



# Anniston Army Depot

**Sustainability:  
Asking Everyone to Plan  
for the Future**

**2009 Environment, Energy, & Sustainability  
Symposium and Exhibition**  
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# Installation Description



- ◆ 2,332 Buildings/Structures
- ◆ 244 Miles of Roadway
- ◆ 98 Miles of Fencing
- ◆ 37 Miles of Railroad
- ◆ 15,320 Acres
- ◆ \$2.56 Billion Plant Replacement Value
- ◆ \$1.2B FY09 Depot Budget
- ◆ \$700M Average Annual Tenant & Contractor Budget
- ◆ 6,900 Total Employees
- ◆ 4,368 Depot Employees



# Installation Description (cont'd)

## ▶ **MISSION**

- ▶ To provide superior sustainment support to the US Armed Forces and our Allies

## ▶ **VISION**

- ▶ To be the premier DOD Center for Industrial and Technical Excellence for current and future combat systems by being uniquely vital, technically superior, and unconditionally responsive worldwide



**M1 Abrams Tank**

**M88 Recovery Vehicle**

**Combat Vehicles**



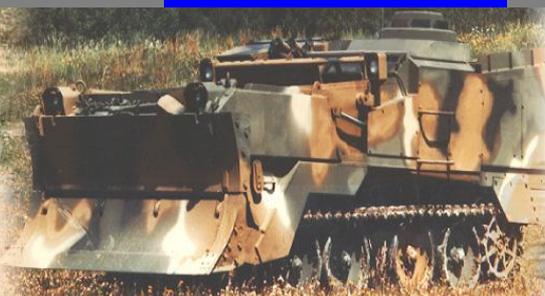
**STRYKER**



**FOX Vehicle**



**M113 Armored Personnel Carrier**



**M9 Armored Combat Earthmover**



**M60 Armored Vehicle Bridge Launcher**



# Department of Defense Small Arms Facility



**M16  
RIFLE**



**M9  
PISTOL**



**M249 SQUAD  
AUTOMATIC  
WEAPON**



**M2  
MACHINE  
GUN**

**MORTAR**

**MK19  
GRENADE  
LAUNCHER**



**M230  
CHAIN  
GUN**

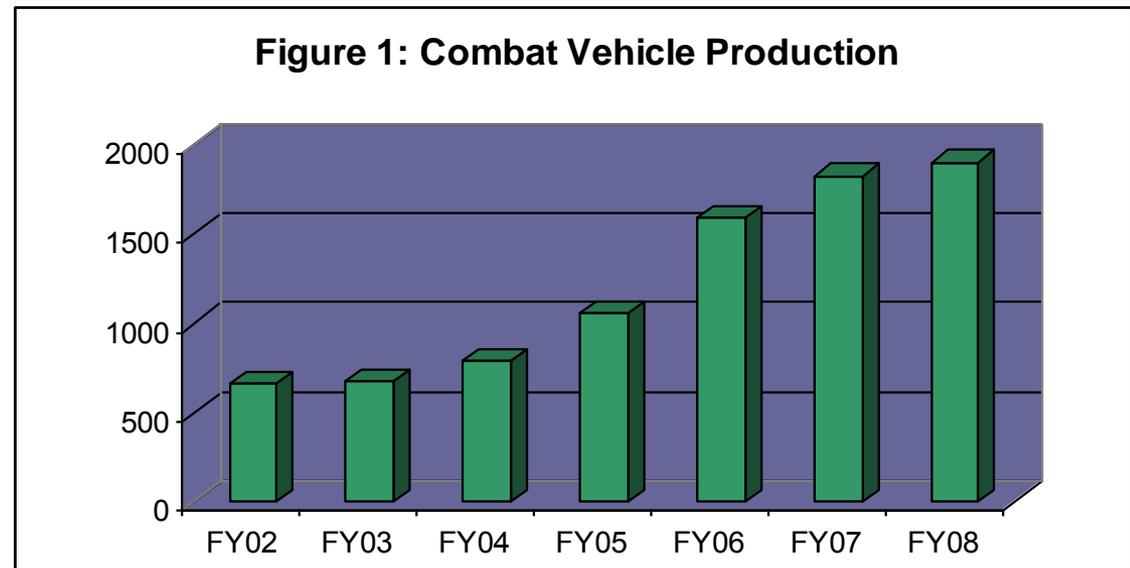




# ANAD's Sustainability Culture



- ▶ During this decade, Anniston Army Depot's (ANAD's) workload continually increased as human, environmental, and business assets became more constrained.
- ▶ To adapt to the increased workload, ANAD achieved the following certifications:
  - ▶ ISO 9001:2000
  - ▶ OHSAS 18001:1999
  - ▶ ISO 14001:2004
- ▶ These programs do not holistically address long term strategic planning.





# ANAD's Triple Bottom Line



- ▶ Depot leadership recognizes the need to:
  - ▶ Create a sustainability culture that balances long term mission viability with changing environmental, community, and business resources.
  - ▶ Implement a long range planning process to help ANAD adjust to a world of limited resources.
- ▶ The —~~triple~~ **triple bottom line**” was incorporated into ANAD’s strategic planning process.
  - ▶ Triple Bottom Line: —Support our mission, strengthen our community, and successfully manage our environmental impacts.”
  - ▶ Fosters a widespread sustainability ethic.



# ANAD's Sustainability Approach



- ▶ **Approach:**
  - ▶ Conduct a series of stakeholder workshops to set 25-year Sustainability Goals that proactively address resource constraints to create a sustainability culture at ANAD

**Table 1 ANAD Steps in Sustainability Planning**

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Pre-Planning	Educate staff about sustainable principles, evaluate mission and existing strategic goals and initiatives, frame challenges, and identify initial teams
Workshop I	Identify challenge statements and refine teams for cross-functional participation
Workshop II	Set goals that align with existing strategic plans and charter teams
Workshop(s) III	Teams set objectives, targets, and plans; identify resources; and set schedules

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# Pre-Planning Meeting

- ▶ ANAD's environmental office hosted a Sustainability Pre-Planning Meeting
  - ▶ **Attendees included:**
    - ▶ Headquarters, Department of the Army (HQDA)
    - ▶ Installation Management Command/Southeast (IMCOM-SE)
    - ▶ Army Materiel Command (AMC)
    - ▶ A variety of depot directorates
  - ▶ **Discussions included:**
    - ▶ Applying sustainability concepts to ANAD industrial & production operations
    - ▶ Setting sustainability planning themes
      - ▶ Industrial Team - Production of combat, tactical, and ground support vehicles and armaments, including R&D and fielding
      - ▶ Competitive Edge Team - Focus on workload management, financial and human resource management, development, and community relations
      - ▶ Infrastructure Team - Equipment, facilities, transportation, and utility management
      - ▶ Procurement and Contracting Team - The procurement of supplies and services



# Workshop I



- ▶ In June 2007, ANAD held its first Sustainability workshop.
- ▶ Personnel from 18 depot and tenant organizations and three Army agencies participated.
  - ▶ Participants worked in four teams based on the planning themes
- ▶ Purpose of Workshop I was for the cross-functional participants to:
  - ▶ Learn about the triple bottom line and sustainability
  - ▶ Promote sustainable thinking in their —home” organizations
  - ▶ Learn to identify impacts to sustainability in ANAD’s current mission, operations and processes, practices
  - ▶ Draft challenge statements that capture the specific challenges to ANAD becoming a sustainable industrial installation



# Workshop II

- ▶ This workshop was opened up to additional staff and stakeholders, including:

- ▶ Environmental regulators
- ▶ County commissioners
- ▶ Community sustainability proponents
- ▶ Representatives from partner businesses



*Picture 1: Workshop II participants, left to right, Glenn Mellon, Len Hearron and Shenell Curry Billips (all of ANAD).*

- ▶ **Teams:**

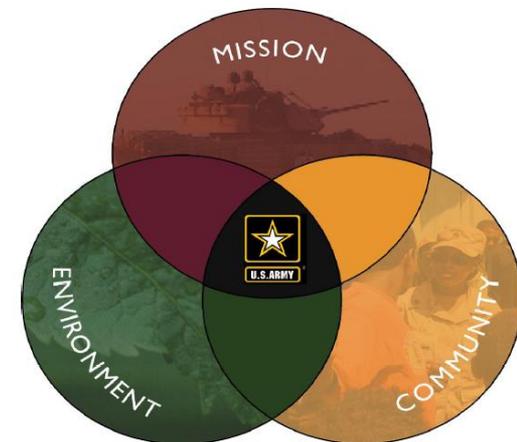
- ▶ Reviewed the challenges identified in Workshop I
  - ▶ Discussed ways to minimize, eliminate or work beyond them
  - ▶ Talked about a variety of ways to achieve sustainability
  - ▶ Developed 25-year Strategic Sustainable Goals
- ▶ Toward the end of the conference, the teams sent their goals to the Command Staff for review and approval.
    - ▶ Ten goals were approved for inclusion in the ANAD Strategic Plan.



# Workshop III



- ▶ May 2008: Workshop III participants developed the specific objectives, targets, and action plans
  - ▶ Included responsibilities, timelines, and resource requirements necessary to meet the 25-year strategic goals identified and endorsed by the Commander in Workshop II
- ▶ Detailed action plans through 2015 were created to:
  - ▶ Match with current strategic planning at ANAD, and
  - ▶ Allow for future planning adjustments throughout the 25-year Sustainability Plan





# Example Sustainability Goals



## ▶ Goal: Generate Zero Waste

### ▶ Metric(s):

- ▶ Waste-to-Energy (lbs waste to MMBTU)
- ▶ Improve process equipment (i.e. reduce lbs air emissions & hazardous waste generated)
- ▶ Lean (identification & elimination of waste)
- ▶ Prime vendor / Just-in-time acquisition & delivery
- ▶ Flexible buildings & warehousing (reduction of C&D, increase capacity)
  - ▶ Reduction of pollutants in stormwater
  - ▶ Reduction of usage of blast media
- ▶ Quantity & cost of waste disposed (solid, hazardous)
- ▶ Increase secondary materials captured/recovered to market

### ▶ Timeframe: 2033

### ▶ Proponent Organization: Depot Operations Office



# Example Sustainability Goals

- ▶ **Goal: 100% Self Sufficient Utility Production (produced on depot or purchased within) over 2010 Baseline**
  - ▶ Includes water & energy
  - ▶ **Metric(s):**
    - ▶ Zero MMBTUs produced outside the depot or community by 2033
    - ▶ 50% of water used on the depot will be reclaimed water
    - ▶ Comprehensive metering of all utilities by 2010
  - ▶ **Timeframe: 2033**
  - ▶ **Proponent Organization: DPW**



# Beyond the Workshops

- ▶ The final 25-year Sustainability Goals will be incorporated into ANAD's Strategic Plan.
  - ▶ As an integrated part of the Strategic Plan, sustainability updates will be briefed during the ANAD Commander's Off-sites, at the same time the Strategic Plan is reviewed.
  - ▶ This usually occurs on a quarterly basis.
- ▶ As a result of ANAD's high-profile strategy for creating Sustainability Goals, there is a lot of internal and external stakeholder energy and excitement associated with achieving the Sustainability goals.
- ▶ The workshops enabled ANAD to create a sustainability ethic that did not exist previously.



# Strengthens Army Operations & Minimizes Impacts & Total Ownership Costs

- ▶ Throughout 2007 and 2008, ANAD personnel began implementing Sustainability before the new ANAD Sustainability goals were developed and incorporated into the Strategic Plan.
- ▶ To help achieve ANAD's overarching Strategic Sustainability Goals, staff implemented several projects that assist with the triple bottom line—helping the environment, mission, and community.



# Construction & Demolition Recovery



- ▶ ANAD typically disposes of approximately 2,000,000 pounds of C&D waste annually with a cost of more than \$100,000.
- ▶ ANAD salvaged waste generated during two renovation and construction projects:
  - ▶ Renovated about 8,500 square feet (ft<sup>2</sup>) of office space in the Headquarters Building
  - ▶ Replaced 72,398 ft<sup>2</sup> of roof and exterior panels at the Vehicle Disassembly/Assembly building



*Metal Studs and Framework  
Awaiting Transport to ANAD's  
Recycling Center*

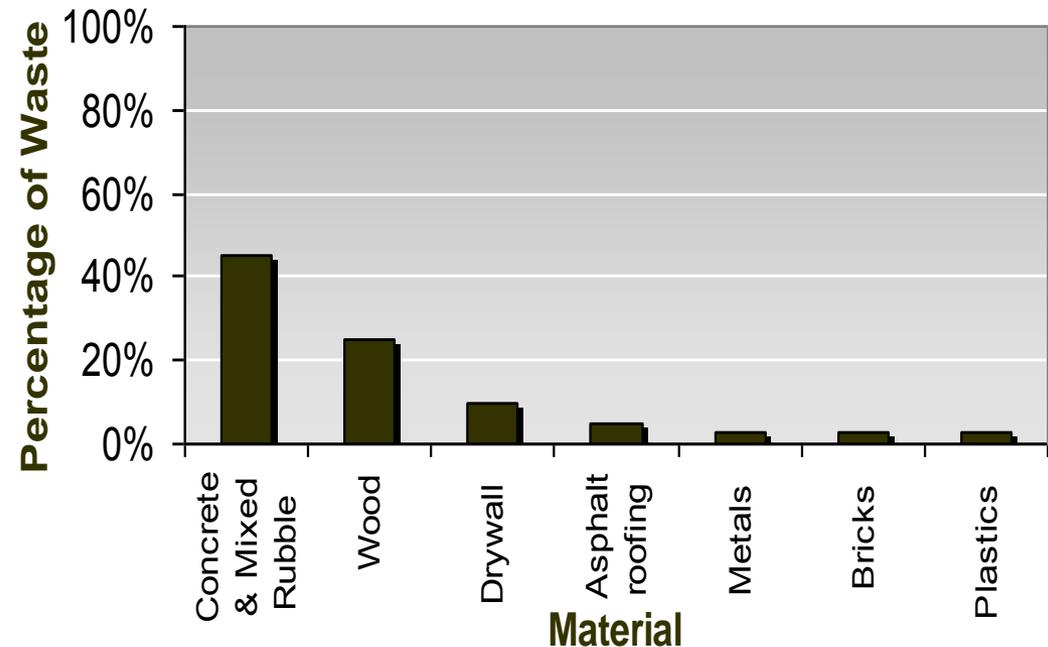


# Construction & Demolition Recovery

▶ ANAD set aside over 35,000 pounds of useful debris to be processed at the onsite Recycling Center, including:

- ▶ Metal Framing
- ▶ Wood Studs and Fiberglass Insulation
- ▶ Siding
- ▶ Roofing Material
- ▶ Windows and Doors

### Constituents of Typical C&D Project





# Spent Bullet Program



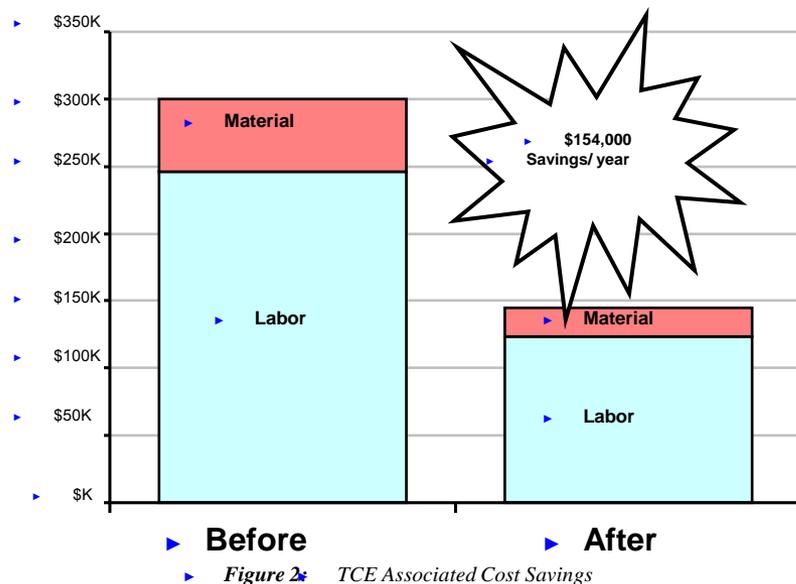
- ▶ ANAD began a new program to recycle spent bullets from their small arms test range
  - ▶ ANAD is the primary small arms (5.56 caliber or lower) rebuild center within DOD
  - ▶ In the past, approximately 50,000 lbs of actual spent bullets left the depot annually as hazardous waste (\$0.88/lb)
- ▶ ANAD staff researched the potential for recycling spent bullets
  - ▶ Identified Illinois-based Total Metal Recycling
  - ▶ Metals recovered include lead, copper, zinc, and nickel
- ▶ FY2008 benefits
  - ▶ Recycled 54,820 lbs of spent bullet waste
  - ▶ Earned \$9,900 from recycling spent bullets
  - ▶ Saved \$48,000 in disposal costs



# Minimizing ANAD's TCE Usage



- ▶ ANAD uses chemical vats of trichloroethylene (TCE) to quickly clean dirty components of used tracked vehicles.
  - ▶ This process led to 50 tons of TCE emitted to the air annually.
- ▶ Depot engineers re-routed as many parts as possible to more environmentally friendly processes.
  - ▶ ANAD was able to reduce TCE emissions by 30 tons per year.



- ▶ Material and labor reductions resulted in a cost savings of:
  - ▶ Over \$75,000 for the first year, and
  - ▶ Estimated **\$154,000 per year** savings in subsequent years



# Green Buildings



- ▶ Newly constructed buildings at ANAD must meet Leadership in Energy and Environmental Design (LEED) standards.
  - ▶ Previously planned new industrial facilities are using flexible and life-cycle design standards.
- ▶ New industrial equipment will be greener.
  - ▶ Example: Replacing chemical vats with molten salt baths.
- ▶ Older ANAD buildings are being retrofitted to take advantage of energy conservation technology
  - ▶ Example: Geothermal heat pumps in Contracting Office.
- ▶ New Risk Management Office will qualify as LEED Silver status

## **Sustainable Features of the new Risk Management Office**

85% Recycled GreenFiber insulation  
30% Recycled Steel  
Recycled Carpet  
Skylights to reduce the need for artificial light  
Occupancy sensors  
Formaldehyde-free cubicle walls  
Automatic flush valves  
98% Recycled and moveable cubicles  
50% recycled (pre- and post-consumer) work stations  
17 Seasonal Energy Efficiency Ratio (SEER) HVAC  
Low Volatile Organic Compound (VOC) Paints



# Water Reuse



- ▶ ANAD's Water Reuse Program is based on the American Institute of Chemical Engineers (AIChE) —“The Systematic Approach to Water Reuse” implementation plan.
- ▶ The plan follows the basic plan-do-check-act model found within the ISO systems implemented at ANAD.
- ▶ ANAD formed a cross-functional team to provide oversight and serve as the decision making body for the program.
- ▶ The goal of the program is to identify and implement opportunities to minimize depot water usage and reduce the quantity of water purchased from the City of Anniston.
- ▶ Preliminary Findings:
  - ▶ Re-use NCCW = saving 250,000 gpd (~25% reduction in purchased water) and \$75,000 annually



# Energy Conservation



- ▶ To help reduce energy consumption ANAD has converted:
  - ▶ 2.3 million ft<sup>2</sup> of floor space to T-5 fluorescent lighting
    - ▶ 6,108,044 kilowatts per hour (kWh) savings
    - ▶ \$274,682 annual cost reduction
    - ▶ Expected Return on Investment (ROI) in 9.42 years
  - ▶ 450,000 ft<sup>2</sup> of high bay buildings to infrared heat
    - ▶ 25,442 MMBTU savings
    - ▶ \$264,789 annual cost reduction
    - ▶ Expected to provide savings for 20 years with ROI of 8.71 years
- ▶ ANAD made major improvements to the compressed air system.
  - ▶ 1,478,775 kWh savings
  - ▶ \$59,151 annual cost savings
  - ▶ ROI of 4.5 years
- ▶ The Depot Operations Office established an Alternative Fuels Tiger Team with representation from various depot organizations.



# Driving Innovation



- ▶ The overwhelming success of ANAD's Sustainability Planning is the new ethic it has created.
  - ▶ Employees are excited about Sustainability and are jumping ahead of the Strategic Goals to start their contribution.
- ▶ In addition to in-progress projects above:
  - ▶ Planners are thinking about life cycle costs
  - ▶ Public Works is considering putting in a wind farm, and
  - ▶ The Environmental Office is researching waste-to-fuel options
- ▶ Every single one of these projects represents a new way of doing business at ANAD.
- ▶ The depot has internalized the message that business as usual is no longer enough and that everyone needs to contribute to improving ANAD's triple bottom line.
- ▶ With a similar plan to energize staff, any other military installation or industrial facility could implement Sustainability.



## For more information



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