CECOM, BIDS, AAI, Force Provider, Sentinel, and PATRIOT
- LEAD is the AGPU Reset “Gold Site.” All CONUS AGPUs are reset at LEAD
- Product line includes: AGPU new build and reset, 5kw, 10kw, 15kw, 30kw, 60kw, 100kw, and 150kw, SLEP, EPPIII, GANG



- Electronics systems integration
- Hydraulics
- Complete disassembly of assets; replace and/or rebuild components to like-new condition
 - Pre-treat rust prevention process before reassembly; final paint process after vehicle assembly
 - Quality checks performed throughout recap or reset processes
 - Dedicated program engineering support through the entire repair process
- CONUS Home Station Training on all vehicles
- Heavy armor weld and battle damage repair
- Bay area capabilities:
 - Large high bay area equipped with overhead cranes
 - Low bay area is supported by smaller capacity cranes and a myriad of material handling equipment
- Shelter Repair/Upgrade
- Weld repair and fabrication
- Vehicle testing includes pre-shop, road and load as well as final test before shipment to the unit
- Wheeled Vehicle Support Test Track:
 - Test track
 - Tire and wheel alignment shop
- Water fording capabilities
- Crane testing area



Ground Support (Vehicle, Equipment and Mechanical Support):

- Refurbishment and maintenance of Route Clearance Vehicles (RCVs), HMMWVs, 5-ton trucks, GMVs, shelters, trailers, material handling equipment, Patriot support equipment, HAWK, Avenger, Sentinel, and HIMARS ground support
- Electric Motor Rebuild
- Component Reclamation
 - Welding, repair, and fabrication support



- Quality checks performed throughout recap or reset processes
- Dedicated program engineering support through the entire repair process

Machining And Fabrication:



Machining

- Machine shop production area
- Armor Kits
- Laser cutting for aluminum and stainless steel
- Water jet machines for cutting steel, aluminum, wood, rubber, armor, glass and composites
- Heat treatment: Pre-heat armor and titanium to aid in preventing cracking in the forming process
- Electrical discharge machining--produce dies, jigs and fixtures
- Tubing and hosing - reversed engineer technology; round/square stocks
- Rapid Machining Cell: Intuitive programmable machining allows fast turnaround time from engineering concept to end product
- Lathe/Turning Center - Mazak 9 Axis Integrex
- Antenna positioned: simultaneously machines 5 axis
- Milling machines
 - Ingersoll 6 Axis Bridge Mill
 - Ingersoll Gantry Mill (2 heads/5 axis;

16,000 RPM spindle speed)

- Haas CNC router vacuum table (magnet clamping/quick change over and full sheet milling)

- Sheet Metal Fabrication
- Computer Numeric Control (CNC) laser cutting machines
- CNC water jet and high definition plasma cutting machines
- CNC punch press and CNC brake presses
- 100,000-watt spot welder
- CNC programmable plate roller
- CNC programmable tubing bender
- Hydraulic tubing line flaring and test area
- Sheet metal production area
- Laser cutting: accepts material in sheet sizes with a maximum size of 13'x10', a range from .010" up to 1.25" thick sheet plate, and a .50" thickness for aluminum and stainless steel
- Waterjet machines cut any type of material including: steel, aluminum, wood, rubber, armor, glass and composites
- Able to pre-heat many different types of armor and titanium to aid in preventing cracking during the forming process

Welding:



- Production area
- Operations range from small component repair, production workload to full asset

modifications and repair

- Titanium Welding/ROBOTIC Weld Cell
- BLU-CO Tables (Quick Set-up)
- Carbon/Air Arc Gas Welding
- Aluminum, Stud, and Fusion Welding (Gas or Flux)
- Tungsten Inert Gas (TIG), Gas Mechanical Inert Gas (MIG)
- Manual Metal Arc (Stick)
- Spot Welding 100,000 watts
- Stainless steel

Miscellaneous Fabrication:

- Upholstery - sound/water proofing; crew seats/covers; drapes/curtains; straps; vehicle storage solutions
- Box Shop - custom-built containers, crates, skids and hutmans

Material Prep/Finish:



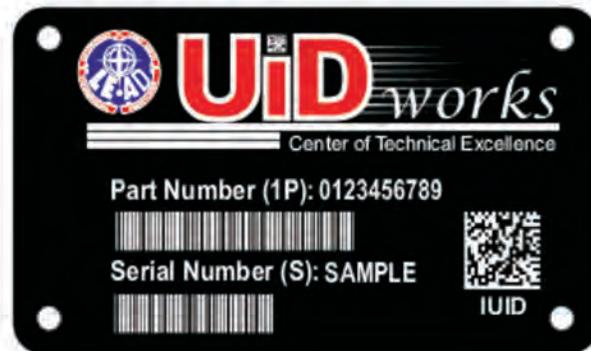
- Paint operations in five buildings located in close proximity to product lines
- Complimented by state-of-the-art VOC control technology to ensure environmental compliance
- Two parallel processing lines supported by sub-floor pits
- Cleaning, lubrication, paint preparation, corrosion prevention application, undercarriage painting, application of base/final/pattern paint, drying, stenciling, and

end item preservation for storage/issue

- Seven drive-in paint lines with various paint capabilities specializing in CARC paints
- Large drive-in wash rack facility with two wash racks
- Four metal pre-treatment systems
- Three paint line systems
- Five drive-thru paint and abrasive blast cleaning booths
- Three small parts coating/drying carousels
- Epoxy application
- STAR4D Painter Training Institute
- Partnership with the University of Northern Iowa (UNI), the Iowa Waste Reduction Center and Tiburon
- Curriculum follows UNI's Spray Technique Analysis and Research for Defense (STAR4D) methodology

Unique Item Identification

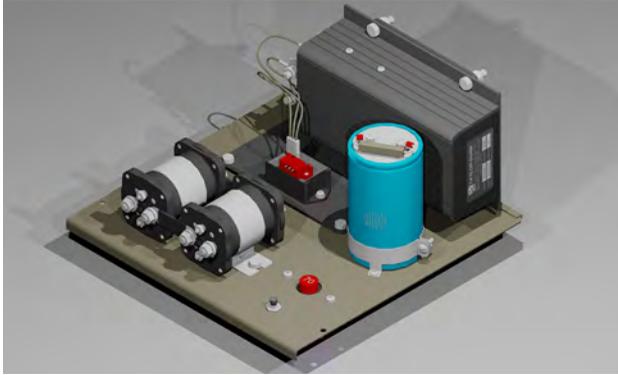
Data Fabrication Plates and Schematics:



- LEAD is the UID Works Center of Technical Excellence
- IUID data submitted to a Federal Registry
- Marking of tangible items or assets as mandated by DFARS and MIL-STD-130
- Metal photo aluminum plates or Tesa labels
- Template: standard or custom
- Color schemes: traditional black on silver, silver on black, special rub-on dyes, such as gold, red and orange
- Adhesive backing: 3M or CARC compatible



Production Engineering:

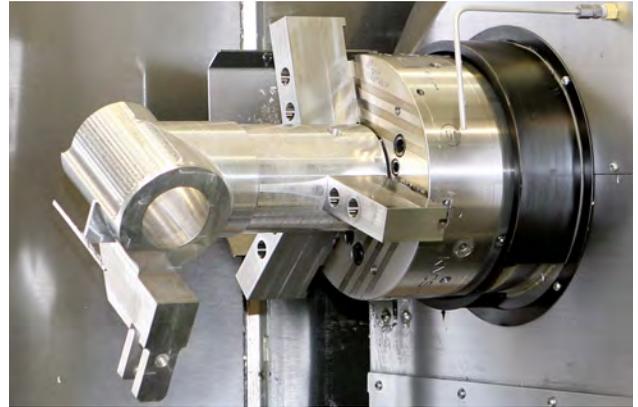


- Engineering Services
 - 3D Printing
 - Reverse Engineering of legacy systems
 - Material and Process solutions
 - Expertise in all Engineering disciplines
 - 3D modeling and computer aided design
 - Conceptual design & reverse engineering
 - Rapid prototyping of parts and molds
 - Complete TDP development
 - Mechanical writing to include DMWRs, NMWRs, TM's, & work instructions.
 - Repair and maintenance of IPE (Ind Plant Equip) and ATE (Automated Test Equip)
 - Cost estimating for overhaul and fabrication new work programs
 - Complex programming of CNC machines
 - Economic Analyses & Value
 - Engineering
 - Routes & BoMs feeding the LMP system
 - Industrial floor space & process planning
 - Repair, welding and reclamation procedures
 - Obsolescence solutions

Technical Publications/Engineering Design:

- Model Based Engineering (MBE) utilizing multiple CADD and parametric design platforms to
 - Analyze and design

- Develop reverse engineer systems to development test procedures
- Provide Technical Data Packages
- Develop performance standards
- Provide manufacture - ready engineering designs



- Publication capabilities:
 - Extensible Markup Language (XML)
 - CADD design software and reprographic services
 - Microsoft Office, Adobe Acrobat, Adobe Photoshop
- Experience:
 - Depot Maintenance Work Requirements (DMWR)
 - Technical Manuals (TM)
 - Process Instructions
 - Technical Data Packages (TDP)

Supply and Transportation:

- Full spectrum of premier logistical services: shipping, receiving, storage, inventory and multiple level care of supplies in storage (COSIS)
- Rail and truck shipping



Production Profile

Letterkenny Army Depot produces products for major commands to include AMCOM, TACOM and CECOM. The product list includes:

- PATRIOT



- HAWK
- TOW



- Javelin
- Avenger



- Classified and RAD storage
- Mobile all-terrain crane
- Container handling: 20 feet and 40 feet, 95,000 lbs. capacity
- Customized kitting program
- On-site box shop to customize shipping containers constructed IAW military standards for CONUS and OCONUS shipping (to include prototype design)
- Facts:
 - Depot with independent receiving, storage, and shipping capabilities;
 - LMP/SAP operational;
 - 99.6% on-time shipping;
 - Load and unload rail cars on the depot;
 - CSX rail interchange is 25 miles from LEAD;
 - On-site Department of Transportation certified hazardous material specialists
 - Asset preservation and storage;
 - Worldwide customer base





- HIMARS
- Sentinel
- Route Clearance Vehicles



- Ground Mobility Vehicles



- Material Handling Equipment
- Construction Equipment



- Shelters (including BIDS)
- Power Generators



- Soldier Support Equipment



Quality Commitment

Quality Assurance and quality control are integrated throughout the entire depot process. First article inspection in accordance with AS9102-A. Testing and quality control include:

- Diagnostic Testing
- DITMCO Testing
- Clean/Shielded Room Environment
- Non-destructive testing
- Precision Measurement



Audits and reports to:

- Perform quality, environmental and safety process audits
- Process internal Product Quality Deficiency Reports (PQDRs)
- Process supply discrepancy reports (SDRs)
- Process external product quality deficiency reports

Depot program management of:

- Quality management system IAW ISO 9001-2008
- Technical library
- Customer satisfaction
- Corrective and Preventive Action (CAPA)
- Test Measurement and Diagnostic Equipment (TMDE)

Risk Management

LEAD's Directorate of Risk Management's mission statement is to provide the Army and other armed forces with worldwide, reliable, responsive, and cost-effective depot level maintenance, field support, systems integration, and product support integration for weapon systems, components, and ancillary equipment to ensure the readiness, sustainability, and safety of these forces during the full spectrum of operational environments.

Safety

Letterkenny Army Depot provides outstanding safety and health protection to our Soldiers, employees, contractors and visitors through solid management systems and employee involvement. LEAD is committed to attaining a world-class occupational safety and health management system, and firmly believes in the objectives and philosophy of the Voluntary Protection Program. The workforce continually strives to reduce workplace injuries and illnesses in order to protect the valued employees, their families and the communities.



Letterkenny Munitions Center (LEMC)

Purpose

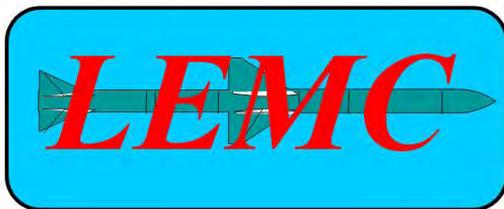
To provide munitions and missile support, and is a center for surveillance, receipt, storage, issue, testing and repair.

Vision

A dedicated, skilled workforce providing reliable missiles and munitions where and when they are needed while continually evolving to keep pace with tomorrow's needs.

Mission

To receive, store, inspect, maintain and issue munitions; to assemble/disassemble, maintain, renovate, modify and test missiles; and to demilitarize munitions and missiles for Department of Defense.



LEMC



Letterkenny Munitions Center (LEMC) is a tenant on Letterkenny Army Depot (LEAD) and occupies approximately 16,000 acres of the depot's total of 18,668 acres. LEAD was established in 1941 and began operation in 1942 as an ammunition and general supply storage depot. In 1961, LEAD's ammunition operation began supporting Army air defense missiles and Air Force air intercept missiles. The missile mission now encompasses Army, Air Force and Navy systems.

In 1999, the Directorate of Ammunition Operations was renamed LEMC, and command and control was transferred to Crane Army Ammunition Activity, Crane, Indiana.

LEMC has more than 1,100 structures including: 902 igloos, 10 standard above-ground magazines, 20 supply warehouses, 16 maintenance and operations buildings, munitions sheds, administrative buildings and other various support buildings. LEMC has 128 miles of paved road, 30 miles of rail track, two major containerization pads and 25 rail docks.



LEM provides munitions and missile support, and is a center for surveillance, receipt, storage, issue, testing and repair for the Army Tactical Missile System and Guided Multiple Launch Rocket System missiles.

LEM is a training site for Reserve ammunition units. Major capabilities also include demilitarization, resource recovery and reutilization for missiles and missile components, shipping container repair, missile container repair, and renovation of conventional munitions.

Significant Achievements

ISO 9001-2008



Letterkenny Munitions Center has maintained the International Organization for Standardization (ISO) 9001 standards since certification in 1999. LEMC is currently certified to ISO 9001-2008 standards.

Lean Six Sigma



Through the use of Lean Six Sigma methodologies, LEMC has institutionalized a culture of working efficiently and effectively. LEMC maintains a number of certified Black and Green Belts.

Why Partner with LEMC?

LEM offers the unique combined capabilities of ammunition logistics operations and the technical maintenance of missiles and their associated electronic and explosive components. LEMC has decades of experience working with diverse customers to include all of the Military Services and their related diversity of requirements, as well as supporting other government agencies and commercial customers. LEMC also has a wide number of FMS customers. Not only must LEMC deliver the right munitions on time to meet both training and war fighter needs, but also provide mobile teams to support missiles in various overseas locations.



LEM specializes in missile maintenance, repair and logistics. A highly trained and skilled workforce of electronics and ordnance mechanics is maintained, capable of doing electronic testing and repair of guidance systems, missile integration and modification. In addition, LEMC is capable of demilitarization of all tactical missiles and is in the process of standing up a state-of-the-art confined thermal treatment facility for tactical rocket motors capable of handling large motors up to and including Army Tactical Missile System (ATACMS) and Navy Standard motors. Our logistics operation has the right facilities, equipment, and trained people to meet Department of Defense outload requirements.

LEM issues, receives stores, maintains, demilitarizes and tests munitions. In its 70-plus year history as an munitions logistics and maintenance facility, LEMC has established the infrastructure, specialized workforce, and proven

procedures necessary to meet today's technological challenges quickly and effectively. In sustaining organic capabilities we have maximized the use of our organic capacity through a number of direct sales, public-private teaming and work-share arrangements.

Although a tenant on Letterkenny Army Depot in south Central Pennsylvania, LEMC occupies over 16,000 acres of the installation's 18,000 acres. It is located within 20 miles of three major interstate highways and is serviced by railroad. All of this contributes to rapid response for shipments and lower transportation costs.

For more information contact: Letterkenny Munitions Center; ATTN: JMCN-MC, 1 Overcash Avenue, Chambersburg, PA 17201; email: Partnerships@conus.army.mil; Phone: (717) 267-9954.

Capabilities

Supply Depot Operations

Letterkenny Munitions Center (LEMC) has expertise in many facets of ammunition support and at its core are LEMC's Supply Depot Operations (SDO) capabilities. These capabilities include shipping, receiving, storage and rewarehousing munitions; as well as blocking and bracing of munitions, and a kiln facility for heat treating wood packaging materials (WPM). These functions are all complemented by the availability of our depots 28-miles of rail, 25 rail docks and secure gate parking for up to 28 tractor trailers. LEMC has close accessibility to several major transportation routes, rail interchanges and ports.



LEMC has more than 20 docks for loading operations. LEMC has the responsibility of assuring service members receive the munitions they requested on time. We are the Northeast Regional Depot for Centralized Ammunition Management (CAM) serving 14 states on the east coast. The driving factors favoring LEMC are lower costs of transportation and the location of the Depot.



LEMC provides inventory and surveillance inspections for all munitions stored in our earth covered magazines and above ground magazines. These services include quality audits, accountability data processing research, safety in storage and periodic inspections.

LEMC also has the capability of repairing, blasting, painting and inspecting shipping containers. LEMC's on-site storage area for all inspected and repaired containers ensures that we are always ready to ship munitions to service members.



LEMC Interservice Missile Maintenance

LEMC serves as the intermediate and depot-level maintenance facility for the Air Force, Navy and Foreign Military Sales (FMS) customers for a variety of Air-to-Air and Air-to-Ground All-Up-Round (AUR) missile systems. LEMC's missile technicians are a multi-faceted group, which possess the skills required to meet our customers' adapting needs.



Due to LEMC's ability to remain flexible in an ever-changing missile environment, we continue to take on new capabilities as a fully-functional missile repair and upgrade facility. Our technicians perform missile tests and identify missile repair candidates using various common test sets as well as system specific test equipment. LEMC's capability to repair missiles is continually expanding and we are currently the only depot to perform intermediate level repair of the AMRAAM and HARM missile systems. LEMC's expertise is in testing missiles and fault isolation down to

the section level. This repair process includes the identification and replacement of failed/unserviceable components including guidance sections, controls sections, radomes, actuators, wings, fins, warheads, and rocket motors.

LEMC coordinates with Original Equipment Manufacturers (OEMs) and Designated Overhaul Points (DOP) for the final repair of missile sections and their re-integration into Ready for Issue (RFI) AUR Missiles. We support missile upgrade programs providing depot services to upgrade the HARM missile to the U.S. Navy's AARGM missile and the U.S. Air Force's HARM Control Section Modification (HCSM) missile.

LEMC also provides full repainting capabilities for missiles and components that can be as simple as touch-up of significant scratches to fully stripping assets to bare metal to provide primer and paint resulting in a like-new condition.

LEMC has the capability of reclaiming missile parts during the disassembly or demilitarization process. In addition, LEMC's Mobile Maintenance capability enables our technicians to travel and perform missile tests, evaluations and reprogramming. LEMC has traveled to various Navy and Air Force Bases in the Continental U.S. and outside the Continental U.S., to conduct maintenance operations on ships, as well as provided maintenance training to FMS customers.



LEMC offers a container repair and modification capability to meet our customers' needs. We perform corrosion control, welding repair, and minor or full repaint. In working closely with our customers, we have developed modification efforts,

which have allowed us to utilize our abundant stockpile of older model containers for conversions to containers that fit new model missiles. Additionally, our LEMC has the capability to perform a full refurbishment of support equipment from parts replacement to repaint.

Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM)

LEMC has a maintenance facility to support both Army Tactical Missile Systems (ATACMS) and Guided Multiple Launched Rocket Systems (GMLRS). We perform maintenance on rockets/missiles for the Army as well as the Marine Corps. The rebuild criteria used in the maintenance processes often exceeds that of the original manufacturer.



LEMC's expertise includes initial inspection, disassembly, repair or replacement of defective subcomponents, reclamation, refinishing, reassembly, functional testing, POD conversion, and hybrid buildup. Our technicians employ the latest technology to provide the safest and most reliable missiles and rockets to our customers and the Soldier in the field.

The latest LEMC MFOM workload mission is the establishment of the M28A2 Low Cost Reduced Range Practice Rocket (LCRRPR) Production Facility. The M28A2 LCRRPR is a modified M26 MLRS capable of being fired at all U.S. ranges. This production entails the download and demate of M26 MLRS rockets from the pod and reutilizing the subcomponents to produce M28A2 LCRRPR rockets to support Army training requirements. MLRS has been in production for more than 30

years. With the establishment of LEMC's LCRRPR production facility, rockets can now be produced for the first time at a U.S. Government Owned facility.

Capabilities Supporting the MFOM Family Include:

- Missile Common Test Device (MCTD) Pod Testing
- MCTD Repair
- Missile Common Test Set (MCTS) Pod Testing
- Rocket Integration Testing
- Control and Actuating System Testing
- Fuze Testing
- Thermal Battery Testing
- 350 Cable Testing
- Assemblage Testing
- Boattail Testing
- Igniter Testing
- Fuze Safety Testing
- Missile Guidance Set Testing

Demilitarization and Conventional Maintenance



Letterkenny Munitions Center retains the capability to perform a wide range of conventional ammunition maintenance activities to include disassembly for demilitarization, renovation of artillery projectiles and small arms modification and preservation. In addition, LEMC has pioneered the disassembly and demilitarization of



a wide variety of air and ground launched tactical missiles. LEMC maintenance teams also perform a wide array of support functions such as inspection, maintenance, packing and shipping for various intelligence agencies involving foreign munitions.

LEMC's demilitarization mission provides great value to its customers and continues to evolve with new technologies. LEMC has demilitarized over half a million rounds of 105mm gun ammunition. LEMC is fully permitted under Part B of the Resource Conservation and Recovery Act.



Current capabilities include:

- Demil of high explosives
- Demil of artillery propellant



- Demil of solid-fueled rocket motors

In 2013, LEMC acquired a transportable flashing furnace to demil small arms and rocket motor components through thermal reduction which also allows for greater recovery of scrap metal and

lessening chemical emissions to the atmosphere. Since 2007, LEMC has generated more than 1.5 million dollars in recycled scrap metal proceeds which has been returned to the U.S. Army to fund additional demil projects.

Multiple missile rocket motors can be demilitarized in this facility with significantly improved environmental consequences over open firing to the atmosphere.



Production Profile

- Army Tactical Missile System (ATACMS), all variants



- Guided Multiple Launch Rocket System (GMLRS), all variants

Quality Commitment

Letterkenny Munitions Center has injected ISO 9001 standards in our products and services to the Warfighter and every customer. By doing so, it provides a level of assurance that our products and services are produced consistently ensuring that the Warfighter is getting a quality product the first time, every time. This is closely monitored by the Ammunition Surveillance Team.

The Continuous Improvement specialists and our Production Quality Assurance team ensures processes that include demilitarization, shipping, storage, and maintenance are consistently performed to standard. LEMC continuously strives to improve, which is captured in our Quality Policy, "Only Our Best for the World's Best."

Through the use of Lean Six Sigma (LSS) methodologies, LEMC has institutionalized a culture of working efficiently and effectively. By adopting an attitude of everything has a place, and everything in its place, workflow and turnaround times have improved as well as touch times minimized. We rely heavily on the input of the process owners realizing that it is they who know the process best. As we grow our process, we strive to incorporate the LSS toolkit prior to establishing work. By standardizing procedures, it has reduced cycle times, and has directly enabled our products to get into the hands of the Warfighter and customers quicker.

- X-Ray Machines
- Digital Radiography
- Film Radiography
- Magnetic Particle Inspection
- Liquid Penetrate Inspection
- Ultrasonic Inspection

LEMC has a long history of radiographic inspection of DoD assets.

LEMC's radiographic inspection facility has been able to divert from the use of silver-based imaging film. The continuously rising cost and lack of availability, along with the hazardous waste associated with the development chemicals have made the use of Computed Radiography, a valuable cost-savings measure.

We are certified in the following:

- ASNT (American Society for Nondestructive Testing) NDT Level III
- NAS (National Aerospace Standard) 410 Level II



Non-Destructive Testing

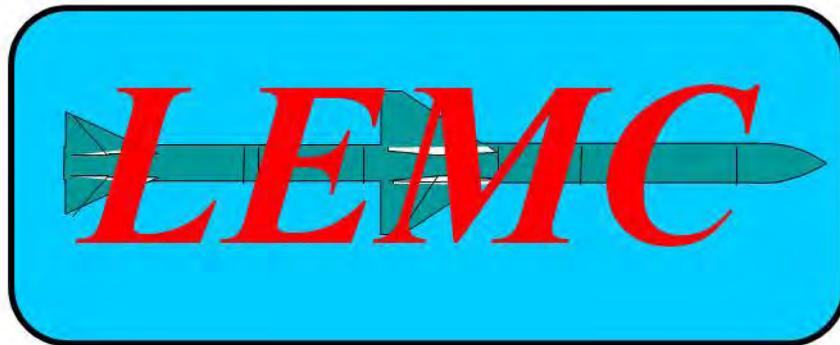


Letterkenny Munitions Center's Radiographic Facility capabilities are as follows:

Safety

LEMC was awarded the Fiscal Year 2012 Army Materiel Command "Exceptional Performance for Explosive Safety" Award. Prior to that, LEMC received the FY11 Secretary of the Army/Chief of Staff Army Explosive Safety Award.

LEMC's Safety program has maintained accident/incident rates significantly below industry standards for the past 5 years. Through an aggressive safety awareness and education program they have maintained employee focus on Safety. LEMC recently completed Stage 2 of OSHA's Voluntary Protection Program with a target date of full Star Status at the end of FY14..



McAlester Army Ammunition Plant (MCAAP)

Purpose

“Providing Quality Munitions To Our Warfighters:
Right Item, Right Quantity, Right Time, Right
Place”

Vision

McAlester Army Ammunition Plant will be responsive to the Warfighters’ requirements, exceeding their expectations by continuously improving the safety, quality, efficiency, and effectiveness of our processes.

Mission

To produce, sustain and deliver munitions and munitions support to Service members worldwide.



MCAAP



McAlester Army Ammunition Plant (MCAAP) was originally commissioned as a naval ammunition depot in May 1943. The Plant was transferred in May 1977 under the Single Manager for Conventional Ammunition and became the McAlester Army Ammunition Plant. The workforce is comprised of employees assigned to ammunition production, ammunition and missile maintenance, logistics operations, ammunition and missile demilitarization, and various support functions.

Located on 45,000 acres, MCAAP is centrally located in the U.S. with access by major highway, railway, and waterway. The plant has several ammunition production, maintenance and renovation complexes and is a major ammunition storage site for all branches of the Armed Forces,



with nearly 2,300 storage magazines and six million square feet of covered explosive storage space. MCAAP has a proud history of meeting the munitions needs of its customers – America’s Armed Forces – through war and peace for more than 60 years. It has one goal: a total commitment to ammunition and missile readiness with a focus on Service Members.

MCAAP focuses on its core competencies – ammunition production, ammunition and missile maintenance and renovation, logistics operations, and demilitarization of obsolete or unserviceable ammunition. It is one of the Joint Munitions Command’s key power projection platforms. As a bomb manufacturing, and ammunition and missile maintenance facility, MCAAP partners with commercial industry to expand its capabilities and strengthen its position within the Department of Defense (DoD).

The plant’s non-negotiable contract with the American people is to provide goods and services to ensure Service Members are persuasive in peace and invincible in war. MCAAP will fully support the commander, U.S. Army Joint Munitions Command, by transforming industrial power into military readiness.

Significant Achievements



ISO 9001 Certification

MCAAP has been ISO 9001 certified since 2004. The plant has three full-time and 14 part-time certified internal ISO 9001 auditors

with numerous years of ISO auditing skills and knowledge. The ISO 9001 certification demonstrates MCAAP’s commitment to continuous improvement by constantly improving the quality, efficiency and effectiveness of its processes.



ISO 14001 Certification

On July 10, 2011, MCAAP received its Certificate of Registration confirming the certification for operations

related to the Manufacture, Load, Assemble and Pack (LAP), Renovation, Shipping and Receiving, Storage, Maintenance, and Demilitarization of Munitions (Conventional/Precision/Missile), including fence-to-fence activities of tenants, third-party contractors and visitors were in conformance to the ISO 14001:2004 standards. MCAAP ensures continual improvement through its internal audit program, preventive actions, and compliance evaluations to acquire recertification in July 2014.



Lean Six Sigma

MCAAP has a robust continuous improvement program that encompasses Lean Six Sigma and Value Engineering. Since the inception of the Lean

program in 2004, the plant has documented an estimated \$94.5 million in financial benefits. More than \$9 million in cost avoidance was achieved in Fiscal Year 2013 alone.

These financial successes are achieved through the deployment of cross-functional project teams who participate in continuous improvement events designed to reduce cost, eliminate waste, and improve productivity. These events include Green Belt and Black Belt projects, Just-Do-Its, Value Stream Mapping events, Root Cause and Corrective Action events and Value Engineering initiatives.

Approximately 95 percent of MCAAP’s workforce is trained in Lean 101, which provides a basic understanding of lean principles. Additionally, more than 90 percent of MCAAP’s supervisors have received Lean Six Sigma Green Belt training ensuring that all of its leaders are equipped to successfully improve their work processes.

MCAAP’s continuous improvement efforts are incorporated in all areas of the plant. Projects focus on a wide range of topics including production, logistics, public works, safety, environmental, engineering and administrative processes. The continual improvement focus of reducing waste and improving productivity is an ingrained part of the work culture as MCAAP strives to provide a quality product to Service Members.

Voluntary Protection Programs Star Worksite



MCAAP was recognized as a Volunteer Protection Program (VPP) Star Worksite by the Occupational Safety and Health Administration

(OSHA) on September 3, 2010. Receiving the certification is an acknowledgement that management, labor and OSHA have established a cooperative relationship that led to the implementation of a comprehensive safety and health management system. To become VPP certified, MCAAP was visited by OSHA evaluators who conducted a rigorous assessment against performance-based criteria for occupational safety and health. OSHA approves worksites that successfully pass the evaluation into one of three programs. MCAAP was approved as a Star Worksite – the highest level of recognition – because of its exemplary achievement in the prevention and control of occupational safety and health hazards. The Plant will undergo recertification in April 2014.

Why Partner with MCAAP?

MCAAP has a long history of marketing its capabilities to DoD contractors. Marketing efforts began with its first partnership with McDonald Douglas, now the Boeing Company, in 1994. MCAAP currently has 26 partnerships with the growth potential of increasing to 30.

MCAAP offers its products and services to government agencies, private industry and foreign allies. Public Private Partnerships (P3) are accomplished using direct sales authority 10 U.S. Codes 4543 and 4544 for DoD contracts and 22 U.S. Code 2770 for Foreign Military Sales contacts.

Examples of current partners and their programs include Boeing Company, General Dynamics, Raytheon Company and Textron Defense Systems.



MCAAP is committed to the safety of its workforce and the protection of the environment. Employees are MCAAP's most valuable resource and their personal protection is a "no compromise" conviction. The plant is also committed to environmental stewardship excellence by using today's technology to preserve tomorrow's environment. It was awarded the 2013 Army Materiel Command Natural Resource Conservation – Large Installation Award on August 15, 2013.

For additional partnering information, visit the MCAAP website: <http://www.mcaap.army.mil/> and select the Business with MCAAP link or call (918) 420-6843.

Capabilities

Transforming Industrial Power into Military Readiness

MCAAP is a government-owned/government-operated (GOGO) facility and the bomb and warhead loading facility for the DoD. Capabilities include high capacity melt/pour and Plastic Bonded Explosive (PBX) bomb loading in large



and small quantities. Plant products and services are available to other government agencies, defense contractors, and foreign allies.

MCAAP Capabilities

- Explosive Storage
- Inert Storage
- Explosive Storage Facilities
- Outloading Capability
- Outload Pad
- Container Repair Facility
- Rail Staging Yard
- State-of-the-Art Material/Container Handling
- Locomotives to Move Munitions Across miles of Intraplant Rail
- Capacity to Maintain and Store
- Empty ISO Containers or MILVANs
- Automated Equipment to Mass Produce Wooden Ammunition Pallets to Facilitate Rapid Outload
- Automated Equipment to Mass Produce
- Metal Pallets for Bombs

Production Capabilities

- Melt/Pour, Cast/Cure and Press Loading of Bombs and Explosives



Renovation Capabilities

- Bombs
- Rockets
- Missiles
- Projectiles
- Mortars
- Grenades
- Small Caliber
- Propelling Charges



Demilitarization

- Resource Recovery, Recycling and Reutilization (R4)
- Incineration (APE 1236)
- Open Burn/Open Detonation (OB/OD)

- Meltout Autoclave Systems
- Cryofracture

Emerging Technologies

- Cryofracture
- Robotic Disassembly

Support Facilities

- Engineering: Design to Fabrication
- Calibration Lab
- Chemical Lab
- X-Ray Facilities
- Function Test Range

Demilitarization

Conventional Ammunition and Resource Recovery, Recycle and Reuse

MCAAP has a broad range of demilitarization capabilities, including open detonation, open burn, disassembly static fire, and meltout/recovery. The plant has state-of-the-art autoclave facilities dedicated to resource recovery, recycling and reutilization of obsolete or unserviceable munitions, with a capability to demilitarize many bombs. It has a Resource Conservation and Recovery Act (RCRA) Part B Permit for an APE 1236 deactivation furnace for demilitarization of small munitions items up to and including 20mm ammunition. MCAAP is permitted to open burn/open detonate ammunition, bulk explosives, propellants, and related components. A state-of-the-art cryofracture facility for disposal of obsolete munitions works in series with the conventional incinerator.



TNT Recycling

MCAAP uses a modern projectile demilitarization process which yields high quality explosives suitable for military application. Recent efforts have yielded many pounds of MIL-DTL-248 quality TNT which is reused in new bomb production.

Tritonal Recycling

Within the bomb demilitarization program, MCAAP has developed a cost-effective method for reclamation of tritonal and other high explosives. While current efforts produce quality commercial grade energetic material, ongoing improvements will provide a product suitable for military application. The current annual capacity for tritonal recovery is 11 million pounds.

Missile Demilitarization

Under a partnership with Raytheon Company, MCAAP is actively engaged in the demilitarization of missiles. These programs have served as a major advancement in the demilitarization program.

Emerging Demilitarization Technologies

MCAAP continually endeavors to develop and expand partnerships with government/private sector entities to advance its demilitarization technology. The cryofracture facility, developed in cooperation with the Defense Ammunition Center, Sandia National Laboratory, General Atomics, and the Army Research, Development and Engineering Center is now operational and will greatly expand its ability to demilitarize a variety of munitions in an environmentally friendly manner.

Wood Products

Full-Service Wood Products Facility

- MCAAP has a Wood Products Facility that includes an Automated Pallet Machine, Heat Treating Chambers and M-Guard Wood Preservation Dipping Facility. The Plant specializes in producing and treating various sizes of pallets and boxes meeting the European Insect/ Nematode Criteria.



Automated Pallet Machine

- The pallet machine produces various size pallets for military and commercial customers that meet all ammunition requirements.



M-Guard Wood Preservation Dipping Facility

The dipping facility treats pallets and components with M-Guard 550 wood preservative and pest retardant.

Bundle Saw

The bundle saw cuts palletized lumber and increases throughput capacity.

Heat Treating Chambers



- MCAAP has a heating chamber that destroys insects and pests in pallets, wood products, packing materials, and equipment. Heat treatment is mandated by the European Community and United Nations International Plant Protection Convention and is approved by the U.S. Department of Agriculture (USDA).

Real-Time X-Ray

MCAAP has an X-ray facility that provides high quality/low cost state-of-the-art radiographic

imaging services. X-ray has a dedicated team consisting of level-3 and level-2 certified radiographers.

Capabilities

- Digital Radioscopy
- Film Radiography
- X-Ray of Explosive Munitions: Bombs, Warheads, Mortars, Projectiles, Grenades
- Inspection of Thick Section Parts
- Testing of Items up to 5,000 Pounds
- X-Ray of Missile and Rocket Motors
- X-Ray of Inert Items
- Facilities
- Large Primary X-Ray Inspection Facility with X-Ray Vaults
- Grenade and Fuze X-Ray Facility
- Projectile X-Ray Facility



Equipment

- Three State-of-the-Art Varian High-Energy Linear Accelerators, 6/9 MEV, 3.5/6 MEV, and 1/3.5 MEV
- 320 kV Comet X-Ray System
- APE Portex System with Digital Imaging and Thalus 130 Microfocus X-Ray and Optional 320 kv Comet
- CNC Part Manipulators
- Engineering Design Support Available for Custom Adaption
- Perkin Elmer, Amorphous Si/GadOx, Flat Panel Detectors with an Imaging Area

- Fully Integrated Part Manipulation and Image Acquisition Capability
- Hirox Portable Digital Microscope
- Image File Conversion for Customer Information Exchange
- CR System, Kodak Industrex HPX-1 Digital System
- Phantom High Speed Cameras

Expertise

- Level-3 Radiographers
- Level-2 Radiographers

Test Range

MCAAP performs live fire performance testing of small munitions at its function test range using high speed camera imaging.

Capabilities

- Live Firing of Small Munitions or Warheads
- High-Speed Camera Imaging
- On-Site Customized Target Construction

Facilities

- Firing Range
- Safety Sited Firing Range Zone
- Control Building
- Covered Storage Magazine

Equipment

- Fire Set
- Two High-Speed Phantom Cameras

Expertise

- Test Range Officers
- Munitions Testers
- High-Speed Camera Operators

Mobile Rail Repair Team

MCAAP specializes in repair, maintenance, and construction of railroads.

Rail Capabilities

- Grade and Switch Tie Replacement
- Rail Replacement
- Vertical and Horizontal Alignment
- Tamping
- Regulating
- Undercutting
- Drainage Repair/Slope Stabilization
- Certified Track Inspection
- Scheduled Preventative Maintenance
- Demolition
- Full-depth Rubber and Concrete Railroad Crossing
- Derailment Repair
- Quality Assurance

Rail Equipment



- Mark IV Tamper
- Mark III Tamper
- Ballast Regulators
- Tie Inserters
- Single Rail Spike Driver
- Dual Rail Spike Drivers
- Dual Rail Spike Pullers
- Rail Lifters
- Tie Cranes



- Under Cutter
- 360 Degree Speed Swing Cranes
- Ballast Car
- Hy-Rail Dump Truck

Production Profile

Providing Global Joint Service Support to Service Members

MCAAP, a subordinate command to the Joint Munitions Command, has conventional ammunition life cycle management capabilities including integration, design, production, storage, maintenance, and demilitarization. The plant has four major mission areas or core competencies.

Ammunition Production

Production capabilities range from 20mm rounds to 5,000-pound penetrator “bunker buster” bombs and the most recent additions of the 21,500-pound Massive Ordnance Air Blast (MOAB) bomb and the 30,000-pound Massive Ordnance Penetrator (MOP).



Ammunition and Missile Maintenance

MCAAP has several state-of-the-art maintenance and renovation facilities for bombs, missiles, rockets, projectiles, and propelling charges.

Ammunition and Missile Demilitarization

MCAAP has modernized facilities dedicated to resource recovery, recycling and reuse of obsolete or unserviceable munitions, including autoclaves with the capability to demilitarize up to 2,000-pound bombs. MCAAP has a Resource Conservation and Recovery Act (RCRA) Part B Permit for an APE 1236 deactivation furnace with cryofracture capability for demilitarization of small munitions up to and including 20mm, and is permitted to open burn/open detonate static fire ammunition, bulk explosives, propellants, motors, and related components.

Chemical Laboratory

MCAAP laboratory staff members perform a diverse range of analytical testing, in addition to providing chemical expertise to numerous programs. The laboratory is an industry leader in the formulation and analytical testing of explosives.

- Explosives Formulation
- Explosives Stimulant Development
- Explosives Sensitivity/Stability Testing/Compatibility Testing
- Explosives Test Mixing
- Explosives Quality Assurance Testing
- Munitions Related Shelf Life Testing for Paints, Thinners, Adhesives, Tapes, Sealants, Threads Locker Compounds, Lubricants, Explosive Manufacturing Ingredients
- Wastewater Sampling and Analysis
- Stormwater Sampling
- Industrial Hygiene Sample Analysis
- Bulk Asbestos Identification
- NIOSH 582 Asbestos Fiber Counting
- Microscopy Identification of Explosives



Facilities

- Lab Space with Half Dedicated to Energetic Testing
- Remote Test Mix Facility
- Detonation Range

Equipment

- Spectrometry: X-Ray Fluorescence (XRF), Fourier Transform Infrared (FTIR), Ultraviolet and Visible (UV-Vis), and Near Infrared (NIR)
- Chromatography: High Performance Liquid Chromatography (HPLC) and Ion Chromatography (IC)
- Karl Fisher Titrators
- Tensile Test System with Conditioning Chamber
- Pycnometer
- Vacuum Thermal Stability (VTS)
- Particle Size Analyzer
- Differential Scanning Calorimeter (DSC)
- Explosive Sensitivity: Impact, Friction, Electrostatic Discharge, Large Scale Gap Test
- Salt Spray Chamber
- Environmental Chamber
- LabRAM Acoustic Mixer
- Baker Perkins High Shear Mixer
- XP Curing Oven
- Full Microscopy Lab with a long range magnification with Digital and 3D Imaging Capabilities

- Complete Wet Chemistry Lab Stations with In-house Air, Vacuum, and Supplied Gas
- In-house Database for Data Tracking

Expertise

- Chemists and Physical Science Technicians
- EPA Level A-Certified Chemists

Quality Assurance Representatives

MCAAP is an independent, identifiable quality assurance element that assures appropriate application of the quality management system. The plant is engaged daily in research, development, test and evaluation; processing; production; load, assemble and pack (LAP); renovation; maintenance; storage and/or demilitarization of ammunition components, armaments, and end items.

- Responsible for all quality assurance evaluations associated with maintenance, renovation and demilitarization.
- Plan, develop, implement, and manage the Quality Evaluation Program.
- Review contract/technical data for quality requirements and implement audit plans.
- Review, analyze, evaluate and validate MCAAP procedures for the control of production processes.
- Identifies and recommends corrective action when such trends and/or conditions are noted.
- Perform initial proofing of all assigned floor level processes.
- Evaluate the performance of first article test/reviews and perform acceptance.
- Final acceptance or withholds, perform root cause investigation and Material Review Board (MRB) analysis.

Expertise

- Quality Assurance Acquisition Certified Representatives



Pine Bluff Arsenal (PBA)

Purpose

“America’s Arsenal” Provides the Joint Warfighter with smoke and specialized Ammunitions, in addition to Chemical, Biological, Radiological and Nuclear (CBRN) Defense capabilities through expert manufacturing, storage and logistics operations.

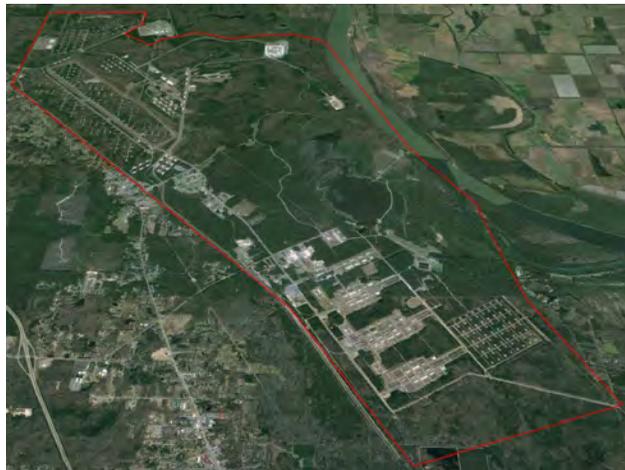
Vision

America’s Arsenal, serving the needs of the joint Warfighter and the citizen, is a full-spectrum logistics center providing expertise and specialized munitions and chemical/biological defense products and services.

Mission

Serves as the Joint Services Center of Expertise of Industrial and Technical Excellence (CITE) for Chemical/Biological Defensive Equipment maintenance, and performs production, testing, certification, and training of chemical and biological defense systems.

PBA



The Arsenal covers approximately 13,500 acres. It is bordered on the east by the McClellan- Kerr Arkansas River Navigation System and on the west by the Union Pacific Railroad, making it easily accessible by rail, road and water.

The Arsenal is “committed to producing quality ammunition and chemical defensive equipment in an environmentally sensitive and sustainable manner... ‘Right today’ simply means complying with regulations, policies, plans, work instructions, Standard Operating Procedures and other requirements. ‘Better tomorrow’ means that every day, the Arsenal will make improvements. Every time we start a manufacturing or administrative process, it should be more efficient and more environmentally friendly than it was before.”





Established November 3, 1941 for World War II Production:

- Conventional ammunition
- Chemical warfare materiel
- Various armaments

Only Operational Army Arsenal Producing:

- Smoke ammunition
- Chemical/biological defense products

Department of Defense’s Peacetime and Replenishment Requirements Leader in the Design, Manufacture and Refurbishment of:

- Smoke
- Riot control
- Incendiary munitions
- White phosphorus munitions
- Illuminating and infrared munitions
- Chemical/biological defense operations items

Army’s Integrated Defense Acquisition, Technology, and Life Cycle Management System. Direct involvement in Phases 2-4:

- Engineering and Manufacturing Development
- Production and Deployment
- Operation and Support

Provides Specialized Training and Logistical Support.

Significant Achievements

ISO 9001



The Arsenal’s Quality Management System, International Organization for Standardization (ISO) 9001 was re-certified for a third three-year period mid-June 2013 along with no finding for surveillance audits that were conducted on the Environmental Management System (ISO 14001) and Safety Management System OHSAS 18001). Re-

certifications of the installation’s ISO 14001 were conducted in mid-January 2013, with surveillance audits of ISO 9001 and OHSAS 18001.



A consolidation of the ISO management systems policy letters occurred in November resulting in the management summary - “Right today. Better tomorrow.” The policy letter states that the Arsenal is “committed to producing quality ammunition and chemical defensive equipment in an environmentally sensitive and sustainable manner. ‘Right today’ simply means complying with regulations, policies, plans, work instructions, Standard Operating Procedures and other requirements. ‘Better tomorrow’ means that every day, the Arsenal will make improvements. Every time we start a manufacturing or administrative process, it should be more efficient and more environmentally friendly than it was before.”

Lean Six Sigma



PBA has embraced Lean Six Sigma (LSS) with an aggressive Lean culture. With multiple green and black belts PBA uses lean techniques throughout its business from its administrative to manufacturing of

products. Pine Bluff Arsenal’s Continuous Process Improvement Office continues to spearhead process improvement, value engineering and Lean Six Sigma projects across the installation. Joint Munitions Command have combined Value Engineering (VE) and LSS, but still track the financial benefits separately.

The 3 LSS projects completed this fiscal year are:

- Material Management project that reduces logistics excess and surplus property process time. Project reduced the number of labor hours required to dispose of excess/surplus property scheduled for DRMO reutilization. Project saved approximately \$633K over a three-year period.

- Material Management project that reduces warehouses logistics process cycle time. Project reduced warehouse logistics process cycle time by eliminating non-value added process steps. This was a just-do-it project that saved approximately \$2M over a three-year period.
- Engineering and Technology project that recovers rejected M98 smoke grenade lot quantities. Project recovered rejected M98 smoke grenade lot quantities instead of disposing of them. Project saved approximately \$633K over a three-year period.

Center of Industrial and Technical Excellence (CITE)



Pine Bluff Arsenal possesses numerous capabilities in the field of chemical and biological defense. In September 2005, the Department of the Army designated the Arsenal as a Center of Industrial and

Technical Excellence for chemical and biological defense equipment. Under this designation, PBA is a working capital-funded activity, and allowed to manufacture or remanufacture and sell products and services to other government agencies and the private sector. PBA supports design agencies with development and engineering, prototype production, testing and demonstration of chemical/biological protective equipment.

Why Partner with Pine Bluff?

PBA manufactures and refurbishes smoke, riot control and incendiary munitions, as well as chemical/biological defense operations items. PBA's flexible production team allows for the efficient and quality production of a variety of smoke, illuminating and non-lethal munitions. The building, repair and reset of chemical and biological defense equipment is a fast-growing field

of expertise at PBA. Pine Bluff Arsenal's expertise in the area of mobile and powered decontamination and medical systems makes for a busy schedule.

PBA stores various chemical weapons and munitions. The Army is working in partnership with Arkansas state and local government agencies, as well as federal agencies like the Environmental Protection Agency and the Centers for Disease Control and Prevention, to safeguard the local community and protect the environment as we store and dispose of these chemical weapons.

The Pine Bluff Chemical Agent Disposal Facility is designed for the purpose of destroying the chemical weapons stored at PBA. The facility was completed in 2002, and the Army began weapons disposal in 2005. The facility uses high-temperature incineration technology - a technology employed by the Army for more than a decade, safely and successfully disposing of more than a quarter of the nation's original chemical weapons. Additional facilities and systems are planned to treat and dispose of chemical warfare materiel not associated with the stockpile stored at the arsenal.

The Pine Bluff Ton Container Decontamination Facility cuts and cleans ton containers that once held chemical agent and then prepare the containers for recycling. The Pine Bluff Munitions Assessment System assesses the contents and determines the chemical agent inside chemical weapons. The Pine Bluff Binary Destruction Facility treats and destroys binary precursor chemicals that remain stored at the arsenal as a result of the binary chemical weapons program.

The Explosive Destruction System, a mobile treatment system, treats explosive and non-explosively configured chemical weapons recovered during remediation efforts at the arsenal. The Rapid Response System, a mobile treatment system, will treat recovered Chemical Agent Identification Set items.



- ISO 14001, ISO 9001 and OHSAS 18001 Certified
- Center for technical expertise in the area of smoke and pyrotechnic munitions
- Center for Industrial & Technical Excellence (CITE) for Chemical and Biological Defense Equipment
- Over 135 products and services
- Many capabilities
- Highly-skilled and productive workforce
- Rapid Flexible Response
- Environmental Capacity
- Life-Cycle Management
- National environmental laboratories for chemical and biological testing

For additional information, visit the PBA website: [http:// www.pba.army.mil/](http://www.pba.army.mil/) and/or call the Business Development Office (870) 540-3744.

Capabilities

Batch and continuous chemical processing technologies;

- Pyrotechnic Blending
- Mixing and Extrusion
- Pelletizing and Consolidation
- Molten Liquid-Phase Processing
- Volumetric Dry-Fill

Specialized fabrication and packaging processes

- Sorbent and Liquid Phase Decontamination
- Sonic Weld and Metal Fabrication
- Shelf-Life and Surveillance
- Load, Assemble and Pack

Production or rebuild of decontamination systems

- Packaging and Production
- Rebuild and repair

Enabling Capabilities

Environmental Permits

PBA possesses approximately 100 air, water, and hazardous waste permits to sustain the

manufacturing facilities. The permits include Resource Conservation and Recovery Act (RCRA) permitted landfills, Title V Clean Air Act point source permits, and National Pollutant Discharge Elimination System (NDPES) surface impoundments.

Workforce Skills

The wage-grade-workforce is qualified under a standardized Industrial Worker position that pre-certifies and cross-trains the workforce for intra-arsenal transfer between manufacturing areas.

PBA Diversity of Skill Sets Supporting Its Capabilities

- Materials Engineers
- Chemical Engineers
- Electrical Engineers
- Mechanical Engineers
- Environmental Engineers
- Instrumentation Engineers
- Safety and Occupational Health Specialists
- Master Electricians
- Instrument Technicians
- Quality Engineers
- Quality Assurance Specialists
- Quality Control Inspectors
- Chemists
- Chemical Plant Operators
- Explosives Operators
- Certified Welders
- CNC Machine Operators
- Mixing Process Operators
- Hazardous Material Handlers
- Industrial Wastewater Treatment Plant Operators
- Master Pipefitters / Steamfitters
- Master Carpenters
- Master Millwrights

Other Critical Supporting Activities:

- Supply Chain Management and Logistics Activities

- Human Resource and Financial Management Activities
- Multiple Contracting Office Activities
- Information Technology Support Activities
- Plant/Facility Engineering Activities
- Strategic Planning Activities
- Maintenance and Electronics Operations Activities
- Packaging/Shipping Container Fabrication Activities
- Receiving and Shipment Activities

Ammunition Operations

Pine Bluff Arsenal's flexible production team allows for the efficient and quality production of a variety of smoke, illuminating and non-lethal munitions.

White and Red Phosphorus

Pine Bluff Arsenal has the capability to fill both white and red phosphorus munitions. Bulk fill can be provided in either granulated or pelletized form.

In late September 2005, Arsenal officials signed a \$20 million contract for modernization of the WP production facility. This project is one of the largest investments in the Arsenal's industrial capacity since the early 1980s.

Smoke Munitions

PBA has the capability of mixing, filling, loading, assembling and packaging a wide variety of smoke munitions hand grenades. These include colored smoke incendiary, terephthalic acid (TA) and hexachlorethane (HC) smoke.



Illuminating/Infrared Munitions

Mortars are produced by highly-skilled workers at the Arsenal and are designed to provide the U.S. Armed Forces an enhanced night-fighting capability increased by the effectiveness of night vision devices (NVDs).

Non-Lethal Munitions

Many munitions designed to provide friendly forces the capability to stop, contuse or bruise, disorient or momentarily deter a potential threat without the use of deadly force are being developed and/or produced at the Arsenal.

Remotely-operated mixing equipment, from small bowl mixers with a large capacity blenders, allow the safe consistent processing of small quantity starter mixes through production-sized batches of pyrotechnic mixes.

P R O D U C T I O N C A P A B I L I T I E S			
	MIX	FILL & PRESS	LOAD ASSEMBLE PACK
White Phosphorus		★	★
Red Phosphorus	★	★	★
Smoke (Pyrotechnic)	★	★	★
ILLUM / IR			★
Non-Lethal		★	

Chemical and Biological Defense Operations

Pine Bluff Arsenal possesses numerous capabilities in the field of Chemical and Biological Defense (CBD). In September 2005, the Department of the Army designated the Arsenal as a Center of Industrial and Technical Excellence for chemical and biological defense equipment. Under this designation PBA is a working capital-funded activity allowed to manufacture or remanufacture and sell products and services to other government agencies and the private sector.

PBA is also a joint services center of expertise for chemical/biological defensive equipment production, maintenance, testing, certification and training. It supports design agencies with development and engineering, prototype



production, testing and demonstration of chemical/biological protective equipment.

Chemical Defense Quality Evaluation Facility (QEF) is used for the testing of chemical and biological defense equipment (e.g., protective mask filters, used by soldiers to defend against chemical attack). This facility tests chemical defense equipment to assure it is adequate to enhance troop readiness for chemical defense.

Included in PBA's diverse CBD capabilities are:

- Fabrication, fill and testing of chemical/biological filters in various sizes and configurations.
- Chemical impregnation, repair, renovation and testing of chemical protective clothing.
- Manufacture of chemical decontamination products such as the M291 and M295 decontaminating kits.
- Rebuild and calibration of defensive chemical test equipment.
- Rebuild and restoration of Chemical Biological Protective Shelters (CBPS) and Chemical Biological Deployable Medical Shelters (CB DEPMEDS).
- Production, rebuild and reconfiguration of the M12A1 and M17A3 decontamination units.
- World-wide certification to Department of Defense and contractors engaged in the testing or manufacturing of individual chemical and biological protective equipment.
- Protective mask build, rebuild and repair.

Production Profile

Of the 135 Products and Services PBA provides, 76 are in the ammunition area and 59 in the chemical and biological defense area. A sample of these products produced at PBA is listed below:



Ammunition Programs

White (WP) and Red Phosphorus (RP)

- Mortars
- Warheads

Smoke

- Smoke Grenades
- Smoke Pots

Illumination (Illum) and Infrared (IR)

- Mortars
- Illum/IR Projectiles

Non-lethal and Riot Control

- Non-Lethal Grenades





Chemical and Biological Defense Programs

Manufacturing

- M40 Mask
- M295 Decon Kit
- Bio-Consumables



Maintenance/Surveillance

- Masks
- Testers

Mobile and Powered Equipment

- M8E1 Chemical Biological Protective Shelter (CBPS)
- Chemical Biological Deployable Medical Shelters (CB DEPMEDS)
- M12 Decontaminating System



Quality Commitment

PBA is committed to “Right Today, Better Tomorrow” by providing quality products and services, and working daily to continue to improve. Quality Assurance (QA) elements focus on Product Acceptance, Lot Acceptance and First Article testing, PQDR Management, Quality Management System Auditing, and Customer Satisfaction/Support.

Quality Assurance and Surveillance (QASAS) support is an integral part of our team, providing end item surveillance. The QASAS performs safety inspections and manages returnable missile containers, and provide support to missile manufacturer including inert certification.

Beyond standard capabilities, special capabilities in PBA’s QA area include:

- Quality Management/Manufacturing Background
- Two Lean Six Sigma Certified Black belts internal to QA
- Private industry experience from multiple firms and specialties
- Certified Auditors
- Metrology
- Coordinate Measurement Machine (CMM)
- Vision Measurement System (VM)
- Digital Optical Comparator System (DOC)
- Chemistry



- Particle Size Testing (Horiba)
- Composition Analysis (DSC)
- Scanning Electron Microscope and X-ray inspections

Engineering Development

PBA offers design and test agencies:

- Production Engineering Lab (PEL) for rapid prototyping and material solution analysis at milestones A, B and C
- Pyrotechnic mix development using unique bench scale jet air blending processes
- Packaging test in all specified environmental conditions
- Phosphorus test basin with environmental collection pit
- On-site clean room for production of chemical biological testing reagents

Environmental Focus

PBA recognizes the importance of its role as an environmental steward.

The arsenal is strongly committed to long-term sustainability, improved mission performance and environmental protection using the following core principles:

- Compliance with environmental laws and regulations
- Conservation of natural and cultural resources
- Preservation of resources through pollution prevention and affirmative procurement
- Restoration of affected natural resources

Safety

Safety is the foundation for all programs. At Pine Bluff Arsenal the safety program provides expertise in many different aspects of the safety arena.

Among these are:

- Standard Army Safety and Occupational Health Inspections
- Standard Operating Procedure Review
- Explosive Safety Program
- OSHA Program Management
- Accident Investigations
- OHSAS 18001 Program Management



Red River Army Depot (RRAD)

Purpose

To provide “Our Best – Nothing Less” in support of the Joint Warfighter.

Vision

To build and rebuild the highest quality vehicles at the lowest cost in the least amount of time- on time or ahead of schedule every time. We are here to serve and protect the Warfighter by our commitment to excellence in manufacturing and remanufacturing.

Mission

Sustain the Joint Warfighter’s combat power by providing ground combat and tactical systems sustainment maintenance operations.

RRAD

Red River Army Depot (RRAD) has a long history of supporting our nation’s Soldiers. Since 1941, our focus has been on providing the world’s finest military with quality products and service. RRAD’s maintenance support to America’s Joint Forces and Allies throughout the world continues to exemplify our commitment to provide exceptional materiel readiness and serviceability of equipment.

In order to “Sustain the Strength of the Nation,” RRAD employees conduct full spectrum maintenance operations on supported platforms at the Northeast Texas facility. Whether the requirement is for depot overhaul, 10/20 maintenance, or Inspect and Repair Only as Necessary (IROAN) programs, our teams perform work to the standards specified by our customers. Our “civilian” soldiers will also travel beyond the depot gates to augment or establish maintenance and logistics programs in support of the Joint Warfighter and our national military strategic partners, and proudly deployed to provide direct support to our Soldiers on the battlefield during the conflicts in Iraq and Afghanistan. More than 45% of the civilians who deployed in support of combat operations were from RRAD. The magnitude of what RRAD and our Civilian Soldiers have accomplished throughout the world is unprecedented.





Travel Team

The RRAD Travel Team programs are critical to the success and safety of our Soldiers and the Joint Warfighter, supporting them CONUS or OCONUS. These teams can also support our nation's foreign military sales process, ensuring vehicles are delivered fully mission capable (FMC), and providing limited operations and maintenance training. The following programs are great snapshot examples of our pursuit of excellence away from home.



- The RRAD Kuwait team, working with TACOM, designed and developed system upgrades to ensure our Soldiers' long-term safety.
- At the request of the Theater Commander's Contracting Officer Representatives (COR), RRAD was asked to support the NATO Training Mission- Afghanistan and Combined Security Transition Command-Afghanistan (NTM-A/CSTC-A) during Operation Enduring Freedom. In keeping with NTM-A/CSTC-A policies, the team developed, implemented, and established COR processes to restore stability to multiple contracted programs.
- Working alongside sister depot Anniston Army Depot (ANAD), the joint RRAD/ANAD team brought 169 combat tracked vehicles to FMC status and ready to issue within 96 hours or less for the Stored Theater Provided Equipment Iraq (STPE-I) mission in theater.
- The RRAD team at Taji Joint Base Workshop directly supported an Advisory and Training mission, teaching Iraqi soldiers how to execute depot-level repairs on tactical vehicles.
- Finally, Armored Security Vehicle, Forward Repair Activity, and Mine Resistant Ambush Protected Mobile Maintenance Teams round

out some of the many opportunities welcomed by RRAD as part of our contribution to posture every Soldier to deliver overwhelming battlefield dominance.

Significant Achievements



ISO Certifications

RRAD was the first depot within AMC to achieve International Organization for Standardization (ISO) 9001:2000 certification throughout all administrative and production processes.

Quality System

- Registered to ISO 9001:2008

Occupational Health & Safety Management System

- Registered to ISO 18001:2007

Environmental Management

- Registered to ISO 14001:2004

These registrations emphasize RRAD's present and future commitment to the Army and our communities. Our commitment to quality and excellence is unmatched and we have the awards to prove it.

Shingo Recognition



Eight-time recipient of Shingo Awards for Operational Excellence

- 2006 Silver Shingo Award HMMWV
- 2007 Gold Shingo Award HMMWV
- 2007 Silver Shingo Award HEMTT
- 2007 Silver Shingo Award Bradley Power-Train

- 2008 Silver Shingo Award HEMTT
- 2008 Bronze Shingo Award Patriot Missile
- 2008 Bronze Shingo Award Trailers
- 2009 Bronze Shingo Award M1113/ M1114 Armored HMMWV/HEAT

Only Army Installation to achieve three Shingo Awards in one year!

Only Army Installation to achieve three Shingo Awards in two consecutive years!

Achievement of these awards, over multiple years and across multiple value streams, demonstrates RRAD’s wide-spread commitment to universally accepted principles of operational excellence, alignment of management systems, and the sensible application of improvement techniques.

Lean Six Sigma



In today’s competitive global marketplace, customers expect high levels of quality and service at a great value. Corporate shareholders are expecting larger profits and everyone is expected to contribute to the bottom line.

Red River follows a philosophy similar to our corporate partners. Utilizing Lean Six Sigma methodology as a transformation catalyst to establish processes results in reduced problems and waste, and allows attention to focus on continual process improvement. In this way, the depot is able to improve programs’ cost, quality and schedule for our most important customers —our Soldiers, Sailors, Airmen, and Marines.

Though Lean is practiced in every area of Red River, there is one production area that has surpassed all expectations: The HMMWV production facility reached the remanufacturing goal of producing many HMMWVs a day. Employees reengineered the entire HMMWV repair process, changing it from bay style to a flow assembly line with stations. Each station has just a few functions that are executed at that stop before it

moves to the next station. This ensures that RRAD employees are extremely efficient at the processes associated with their station, eliminating waste, and decreasing process time. During peak production, a HMMWV rolls off the RRAD line to fill a need in a unit somewhere.

RRAD’s organic Lean Six Sigma Belt certification program enables RRAD to implement the features of both Lean and Six Sigma to help secure the long-term competitive advantage.

- RRAD projects awarded the AMC Lean/Six Sigma Excellence Award.
- 2010 – Green Belt at AMC Level; Project Title: Reduce FMTV Frame Defects - By applying Lean /Six Sigma tools, the FMTV Body Branch and Assembly Line were able to reduce frame defects by 75%.



- 2011 – Project Team Award; Black Belt at the Army Level - Project Title: Improve the Process Cycle Time to Complete Green Belt and Black Belt Projects - The project significantly accelerated completion rate of projects. At the baseline rate, it would have taken 46 years for green belts and 27 years for black belts to complete RRAD’s projected goal. Since the project was completed, RRAD has adopted the “No Belt Left Unbuckled” program, which joins the green belt candidate with a depot black belt to help them complete the process. This project resulted in \$11.7 million in cost avoidance.



- 2011 – Project Team Award; Black Belt at the AMC Level (3rd Place) - Project Title: Improve Reclaim Process for Metal in Fabrication – The project resulted in a substantial reduction in metal storage space and costs to fabricate metal for Light to Heavy Tactical and Bradley Combat Vehicles at RRAD and enabled a 31% improvement for FY11 due to a 75% reduction in storage space and reduction in inventory.



- 2012 – Project Team Award; Black Belt at the AMC Level - Project Title: PLS Engine Rebuild Oil Pressure/TACOM National Maintenance Work Requirement Issues - The project corrected oil pressure issues, reduced rework hours, and reduced the number of defects to produce a CODE A engine with a high first-pass yield. The project had a total of \$11.4M of benefits revenue generation. This is a return on investment of 34.9 % for the project based on the \$32.6M contract. A project such as this one underscores RRAD’s commitment to remanufacturing excellence.



Center for Industrial and Technical Excellence (CITE)

RRAD has been designated by the Secretary of the Army as the Center for Industrial and Technical Excellence (CITE) for

Tactical Wheeled Vehicles such as the much-heralded Mine Resistant Ambush Protected (MRAP) Vehicle; the High Mobility Multipurpose Wheeled Vehicle (HMMWV); the Heavy

Expanded Medium Tactical Truck (HEMTT); Palletized load system (PLS); Family of Medium Tactical Vehicles (FMTV); Armored Security Vehicle (ASV); the 5-Ton Truck Family of Vehicles and the Heavy Equipment Transporter (HET); In addition, we are also the CITE for the Bradley Fighting Vehicle System (BFVS); the Multiple Launch Rocket System (MLRS), the Small Emplacement Excavator (SEE), and Rubber Products.



Secretary of Defense Robert T. Mason Award for Depot Maintenance Excellence

The Army’s only recipient of the Robert T. Mason Award for Depot Maintenance Excellence, TWICE!



- 2006 recipient for the High-Mobility Multi-Wheeled Vehicle Program (HMMWV)
- 2009 recipient for the Mine Resistant Ambush Protected Vehicle Program (MRAP)



Chief of Staff, Army Award for Maintenance Excellence (AAME) Recognition

- 2008 recipient for the Mine Resistant Ambush Protected (MRAP) Program
- 2011 recipient for the Global Support to the Warfighter.

Depot Emergency Services (DES) Recognition



Red River's commitment to excellence runs deep throughout the organization. From 2006 – 2014, the RRAD Depot Emergency Services' Antiterrorism Program has been recognized as one of the best. Achieving First or Second Place honors at the AMC level takes a level of commitment that is the hallmark of professionalism. In 2011, AMC recognized the Fire Prevention Program, and in 2014, Red River became the installation to achieve "Storm Ready" status from the National Weather Service.



Why Partner with Red River Army Depot?

RRAD recognizes the importance of Public Private Partnerships to the Industrial Base, and welcomes opportunities to explore mutually beneficial possibilities. Since 2002, we have signed over 50 teaming agreements and negotiated more than 250 partnering contracts. Since 2009, the depot has generated more than \$235 million in revenue with direct sales contracts. Public-private partnerships allow the depot and private industry to work together to create the ultimate win for the Army and the Warfighter.

Beyond the obvious workload advantages of partnerships during times of decreasing budgets, both Red River and her partners achieve tremendous technical and process advantages. Advantages of partnership efforts include the leveraging of manufacturing and supply chain expertise, process improvements, and an enhanced ability to find solutions that meet or exceed the customer's requirement. Each partner gains from this experience and comes away at the end of the contract with a better trained and more capable workforce, as well as the confidence that the partnership can work together on future opportunities. Many of the depot's partnerships have had lengthy associations, some in excess of 15 years.

To meet the artisan skill development requirements, the depot has expanded partnering into the realm of education and training through the RRAD Internship Program. The program allows students from both Texarkana College (TC) and Texas A&M University to receive on-the-job training and concurrently take a regular college course schedule. The depot, partnering with TC, has formed TC @ TexAmericas Off-Campus Center. Courses at the center range from technical training on engine troubleshooting and repair, transmission repair and blue print and schematic reading to administrative workshops. The center emphasizes the importance of a trained workforce always capable of responding to the needs of our nation's Soldier.

Examples of current partnerships include:

- BAE Systems -BFVS Component Reset
- BAE Systems – Field Service Support
- AM General- HMMWV Body Repair
- Napco International - M113 road wheels
- Critical Solutions International -NMWR Development

For additional partnering information contact the Business Management Office at usarmy.rrad.usamc.list.tarr-b@mail.mil, or (903) 334-5046. More information is also at our website: www.redriver.army.mil.



Capabilities

RRAD is situated on more than 15,000 acres in temperate Northeast Texas with a wealth of resources that make it an ideal multi-industrial complex. A dedicated workforce of several thousand depot employees, tenants and contractors share the workload at Red River making it the largest employer in the four states area.

Red River is also a vital contributor to the stability of the region with an estimated economic impact of \$851 million, as reported in the FY12 Texas Comptroller's Biennial Report. Over 8 million sq. ft. of floor space provide employees at Red River the capability to rebuild a large variety of vehicle systems and components for our Soldiers. With the addition of the new Maneuver Systems Sustainment Center (MSSC), the depot will gain an additional 300,000 sq. ft of space designed with modern manufacturing principles in mind. This will dynamically enhance the efficiency of tactical vehicle production at the depot.

Tactical Wheeled Vehicles

- HMMWV, MRAP and future designs
- Trailers
- Assembly/disassembly
- RESET/RECAP
- Inspect and test
- Computerized engine dynamometer testing
- Secondary item repair
- Fabrication
- Fuel Tank Self Sealing (FTSS)

RRAD is the CITE for all TWV's and has worked numerous programs for the Active Army, Army Reserve, Marine Corps, National Guard, National Training Center, etc. These include but have not been limited to the Highly Mobility Multi-Wheeled Vehicle (HMMWV), Heavy Expanded Mobility Tactical Truck (HEMTT), M800 and M900 Series of Trucks, Multiple variants of Trailers, Family of Medium Tactical Vehicles (FMTV), Heavy Expanded Truck (HET), Palletized Load System (PLS) and the Mine Resistant Ambush Protected Vehicle (MRAP) family.

Upon induction into the repair program, each piece of equipment is inspected to determine its condition, existing faults, and parts requirements. Equipment that is uneconomically repairable based on the condition and the established material expenditure limit or unit funded costs is harvested of components that can be reused, and the remaining assets staged for demilitarization. The focus is to repair equipment that is repairable.

Services ranging from complete overhaul to inspect and repair standards are accomplished per a Scope of Work and applicable Technical Data Packages. Upon induction all equipment is media blasted, rust proofed and painted and returned to technical requirement standards.

MRAP. The MRAP was designed to protect our Soldiers from improvised explosive devices, roadside bombs, and land mines. As a result of our proven track record in remanufacturing quality equipment, we were tasked with the tremendous responsibility to rebuild these vehicles that are so integral to saving our Soldier's lives. Red River also produces the MRAP Egress Trainer or MET. Due to the frequency of MRAP rollovers in Iraq, the MET was developed as a method to train Soldiers on how to react to a rollover situation.

HMMWV. We have more experience remanufacturing HMMWV's than any organization in the world. Through the depot's complete commitment to Lean manufacturing and continuous improvement, the HMMWV production line went from three vehicles per week to a mixed-model HMMWV production line capable of producing up to 40 vehicles per day.



Bradley Fighting Vehicle System

- Hull and Turret system /25mm gun repair
 - Electronic Measurements of Ball Bearings
 - Ballistic Armor Welding
 - Hull Straightening and Alignment
 - NC/CNC Machining Center
 - Metal Heat Treatment
 - X-Ray and Ultrasound Testing
- Fabricate reactive Armor Tile Boxes
- LRU/SRU repair
- Hydraulic component repair
- Electronic Fire Control Systems and accessory repair
 - Multi-layer Circuit Card repair
 - 100,000 and 10,000 Class Clean Rooms
 - Computer Automated Test and Diagnostics
 - TOW Missile Guidance Control Groups Test and Repair
 - Optic and electronic troubleshooting and repair
- Engineering Change Program (ECP)
- Modification Work Order (MWO)
- Application of CARC paint
- RESET / RECAP
- Inspect and test
- Secondary item repair

The Bradley Fighting Vehicle is one of our nation's most lethal fighting systems. It was integral to the combat operations during the war in Iraq.

RRAD is the CITE for maintenance, repair, rebuild, overhaul and conversion of the Bradley Family of vehicles (BFOV) and the associated secondary components. Red River is partnered with BAE Systems, the Bradley's original equipment manufacturer (OEM), to share the rebuild workload on this very important platform. RRAD has rebuilt multiple configurations of the BFOV's since the early 1980's. Vehicles are inducted, rebuilt and/or modified to the customer specifications and depart the depot's modernized maintenance facility

in "like new" condition.

RRAD also has a Public Private Partnership (P3) and a work share agreement with BAE for bringing these systems up to the latest configuration during the refurbish process. We have the capability to design, fabricate and manufacture a wide range of intricate items, ranging from specialty parts to unique prototype vehicles needed by our customers.

RRAD has a one mile test track that was designed specifically to meet Bradley OEM specifications to validate that the rebuilt Bradley's meet specifications through Final Inspection Requirement testing.



Rubber Products

- Fluidized bed rubber denuding system
- Track and road wheel injection molding machines
- Mechanical denuding equipment
- Adhesive spray booth
- Laboratory curing press
- Track adhesion tester
- Drum test machine
- State of the art rubber laboratory



Rubber Products Division provides a capability within the AMC family of depots and arsenals. RRAD Rubber Products has 50+ years of proven experience in the rubberization of track and road



wheels and is listed on the QPL-11891 for track, road wheels and track pads. Remanufactured track shoes and road wheels can save customers up to 75% of the cost of buying new. The operation has recently undergone a comprehensive equipment modernization program which has resulted in the most sophisticated, state-of-the-art robotic equipped track shoe, road wheel, re-build / manufacturing facility in the world. Flexible automation robotic material handler systems are used in both the road wheel and track shoe manufacturing equipment processes which increase reliability and throughput while reducing ergonomic issue for the operators.



RRAD has nineteen injection molding machine systems that are used to produce numerous different types of track shoes, track pads, track bushings and roadwheels.

The curing press prepares slabs of rubber for laboratory tests in accordance with the standards established by the American Society for Testing and Materials (ASTM) and meets and exceeds all ASTM D-3182 requirements. It is semi-automatically operated (90%) and is the latest model Pasadena Hydraulic, Inc. (PHI) press. This curing press (PHI) has an ASTM four-cavity mold that meets and exceeds the National Bureau of Standards requirements.

The track adhesion tester tests the rubber-to-metal bond and the drum test machine performs dynamic tests for roadwheels to ensure conformance to requirements.

Along with this equipment modernization program, RRAD has developed a professionally trained staff of engineers, technicians, equipment specialists, rubber workers, system operators,

and inspectors in its rubber products operations. Operators are trained and certified in processes compliant with ISO 9001:2000. The facility is also fully compliant with state and federal regulatory requirements.

Rubber Products operates as a self-supporting entity and has its own chemical agent resistant coating paint booths, chemical treatment processes, and rubber testing laboratory. All laboratories testing of rubber is to the American Society for testing.

A provider of the M1 road wheel, the depot has what it takes to keep our Army rolling, and will continue to be a leading producer of track shoes and road wheels well into the future.

Multiple Rocket Launch System

- Hydraulic component repair
 - Electronic Measurements of Ball Bearings
 - Ballistic Armor Welding
 - Hull Straightening and Alignment
 - NC/CNC Machining Center
 - Metal Heat Treatment
 - X-Ray and Ultrasound Testing
- Remanufacture chassis and launcher system
- Turret / Base repair
- LRU/SRU repair
- Rocket pads repair



- Electronic Fire Control Systems and accessory repair
 - Multi-layer Circuit Card repair
 - 100,000 and 10,000 Class Clean Rooms
 - Computer Automated Test and Diagnostics
 - Repair of Missile Guidance Control Groups
 - Optic and electronic troubleshooting and repair
- Engineering Change Program (ECP)
- Modification Work Order (MWO)
- Application of CARC paint
- RESET / RECAP
- Inspect and test
- Secondary item repair

MLRS. Along with the Bradley Fighting Vehicle, RRAD's facilities are used to rebuild and refurbish multi-million dollar MLRS vehicles to like new condition at a fraction of the original cost. RRAD has improved its capacity utilization and implemented many efficiencies resulting in the depot becoming one of the most cost effective and productive military depots. RRAD has been the Center of Technical Excellence for overhaul of the Multiple Rocket Launcher System since shortly after Initial Operating Capability in the mid 1980's. RRAD developed skills, equipment, facilities and infrastructure to support overhaul of the MLRS and the BFVS platforms since new system acquisition.

RRAD continues to support the MLRS through the M270A1 configuration, and sustains a skilled workforce on depot programs and in the field in support of the Vehicle Life Extension Program (VOLEP).

Small Emplacement Excavator

SEE. RRAD is the CITE for overhaul of Small Emplacement Excavator (SEE), which is a lightweight, all-wheel drive, and diesel-engine-driven, high mobility vehicle with a backhoe, a bucket loader, and other attachments, such as a handheld hydraulic rock drill, a chain saw, and a pavement breaker. The SEE weighs over 16,000 pounds, is air transportable, can travel at speeds of more than 40-miles per hour on improved roads,

and has unlimited off-road mobility. In addition to the SEE, RRAD has years of proven experience in the depot level overhaul and maintenance of general construction equipment including rebuild of the High Mobility Material Handler (HMMH) Tractor, the MW24C Scoop Loader designed by Case IH Inc. and the H100C Scoop Type 1 and Type 2 Loader.



Other types of equipment:

- Cranes
- Bridging equipment and boats
- Excavators
- Forklifts
- Scoop Loaders
- Hydraulic systems

Fabrication and Metal Processing

RRAD effectively provides metal fabrication, reclamation, and modification as appropriate through a general machine shop operation. Capability also includes fabrication of prototypes, production models, jigs, dies, and fixtures.

Recent examples of our capability at RRAD include supporting the design and executing the manufacture of the MRAP Egress Trainer (MET) and the HMMWV Egress Assistance





Trainer (HEAT) in support of our Joint Forces. These trainers were used extensively throughout deployment training sites to provide our troops with a practical rollover simulation aimed at mitigating risk in the event of a vehicle rollover.

Major Secondary Items

RRAD has overhauled a multitude of major secondary items to support our customer's platforms and field level stock. Capabilities include:

- Electronic repair capabilities for troubleshooting and repairing (to component level) the sophisticated electronic assemblies, sub-assemblies, and wiring harnesses used in fire control systems
- Two complete machine shop facilities which repair used components and manufacture from raw stock parts to be used in the rebuild and modification of systems; each shop uses both conventional and Computer Numeric Control (CNC) machines
- Plating facility for restoring a finish to used parts and applying a finish to new parts
- A vehicle paint facility with the capability of painting small components to the entire vehicle with three color camouflage Chemical Agent Resistant Coating (CARC)
- Work areas designed to restore engines, transmissions, drive assemblies, fuel accessories, electrical accessories, hydraulic assemblies, fire suppression equipment, suspension assemblies, electronic control assemblies, night and day optical equipment, and associated components
- Dynamometer facility with 28 test cells used for testing engines and transmissions to OEM specifications.

A newer capability is RRAD's ability to refurbish Fire Bottles that meet and/or exceed industry standards with no compromise on quality. The refurbished bottles offer DLA and other customers an average of 40% savings over new procurement costs.

The program includes cylinder recertification to DOT Re-Qualification Authority, safe disposal of DOT non-compliant fire extinguishers, safe and complete salvage capabilities for various configurations.

Production Profile

- ECP / MWO
- Electronic System Repair
- NGATS, DSESTS, EQUATE, IFTE, DITMCO
- Mfg: MET / HEAT
- Live Fire Test Ranges
- Certified Ballistic Armor Welding
- Design /manufacture prototypes
- Deployable Work Force
- Tenant DLA Regional Hub
- Tenant DLA Disposition Services
- Tenant TMDE

Internal Logistics

The Surface Support Operation provides transportation for internal industrial operations and supply chain support to our vehicle and secondary programs. Transportation dispatchers direct movement of assets to and from the local Defense Distribution Center and throughout the industrial area. An automated storage and retrieval system provides a central receiving point for new material that supports our production operations and maintains new and reconditioned parts until ready for use in the rebuild operations.

Laboratory

RRAD supports every phase of maintenance shop work with a well-equipped, specially designed laboratory comprising over 3,500 square feet.

Professional chemists and technicians perform a wide variety of chemical analyses and physical/functional tests during all aspects of mission accomplishment – from procurement to ultimate waste disposal and all production phases in between. The testing facilities are equipped with over \$2 million of state of the art instrumentation.

Performing analytical environmental monitoring as mandated by provisions of the Resource Conservation and Recovery Act (RCRA) and National Pollutant Discharge Elimination System

(NPDES) permit ensures regulatory compliance and protection of our natural resources.

On-site, real time analysis of water discharges is a major boon to the depot in executing excellent environmental stewardship. The lab performs recurring analysis of both vat solutions and representative end item samples to evaluate chemical characteristics, calculates adjustments to solutions or processes and/ or recommends other appropriate action.

Fully certified through the Joint Oil Analysis Program, the lab also performs analysis and evaluation as delineated in the Army Oil Analysis Program to identify deficiencies of oiled components and recommends/correlates corrective actions during all phases of maintenance activity and depot ownership. This proven tool for predicting and preventing premature wear and failure occurrences increases the depot's product reliability and the safety of our Soldiers in the field.

RRAD also maintains a dedicated laboratory for low-level radiation testing of commodities and work areas to detect and quantify levels of contamination as required by the depot's Radiation Protection Program. The lab performs scientific evaluation to include experimental design, trouble-shooting, process manipulations, analytical procedures, performance predictions, prototype development, and reviews of findings, interpretation of technical requirements / regulations and design of corrective actions.

An extensive internal quality assurance program is maintained to demonstrate proficiency to regulatory agencies and to ensure the accuracy and reliability of laboratory results.

- Inductively Coupled Plasma – Atomic Emission Spectrometer (ICP-OES)
- Inductively Coupled Plasma – Mass Spectrometer (ICP-MS)
- Atomic Absorption (AA) and Atomic Emission Spectrometers (OES)
- Ultraviolet-Visible Spectrometers (UV-VIS)
- Flow Injection Ion Analyzer
- Low Level Liquid Scintillation Counters
- Alpha/ Beta Proportional Counters
- Fourier Transformation Infrared

Spectrometer (FTIR)

- Internal Quality Assurance Program
- Metals Analyses by ICP-OES

As we like to say - Chemists haveSolutions!



Quality Commitment

RRAD was the first depot within AMC to achieve ISO 9001:2008 certifications through all production and administrative areas. This was achieved and sustained by a dedicated team of professionals adhering to established requirements, understanding customer's needs, and taking pride in their work.

Every vehicle that leaves Red River Army Depot has a quality sticker displayed prominently on the vehicle. This sticker is a symbol of our commitment to excellence and to keeping our Armed Forces safe. Even the Red River motto is reflective of this commitment to quality:





Risk Management

Environmental staffing includes a full range of professional level employees to ensure the depot meets all demands and challenges, and supports mission readiness without compromise to the environment. RRAD fully conforms to DoD and Army Environmental Management System (EMS) policies and guidance. The Environmental Division is responsible for RRAD's environmental program however environmental stewardship is the responsibility of every member of the workforce. The environmental policy is an integral part of our mission and is the principle driver behind RRAD's efforts to perform as an industrial facility.



The Environmental Response Team (ERT) is composed of trained individuals capable of responding to minor incidents as well as being able to fully integrate into large-scale events requiring the use of the Incident Command System (ICS).

- 2013- HQAMC Environmental Quality and Green Installation Award
- 2011- HIS Spectrum Excellence Award

Annual outreach to the workforce through training and special events assures that team members are both knowledgeable and motivated to support environmental stewardship, recycling, waste collection, and the EMS. Workforce education and guidance promotes compliance of environmental regulations, creates solutions for deficiencies, and ultimately contributes to a world class environmental program.



The depot has realized considerable savings through recycling programs, special energy projects, and reclamation efforts. Accomplishments include:

- \$6M generated as a result of recycling 36,700,000 pounds of paper, cardboard, wood, metals, and plastics over a two-year period
- \$435K in cost savings from energy conservation measures
- \$136K cost avoidance from reclaiming more than 40,000 gallons of JP8 fuel
- Reclaiming 4,500 tons of wood dunnage as fuel for the boiler plant offsets coal usage, reduces air emissions, and avoids the landfill

Sustaining a world-class environmental program means accepting the challenges of managing high volumes of hazardous materials and waste, maintaining compliance with State, Federal and Army regulations, and identifying opportunities to reduce material inventory. RRAD's Environmental staff tracks and manages thousands of transactions involving material receipt, labeling, inventory, usage and waste generation through ultimate disposal, while maintaining full compliance with laws and regulations including employee "Right-to-Know" laws.

RRAD continues to implement process improvements and look for new and innovative ways to prevent pollution, minimize waste, manage natural resources, and conserve energy. One key factor in the depot's successful track record has been its extensive use of a Hazardous Materials Management System, a software data management tool.

Another improvement has been to eliminate the use of Methyl Ethyl Ketone (MEK) from painting operations by the adoption of an environmentally-friendly paint gun cleaner. The new system is more

effective than MEK, and better for workers and the environment.

The introduction of water blast equipment in repainting operations has also provided benefits. Reducing the amount of blast media generated has resulted in a cost savings of over \$10,000 annually from each operation. In addition, water blast reduces the hexavalent chromium waste normally generated from the removal of old conversion coatings for a cost reduction of approximately \$15,000 annually.

This innovative process also saves the depot from replacing the conversion coating because water blasting can remove paint without affecting the underlying conversion coating.



The Environmental program fully supports RRAD's commitment to our Army by providing on-time environmental support to the production lines; cost reduction efforts through pollution prevention and waste management practices; and complies with Federal, State, Local and Army Regulations.

Safety

Due to the inherent risks associated with RRAD's heavy industrial missions, team members are potentially exposed to a multitude of significant traditional and depot-unique hazards that, unless eliminated through engineering and design, must be controlled through guards and barriers, personal protective equipment, and administrative means.

Designated as a VPP Merit Site in 2012, RRAD management, team members, and five unions have endorsed the pursuit of the prestigious VPP STAR. It is with one voice that we have effectively executed the culture change and shift from "risk based" to "behavior based" approach to safety.



Safety Awards

Innovative methods and initiatives ensure the success of the Depot Safety and Occupational Health Program and are a major factor in the receipt of multiple recognitions and awards which include:

- 2012 Secretary of the Army, Chief of Staff Army Exceptional Organization Safety Award – Garrison
- 2011 Secretary of the Army, Chief of Staff Army Exceptional Organization Safety Award – Garrison
- 2011 Army Materiel Command (AMC) Exceptional Organization in Safety (Installation/Garrison/Depot)
- 2010 Secretary of the Army, Chief of Staff Army Individual Award for Excellence in Safety
- 2010 AMC Individual Award for Excellence in Safety
- FY 2012 – Voluntary Protection Programs (VPP) Merit Worksite (approved by the Assistant Secretary of Labor)
- Graduate of the OSHA Challenge Pilot Program through the Dept of Labor, Office of Partnerships and Recognition, Washington D.C.
- FY 2007 and 2012 – Theodore Roosevelt Workers Compensation & Disability Management Award
- OHSAS 18001:2007 registration – sustained since 2009

RRAD continues setting high marks for Excellence in Safety, through our daily integration of command commitment, team member involvement, worksite analysis, hazard identification, abatement, and safety/health training.

For the Soldier!



Rock Island Arsenal

Joint Manufacturing & Technology Center

(RIA-JMTC)

Purpose

The Rock Island Arsenal Joint Manufacturing & Technology Center serves as a vital link in the National Defense Structure providing manufacturing, supply, and technical support services in support of the Joint Warfighter.

Vision

To provide versatile manufacturing solutions that exceeds customer expectations using the most current technology with the Arsenal's skilled workforce.

Mission

RIA-JMTC will ensure customer satisfaction by providing on time, cost effective products and services of the highest quality through utilization of an experienced workforce supporting the Department of Defense and other customers. RIA-JMTC is proud to be DOD's Rock.



RIA



The Rock Island Arsenal is located on a 946-acre island. RIA-JMTC has over 3 million square feet of manufacturing space dedicated to fulfill multiple roles and responsibilities in rapid response to the National Security Strategy.

The Arsenal is the multi-purpose vertically integrated metal manufacturer for the Department of Defense. RIA-JMTC possesses the technical expertise and equipment to manufacture products high in quality and sustainability. The availability of centralized manufacturing and testing allows production to come full circle which minimizes the need to outsource. The Arsenal also maintains support activities such as warehousing, supplementary storage, and dedicated space allocated toward ongoing partnerships.

The Rock Island Arsenal is dedicated to continuous improvement and values its ability to provide superior products and services in rapid response to the Armed services. This full-service center strives to become more agile everyday to meet the goals of continuous process



improvement while never losing focus on costs, schedule, and quality. RIA-JTMC has the people and equipment needed to save the customer time and money.

RIA-JTMC also reaches out to the community by offering machinist apprenticeships and other training programs to qualified applicants.

Significant Achievements

ISO 9001 Certification



Quality has historically been embedded in every product and process at RIA-JMTC. This is evident by the fact that RIA-JMTC was certified to AMC's Contractor Performance Certification Program (CP2) and

was the first Government-Owned, Government-Operated (GOGO) facility recognized under the program. RIA-JMTC is currently registered to the International Organization for Standardization (ISO) 9001:2008 standard as a Department of the Army manufacturing facility that promotes, facilitates, and enables consistency and improvements in process and product. The result of the registration to ISO 9001:2008 is a quality management system that focuses on reducing cycle time and improving efficiency while maintaining total customer satisfaction. RIA-JMTC is also registered ANSI/ISO/IEC 17025:2005, which is an accreditation for testing and calibration laboratories. RIA-JMTC has been registered with ISO since 1993 and has most recently been registered by an Independent Auditing Agency.

Shingo Recognition



RIA-JMTC was the 2006 & 2007 Shingo Public Sector Gold Medallion Recipient for the Forward Repair System (FRS) value stream and a 2007 Silver Medallion Recipient for the Shop Equipment

Contact Maintenance (SECM) value stream. The Rock Island Arsenal is a two-time Gold Medallion recipient.

Lean Six Sigma



Rock Island Arsenal strives to get better every day by implementing Value Engineering to analyze the processes involved in manufacturing for the purpose of achieving the most cost effective production methods.

Implementing Lean tools allows the Arsenal to improve all aspects of the business from shop floor processes to strategic level decisions. RIA-JMTC implements Lean Strategies such as Value Stream Analysis (VSA), Rapid Improvement Events (RIE), and follow ups for the purpose of creating a one piece flow system for products and major processes. Lean has helped RIA-JMTC respond quicker to get products in the hands of the Soldier.

Center for Industrial and Technical Excellence (CITE)



In 2009 RIA-JMTC received its first Center for Industrial and Technical Excellence designation (CITE) by the Secretary of the Army for Mobile Maintenance Systems. This honor was presented to RIA-JMTC due to its proven expertise in the overhaul of Forward Repair Systems and Shop Equipment Contact Maintenance Systems. CITE designation allows the Arsenal to enter into public-private partnerships to perform work which will enhance its maintenance core competencies. RIA-JMTC now has two additional CITE designations for Add-on-Armor and Foundry operations.

Why Partner with RIA-JMTC?



The Arsenal's Public-Private Partnerships (P3) initiative is directed toward improving the output and performance through increased participation by the private sector and creating value for industry partners. The

overarching goal is to better support the Warfighter by maintaining the skills and "know how" of the craftsmen employed at the Arsenal. RIA-JMTC's business model to support any weapon system allows the manufacture of parts from raw material to finished product within a single facility. Maintaining a ready and responsive organic industrial base that is capable of performing varies and diversified processes at a single location to provide the needs of the Nation.

RIA-JMTC Business Development Office
(309)782-6854.

Manufacturing Capabilities & Services

The Department of Defense relies on the Rock Island Arsenal to provide quality equipment to the Warfighter. Its capabilities allow the Arsenal to work on a variety of projects simultaneously while completing orders on time.



Geographically and strategically located in the Midwest, overall transportation costs on behalf of the end customer are minimized as well. Located in the facilities of RIA-JMTC are varies blends of manufacturing techniques such as traditional blacksmithing services combined with the most innovative and advanced technologies, processes, and equipment in the manufacturing sector today.

RIA-JMTC functions as a shop with facilities possessing the technical expertise and equipment to provide full-service production engineering; prototype fabrication; complex, tight tolerance component part manufacturing; and weapons live fire testing and simulation. This full range of capabilities allows for a rapid response to Warfighter requirements emanating from all of the Joint Services.



- Assembly
 - Painting
 - Assembly
 - Disassembly/Reset
 - Recoil
- Hot Metals
 - Forge
 - Foundry
 - Investment Casting
 - Heat Treatment
 - Plating
- Precision Machining
 - CNC Machining
 - Light & heavy Machining
 - Electronic Discharge Machining
 - Conventional Machines



- Multi-Tasking Intelligent Machines
- Focus Factory
- Prove Out Cell



- Weld & Fabrication
 - Forming
 - Laser Cutting
 - Stamping
 - Welding
 - Composite Mfg
- Science & Engineering
 - Reverse Engineering
 - Non-Destructive Testing
 - Swipe Analysis
 - Live Fire & Simulation
 - Quality Commitment



Assembly

The paint area provides all surface coatings including preparation, sanding, sandblasting, electroplating, and paint applications. There are seven paint booths ranging in sizes. This area is

able to accommodate up to 500 parts at a time (weighing up to 200 lbs.) and vehicles. Chemical Agent Resistant Coatings (CARC) and camouflage are capabilities of the area. Applying the CARC capabilities, RIA-JMTC has recently begun using electrostatic paint applications. Camouflage is another task this area can complete. RIA-JMTC has multiple small paint booths and two drive-thru booths, capable of handling pieces as large as the Abrams tank.

The new paint line consists of two primer booths and two topcoat booths along with drying ovens for both primer and topcoat which has allowed RIA-JMTC to improve the painting capacity by 120%. The ability to control the oven temperatures and line speed has greatly reduced the number of paint defects and rework. Department personnel have full control of the drying ovens for both the primer and topcoat booths as well as line speed and the ability to adjust temperatures based on the type of material and weather condition.



This new line allows the RIA-JMTC paint department to move approximately 500 completed parts per shift with room for new projects, while still meeting the deadlines of the current customers. It is 740 feet long with space for over 400 hooks that are easily changed to accommodate numerous parts in varying shapes and sizes at any one time. Each hook has a capacity of 400 pounds giving RIA-JMTC total capacity of 57,000 pounds for the entire line. With the addition of horizontal bars and custom made hanging racks the paint line is able to accommodate large and small parts simultaneously. A key feature of the new line is that it is continuously moving to allow for uninterrupted loading and unloading with completed parts coming off within 2-hours of

initial start up. Overhead booms with 1-ton magnets/hooks placed at designated loading and unloading stations have allowed paint personnel to easily handle heavy parts reducing the risk of injury.

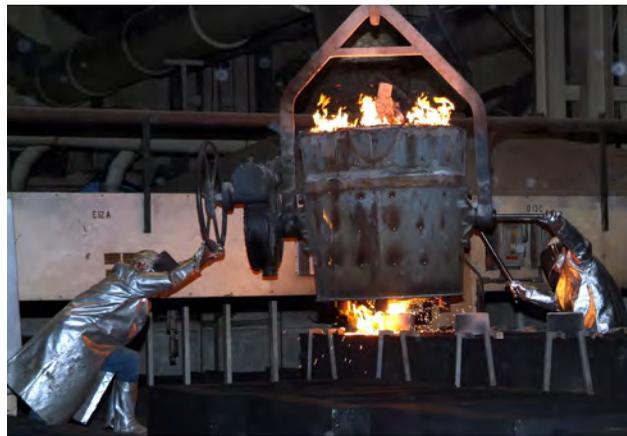
The mechanical side of assembly also does a great deal for the Joint Warfighter giving us an in-depth understanding. This knowledge has helped to solve problems the Army has experienced with various equipment to include the Forward Repair System (FRS), Petroleum Quality Analysis System Enhanced (PQAS-E), Shop Equipment Weld (SEW), Shop Equipment Contact Maintenance (SECM), M997A3 Ambulance, M119A2 Howitzer and numerous add-on-armor kits. Other tasks completed in this area include; cleaning, high-pressure testing and disassembly of used equipment. The wash area can accommodate trucks and tanks and the blasting area can handle steel, aluminum oxide, plastic and glass.

Housed within the RIA-JMTC complex is the recoil mechanism assembly facility is capable of fabricating, testing, maintaining and producing new or old legacy system recoil mechanisms. RIA-JMTC specializes in projects such as the M119A2 howitzer, M1A1 gun mounts for the Abrams tank and the M45 recoil mechanism for the M198 howitzer. In the climate controlled recoil assembly room, parts for recoil mechanisms are pieced together, which includes processes handling oil and high pressure nitrogen. Tight tolerances and specific interfacing are crucial in this process to ensure that energy from the weapons is absorbed properly.

Hot Metals

RIA-JMTC's forging capability is complete with advanced technology for complex forging and "old world" methods for simple forging and blacksmithing.

RIA-JMTC has capabilities in drop forging, upset forging and blacksmithing. The capabilities include forging a wide variety of ferrous and non-ferrous alloys. This area is supported by an in-house, modern die sinking function and non-destructive testing (NDT) facility. It has the capability to manufacture forgings. This area also contains drop hammers. Drop hammers of varying weights with programmable controls are available, each accompanied by a press to trim flashing.



RIA-JMTC maintains the Army's foundry capabilities and is capable of full-scale production. It has complete metallurgical support and the ability to melt multiple alloys. The foundry has a pattern-making facility and an onboard engineering facility with rapid prototyping abilities to manufacture molds in a 3D plastic printer. This facility has the capability to cast both ferrous and non-ferrous materials using direct arc and coreless induction furnaces, using chemically bonded sand. Besides sand molding, small scale centrifugal casting is available in a variety of alloys. The foundry is a gateway operation that converts raw material, combined with precise alloys, into net or near net-shaped configurations.

RIA-JMTC is an active member of the American Foundry Society and the Steel Founders Society. The Arsenal's foundry has also been instrumental in demilitarizing military weaponry by smelting, grinding and cutting to produce reusable material for other military programs.

Investment casting is a process used to produce castings with finer detail, improved surface finishes, close tolerances and little (or no) machining stock.





This eliminates numerous machining and/or fabrication operations saving the customer time and money. Investment castings are produced of ferrous and non-ferrous materials. It begins an injection mold used to produce wax patterns. The patterns are assembled on a tree, dipped in ceramic slurry and dried. The wax is then melted out and metal poured in. Most recently, RIA-JMTC has added the capability of lightweight Titanium investment castings of up to 55 pound net weight in order to position RIA- JMTC as the organic leader in lightweight material technologies.

The heat treat area can accommodate all types of metals with protective atmospheres available. It can complete stress relieving processes such as annealing, stress relieving, solutionizing, normalizing, hardening, quenching, and tempering as well as demilitarization of chemical agent containers. One aspect of this area is the two vacuum furnaces, salt pots for hardening and quenching (for distortion control), and localized hardening capabilities through selective carburizing or induction hardening. All of the furnaces, freezers, and quench tanks are tied into a programmable-process and 24 hour monitoring system, which allows jobs to be run during all shifts. RIA-JMTC's heat treat department has been instrumental in demilitarizing ton containers formerly used to store chemical agents (as well as other material burn-off), using a vented furnace with afterburners.

Heat Treat Capabilities

- Water, Oil, Salt, Nitrogen and Polymer Quenching
- Air and Programmable Furnace Ramping & Cooling
- Load Weights
- Uniformity Surveyed per Aerospace AMS2750D to Class 2-5
- 4 Freezers Down to -120°F
- Induction Hardening (3KHZ to 400KHZ)
- Quality Control - 24-hr. Computer Monitoring System
- Furnaces

- Temperature Processing Up to 2400°F
- Carburizing Neutral Scale-Free Atmospheres of Salt, Carbon, Nitrogen or Vacuum



The Plating department completes all surface finishing needs. An array of finishes is available and any tolerance can be met. The Plate Shop preps parts for the weld and paint departments and reworks items for the machining department. All employees in this area complete a 2-year program where they are trained in all areas of the department. RIA-JMTC received an Industrial Pretreatment Award in 2011 for maintaining compliance with federally mandated treatment of wastewater and has received the award for 14 concurrent years.

Precision Machining

The Arsenal's machining capabilities are unparalleled. They range from 3-axis to 7-axis machining centers to Swiss lathes. There are over 1,000 Computer Numerical Control (CNC) machines working in tolerances equivalent to splitting a human hair 30 times. Milling, turning, grinding, honing, and lapping are some of the capabilities at RIA-JMTC.

The machining division is capable of both "light" and "heavy" machining operations enabling production of some of the most complex and tight-tolerance component parts in use today. The machining division accomplishes these tasks through the use of a combination of sophisticated CNC machining centers and conventional machines capable of producing anything from small fasteners to large aircraft parts. Tolerances up to ten-thousandths of an inch can be achieved.

Within the machining division at RIA-JMTC are two 7-axis machining centers with personnel certified and qualified in the set-up and operation of these pieces of equipment. These machining centers provide an unmatched level of versatility and capability for the machining division.

CNC mills in operation at RIA-JMTC are some of the most advanced available today. Ranging from 3-axis to 7-axis. Attaining such a large work envelope is made possible by 5-axis CNC Bridge Mills located within the heavy machining sector of the manufacturing complex. Not only do these machines offer a large work envelope but also enable RIA-JMTC to machine objects weighing as much as 94,797 lbs.

With the addition of new spring technology the cell will be able to produce 90% of the Army's small weapons spring requirements. Due to the sensitivity of items produced, the cell is located in a segregated area of plant to maintain security of sensitive items.



Rock Island Arsenal has been using Electronic Discharge Machining (EDM) for over 20 years in the manufacture of components for artillery gun systems. RIA-JMTC currently has six CNC operated machines used for tooling, prototype and production work.

RIA-JMTC has 2 CNC Machines, 2 Conventional Gun Drill Machines, and a Boring Lathe. One of the CNC Machines is equipped to work with HELLER BTATM drilling tools and is capable of skiving and roller burnishing.

RIA-JMTC's CNC Mills are some of the most sophisticated machine tools available in the industry today. With the acquisition of Multi-Tasking intelligent machines all operations are

able to be completed in a single set-up. This "Done in One" concept can be applied to small and very complex components parts and allows for maximum flexibility and productivity in RIA-JMTC's machining operations.

RIA-JMTC maintains a rigorous "preventative" maintenance schedule for all equipment in the machining division to ensure maximum productivity during operation and utilizes a Direct Numerical Control (DNC) system to increase the speed, accuracy, and recording of NC programs used on these machine tools.

Referred to as a "Factory within a Factory," RIA-JMTC operates a highly specialized area known as the Soldier Weapons Readiness Center (SWRC). The focus of this area is to rapidly produce replacement components for small caliber weapons such as the M4/M16 rifle, M9 pistol, M249 squad automatic weapon, and the .50 caliber heavy machine gun. The SWRC is based on new machine technology for maximum productivity and repeatability during processing allowing for maximum output with minimum manpower. In accomplishing this objective, the SWRC employs the use of 18 Citizen Swiss Lathes capable of maintaining tolerances of up to 50 millionths of an inch while still sustaining a high level of production throughput. Ensuring these extremely tight tolerances are maintained is accomplished through the use of 3D Multi-Sensor White Light Scanners located within the SWRC to inspect parts before, during, and after processing.



New technology development is an ongoing process in RIA-JMTC's Prove Out department as well. Maximizing new machine tool capabilities, employing lights-off manufacturing practices, co-location of PC workstations with machining



centers, implementation of automated decision making by machinery, prototyping production processes, and cutting edge technology development are only a few of the activities undertaken in this area on a daily basis. Such ongoing efforts have enabled RIA-JMTC to reduce production process prove out lead times from 42-hours to just 10-hours and eliminate maintenance alignment of machinery and equipment that resulted in six hours of production down time using probe technology to accomplish the same result in just five minutes.

Weld & Fabrication

The Weld and Fabrication department's technology spans from lasers and a robotic welder to water jets and plasma cutters. It also has the ability to form armor plate. All welders are certified as per AWS Welding standards.

The Weld & Sheet Metal Fabrication area features a wide array of capabilities that includes eight laser processing systems, a 4K-watt tube laser, forming, conventional machining, and robotic welding. Also present within this area are two 4K-watt Mitsubishi high performance 3-dimensional laser processing systems capable of cutting mild steel, stainless steel, and armor plate up to 1/2" and aluminum up to 1/4".



The Weld and Sheet Metal Fabrication area also has the capability to cut and form armor plating; shear, form, and straighten various metals; and perform a limited amount of tube forming. Expert fabricators in this area perform numerous functions to include providing assistance to production welders with fabricating weldments and setting up modular fixturing for machining jobs throughout the factory.

Water jet cutting, bending, notching, die stamping, forming, and production sawing are some of the other functions performed within this area using a variety of state-of-the-art equipment and processing methods. RIA-JMTC's welding capabilities are as diverse as many other areas of the manufacturing facility as well. In addition to conventional welding methods such as MIG, TIG, and Stick; RIA-JMTC can also perform Stud Welding, Spot/Resistance Welding, and Laser Welding and has embedded Robotic Welding processes into several areas within the factory.

Looking toward future developments RIA-JMTC has perfected the ability to weld metals such as titanium and is certified to perform internal self-certification for titanium welding; a capability that ensures rapid training and certification of employees in-house.

Composite Armor Consolidation one of the innovative technologies that will ensure RIA-JMTC remains a cornerstone for high-tech products and services for the next 100 years. Army item managers are seeking weight reduction and increased survivability through the use of complex composite armor manufacturing. The Arsenal is working to expand the technical expertise and capabilities in composite armor manufacturing to meet the demands of this emerging technology.

Science and Engineering

Not only does RIA-JMTC employ the latest technologies when acquiring new equipment; this same practice is employed in regards to advanced testing, prototype, and quality control systems.

Engineering serves as the technical liaison between manufacturing and customer. Engineering has the responsibility to develop process procedures, 3D CAD and CAM models, Numerical Control programs, tooling and fixtures, and engineering and manufacturing bills of material to ensure efficient flow of material through manufacturing.

Rock Island Arsenal's engineers, engineering technicians, chemists, metallurgists, and physical scientists are engaged in determining part configuration, manufacturing processes, testing/analysis, and capabilities of a part or system to meet form, fit and function. RIA-JMTC capabilities include reverse engineering, original design,

optimization of existing design, and technical data review/verification such that the finish product is readily producible and meets the customer requirements. Given a good TDP, RIA-JMTC engineers develop the manufacturing processes which are step-by-step shop floor instructions. This includes but is not limited to 3D modeling, CNC programming, tool design, time studies, weld processes, heat treat processes, quality inspection, and laboratory testing/simulation. Computer modeling is applied to the simulation and study of mechanical systems in an effort to predict actual performance.

The Arsenal has a full-service metallurgical, destructive, and wet chemistry laboratory. Raw Material, work in progress, and finish products are analyzed to assure that the requirements for the part and system are achieved. Chemical analyses allow the evaluation of production materials.

The testing methods used support environmental protection efforts. Engineering Service's mission is to provide customers with cost efficient engineering and testing services in a timely manner.

RIA-JMTC's engineering department has extensive experience in reverse designing and prototyping in order to develop technical data packages when only physical components are available for analysis. Components are inspected via 3D laser scanners, coordinate measuring machines (CMM), and precision gages and characteristics and mechanical properties are determined via non-destructive and destructive testing methods in order to develop accurate 3D models and 2D drawings. Fully parameterized models and drawings illustrating the components features are then generated as a result. RIA-JMTC has the capability to perform this service on large and small components such as artillery, armor, and mobile maintenance shelter systems.



RIA-JMTC has a vast array of Non-Destructive Testing (NDT) equipment & capabilities, including radiography, magnetic particle, dye penetrant, ultrasonic, and Eddy current, and have two Level III ASNT certified inspectors on staff.



The NDT unit evaluates the integrity of parts to specific accept/reject criteria for discontinuities without destroying them. Products manufactured at RIA-JMTC are submitted to NDT early in the production cycle. Frequent interaction between NDT and various other departments ensure that problems are addressed early in production and corrections are implemented.

Other capabilities contained within the manufacturing complex are environmentally controlled testing capabilities ranging from -25°F to +170°F contained within a 20' x 10' test chamber and Level III NDT conducted by technicians certified to conduct testing at this level.

RIA-JMTC also maintains the capability to support missions such as Radiological Swipe Analysis of Alpha and Beta particles and offers customer specific services such as custom compounding of Synthetic Rubber Compounds and custom design of Fabrics and Fabric Products. Such custom manufacturing capabilities have resulted in RIA-JMTC being the supplier capable of producing parts such as the M198 Obturator Pads to engineering specifications.

All engineering program configurations are managed in an enterprise resource plan program and Technical Data Management system (TDM) to ensure accurate revision control of parts and assemblies. Engineering resources also include the



capability to perform finite element analysis on simple and complex part assemblies to determine effects of fit, form, and function in various applications. Regular interval inspections and documentation of all non-conforming material is performed to ensure proper disposition and corrective actions are carried out.

The Arsenal has extensive testing capabilities outside the laboratory. RIA-JMTC also has a vehicle road course, an indoor firing range for small arms, and an all-angle hydropneumatic firing impulse system for simulating live firing of artillery and tank systems at its disposal. RIA-JMTC's all-angle hydropneumatic firing impulse simulator is a system that reduces costs and lead times exponentially. Computer modeling is applied to the simulation and study of mechanical systems in an effort to predict actual performance. RIA-JMTC has over 25-years in artillery and tank weapons simulation testing. Simulation testing preserves the local environment and leaves little, if any, air and noise pollution. All of these components build a quick, effective response to customers' needs and new business opportunities.



The Tool Design Branch at RIA-JMTC creates fully dimensioned tool drawings for various requirements to include fixtures, dies, molds, go/no-go gages, form tooling, and specialized machinery. RIA-JMTC's tool designers use the latest parametric modeling software which allows them to import part models from the engineering division or directly from customers.

RIA-JMTC's quality management system is designed to verify manufactured products are of the highest quality attainable, ensuring Warfighters and other customers are provided with equipment and products they can rely on. Quality is built into the processes up-front through pre-production quality

planning activities and monitored/ controlled throughout the production cycle.

To verify customer expectations are met or exceeded, qualified personnel utilize state-of-the-art measuring equipment, such as computerized (CMMs), FARO Arms, electronic handheld gages, and others, to inspect features down to microns and diameters up to 72-inches.

RIA-JMTC calibrates most measuring equipment in-house, and results are traceable to the National Institute of Standards and Technology (NIST). RIA-JMTC makes regular use of practices such as in-process to eliminate costly repairs later in the production cycle.

Line of Communication Bridge

The Line of Communication Bridge (LOCB) supports modular line of communication bridge requirement with the mobility to span fixed or float gaps 50 to 300-meters wide for crossings up to MLC 100 track/120 wheel. The TDP was developed by TARDEC to meet most objective requirements. LOCB is an all steel system of girder design (all structure under the deck) comprised of individual bays, when pinned together make up a variable length span up to 300-meters without a reduction in MLC. Kits included with the system are ramps, ground bearing, launch set, and 5-meter pier. Optional kits not included are a pedestrian walkway and 10-meter pier. In addition to the tangible benefits the Warfighter will receive, the LOCB Acquisition Strategy of leveraging the organic Army Industrial Base protects the Nation's internal industrial capabilities, and provides savings over the lifecycle of the program.

Add on Armor

The Stryker Slat Armor kit is an Add-on-Armor (AoA) solution developed to enhance protection from Rocket Propelled Grenades (RPG) on a variety of Stryker platforms.

The Stryker is just one of many platforms that RIA-JMTC has produced AoA kits in support of the Nation's current conflicts. Other platforms and include MRAP kits such as the Caiman explosively formed penetrator (EFP) panels, HMMWV kits including FK4 through FK7 and the Objective Gunners Protection Kit, M1 Access Covers and



Ammo Doors, M915A5 B and C-Kits, and HEMTT underbody protection just to name a few. RIA-JMTC has been involved in the production of Armor since the first kits for the M939 were introduced in 2005. To date RIA-JMTC has produced over 50% of all AoA kits in the Army's inventory.

M997A3 Ambulance Shelter



The RIA-JMTC also supports the Army National Guard contingent.

The M997-A3 Ambulance utilizes the Arsenal's assembly experience and couples it with its composite material division when developing the shelter to safely transport personnel who have been injured. This vehicle is for Home Land Security which is designed to help aid in national disasters throughout the country.

Shop Equipment Contact Maintenance

The Shop Equipment Contact Maintenance (SECM) is a service station on wheels. If it can be repaired in 2 hours or less, the SECM has the tools and equipment to do it.

It's equipped with a full complement of hand and

pneumatic tools, an air compressor, a welder, a cutting torch, lights, and more. Five kilowatts of electrical power is supplied by the HMMWV's (High Mobility Multi-purpose Wheeled Vehicle) generator through a power inverter.



The doors roll up out of way, allowing access to the storage cabinets. The storage cabinets have drawers with high-density polyethylene inserts with cutouts for each tool, ensuring needed tools are quickly found and easily inventoried and less likely to be lost or left behind.

M119A2 105mm Lightweight Towed Howitzer

The M119A2 is a lightweight air mobile air droppable (by parachute) Towed Howitzer with an average crew of seven soldiers. It provides direct and indirect fire support to highly mobile light infantry divisions and separate brigades.



The howitzer can be quickly moved and employed to provide maximum fire power with a minimum of combat loaded weight. It also provides a low silhouette and requires no recoil pit. These aspects, combined make the M119A2 Howitzer one of the most lethal weapon systems in the Army inventory. The M119A2 has greater range, is lighter and



has a more rapid rate of fire than its predecessor, the M102, which it replaced in light/airmobile/airborne units. The M119A2 weighs 4,000 pounds (complete with BII). The prime mover is the HMMWV truck. The M119A2 is air transportable with its basic load of ammunition by the UH60 helicopter and is dual lift capable with the CH47 Chinook.

Small Arms Components



The Arsenal has long played a role in Small Arms weapons and repair parts, but was side-lined for about 20 years starting in the middle 1980's.

In 2010, RIA-JMTC re-entered the small arms parts business by opening the brand new, state-of-the-art Soldier Weapons Readiness Center (SWRC). Built upon LEAN principles and the latest machine tool technology, the SWRC was built for agility. Their mettle was tested when the SWRC was tasked to provide 1,000 firing pins to the Warfighter in just 32 days. They answered the call.

Safety

The Rock Island Arsenal's Commander and management are dedicated to ensuring a safe and healthful workplace. Visual signs of safety are evident throughout the workplace with bulletin boards, and production towers displaying safety metrics to individual cost centers as well as timely safety information. Up-to-date safety lessons learned are available on the safety intranet website, and they are briefed at weekly staff meetings and covered in detail at safety meetings.

Safety meetings range from the Safety and Occupational Health Advisory Council meetings chaired by the Commander, to division level safety meetings. Accident trends are assessed and risk

management is applied to processes throughout the organization. The required personal protective equipment (PPE) is readily available and worn. The employees maintain a steady track for success in OSHA Voluntary Protection Program. The proactive safety measures of the employees are evident, with over 30 percent decrease in OSHA recordable rates. Some of the best practices noted are the composite risk management worksheets for chemicals, map of incidents and electrical safety hazard quick reference cards.

Quality commitment

RIA's quality management system is designed to verify manufactured products are of the highest quality attainable, ensuring Warfighters and other customers are provided with equipment and products they can rely on. Quality is built into our processes up-front through pre-production quality planning activities and monitored/controlled throughout the production cycle.

The Materials Lab

Testing gives a complete picture of how a machine or part will perform. At Rock Island Arsenal, engineers, chemists, metallurgists, and physical scientists are on staff to assist in this process.

Their focus is primarily on production assistance, configuration control, and materials review. However, other services include component and assembly design, fabrication assistance, materials testing, failure analysis, and environmental programs.

The Arsenal has extensive testing capabilities. An indoor firing range for small arms and simulated live firing of artillery and tank systems with the use of hydropneumatic test equipment is available.



Sierra Army Depot (SIAD)

Purpose

To be prepared to support the Warfighter who defends our nation.

Vision

Become the Army's End of First of Life Center and the CONUS-based Army Prepositioned Stock Site while continuing to provide expeditionary logistics support and long-term sustainment solutions.

Mission

Provide rapid expeditionary logistics support and long-term sustained solutions to the Army and the Joint Force.



SIAD



Sierra Army Depot has had multiple missions since it opened its gates in 1942. Originally opened as an Ammunition Depot, it has undergone numerous transitions to what it does today. SIAD currently provides rapid expeditionary logistics support and long-term sustainment solutions to all customers.

SIAD has a multi-faceted mission requirement to provide for the receipt, storage, Care of Supplies in Storage (COSIS), assembly or RESET, as required. We were identified as a pre-staging CONUS location to receive Class VII equipment and maintain in a ready condition until needed.

Sierra Army Depot provides storage space on an economical foundation to store and RESET Add-on-Armor, as well as provide long-term storage for U.S. Air Force plant production tooling. SIAD has extensive expertise in containerization & assembly, coupled with the maintenance and paint shops, the AOA programs are a natural fit with the Depot's primary skill sets.

SIAD currently operates the largest Standard Army Retail Supply System (SARSS) Supply Support Activity (SSA) operation in the world dedicated solely to redistribution operations.



Significant Achievements

ISO 9001 and 14001 Certification



Sierra is an International Organization for Standardization (ISO) 9001:2008 and 14001:2004 certified. SIAD was first certified for ISO 9001:2000 which is a Quality Management System (managed by the Quality Engineering Office, ISO Branch) in March 2005, and continues to be ISO 9001:2008 certified to this date. SIAD has had two recertification audits in that time and 15 surveillance audits.



SIAD was first certified for ISO 14001:2004 an Environmental Management System in 2009; SIAD has had one recertification audits and eight surveillance audits.

Lean Six Sigma



SIAD continuously grows their LEAN savings yearly. Consistently exceeding the LEAN goals, the Lean processes are employee driven versus management driven. SIAD embraces Lean Six Sigma for refining current operations, as it is a part of the initial pre-planning process for all new programs to ensure they effectively meet the customer's needs.

Center of Industrial Technical Excellence (CITE)



SIAD was designated a CITE for “Operational Project Stock” for processing and maintenance by the Secretary of the Army in 1993. SIAD was later designated another CITE for Reverse Osmosis Water Purification Units (ROWPU) in 2007.

In 2011 SIAD was designated a CITE for Petroleum and Water Distribution Systems (PAWS). Sierra continually strives for excellence in all our ongoing programs now and into the future.

Why Partner with Sierra?

Sierra's 36,000 acres of high desert terrain provide distinct storage advantages of ample space, low humidity and low precipitation; excellent for long-term storage.

SIAD produces world-class results in every challenge that is put before them. Sierra is constantly seeking out new missions and ways to improve current and future business opportunities. This exploration is not just within the confines of the military family, but with private industry as well.

Not only do the employees at Sierra exude an unwavering commitment to the Army Values, but their dedication to supplying Soldiers with the best equipment available is untouchable.

There is a highly dedicated staff of expert and skilled craftsmen, equipment operators and support personnel at Sierra that are vital to the current and future Army needs. This type of expertise allows SIAD to receive, store, maintain, and ship material anywhere in the world – “ON TIME.”

For further Partnering information, please contact Sierra Army Depot Directorate of Mission (530) 827-4123.

Capabilities

Transportation

Sierra is recognized for its transportation capabilities because of its airfield, its joint air operations training, and the improved logistical support to the Warfighter. The installation has miles of improved rail, three rail classification yards, and miles of paved roadways.



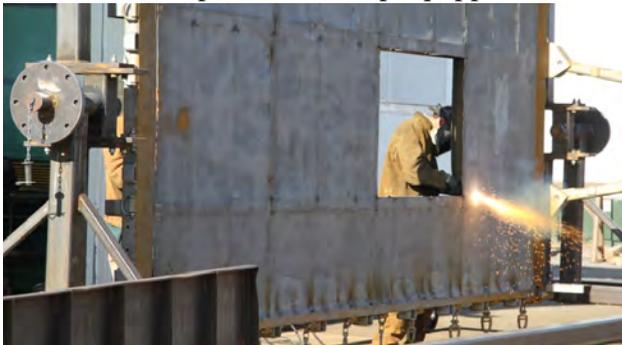
Because of the unique ability to receive, assemble, pack and ship material, Sierra has become a trans-shipment site for many customers worldwide shipments. SIAD is established as a multi-functional installation that serves as an expeditionary logistical support, storage center, maintenance, assembly, and containerization for operational project stocks, and other items as directed.

- Rapid Deployment
- Trans-Shipments

Maintenance

Sierra's maintenance personnel are able to facilitate mechanical repairs, corrosion control, metal fabrication, and repairs.

SIAD has a complete metal shop equipped to shear,



roll and bend all types of metal. Metal fabrication facilities are available for various gauge materials. Metal fabrication facilities are available for various materials. The depot has facilities' to perform MIG, TIG, and has capabilities for welding various metals. Welding can be performed on-site/mobile by certified maintenance personnel. The water purification equipment testing operation stations are capable of testing up to 3,000 gph ROWPU's. Stations include areas for disassembly, reassembly, initial testing and final testing.



The depot maintains a chemical Agent Resistant Coating (CARC) paint capability on site. This consists of three large forced air facilities and small booths. To support this capability, there are two blast booths with vertical flow and full floor recovery systems.

Sierra is also able to provide Convention for Safe Containers (CSC) certification.

- Maintenance
- Fabrication & Welding
- Modifications
- Sandblast/Paint Operations
- Cyclic & Light Maintenance
- Reset & Refurbishment
- Inspection & Certification
- Repair & Upgrade

End of First Life Center

Sierra's combat vehicle End of First Life Center (EoFLC) capability includes equipment consolidation, surveillance and inspection, pre-position stock, care of supplies in storage, asset and



inventory management, regeneration programs for both end items and subcomponents, upgrades and redistribution, configuration management, kitting, and system assembly/disassembly. This is augmented by SIAD's expeditionary logistics capabilities to deliver the needed equipment, supplies, and systems.



SIAD's long-term outside storage includes over 22,000 combat systems. The cost avoidance for SIAD versus storage at a Defense Logistics Agency activity has resulted in significant cost savings. To date there has been a cost avoidance of over \$25 million with assets valued at over \$10.5 billion.

Sierra utilizes a systematic approach to insure quality throughout the receipt, storage, maintenance, assembly and disposition processes of its services and products. Statistical process control and continual improvement techniques are combined with inspection and testing equipment.

Regeneration Programs

- End Item & Sub-component
- Upgrades & Redistribution
- Configuration Management
- Long-Term Storage
- Surveillance & Inspection
- Pre-Positioned Stock
- COSIS
- Asset Management
- Inventory Management
- Readiness Programs
- Container Programs
- Consolidation

Containerization and Assembly

The depot's kitting and assembly capability includes prototyping configuration, inspection and assessment of returns, replacements, preservation and packaging, equipment testing, containerization and shipment.



High-priority equipment and kits processed through Sierra's aerial port operations include High Mobility Multipurpose Wheeled Vehicle (HMMWV), Palletized Load System/Heavy Expanded Mobility Tactical Trucks (PLS/HEMTT) Armor Door Kits, M939 Add on Armor (AoA) Kits, and External Auxiliary Power Units (EAPU) ready for Military Air Shipment into theater.



SIAD's box and crate shop can make various types of modifications; shelving, blocking and bracing, crates, and boxes. In addition, this shop has the capability to provide prototype packaging. We are a self certified Wood Packaging (WPM) site.

A high standard for supplies, platform preservation, packaging, marking and packing operations is maintained for commercial to the most stringent

military standards on CONUS and OCONUS shipments.

- Modifications
- Containerization
- Kit Assembly & Upgrades

Equipment Reclamation and Redistribution (R&R)



Over the years, our R&R facility continued to receive retrograde materials from SWA, Europe, CONUS, posts, camps and stations and the operation is now the largest organization on SIAD.

Within the Retrograde, Reutilization, and Redistribution directorates, Sierra is the best at bringing a variety of “dirty” stock, identifying the material, and putting back into stock using a variety of accountable systems; SARRS – Army Retail, CIF-ISM – Clothing and Heraldry, Army War Reserve Deployment System/Property Book Unit Supply Enhances (AWRDS/PBUSE) – for Non-Standard Equipment and then shipping to customers worldwide.



For the clothing mission, Sierra’s focus was initially Active Army or Deployed units. The depot has expanded into X-Ray and repair of body armor for the Army and Marine Corps. Turn-in actions for Air Force and personnel that were temporarily assigned to Army units are processed at Sierra. Another modifications requested by the Clothing and Heraldry Office performed by Sierra personnel, is supply Soldiers with new protective equipment immediately. The following pictures are a representation of the type of work performed in this area.

Container Rotator

SIAD provides logistical support to the Warfighter. Sierra ships supplies and equipment in ISO, TRICON and MIL-VAN shipping containers via truck, rail, boat, and air. The shipping containers must be in fully operational condition to protect the contents in transit.



Prior to shipping, SIAD inspects and repairs any damage on the containers. Repairs usually consist of fixing dents, removing rust, and painting. During the repair process one recurring step is the rotating of the containers to different positions so the workers have access to all sides. Prior to 1996, this was labor intensive that required four employees and multiple forklifts.

A group of employees took the initiative and devised a safe, more efficient way to rotate the containers. Using the idea of a rotisserie, they designed and built the “Container Rotator.” The Rotator reduced the total handling time from several hours to 20-minutes, and manpower from four to two employees. In 1999, Sierra received



a U.S. patent for the Container Rotator. Then in 2007, the design was modified to enable shipment of the Container Rotator inside a 20-foot container. As a result, shipment costs were reduced and additional savings were provided to the customer.

SIAD is an example of an organization that acknowledges the importance of leveraging the creativity of its workforce in order to transform its culture and business practices. Our ability to fulfill its mission of supporting the Warfighter depends in large part on the extent to which it can develop new capabilities. SIAD has acknowledged the importance of change within the military and supporting organizations. Indeed, creativity and innovation have been identified by the Office of the Secretary of Defense (OSD) as ranking among the most effective means for facilitating the changes necessary for maintaining a competitive advantage.

**Sierra embraces the same motto as AMC -
“Sustaining the Strength of the Nation.”**



Production Profile

Heavy Equipment Transporter (HET)

- Winch Drum
- Transfer Case Pilot
- Axel

Hospital MMRP COSIS (USAMMA)

- REFER
- 4K Forklift
- 100K Generators 1&2
- FDECU 1&2



- M1022 Dolly Set
- H82/83 Heater

ASIOE COSIS 1&2

- REFERS
- 100k Gen
- Forklift
- M1022 Dolly



- FDECUs
- 100K GEN

Care of Supplies in Storage (COSIS)

- M969
- M872
- M1076
- M1102
- SEW
- HMEE
- M9000 Fuel Tanker

Fuel System Supply Point (FSSP)

- 800k
- 300k
- Sparks Roller
- M149A2 Trailer, Tank
- 300k Fuel System Supply Point (FSSP)
- 5-Mile Pipe Assembly Inland Petroleum Distribution System (IPDS)
- 120 Fuel System Supply Point (FSSP) Assembly



- TACOM - Fuel System Supply Point (FSSP) 120K New Builds
- Fuel Tanks MAXX VEH

MRAP

- Maxx Pro Kit Storage
- Divested Storage
- FMTV Cab Shipping Prep



- LAMS Force Provider

FRAG 5 Kits

- M1165A1(HMMWV)
- M1167
- M1152A1(HMMWV)
- FRAG 7 Kits M1151A1
- MRAP Internal Drive Gear Kits



Foreign Military Sales (FMS)/ BII Kits/Armor Assembly

- M109A5 Howitzer Track Pull
- AFARS
- Inspect M1A1 Tanks, Prep, Parts Pull Warehousing, Storage, and Mechanical Servicing
- Flat Rack M1077A1 Reset
- OCIE RESERVE – CIF Management



- EoFLC – End of First Life Center
- OCIE – Retrograde, Reset
- Military Air Deployment



through Amedee AF

- M88A1
- M109A6 SP, Howitzer
- M1126 (ICV) (MPK)
- M1126 (ICV) (ELK)
- M1128 (MGS) (HPK)
- M1133 (MEV/MCV) (HPK)
- M1126 (ICV) (HPK)
- M1135 (NBCRV) (HPK)
- M1135 (NBCRV) (ELK)
- M1128 (MGS) (ELK)

Reverse Osmosis Water Purification System (ROWPU)

- 600 GPH
- 3K



- Tactical Water Purification System (TWPS)
- Lightweight Water Purification System (LWPS)
- Forward Area Water Purification System
- 40K Water Storage & Distribution System
- M1112 Water Trailer
- 600 GPM PUMP Repair

Other

- 12-Head Shower System
- TUSK Armor Kits and Storage
- M1077 Flattrack
- ESAPI Repair – Body Armor

- M2 Bailey Bridge
- M149A2 Trailer Reset
- TACOM-A M1 TANK PARTS PULL VARI



- M901 LAV Turret Kitting
- Retail Material Receipt/Warehousing/Accountability/Shipping
- M3 Flattrack RESET

Quality Statement

Sierra Army Depot ensures that customer quality objectives are established and clearly defined/ documented at all relevant functions and are measurable and consistent with the quality policy. As an organization, our internal objectives focus on Quality, Cost and Execution, and these objectives are reviewed during the Organic Industrial Base Review process.

Our Quality Assurance (QA) functions fully support the ISO 9001: 2001-2008 standard.



Tobyhanna Army Depot (TYAD)

Purpose

To provide worldwide Depot and Field level expertise to enhance the Warfighter's capabilities and readiness.

Vision

The Department of Defense (DoD) Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Logistics Support Center of Choice for Warfighter Readiness and Transformation.

Mission

Provide Superior Logistics Support, Sustainment, Manufacturing, Integration, and Field Support for C4ISR Systems for the Joint Warfighter - Worldwide.



TYAD



Tobyhanna Army Depot is an electronics maintenance facility in the Department of Defense (DoD). The depot's mission is total sustainment, including design, manufacture, repair and overhaul of hundreds of electronic systems. They include satellite terminals, radio and radar systems, telephones, electro-optics, night vision and anti-intrusion devices, airborne surveillance equipment, navigational instruments, electronic warfare, and guidance and control systems for tactical missiles. Tobyhanna is DoD's recognized leader in the areas of automated test equipment, systems integration and downsizing of electronics systems.

TYAD is specialized in providing world-class logistics support for C4ISR systems across the DoD. TYAD's talented workforce, electronics expertise, latest technologies and business management techniques ensure the depot is the provider of choice for fabrication, electronic repair, engineering design, systems integration, technology insertion, automated test equipment and field support of DoD's joint C4ISR systems, as well as missile guidance and control systems.



Significant Achievements

TYAD has earned and maintained the following certifications which are a reflection of our employees' dedication of to achieving the highest standards in quality, environmental and safety:

ISO 9001:2008



TYAD is an International Organization for Standardization (ISO) 9001, registered for Quality Management Standards. The scope of this registration is applicable to repair, overhaul, fabrication, power projection and logistics support of communications electronics equipment and systems to include Satellite Communications (SATCOM), air traffic control, Electro-Optics/ Night Vision (EO/NV), ground support equipment, command, control computers, avionics, range threat, radio, surveillance, communication, intelligence electronic warfare, missile guidance & control, and design and development supporting integration of communications electronics systems.

AS9100:2009

TYAD is AS9100:2009 Rev. C registered. The scope of this registration is applicable to overhaul, modification, manufacture and related processing of defense systems ranging from missiles, aviation components, cabling and associated assets, which includes work on assets of U.S. government agencies, Foreign Military Sales (FMS) and private contractors.

AS9110:2009

TYAD is AS9110:2009 Rev. A registered. The scope of this registration is applicable to overhaul, modification, maintenance and related processing of defense systems ranging from missiles, aviation components, cabling and associated assets. Includes work on assets of U.S. government agencies, FMS and private contractors.

ISO 14001:2004

TYAD is ISO 14001:2004 registered for Environmental Management Standards. The scope of this registration is applicable to repair, overhaul integration, fabrication, power projection and logistics support activities of communications electronics equipment and systems, industrial support processes, and facility and equipment maintenance at TYAD.

OHSAS 18001:2008

The Occupational Health and Safety Management Standard is applicable to all activities, services, repair, overhaul, integration, fabrication, power projection and logistics support of communications electronics equipment and systems, and industrial support processes, facility and equipment maintenance.

Shingo Recognition



- 2012 Shingo Prize for Excellence in Manufacturing-Silver for the Communications Security (COMSEC) Value Stream
- 2011 Shingo Prize for Excellence in Manufacturing-Silver for the AN/MST-T1(V) Miniature Multiple Threat Emitter (Mini-MUTES)
- 2010 Shingo Prize for Operational Excellence-Bronze for the AIM-9 Sidewinder
- 2008 Shingo Prize for Excellence in Manufacturing-Bronze for the AN/TYQ-23 Tactical Air Operations Module
- 2008 Shingo Prize for Excellence in Manufacturing-Bronze for the AN/ASM-189 Maintenance Electronic Shop Van

- 2007 Shingo Prize for Excellence in Manufacturing-Gold for the AN/TPQ-36 Firefinder System Antenna Receiver Group
- 2006 Shingo Prize for Excellence in Manufacturing-Bronze for the AN/TPS-75 Air Defense Radar

Lean Six Sigma



As the DoD deals with increasing missions and limited resources, TYAD is constantly searching for ways to improve our processes and methodologies in order to best serve the Warfighter. We have adopted Lean Six Sigma as our primary means of Continuous Process Improvement.

Lean Manufacturing is an operational system derived from the Toyota Production System. Its key objective is to eliminate waste and reduce work that does not add value in the eyes of the customer. Lean Manufacturing often reduces the cycle time of an asset and aims to decrease the time between a customer order and actual shipment. The benefits of Lean are improved profitability, higher customer satisfaction rates and higher quality.

Continuous Improvement Metrics:

- Flow Time (Repair Cycle Time), a 25% Reduction
- Labor Cost (Hours), a 10% Reduction
- Sustainment (Scorecard), a 85% Increase
- Work-In-Process (WIP, # Assets), a 25% Reduction
- Capacity/Throughput, a 25% Increase

Robust program since FY02:

- 1,127 Events Since Inception
- 94% Total Workforce Participation
- \$215M in Savings/Cost Avoidance

Joint Electronics Designations



The Army has designated Tobyhanna as its Center of Industrial and Technical Excellence (CITE) for communications- electronics, radar, and missile guidance and control. The Air Force has designated Tobyhanna as its Technical Source of Repair for command, control, communications and intelligence systems.

- Army Center of Industrial and Technical Excellence for C4ISR and Electronics, Avionics, and Missile Guidance and Control.
- Air Force Technology Repair Center for Command, Control, Communications, Computers and Intelligence and Tactical Missiles.

Why Partner with TYAD?

TYAD welcomes all companies interested in partnership opportunities. Successful partnerships are built upon mutual trust and our staff will assist you through the process to ensure successful teaming/partnering relationship. TYAD has an established record of maintaining enduring teaming relationships with corporations through which mutual goals are accomplished and superior-quality services are provided. Our capabilities reflect a depth of expertise that allow us to take on a broad range of programs. Our services allow partners to expand their technology/capabilities and avoid generating extensive and unnecessary overhead.

TYADs logistics footprint throughout the continental United States, Europe, Asia and theaters of operation allow private industry to take full advantage of mature infrastructure to provide full logistics support to their programs in the field, as well as utilize our vast facility located in Northeastern Pennsylvania.



Partnerships are developed based on company requirements. TYADs dedicated specialists participate and respond to every step of the process, from developing a Statement of Work to writing a subcontract. TYAD can also partner and assist in writing proposals in response to competitive requests issued by DoD agencies. Partnering with TYAD allows private industry to utilize the organic industrial base to complement their own capabilities, providing a win-win situation for both the industry and the government. Partnering is not a competition, but a team working together to support the Warfighter and provide the most cost-effective, highest quality products and services.

For more partnering information, visit our website: www.tobyhanna.army.mil and select the Business Opportunities link or call 877-ASKTOBY.



Joint C4ISR Logistics Provider

Capabilities

Command, Control and Computer Systems

TYAD repairs, tests, overhauls, integrates and modifies computerized equipment/ peripherals, Test Measurement & Diagnostic Equipment, telecommunications equipment, Automated Test Equipment (ATE), tactical artillery systems and associated fire control systems.

Field Service Representatives (FSRs) conduct worldwide fieldings to include Total Package

Fieldings, computer system integration, demilitarization and assembly of computerized equipment/peripherals.



Systems Supported

- Command Post Systems & Integration (CPS&I)
- AN/TSC-147 Joint Tactical Data Link System
- AN/TYQ-23 (V4/V5) Tactical Air Operations Module
- AN/TSQ-232 Air Defense and Airspace Management Cell
- Advanced Field Artillery Data System
- Language Labs
- Medical Communications for Casualty Care
- Combat Service-Support Automated Information System
- AN/TSM-191(V)3 Integrated Family of Test Equipment (IFTE)

Communications Systems

TYAD performs overhaul, repair, modification, conversion and technical assembly of communications-electronics equipment, including shelters, vans, trailers, and digitized equipment in support of electronic configurations.

TYAD electronics and telecommunications technicians, mechanics, and engineers provide communications support with the utilization of dedicated facilities, such as Radio Frequency (RF) Shielded Rooms and the Tactical End Item

Repair Facility, and specialized equipment, such as ATE, Antenna Ranges, Mock-ups, PACE Mantis Soldering Stations, Mass Spectrometer Leak Test Stations and various additional test sets.



Systems Supported

- AN/TRC-190 Line-of-Sight (LOS) Multichannel Radio Terminal
- AN/TRC-170 Tropospheric Scatter Microwave Radio Terminal
- AN/TRC-220 Tactical Air Control Party-Modernization
- Standardized Integrated Command Post Shelter
- Single-Channel Ground & Airborne Radio System
- AN/VRC-103 Multi-Band Vehicle Radio
- AN/VRC-104 Radio Installation Kits
- AN/PRC-117 Radio Set
- AN/PRC-150 Radio Set
- AN/PRC-152 Multi-Band Handheld Radio
- AN/PRC-148 Multi-Band Inter/Intra Team Radio
- Enhanced Position Location Reporting System
- iRobot 310 Small Unmanned Ground Vehicle
- AN/PRC-112 Radio Set
- AN/VIC-3 Vehicle Intercom System
- AN/GRC-245 High Capacity LOS Radio

- AN/GRC-239 Troop Satellite Support Radio
- AN/GRC-103 Radio Set
- AN/GRC-212 Radio Set
- AN/TSW-7A Air Traffic Controller

Communications Security (COMSEC)

TYAD receives stores, maintains accountability and issues COMSEC and Information Security equipment and material.



TYAD electronics technicians, mechanics, supply technicians, instructors and logistics management specialists provide secure demilitarization and disposal capabilities, as well as COMSEC maintenance sustainment training for the Joint Warfighter via COMSEC Forward Repair Activities (FRAs). The 177,000 square foot COMSEC mission facility serves as the Alternate Key Loading Installation Facility and Sensitive Compartmental Information Facility in support of COMSEC functions such as Secure Telecommunications and Inspection, CORE Systems Production, Accountability and Documentation, Receiving & Storage, Shipping & Packaging and Maintenance Sustainment & Training. Various specialized equipment supports the COMSEC mission such as ST-51 ATE, ST-58 Common Fill Device, ST-34 ATE, STX-34 & 34A Trunk Encryption Devices, ST-81 Trunk Encryption Equipment and ST-20 Identification Friend or Foe (IFF) Tester.

Systems Supported

- AN/PYQ-10 Simple Key Loader
- KIV-7M
- AN/CYZ-10



- KG-250
- KGV-72
- KG-175D
- Secure Phones
- Secure Mobile Environment Portable Electronic Devices

Satellite Communications

TYAD performs overhaul, repair, alignment, modification, test system/site integration, orientation training and technical field support to include worldwide installation and de-installation of Tactical and Strategic Military SATCOM employed in fixed and mobile configurations.



Multi-skilled technical assistance repair teams, technicians and engineers provide engineering design, interoperability testing, configuration management, network system integration and technical support for various SATCOM networks, systems and equipment for the Joint Warfighter.

Dedicated facilities support the SATCOM missions such as the SATCOM Mission Facility, Military Strategic tactical Radar Support Facility, Tactical/Strategic Terminal Test Sites, Tactical Antenna Repair Facility, Strategic Antenna Alignment & Repair Facility, Anechoic Chamber, Digital Communications Satellite Subsystem (DCSS) Prototype Room, DCSS Staging Tactical End Item Repair Facilities.

Specialized equipment supporting the SATCOM missions include Satellite Simulator, Satellite Emulator, Modular ATE, Antenna Pedestal Automatic Test Station, Scanners, L-139 Digital/Analog Tester, Traveling Wave Tube Test Station, HP 3070 Test Stations, Tactical Simulator Test Set and Portable Test Stations.

Systems Supported

- AN/TSC-156 Phoenix
- AN/TSC-154 Secure Mobile Anti-Jam Reliable Tactical-Terminal
- AN/TSC-93 Tactical Satellite Terminal
- Lambda Antenna
- AS-4429/D Large Aperture Multi-Band Deployable Antenna
- AN/GSC-39/52
- Modernization Enterprise Terminal
- AN/TSC-167 & AN/TSC-185 (Satellite Transportable Terminal)
- OE-222A/G Antenna
- OE-371 Antenna
- AS-3199 Antenna
- AN/PSC-11 Single Channel Anti-Jam Man Portable
- Global Broadcast System

Avionics/Intelligence Electronic Warfare Systems

TYAD overhauls, repairs, tests, modifies, converts, demilitarizes and provides technical assembly and installation for airborne and electronic warfare systems and associated equipment for the Joint Warfighter.

Electronic instruments and electronic integrated system mechanics provide an array of expertise in airborne communications/instrumentation/gyro, inertial and dopplar navigation and airborne and ground countermeasures systems.

Intelligence Electronic Warfare Systems FSRs provide technical and logistical expertise in support of the Guardrail/Common Sensor (GR/CS) Signal Intelligence Systems and subsystems located worldwide.



The avionics and intelligence electronic warfare systems missions utilize a multitude of specialized test equipment such as Tektronix Model 496, Spectrum Analyzer; Agilent Model 34401A, 6½ Digital Multimeter; Tektronix Model 2467B, 400 MHz Oscilloscope; Gigatronics Model 8542, Universal Power Meter; Various Unique System Hot Mock Mock-ups and IFTE.

Systems Supported

- Depth Detector Type II
- AN/AVR-2B(V) Laser Detection Set
- AN/APR-39 Radar Signal Detecting Set
- Defense Advanced Global Positioning System Receiver
- Vertical Instrument Display System
- AN/ALQ-144 Countermeasure Set
- AN/AAR-57 Common Missile Warning System
- AN/APX-118 IFF Transponder
- GR/CS Signal Intelligence Systems

- AN/APX-123 Transponder
- AN/ARC-220/231 Receiver/Transmitter Radios
- Counter Remote Controlled Improvised Explosive Device (IED) Electronic Warfare (CREW)
- Warlock Family of Electronic Countermeasures Systems
- IED Countermeasures Systems

Radar Systems and Equipment

With decades of experience and advanced technology, TYAD performs overhaul, repair, test, modification, conversion, technical assembly and installation as well as worldwide mobile depot maintenance, technical assistance and fielding of Air Defense, Air Traffic Control, Range Threat, Counterfire, Ground Surveillance, Airborne, Shipborne radar and sensor systems for U.S. Army, Air Force, Marine Corps, Navy and FMS customers.



From legacy systems to Active Phase Array systems, TYAD supports the major radar components to include the antenna, transmitter, receiver and power supply.

TYADs Integrated Antenna and Radar Range Campus provides sophisticated test capabilities for radar systems with distinct radar test sites. The multiple test pads, specialized support facilities and equipment include Anechoic Chambers; Near Field and Far Field Ranges; Tower Track Testing Facility; Live Fire Test Simulator; Protective Radome; Modified Munson Road Shake & Vibration Testing; Elevated Temperature Burn Facility; and



Rain Immersion Testing Facility. TYADs advanced ATE verifies analog and digital circuit cards, RF and Microwave components, modules and sub-systems and testing from L band to Ku band.

Systems Supported

TYAD radar capabilities support all military frequencies and missions. Some major systems supported include:

- AN/TPQ-36/37 Firefinder Radar Systems
- AN/TPQ-46 Firefinder Radar System
- AN/TPS-75 Air Defense Radar
- AN/TPN-19 Landing Control Central
- AN/TPQ-48 Lightweight Counter Mortar Radar (LCMR)
- AN/GPN-22 Radar Set
- AN/MPN-14K Radar Set
- AN/MST-T1A MUTES
- AN/MST-T1(V) Mini MUTES
- AN/TPS-59 Air Defense Radar
- AN/TPS-63B Air Defense Radar
- AN/MPS-T1 Band Simulator
- AN/VPQ-1 Tactical Radar Threat Generator
- AN/MSQ-T43 Multiple Threat Emitter
- AN/TPT-T1(V) Unmanned Threat Emitter
- AN/TSQ-T10 Joint Threat Emitter

Electro-Optics/Night Vision

TYAD overhauls, repairs, modifies, tests and installs EO/NV systems and laser and infrared components and systems.



EO/NV specialized facilities include three 10,000 class clean rooms, eight 100,000 Class Clean Rooms and two 300,000 Class Clean Rooms.

Various ATE supports the EO/NV mission area. The Automated Laser Instrumentation and Measurement System Test Station provide diagnostics and alignments on Laser Modules, M1 Tank Thermal Receiving Unit, M60 Tank Laser Systems, Bradley Fighting Vehicle subassemblies and Night Vision Goggles. The IFTE, Agilent / HP3070 Systems and Drive In Theatre Manufacturing Company (DITMCO) Test Stations are additional test equipment integral to supporting the EO/NV mission.

Systems Supported

- AN/TVS-5 Night Vision Goggles
- Driver Visual Enhancer
- Thermal Imaging Systems
- Long-Range Advanced Scout Surveillance System
- AN/TAS-4 Thermal Sight
- AN/UAS Family of Thermal Systems
- Common Remotely Operated Weapon Stations (CROWS)
- Improved Bradley Acquisition System
- Full Motion Video



Tactical Missile Systems

TYAD has full capability to overhaul, modify, test and repair missile Guidance Control Sections (GCS) and support equipment.

The TYAD Tactical Missile Facility is DoD Explosives Safety Board certified, environmentally controlled and contains Class 300,000, 10,000 and 1,000 clean rooms. Additionally, the entire Tactical Missile Facility is lightning protected, secured with restricted access, and has had a U.S. Navy approved Hazards of Electromagnetic Radiation to Ordnance survey completed.



Electronics mechanics are all fully qualified and certified by the Naval Surface Warfare Center for the U.S. Navy and U.S. Air Force in Full Range Testing, Fault Isolation and Repair.

Global Support

TYAD provides comprehensive engineering, technical and maintenance assistance to our customers at CONUS and OCONUS sites globally. Mission essential C4ISR systems are supported both in peace and during times of conflict with Sustainment, Equipment Fieldings, FSR Support, Reset and Readiness Training.



TYAD FRAs are maintenance and logistics support activities providing a forward depot level presence at numerous locations such as Germany; Korea; Kuwait; Fort Bragg, NC; Fort Hood, TX; Fort Bliss, TX; Fort Carson, CO; Fort Riley, KS; Fort Lee, VA; Joint Base Lewis-McCord, WA; Schofield Barracks, HI; Fort Wainwright, AK; Fort Drum, NY; Fort Campbell, KY; Fort Knox, KY; Huntsville, AL; Fort Benning, GA and Fort Indiantown Gap, PA.

TYAD FSRs are the first line of defense for troubleshooting, repair and unit configuration issues and are available to provide on-site technical and logistical assistance to maintain and improve overall C4ISR system performance in the field for the Joint Warfighter.

TYAD Readiness Training brings training directly to the Joint Warfighter with U.S. Army Training and Doctrine Command certified Mobile Training Teams providing formal classroom instruction and over-the-shoulder field support.

Systems Supported

- GR/CS System
- CPS&I
- Common Ground Station
- AN/TPQ-36/37 Firefinder Radar Systems
- COMSEC
- CREW/Warlock
- Base Expeditionary Targeting & Surveillance System Combined
- Tactical Unmanned Aerial Vehicle
- Movement Tracking System
- Wolfhound Radio



Cable Fabrication

TYAD fabricates cables for integration into major C4ISR systems, installation kits and various cable assemblages.



Specialized cabling equipment includes Eubanks cable stripper and cutter, Komax wire stripper, high speed cable tie wrap, harness braiding machines and heat shrink ovens.

TYAD has specialized transfer molding machines to provide cable rubber molding. With this machinery, TYAD applies transfer, injection and compression molding techniques to meet customer specifications.

TYAD provides full-service engineering support including Computer Aided Design, editing and reverse engineering. All cables are tested using a Cirris cable tester and DITMCO series automatic tester to ensure quality standards.

Systems Supported

- AN/TPQ-36/37/46 Firefinder Radar Systems
- AN/TPN-19 Air Traffic Control and Landing System

- AN/TPS-75 Air Defense Radar System
- Blue Force Tracking
- Versatile Depot Automatic Test Station
- CROWS
- Various Cable Assemblies
 - Power
 - Semi-Rigid
 - Category 5
 - Fiber Optic
 - Radio Frequency
 - Multi-leg Harness

Fabrication and Integration Support

TYAD has advanced capability to provide fabrication and integration support for all C4ISR systems to include:

- Full Structural Repair and Overhaul, including Disassembly and Integration of Shelters, Vans, Trailers, Track Trailers, and Tactical Systems such as, Radars, SATCOM Systems, Air Traffic Control and Surveillance Systems and Command and Control Systems.
- Fabrication of Mechanical, Electrical, Electronic and Electro-Mechanical Components and Assemblies
- Machining Operations Fully Equipped and Automated with Computer Numerically Controlled (CNC) Lathes, Vertical Milling Machines, Saws and Manual Lathes
- Sheet Metal Support with CNC Punch Presses, Laser Shears and Brakes
- Welding for Aluminum (MIG and TIG) and Steel (MIG and Stick)
- Repair and Fabrication for Multi-Conductor, Large Gauge Power and Fiber Optic Cables, Harnesses and Circuit Card Assemblies
- Repair and Overhaul of Electrical Distribution Systems and Environmental Control Units

- Full Integration of Cables, Junction Boxes and Shelter Utilities
- Metal Photo Fabrication of Nomenclature/ Schematic Metal, Vinyl or Plastic Nameplates, Labels and Decals
- Fabric Applications
- Woodworking



Finishing Support Operations

TYAD has advanced capability to perform the following finishing operations on any C4ISR systems and components in either the Industrial Operations Facility (IOF) or the C4ISR Finishing Center:

- Painting
- Plating
- Sandblasting
- Powder Coating
- Ultrasonic Cleaning
- Steam Cleaning
- Silk Screening
- Computerized Stenciling
- Chemical Stripping
- Structural Repairing

TYAD's C4ISR Finishing Center is equipped with sheet metal repair, blasting booths with cranes, laser paint removal and paint booths outfitted with man-lifts. There are vertical-flow, downdraft paint cabins with precise temperature and humidity controls

and 70% exhaust air recirculation. This facility can accommodate significantly large C4ISR systems. There are also flow-through blasting rooms that offer dust collection systems and 100% blasting reclamation.

TYADs IOF is equipped to refinish the multitude of component parts used in joint C4ISR systems. TYAD engages state-of-the-art automated powder coat and liquid paint lines, plating, sandblast, ultrasonic and steam cleaning to the finish these components.



Foreign Military Sales (FMS)

TYAD has support capabilities in the process of selling U.S. defense equipment, services and training to foreign militaries. TYAD has participated in FMS since 1984 and has visited several countries.



One of the major FMS programs that TYAD supports is Language Labs. TYAD personnel fabricate labs by assembling computers with commercial off the shelf hardware, installing



software, providing final testing and shipping to foreign destinations. If requested, TYAD employees travel to the country to complete the installation and provide training instruction.

Since program inception, TYAD has delivered approximately 300 systems and completed over 170 installations in countries such as Iraq, Libya, Vietnam, Morocco, Jordan, Mexico, Madagascar, Pakistan, Panama, Kyrgyzstan, Portugal, Chile, Sudan and Comoros.

Additional FMS programs include the Sidewinder Missile; Maverick Missile; Generators; Contractor Repair, which includes Flight Direction Computers, Displacement Gyros and Image Intensifiers; Tube-launched Optically Tracked WireGuided (TOW)/Infantry Fighting Vehicles, which consists of M2A1 Basic TOW, M2A2 Improved TOW, M2A2 Operation Desert Storm Bradley Eye-Safe Laser Range Finder, M2A3 Improved Bradley Acquisition System and the AN/UAS-12; and Avionics, including Transmitter Subassemblies, Horizontal Indicators, Receiver Transmitters and Countermeasures Set AN/ALQ-144.

TYAD also actively pursues Public Private Partnerships for FMS workload.

Continuous Improvement Culture

New Modernization Projects

- Radar Test Facility
- C4ISR Finishing Center
- Antenna Pattern Range
- LVD Laser Cutter
- SATCOM Antenna Testing Area



Innovation and Initiatives

- Product Development Facility
- Virtual Prototyping & Testing
- Partnering Initiatives
- Army Materiel Systems Analysis Agency
- Joint Technologies Exchange Group/ Commercial Technologies for Military Applications
- Technical Library Digitization
- Paperless Initiative
- Failure Reporting Analysis Corrective Action System Implementation
- Technology Insertion
- ATE Modernization
- Configuration Management

Facility Investment Since 2001	
\$760.2M	
Facility Renovations	\$450.0M
New Construction	\$ 38.6M
New Equipment	\$271.6M

Production Profile

TYAD provides depot-level maintenance repair and overhaul support for assigned Commodities including: radio communications; satellite communications; command, control and computers; avionics; air traffic control; surveillance; intelligence/electronic warfare; electro-optics/ night vision; range threat; missiles; ground support equipment; and fabrication in support of these signed commodities.

- State-of-the-art Facilities
- On-site Testing of Equipment
- Advanced Computer Systems
- Clean Rooms
- Production Stations
- Reference Library
- Expert Technicians

- Training
- Warranty
- Multi-disciplined Engineering
- Industrial Operations Facility
- Industrial Processing Chemical Lab

Assigned Commodities

- Communications/Communications Security
- Electro-Optics/Night Vision
- Meteorological
- Intelligence
- Avionics
- Satellite Communications
- Support Equipment
- Surveillance Radar
- Command, Control and Computers
- Navigational
- Electronic Warfare
- Manufacturing/Fabrication
- Threat Simulation Systems
- Air Traffic Control and Landing Systems

TYAD is the Provider of Choice for

- Fabrication
- Repair
- Engineering Design
- Systems Integration
- Technology Insertion
- Product Improvement
- Automated Test Equipment
- Technical Documentation Development
- Communications and Communications Security
- Electro-Optics/Night Vision
- Meteorological
- Intelligence

Processes

TYADs processes are repair and overhaul, engineering services, systems integration, mission support and worldwide technical assistance. These processes enable TYAD to provide cost effective and reliable products to meet the Warfighter's needs. The D/MP mission is to focus on continuous process improvement, productivity, quality and customer support to ensure that TYAD is responsive and ready in support of the Warfighter and Army transformation initiatives.

As a registered ISO 9001:2000 facility, TYAD has established, documented, implemented and maintained a Quality Management System that provides a high level of process integrity.

Quality Commitment

For years, TYAD has built a long-standing reputation for producing quality services and products through efficient and effective processes.

TYAD remains the depot for C4ISR by focusing solely on the Warfighter requirements.

Through the use of process improvement and TYADs implementation of Corporate Philosophy, which empowers communication and team work, 95% percent of our customers are satisfied with all performance criteria.

Production Organization

- Work Breakdown Structures
- Corrective and Preventative Action
- Program Acceptance
- Cost, Schedule and Performance

Quality Assurance Organization

- Standardization
- Final acceptance testing
- Auditing
- Warranty provisions

Quality Objectives

- Increase Turn Around Time
- Increase Customer Support and Satisfaction
- Reduce costs
- Improve Workmanship



Production Engineering

TYAD provides professional mechanical, electrical, industrial and computer engineering and technical support services. TYAD engineers are primarily responsible for supporting all maintenance shops repairing and overhauling complex C4ISR systems. In addition, TYAD engineers design and integrate complex C4ISR equipment into tactical systems using state-of-the-art Computer Aided Engineering (CAE).

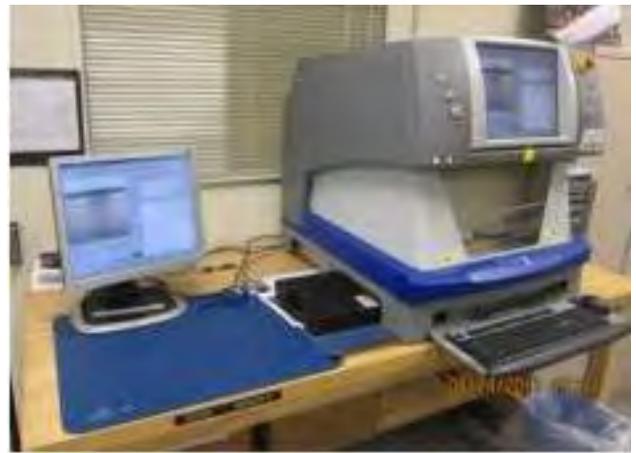


- Design, Development & Prototyping
- CAE
- Technical Manual Development
- Finite Element Analysis
- Site Surveys
- Integrated Logistics Support
- Environmental Stress Testing
- Configuration Management
- Numerical Controlled Programs
- Fluid Flow Computer Simulation
- ATE Support
- Maintenance Engineering
- Test Program Set (TPS) Development
- Diminishing Manufacturing Support
- Level of Repair Analysis
- System Fielding Support

Quality Assurance Lab

TYAD's Quality Assurance Lab has uniquely qualified staff and equipment that make it a full-service shop for first article testing, failure analysis, reverse engineering and inspection needs. The lab helps us maintain compliance with our ISO 9001 and AS 9100/9110 certifications.

TYAD employs a talented staff of engineers and certified technicians, with collectively over 100-years of experience in Communications-Electronics. (Other certifications: ISO auditor, soldering, Dye-penetrant certifications, Thermal imaging, etc.)



Our facility and staff provide full-service diagnostic capability to perform analysis of dimensional measurements, material, electrical and electronics components, and includes various inspection and diagnostic tools to support Tobyhanna's robust C4ISR maintenance operation.

TYAD is committed to delivering the quality products and services our Soldiers deserve.

Specialized Facilities & Equipment

- Engineering Lab
- Technical Reference Library
- TPS Repository
- Environmental Stress Screening Lab
- CAE Network
- Functional/Diagnostic Test Equipment
- Acceleration, Shock & Vibration Testing
- Thermal Shock Testing

- Solar Radiation Exposure
- High & Low Temperature Testing
- Rain & Immersion Testing
- Anechoic Chambers and Near Field Probes
- SATCOM Prototype Test & Training Labs
- LCMR Live-Fire Test Simulator
- Laser Live-Fire Range
- Far Field Range
- Antenna Radar Range Campus
- Tactical Missile Facility
- Tower Track Test Facility
- Elevated Burn Facility
- Modified Munson Road Test Track
- C130A Fuselage Loading Fixture
- Automated Test Equipment
- Additive Manufacturing Capability
- Single COMSEC Logistic Facility

Technical Publications and Provisioning

TYAD offers a variety of capabilities to include:

- Develop, revise and upgrade new and existing Technical Manuals including Electronic Technical Manuals and Repair Parts and Special Tools Lists
- Produce all levels and types of multi-service manuals IAW current DoD military standards and Two Level Maintenance System. Development of Preliminary Maintenance Allocation Charts
- Develop, structure and produce LSA-036 reports for building Initial Parts Master Record and update/modify Provisioning Parts Lists
- Develop graphic illustrations using Computer Aided Design software
- Prepare and review Depot Maintenance Support Plans, Logistic Support Analysis Plans, Technical Manual Plans

- Receive and evaluate contractor prepared technical data for accuracy, adequacy and consistency
- Provide Integrated Logistics Support (ILS) representatives to CECOM and MSC management, Logistics Support Analyses review teams
- Conduct planning, start-of-work, in-process reviews, with program managers, MSCs and other procuring activities to support ILS efforts
- Participate in pre-award surveys, review procurement data packages prior to award of contracts

Safety

Safety is an important aspect of TYAD's ability to support the Warfighter. Multifaceted, employee-driven safety program promotes safety at work, home and in the community to foster a complete safe culture. Safety bulletins are disseminated to all Depot personnel every week discussing potential hazards and how to reduce safety related incidents.

In FY13, the Industry average for Total Case Incident rate was 3.2 and Days-Away Restrictions/Transfers (DART) 1.7.

TYAD boasts a 1.27 for Total Case Incident rate and 1.18 for DARTs. Bottom line, TYAD is constantly and consistently taking proactive steps to increase safety throughout the workforce.

Voluntary Protection Programs (VPP)

The VPPs promote effective worksite-based safety and health. In the VPP, management, labor, and Occupational Safety and Health Administration (OSHA) establish cooperative relationships at workplaces that have implemented a comprehensive safety and health management system.





Approval into VPP is OSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health.



- 2012 Federal Energy & Water Management Award
- 2012 Assistant Secretary of the Army Environmental Quality Award
- 2011 Army Materiel Command (AMC) Environmental Sustainability Award, and 2011 Green Initiatives
- 2011 Net Zero Water Pilot Facility for the Department of the Army
- 2010 Secretary of the Army Environmental Award for Environmental Quality - Industrial Installation
- 2011 Greater Scranton Chamber of Commerce, Scranton Awards for Growth and Excellence Best Practices in Technology and Innovation, Green Practices
- 2012 Greater Scranton Chamber of Commerce, Environmental Committee's Save the Planet Award in the Government Category
- 2010, 2008, 2007 Pocono Mountain Chamber of Commerce Environmental Save Our Planet Award, Government Category Safety

- OSHAVPP Designation, Star Status 2000 (1st in DoD) - Awarded Recertification in 2006
- 2012 AMC Safety Award
- Fiscal Year (FY) 2010 AMC Safety Award, Industrial Operations, Installation Level
- FY10 & FY08 Secretary of the Army and Chief of Staff, Army, Army Industrial Operations Safety Award

Risk Management

Composite Risk Management (CRM) is implemented on a daily basis. The main goal of CRM is to identify and mitigate risk as much as possible while achieving the mission. Employees at TYAD receive CRM training continuously throughout their career.

In addition, TYAD also has a robust Security Department for Force Protection and an Environmental Division that focuses on being environmental stewards to the local community.



Tooele Army Depot (TEAD)

Purpose

Tooele Army Depot (TEAD) is “Always at the Ready,” serving as an active joint ammunition operations/storage site and a life cycle engineering installation for the design, development, manufacture and fielding of munitions systems and ammunition peculiar equipment (APE) throughout the world.

Vision

To be DOD’s western region conventional ammunition hub and the DOD ammunition peculiar equipment center.

Mission

Conventional ammunition hub supporting Warfighter readiness through superior receipt, storage, issue, demil and renovation of conventional ammo and the design, manufacture, fielding and maintenance of ammo peculiar equipment.

TEAD



Tooele Army Depot (TEAD) is responsible for shipping, storing, receiving, inspecting, demilitarizing, and maintaining training and war reserve conventional ammunition. Tooele’s Ammunition Equipment Directorate, designs and manufacturers ammunition peculiar equipment (APE) used in maintenance and demilitarization of munitions for all services of DoD.



Significant Achievements



TEAD currently holds external certifications in OHSAS 18001 (Safety), International Organization for Standardization (ISO) 9001:2008 (Ammo shipping/receiving and Ammo Equipment & Mfg) and ISO 14001 (Environmental).



Lean Six Sigma

Data + Knowledge= Excellence



TEAD has almost 10 years of experience in the implementation of Continuous Improvement (CI) throughout the depot. Since 2004, the depot has completed over 110 projects with a total savings,

cost avoidance or revenue generation of almost \$16m dollars. Process Improvement initiatives have addressed a wide range of depot missions and functions to include shipping, receiving, manufacturing, hiring practices, maintenance, demilitarization, inventory, storage, and quality to just name a few.

The depots CI philosophy primarily based on utilizing the process improvement tools related to Lean and Six Sigma. The focus of Lean is identifying and eliminating “muda” (waste or any activity that does not add value) while improving process efficiencies.

Lean can mean less and more:

- Less Waste
- Shorter Cycle Time
- Less Movement
- Less Rework
- More Employee Empowerment
- More Capability
- More Productivity
- More Satisfied Customers

The focus of Six Sigma is to recognize opportunities to eliminate defects as defined by customers for any process, product or service. Six Sigma represents a numerical goal of 3.4 defects per million opportunities. Six Sigma recognized variation equals waste and requires data driven decision making.

TEAD is one of the Lean Six Sigma leaders in JMC with a trained and motivated workforce of Green Belts and Black Belts empowered to make a difference in their workplace and improve their processes. TEAD has shown true commitment in

integrating process improvement into the fabric of everyday operations to meet our customer demands of faster, better, cheaper.

Center of Industrial and Technical Excellence (CITE)



On March 1, 2010, the depot was officially designated by the Secretary of the Army as a Center of Industrial and Technical Excellence (CITE) for Ammunition Peculiar Equipment (APE).

Why Partner with the Tooole?

TEAD will deliver the right ammunition on time to meet both training and Warfighter needs. Our organic base has the right facilities, equipment, and trained workforce “on the ground” to meet the outload requirements. TEAD specializes in ammunition logistics and the engineering, design, proto-typing and manufacture of ammunition-related equipment.

Additionally, TEAD’s services include design, fabrication, equipment integration, and specialized expertise in energetics and hazardous materials. TEAD’s equipment and services are used throughout the world. In its 70-plus year history as an ammunition management and development facility, TEAD has established the infrastructure, specialized workforce, and proven procedures necessary to meet today’s technological challenges quickly and effectively. In sustaining organic capabilities we have maximized the use of our organic capacity through a number of direct sales, public-private teaming and work-share arrangements.

The unique bilateral structure of TEAD, with a dedicated ammunitions group and a dedicated engineering group, enables us to meet the most taxing challenges dealing with explosives, propellants, chemical agents and other hazardous materials.

Ammunition



- Motor Vehicle Operators
- Traffic Management
- Painters
- Explosive Operators
- Logistic Management
- Quality Assurance
- Millwrights

Design & Fabrication



- Woodworkers
- Toolmakers
- Welders
- Sheet metal mechanics
- Machinists

ENGINEERING



- Electrical Engineering
- Mechanical Engineering
- Chemical Engineering
- Industrial Engineering
- Environmental Engineering
- General Engineering

Technical Services



- Safety/Security
- Logistics
- Projects Planning & Analysis
- Inspections
- Contracting
- Tech Data Packages
- Field Support
- Turnkey Operations

TEAD has successfully partnered with both government and commercial clients. Contact the Depot's Business Development staff at (435) 833-5073. Fax: (435) 833-2810 or go to our website at www.tooele.army.mil for additional partnering information. Our experienced staff can help develop your ideas and can explain the laws surrounding Public Private Partnership.



Capabilities



Tooele offers a wide range of products and services for our government and commercial clients.

Our unique skills, facilities, and capabilities are ideal for projects requiring:

- Ammunition Maintenance and Demilitarization
- Production-level Manufacturing
- Equipment Design, Fabrication, Prototyping and Testing
- Robotics
- Engineering
- Function Testing
- Ammunition Peculiar Equipment
- Ammunition Explosives Test Facility

Manufacturing and Engineering

TEAD's Engineering and Technology team delivers a wide range of solutions for ammunition, hazardous materials and routine manufacturing to clients worldwide. We utilize the latest in Computer Aided Drawings systems (CAD). Our ability to develop equipment for the maintenance or disposal of conventional and chemical ammunition is proven.

TEAD designs and delivers deactivation and flashing furnaces, autoclaves, disassembly machines, and complete demilitarization facilities. Every project however large or small is delivered with the same dedication to quality. We deliver as promised.



Ammunition Peculiar Equipment

TEAD is the National Inventory Control Point for Ammunition Peculiar Equipment (APE). APE is equipment specifically designed for ammunition specific operations. We have over 370 types of APE available for worldwide government and commercial use. TEAD personnel can design and develop the specialized equipment you need for maintenance, demilitarization, inspection or any other ammunition specific operations. We upgrade outdated APE, and also design and fabricate new APE to your specifications.



The expert staff of TEAD's pilot model shop manufactures superior prototype and first engineering production of APE and other ammunition or non-ammunition-related equipment. Our facility offers the newest technology in Plasma Arc, Laser jet, and Water Jet Cutting, CNC lathes and 5-Axis milling, sheet

metal fabrication, and welding machines. Drawing from more than 70-years of experience, we can offer our government and commercial customers the finest in milling and manufacturing technology.

Ammunition and Equipment Testing Range

TEAD's unique test range enable destructive or non-destructive testing on ammunition and high explosives. Our engineering team can test and perform measurements in isolated areas with a variety of sophisticated equipment. TEAD's clients can use our test range for prototype testing of new products or equipment.

Robotics, Material Handling and Remote Control Vehicles



TEAD leads the industry in the design and manufacture of robotic and autonomous vehicles for ammunition operations. Robotics is applicable to both ammunition and non-ammunition related operations. Our robotic applications provide precise, repeatable, and efficient operations. TEAD has designed applications for handling projectiles, disassembly operations, defusing, demining, and even paint stripping. Our robotic applications improve productivity and remove operators from potentially hazardous environments.

TEAD also offers fully automated material handling systems which integrate the most advanced technologies. Our robotics engineering team couples proven expertise with a firm commitment to quality. Your robotics-engineering project will be completed on time and to your satisfaction.

Consulting

TEAD has the technological personnel and resources to quickly meet your consulting requirements. We have personnel dedicated in our engineering, technical and production staff. They have the expertise to safely and effectively deal with diverse ammunition-related needs. Proof of what TEAD can do is in our history.



For over fifty-years, TEAD has delivered proven solutions to some of the world's most hazardous engineering problems like: explosives, propellants and chemical agents. Supporting these solutions requires in-depth research, data gathering, proof testing, environmental studies, reports and analysis. TEAD has the resources and knowledge to meet the complex needs of your toughest engineering projects.

Power Projection

TEAD boasts a major rail line, two interstate highways, and three airports in close proximity to our facility. We are the hub of the West for rail, truck and air shipments and can employ one-day delivery to West Coast ports. TEAD's shipment capabilities and major loading pads make us an installation in containerized and Container Roll In/Out Platform (CROP) movements of ammunition and material.

Our experience in power projection includes being a global logistics provider for all of the Armed Services. TEAD is also the western Centralized Ammunition Management facility in support of mobilization and training requirements.



Surveillance Function Testing and Mobile Inspections

TEAD offers a variety of ammunition inspections that insure the safe receipt, storage and issue of ammunition. We also offer function and reliability testing of ammunition. TEAD has the equipment, permitted test range and expertise of trained Quality Assurance Specialists to perform reliability testing on flares, mines, grenades and similar type munitions safely and effectively. The TEAD Mobile Ammunition Inspection team performs detailed inspections of munitions all around the world for all the armed services.



Maintenance and Production

TEAD meets the maintenance and production needs of both government and commercial clients. We have facilities with specialized equipment, and extensive resources dedicated to diverse maintenance and production needs.

Demilitarization



TEAD offers complete disposal services for aging and obsolete ammunition. Our demilitarization methods and capabilities include:

- Open Detonation
- Open Burn
- Static Fire methods
- Incineration
- R3 Technology to include Disassembly, Hydrolysis, and Super Critical Water Oxidation

Storage

Tooele Valley is located within the western desert. The low humidity of our climate is ideal for long-term storage of ammunition. TEAD has lots of dedicated storage space. We store all types of ammunition for the Air Force, Army, Marine Corps, Aviation Missile Command, Navy, and National Guard.

Planning and Project Management

TEAD offers full-life cycle planning and project management support for any ammunition program, no matter how complex. Our team of ammunition planners is prepared to perform in-depth research, deliver detailed standard operating procedures, and ensure safe operations through comprehensive hazard analysis.

TEAD has the experience and knowledge to set-up production lines for maximum efficiency,

train personnel on equipment operation and prepare detailed After Action Reports (AAR) upon completion. You can utilize TEAD's services in planning and project management on both a limited and full-scale basis.

Container Repair Facility



TEAD repair MILVAN or shipping containers. All containers are inspected and repaired to meet ISO container requirements.

Training



TEAD offers an ideal, real world environment for Reserve and National Guard training exercises. We have successfully supported Golden Cargo, Ordnance-On-The-Move and Noble Eagle exercises. Our infrastructure supports a real world training experience for all the Joint Services.

TEAD receives workload primarily from the Joint Munitions Command (JMC) Single Manager for Conventional Ammunition (SMCA). Other sources of work come from AMCOM, various services, third-party customers and private entities.



Production Profile

Maintenance Projects

- MAU-93 Fins
- CBUs Wind Corrected
- Marine Corps 81MM Mortar (C871)
- Marine Corps 25MM Ctg (A975)
- Repair Government MILVANs
- Repair RAM Containers
- Inspect 50 Cal

Demil Projects

- Re-palletize Blasting Caps
- Function Test Flares
- Marine Corps Demo Charges
- 40MM Waxing (Various Colors)



- Underwater Mines
- 20MM Furnace
- Hydrolysis Equipment



- Demil Misc Deact Furnace
- Disassemble 20/25/30MM
- Demil 152MM
- Disassemble/Recycle 20MM
- Static Fire Various Rockets

Supply Depots Operations/Misc Projects



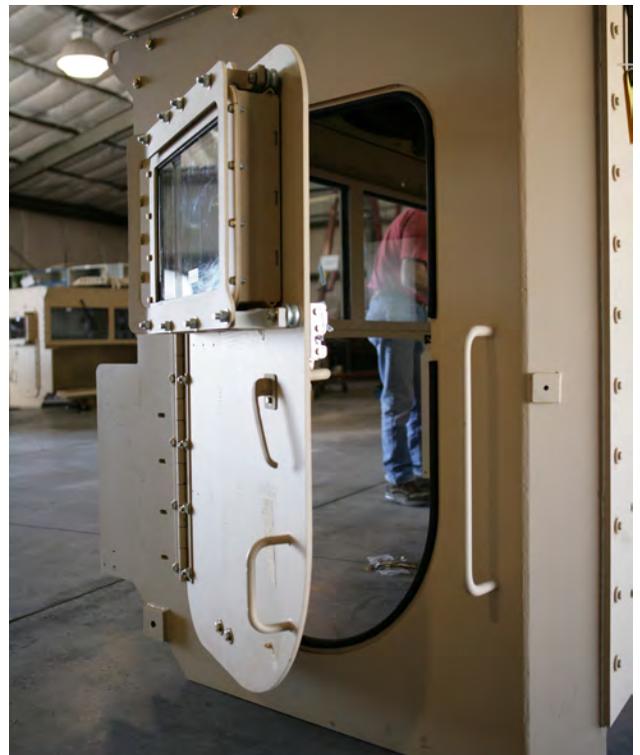
- Issue War Reserves
- Process RF Tags
- Re-warehouse 750 Lb Bombs
- MILVAN Inspect/Repair
- Rail Support Industrial
- Store Air Force Hot Gas Generator
- Re-warehouse L Magazines
- Storage War Reserves
- Training RAM Missiles

Ammunition Peculiar Equipment (APE) Programs

- Pink Water Filtration System
- Robotics
- Parts and Kits
- Plastic Munitions Incineration
- APE 1236M2 Japan Site Support
- APE 1401 Autoclave Korea
- MCAAP Furnace Training
- Saudi FMS APE Programs
- Navy Mobile Tower
- APE CAT Technical Support
- APE Project Proposal Engineering



- APE PC&H
- APE 2048 Feed Rate Test
- APE 1236M2 Metal Monitor
- APE Operational Site Training
- APE 1408M1 Design Prototype
- Navy Demil Test
- Armor Plating Kits



Quality Commitment

Tooele Army Depot is committed to providing the customers with services and products consistent with their expectations. Products shipped to the customer will be suitable for their intended purpose, using the desired transportation mode and in the appropriate configuration. Shipments will be within specified timeframe and regulatory guidance, ensuring the ultimate customer, the Warfighter, is provided with serviceable and quality products. TEAD is fully dedicated to implementing continuous quality improvements while meeting our mission as JMC's preeminent depot.

Management demonstrates a commitment to quality by providing the resources and establishing and reviewing quality objectives that will promote continual improvement and achieve total quality performance.

Quality Assurance Organization

TEAD has a fully qualified staff of Quality Assurance Specialist (Ammunition Surveillance) and Quality Assurance Specialist (Manufacturing). Quality Objectives: Since quality objectives change as time goes on TEAD aligns their objectives with the customer requirements to ensure customer satisfaction.

Engineering

As previously mentioned, TEAD has a fully trained staff of engineers in multiple disciplines to ensure the ongoing quality of all products and services.



TEAD Ammunition Equipment Directorate's goal is to be a successful manufacturer of all product lines within the organization. This is accomplished by ensuring customer satisfaction, meeting or exceeding customer expectations, and satisfying the requirements of the quality management system per ISO 9001:2008 standards.





Safety

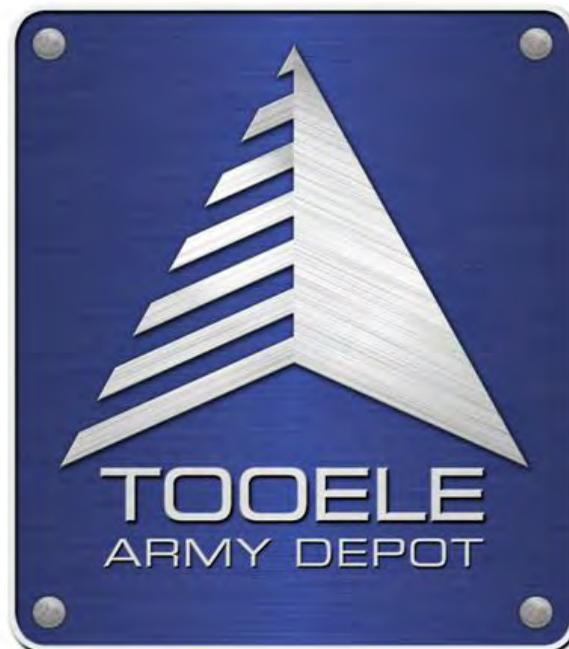


Safety is an ongoing priority at TEAD. This is an additional process that we use control costs. TEAD consistently has a lower Total Case Injury Rate (TCIR) than the Bureau of Labor Statistics industry average.

Risk Management



TEAD utilizes Risk management in the identification, assessment, and prioritization of risks throughout the installation. Through the use of different types of risk analysis tools for ongoing operations and equipment development and design TEAD is able to reduce its liability internally and in some cases externally to our customers. Through the identification of risk associated with ongoing or upcoming operations allows TEAD to prioritize expenditures in an effective manner?



Watervliet Arsenal (WVA)

Purpose

To continue to produce the vital weapons, parts, and wartime material that have helped hundreds of thousands of the nation's Warfighters.

Mission

To provide manufacturing, engineering, procurement, and quality assurance for cannons, mortars, and associated materiel throughout the acquisition life cycle.

Vision

To be Department of Defense's manufacturer of choice specializing in cannons, mortars, associated materiel using complex machining for U.S. Armed Forces, allies and commercial industry

WVA



Watervliet Arsenal (WVA) is an manufacturing facility. WVA is the oldest, continuously active arsenal in the United States, having begun operations during the War of 1812. After decades of producing ammunition cartridges, wooden gun carriages and saddles, the arsenal was chosen in 1887 to be the nation's cannon factory. The arsenal celebrated its 200th anniversary on July 14, 2013. And so, for more than 200 years, WVA has produced the critical weapons, parts, and wartime material that have helped hundreds of thousands of the nation's Warfighters to come home safely.

WVA is relied upon by U.S. and foreign militaries to produce the most advanced, high-tech, high-powered weaponry for cannon, howitzer, and mortar systems.

WVA is also home to the Army's Benét Laboratories, a Malcolm Baldrige Award recipient, whose mission includes the development of arsenal products and technology for future weapon systems. This arrangement of research, development, and manufacturing at a single site facilitates concurrent design and manufacturing.





WVA readily offers a full complement of modern manufacturing and laboratory equipment, along with a highly trained staff of scientists, engineers, technicians, and machinists to any industry – military or private.

Watervliet, through its focus on value engineering programs such as Lean Six Sigma, continues to find efficiencies in all aspects of production and safety... savings that are often returned to the customer in the way of reduced production costs.

Significant Achievements

ISO 9001 Certification



The U.S. Army Watervliet Arsenal, widely known as “America’s Cannon Factory,” is an International Organization for Standardization (ISO) 9001:2008 certified.

Lean Six Sigma



Transformation Plan of Care (TPOC)/Lean Achievements:

A major part of the Arsenal’s strategic plan and Continuous Process Improvement (CPI) is TPOC, an enterprise-level tool for accomplishing strategic plan goals through

Lean. It uses Lean principles based on fact based decision making to understand a problem and its solutions by defining the current, ideal and future state.

The FY12 TPOC was accomplished in November 2011 through a three-day effort by a group of twenty leaders and managers. The group identified the top three opportunities (A3) for change that needed to be addressed to achieve strategic plan goals; manufacturing support, building a lean culture and business/customer development. Manufacturing support and business/customer development then became the subject of Value Stream Analyses (VSA), each managed through its own A3. These A3s in turn drove, and continue to drive, lean events to support accomplishment of

the VSA goals. Lean culture has a continuing series of events aimed at education, culture change, and maintaining the linkage between Lean CPI and strategic planning. Enterprise metrics addressing cost, quality, delivery and safety play a critical role in the process.

Center for Industrial and Technical Excellence (CITE)



WVA is the nation’s premier manufacturer of military cannon, artillery, and mortar systems. We has been designated as the Center for Industrial and Technical Excellence (CITE) for cannons and mortars by the Department of the Army.

Its long-standing and well-defined mission is “To provide manufacturing, engineering, procurement, and quality assurance for cannons, mortars, and associated materials throughout the acquisition life cycle.” The Arsenal, in tandem with the U.S. Army Benét Laboratories, fabricates prototype and advanced engineering models for the Army.

Why Partner With Watervliet?

Research, development and manufacturing in one central location combined with commercial and defense partnerships, as well as apprenticeship programs have solidified Watervliet Arsenal’s place as the world-renowned cannon and mortar manufacturer. WVA utilizes industry-driven state of the art equipment and has developed the processes to match throughout its nearly 200-year history. WVA job’s do not stop at the manufacturing process – we provide our expertise in engineering and manufacturing throughout the lifecycle of what we produce.

WVA engineers are constantly evaluating our products to find ways we can improve, not only the design, but the way they are produced. We are

dedicated to ensuring that everything we produce reflects our goal of excellence. Also WVA's location places them minutes from a variety of shipping access points; whether by truck, rail, plane or ship, the right solution is available.

The co-location of the WVA Manufacturing and Benét Labs offers military or private business entities a one-stop shop for research, design, prototype development, and full-service manufacturing support. From metal forging to fabrication to painting and packaging, the Arsenal's workforce can produce any machined product from a valid design. A well-trained and educated workforce who utilizes more than 600 machine and specialized tools to produce a full range of machining and fabrication services for metals and composites.

The Arsenal invites private industry to locate their manufacturing operations to the Arsenal to create new synergies for shared manufacturing. Today, Watervliet Arsenal has a dedicated workforce that knows and understands its place in history. Rich in tradition, this workforce will not fail to provide the finest machined products in the world.

For information on current business opportunities with Watervliet Arsenal, please contact Business Development Office at 518-266-4005.

Capabilities

Watervliet Arsenal is the Center of Excellence for large-caliber cannons. Collocation of research, design, development, engineering, and manufacturing provides customers quick, seamless transition from concept design through prototyping to production. This is an integrated and inherently lean activity that focuses upon manufacturing and technology readiness. Watervliet and Benét support the Army's fighting force with tank, artillery, mortars, and other components.

Watervliet partners with all of the acquisition community, private and government, in the design and prototyping of large-caliber weapon systems. This maturation of technologies provides advanced launch mechanisms to our forces. Customer expectations are exceeded by the arsenal's expertise in ultra high-pressure components and advanced materials and coatings that are stronger and lighter

with longer service lives. A recent added dimension of WVA is public-private partnering. These small to large on-site technology companies broaden Watervliet's portfolio with research and engineering in composites, nanomaterials, and electronics.



The \$1.6 billion dollar arsenal-manufacturing complex is situated on a 143-acre site and spans 72 buildings with 2.1 million square feet of manufacturing and administration space. Approximately 590 personnel are tied to on-site production. Arsenal machinist's work on products as small as can fit into a pants pocket to as large as a 16-foot howitzer barrel.

- Chrome Plating
- Small to Large Part Heat Treatment
- Small to Large Prismatic Machining
- Surface Coatings & Treatment
- CARC Painting
- Welding
- Producibility Engineering
- Rotary Forge
- Heat Treating
- Swage
- Composite Manufacturing
- Component Fabrication
- Subsystem Assembly
- Production CNC Machining
- Engineering Services
- Inspection Equipment
- Packaging / Preservation



Manufacturing Services

The Manufacturing and Technology Center at Watervliet is equipped with a variety of modern machining equipment, which provides the versatility to machine virtually any part configuration. The fact that nearly all machines are Computer Numerical Controlled (CNC) enhances our versatility to an even more sophisticated level. The Arsenal is equipped with manufacturing facilities capable of producing a wide variety of large and small cylindrical and shaft designs, as well as, multi-prismatic components of varying sizes.



Manufacturing services for prototype and full production may be accommodated. This includes a range of machining and fabrication services for both metals and composites. Several colonies of long-bed CNC lathes are capable of any type of turning, boring, precision single point threading and contouring while multi-axis machining centers are ready for anything from one time R&D to high volume production. Machine configurations include 2, 3, 4, and full profiling 5-axis. To complement our precision machining capabilities; metal fabrication, welding, rapid prototype (stereolithography), composite filament winding, rotary forging, stress relieving, chrome plating, painting, and packaging are all available on site. A tool-room for gage making, tool grinding, and fixture design/manufacture stand at the ready.

- Large Lathe Manufacturing
- Production Machining
- Prototype Machining
- 5-Axis Machining Centers
- Boring/Grinding
- Tool Room

- Gage Calibration
- First Article Inspection
- Government Acceptance Office



Support Services:

- CAD/CAM/CIM
- Wire EDM
- SPC (Statistical Process Control)
- CMM
- TDP Certification
- Project Management
- Process Development



Metal Fabrication:

- Rotary Forging
- Welding
- Straightening
- Composite Materials
- CARC Paint
- Flow Forming

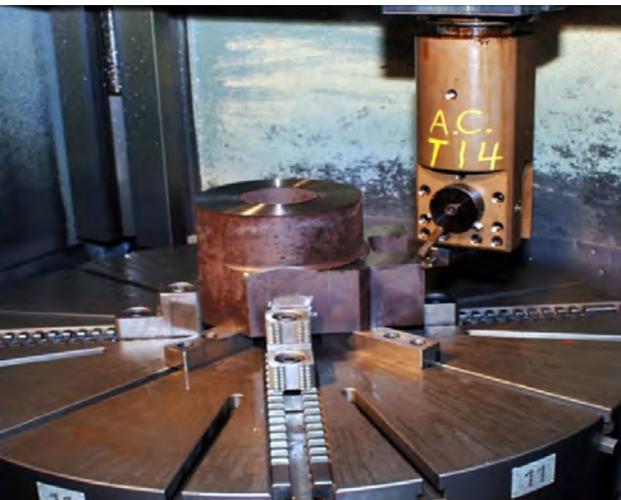
Boring



WVA has the capability of boring components as well as CNC controlled contour boring. Larger sizes are available with tooling purchase.

WVA has several high speed guided bore and rapid bore machines, capable of maintaining a high degree of wall variation accuracy in cylinders. We are in the process of installing additional rapid bore and pull bore machines.

Turning



WVA is equipped with a large variety of turning capabilities, both conventional and CNC controlled. Our machines are capable of applying threads in standard or metric as well as precision tapers. Furthermore, our lathes can locate datum points on threads to specific features on a component to create located threads which ensure precise fitting of mating components.

Sheet Metal Work

Sheet metal shops are equipped to shear, roll and bend sheet metal. Lengths of 8 ft. may be sheared or bent, and lengths of 8 ft. may be rolled. Soldering of joints and seams is available. Metal fabrication facilities are available for heavier gauge materials.



Fabrication/Welding

Punch presses up to 30-ton, press brakes up to 200-tons, metal forming rolls handle up to 3/8 in. thickness. Shearing and welding using either TIG or MIG of most metal types is performed.



Flow Form (Cold Forming)

Flow forming is a cold work process used to manufacture dimensionally precise, round, seamless, hollow components. WVA has the capability to flow form components.



Milling

WVA is equipped with a large variety of vertical and horizontal milling machines both conventional and CNC controlled.

Major Machining Centers:

- Full profiling capability 5-Axis machine
- Horizontal machining centers with quill
- Gantry Mill
- Vertical Mills
- Horizontal Mills
- Duplex milling capabilities



Grinding

Watervliet Arsenal has a wide range of precision grinding capabilities including cylindrical, ID, OD, surface, and centerless grinding.

WVA's size capacities for grinding are as follows:

- Cylindrical, Internal for normal production applications.

- Cylindrical, External
- Surface with maximum grinding
- Rotary with maximum grinding height
- Centerless Grinding plunge and feed through grinding
- Our facility also utilizes a state of the art Hauser / SIP jig bore / grinder capable of grinding feature to feature on smaller components in both location and hole size.



Honing

WVA has the capability of honing cylinders. Larger sizes are available with tooling purchase.

Rotary Forging



WVA maintains an advanced rotary forging capability for tubes, which is capable of handling various work pieces.



Recently, the forge has been upgraded to do solid bars in various configurations (ex. round-corner-square and hex shapes in bar lengths).

Heat Treatment

The Manufacturing and Technology Center at Watervliet employs the capabilities to stress relieve stock with lengths up to 70 ft. long.



Heat Treat Capacities:

- Horizontal: The Selas Furnace complex also includes the capabilities of tempering, annealing, austenitizing and quenching of large, long cylindrical parts.



- Vertical: Consists of a 40 ft. deep water/polymer submersion quench with variable speed rotation of parts during processing, to maintain straightness.

Painting/Preservation

The Manufacturing and Technology Center at Watervliet maintains a Chemical Agent Resistant Coating (CARC) painting facility on site for large and small parts of various configurations.

Composite Fabrication



Composite layup, sheet cutting, precision water jet cutting, and filament winding capabilities are provided for a variety of composite materials.

Tool Room

WVA has an onsite, state-of-the-art Tool Room available for a wide range of services. Our climate-controlled Tool Room is capable of manufacturing precision.

The Watervliet Toolmakers are capable of reverse engineering, design, manufacture, prototype and



repair of fixtures, gages, end mills and other items requiring close tolerances.



Machines at a Glance

Holroyd GTG2 Gear and Thread Grinder

- 6-axis Capabilities currently used for Rifling Broaches
- Capable of grinding even the most complex gears and threads

Sodick AG552 Diesink EDM

- Capable of any shape at nearly any angle in even the toughest of steels
- Table capacity
- Intuitive Programming

Saacke Tool Grinder

- 11 axis capable
- Precision mill and reamer grinding
- Capable of precision tooling in a fraction of the time due to on-machine measuring

High Bay Work Areas



Capacities:

- Many clearances with tons of capacity

Straightening Capability



Straightening capability includes several vertical presses, which can accommodate components up to 50 ft. long and apply up to 1,000 tons of force.

Woodworking Capability



The Manufacturing and Technology Center at Watervliet has a carpenter shop that manufactures and repairs shipping containers, crates, and boxes on a daily basis. Watervliet's carpenter shop uses pressure treated / rot resistant wood for many of its shipping containers. These vary in size from small boxes for spare parts to shipping containers for entire gun systems.

Water Jet and Laser Cutting

WVA has the capability to water jet plate stock with various table sizes. We are completing the installation of a 5000 watt, 3 axis, fiber laser cutter, with the capability to cut thick armor plate.



Slotting/Shaping

WVA has the capability to slot components both vertically and horizontally.

Capacities:

- Vertical tables
- Horizontal Table sizes with ram stroke and outboard supports for larger components can be used.



Multi-Tasking Machines

WVA is in the process of installing several high-precision, high-efficiency, multi-tasking machines capable of integrated milling and turning operations. The machines vary in size, with a maximum swing of work piece with a maximum turning length and tool spindle speeds up to 12,000 rpm.

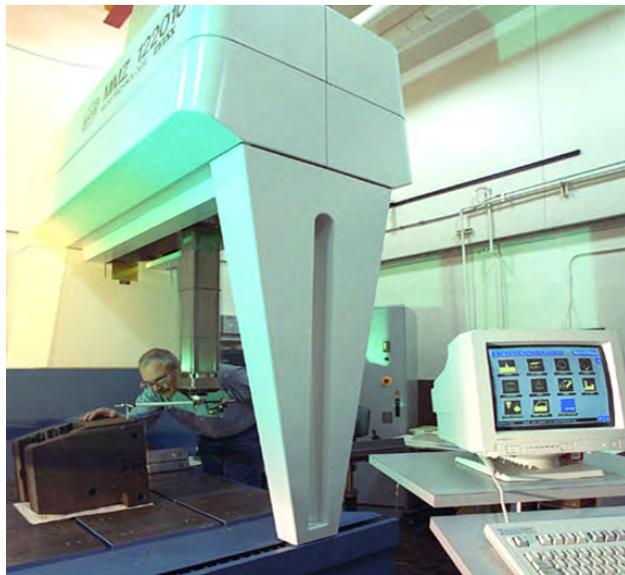
Measuring Devices

The site has considerable resources in the area of Standard Measuring and Test Equipment (SMTE).



- Micrometers
- Calipers
- Variety of bore, height, and snap gages
- Optical Comparators
- Dial indicators
- Gage blocks

Most CNC machines are also equipped with Renishaw Probing systems for on machine inspection and set up. Furthermore, Watervliet has several Coordinate Measuring Machines capable of inspecting components.

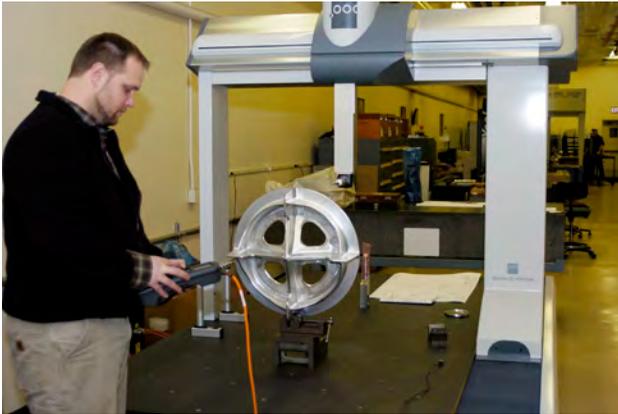


Material Testing

The Watervliet personnel are certified to ASNT Standards per MIL STD 410 and are certified to Level 3 for Radiographic, Magnetic Particle



and Liquid Penetrant. Calibration of gauging is performed in accordance with appropriate ISO standards.



Tensile and Charpy Impact Testing

Also on site is a complete facility dedicated to Tensile and Charpy production and testing. This facility includes an automated data collection system.



Gage Inspection Repair and Certification Capability

The Manufacturing and Technology Center at Watervliet utilizes a certification inspection system, based on time interval inspection, to maintain the integrity of its measuring equipment. Inspections are performed using template gages, standard measuring equipment or coordinate measuring machines.



Inspection Equipment

Stationary and portable magnetic particle units.

- Bore scopes are utilized in the manufacture of all cylinder/tube configurations to 8 in. diameter.
- Radiological examinations are performed on castings and forgings received at the Arsenal.
- 2 MEV unit is capable of examining steel up to 10 in. in thickness.
- Ultra sonic testing is performed utilizing portable units with a depth capability of up to 5 in.



EDM (Electro-Discharge Machine)

Capacities:

- Wire: configurations
- Plunge: configurations

Production Profile

Cannons

- Tank cannon
- Artillery cannon
- Navy guns
- Scissors bridge
- Artillery cannon
- Recoilless rifles
- Krag rifle refurb.
- Anti-aircraft gun
- Cannon items

Defense Items

- Bombs
- Vehicle Protection Kits



- Armor upgrades for light skin vehicles
- Naval Main Propulsion Shafts
- Fabrication of critical component



Sustainment Items

- Legacy Systems
- Sustainment spares and complete cannon/mortar systems

Quality Commitment

Technical services are available for inspection, testing, quality system design and consulting. The Manufacturing and Technology Center at Watervliet has built a strong reputation for quality products over the years.

The Watervliet Arsenal is certified to the latest Industrial Organization for Standardization ISO 9001:2008, as well as, through the Army's own Contractor Performance Certification Program,



- Cannon ammo
- Gun carriages
- Bullets & shells
- Gunner Protection Kit
- Vehicle Armor Upgrades

Mortars

- Varies Light-weight Mortars
 - Light-weight variant of proven system
- Infantry mortar system





an equally stringent set of quality standards to ensure appropriate checks and balances in product manufacture.

A systematic approach is employed to insure quality throughout the design, manufacturing and fielding of products.

- Parts of all sizes and shapes are dimensionally inspected on computer-controlled coordinate measuring machines and inspection stations.
- Performance in the field is simulated on advanced mechanical testing equipment in our metrology laboratory.
- Statistical Process Control (SPC) and continual process improvement techniques are combined with automated inspection and testing equipment.



Engineering

Producibility Engineering

A complete review for producibility may be provided including a review of existing technical data packages, prove out and refinement.

Process Engineering

An extensive process engineering and production planning capability exists for individual components, mechanical assemblies, and complete fabricated systems. CAD/CAM Solid Modeling systems assist the development of the process plan and the design of special tooling and fixture requirements. A CNC programming capability facilitates and supplements the process plan. Advanced facilities are combined with staff expertise to offer engineering services tailored to customer requirements.

Risk Management

The Watervliet Arsenal uses hierarchy of controls for its risk management. Identifying and solving potential risks is our culture here at the WVA. Each organization in our facility is dedicated in taking the necessary steps to reduce the risk or eliminate it completely. Supervisors, safety committee, VPP committee, and WVA professionals at all levels work collectively to maintain this safe and healthy culture. Risk management efforts are supported from our special staff to include Environmental, Industrial Hygiene, Fire department, and our health clinic.



Engineering controls for workplace hazards are our first priority in our machine shops and throughout our facility. A few examples of engineering controls would be our numerous machine guarding accommodations (i.e. press brakes and isolating of moving parts). All identified hazards are evaluated to determine the most effective hazard control to be used. Administrative controls limit workers' exposure to hazards by scheduling shorter work times in contaminated areas or by implementing other rules. These control measures have many limitations because the hazard itself is not actually removed or reduced. One example of an administrative control method is to schedule high-hazard exposure operations during the times when fewer workers are around. Work practice controls at the WVA are designed to maintain our best work practices. To sustain work practices controls, we use written standards and policies and enforce them.

Safety

At the WVA there is no process or project done without the input and influence of the safety office. With hundreds of machines and employees operating the installation on a daily basis safety has got to be at the forefront in order for mission success. The WVA continues to have an annual rate of Lost Time accidents below 1.0 making it a world class facility in reference to the POWER initiative by the Occupational Safety and Health Administration (OSHA). Also the safety program has had success in the armed forces side of the house winning the FY 10 & FY 12 Secretary of the Army and Chief of Staff of the Army safety award. The safety program provides expertise in many different aspects of the safety arena.



On the staff there are experts in manufacturing, construction, radiation, ammunition, chemical, electrical, and many more due to the ever changing environment. The safety office prides itself on the effective tracking and mitigation of hazards in the workplace. The safety office has an internal tracking system for accidents, inspections, near-misses, etc. called INTELEX. The software enables the success of the safety program. Also during the VPP assessment audits there have been several industry best practices noted throughout the manufacturing floors. There is also a lot of employee involvement in the program making the potentially dangerous environment controllable.

The safety program is constantly in adaptation mode. The manufacturing field is becoming efficient and more effective, and the safety program prides itself on being just that. The program is award winning, influential, and adaptable and the WVA prides itself on getting the product to the customer efficiently and effectively with safety always in the forefront.



New Plant Start-Up

Complete expertise in the layout, facilitization, and specification of factory areas for new plant construction are available. Associated technical services for computer aided floor layout and material flow is also available.

Technical Services

The Watervliet Arsenal provides technical assistance in process development, and systems design which can help manage the toughest of manufacturing problems. The facility offers extensive technical services ranging from refinement of technical data packages to complete process development.



Cutting edge technology has been developed and utilized for all types of metals, and years of experience have gone into developing machining and tooling methods, for even the toughest alloy steels. Furthermore, an extensive body of knowledge has resulted from many years of experience with the heat treatment processes, plating methods and processing of composites.

