Anniston Army Depot

Process Specific Opportunity Assessments

ANNISTON ARMY DEPOT
WEAPONS ◆ COMBAT VEHICLES ◆ AMMUNITION

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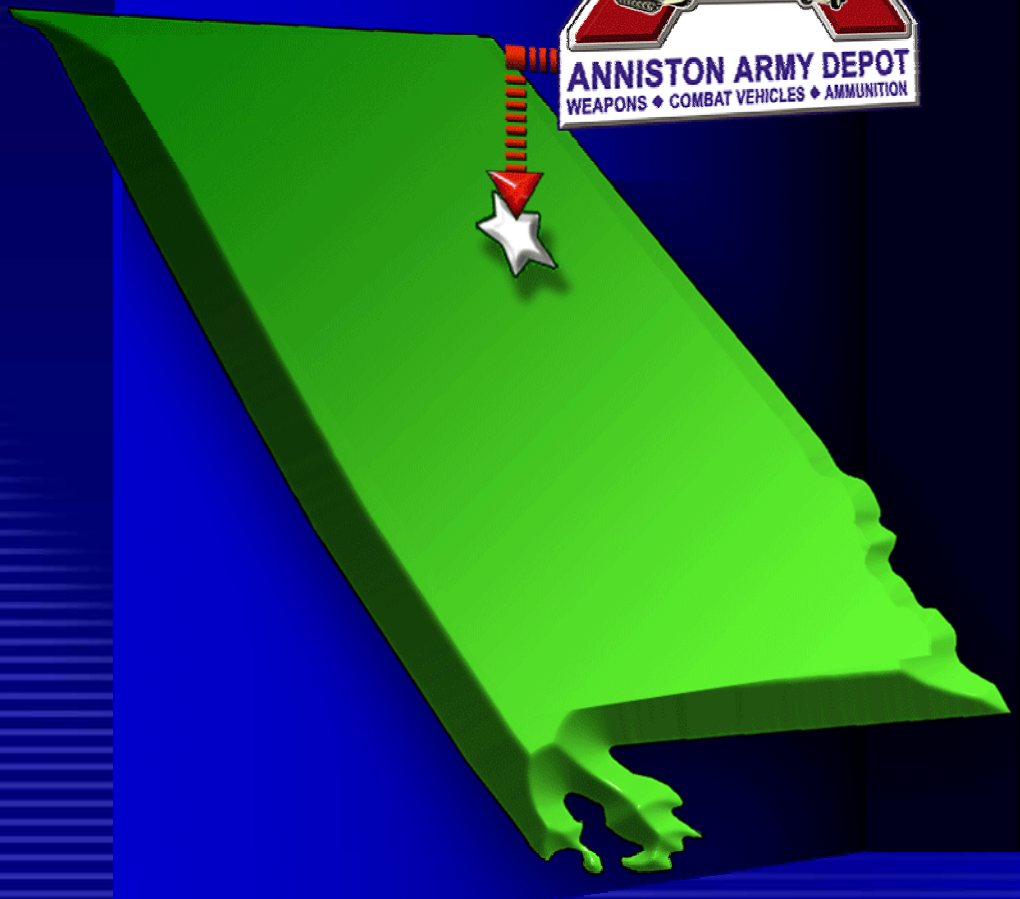
Outline

- Overview of Anniston Army Depot (ANAD)
- ANAD's Approach for Conducting Process Specific Opportunity Assessments (PSOAs)
- Questions

Installation Description



- 1,771 Bldgs/Structures
- 244 Miles of Roadway
- 93 Miles of Fencing
- 46 Miles of Railroad
- 15,243 Acres
- $1.6 Billion Plant Replacement Value
- $1.292B FY06 Depot Budget
- $700M Average Annual Tenant & Contractor Budget
- 6,500 Total Employees
- 4,500 Depot Employees
- Largest industrial facility in SE United States

ANAD *Mission:*

To provide industrial & technological support for current & future ground combat systems

ARMORED PERSONNEL CARRIER | TOWED HOWITZER | RECOVERY VEHICLE | M60 BRIDGE LAUNCHER | 70 TON BRIDGE LAUNCHER | SELF PROPELLED HOWITZER | STRYKER | M1

Combat Vehicles

M1 Abrams Tank

M88 Recovery Vehicle

STRYKER

FOX Vehicle

M113 Armored Personnel Carrier

M9 Armored Combat Earthmover

M60 Armored Vehicle Bridge Launcher

Department of Defense
Small Arms Facility

M9 Pistol

M249 Squad Automatic Weapon

M16 Rifle

M2 Machine Gun

Mortar

MK19 Grenade Launcher

M230 Chain Gun

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Towed & Self Propelled Artillery/Bridges

70 Ton Bridge

Medium Girder Bridge

M109A6 Self Propelled Howitzer

Ribbon Bridge

M119 Towed Howitzer

M198 Towed Howitzer

Field Artillery Ammunition Support Vehicle

ANAD's Approach to PSOAs

- Environmental Challenge: *Hazardous Waste Generation*
  - Classified Large Quantity Generator of Hazardous and Solid Waste under Resource Conservation and Recovery Act (RCRA)
  - Mission requirements/work load increased - due to world events
    - *Labor hours expended has increased by 96% from 2001 to 2005*
- Goals and Scope
  - Evaluate processes that generate the highest quantities of hazardous wastes
  - Identify opportunities for reducing the generation of hazardous wastes
  - Evaluate opportunities for successful implementation

ANAD's Approach to PSOAs

- Review of Hazardous Material Management System Data
  - Hazardous waste streams were reviewed by building and waste codes
  - Identified that 95 percent of the industrial hazardous waste is produced by four basic industrial processes:
    - Paint Stripping
    - Metal Finishing
    - Parts Cleaning
    - Painting

ANAD's Approach to PSOAs

- Chartering of a Cross Functional PSOA Team
  - Chartered four PSOA teams to concentrate on each of the process areas
  - Team members included staff from:
    - Environmental
    - Safety
    - Production
    - Public Works

Paint Stripping Operations

- **Background:**
  - Accounts for over 50% of the hazardous waste generated
  - Includes chemical and physical paint stripping
    - Chemical Paint Stripping
      - Vats of NPX
        - 70% methylene chloride
        - 30% formic acid
    - Physical Paint Stripping
      - Glove boxes and blasting booths
      - Stripping media depends on the substrate and finish

Paint Stripping Operations

- **Site Visit Findings**
  - ***The majority of the glove boxes and cabinets do not have pressure regulators.***
    - **Operators can adjust pressure to his/her discretion.**
    - **Can result in the media breaking down more quickly.**
  - ***Single-pass abrasives are being used - walnut hull and garnet***
    - **Resulting in inefficiencies with the dust collectors**
  - ***Viable blast media was found in drums of waste***
    - **Dust collection systems are pulling viable media into the waste stream**
  - ***Equipment maintenance issues***
    - ***Loose seals around doors of blast booths***
    - ***Ongoing problems with dust collectors***

Paint Stripping Operations

- PSOA Projects
  - Replace single-pass media with longer lasting media
    - Replace walnut hull with recyclable plastic blast media
    - Replace garnet blast media with steel shot
    - Retrofit booths to include blast media recovery systems
  - Implement a preventative maintenance plan for blast equipment
  - Install pressure regulators on glove boxes
    - Prevents operators from increasing the pressure, which wastes media.

Metal Finishing Operations

- **Background**
  - Accounts for over 20% of the hazardous waste generated.
  - Hazardous waste is generated by:
    - chrome, nickel, zinc, and copper plating
      - spent vat filters and liners, and plating solution
    - sludge generation at the industrial waste water treatment plant (IWTP) that receives wastewater from the metal finishing operations

Metal Finishing Operations

- **Site Visit Findings**
  - ***Parts are cleaned in a 3,000 gallon caustic tank that is changed out every 4 months due to contaminants***
  - ***Water is left continuously running in the rinse tanks***
    - **Rinse tanks use potable water which is sent to the IWTP for treatment**
    - **Approximately half of the vats had conductivities slightly higher than potable water.**
      - **Therefore, much of the rinse water sent to the IWTP is fairly clean.**

Metal Finishing Operations

- PSOA Projects
  - Install ceramic filters on the caustic vat to extend the life of the caustic solution.
  - Install timers on the rinse tanks to reduce the flow of water to the IWTP.
  - Modification to the IWTP to reduce sludge generation.

Parts Cleaning Operations

- Accounts for over 15% of the hazardous waste generated.
- Hazardous waste is generated by:
  - Steam Cleaning Sludge
  - Safety Kleen Solvent
  - Vapor Degreasers

Parts Cleaning Operations

- **Site Visit Findings:**
  - ***Source reduction is not possible for the steam cleaning sludge waste***
    - **ANAD cannot control the amount of contaminants coming in on combat vehicles and associated components**
  - ***The ANAD Environmental Lab performed a Toxicity Characteristic Leaching Procedure (TCLP) test on the steam cleaning sludge waste***
    - **Traces of cadmium and zinc were present in the waste stream.**

Parts Cleaning Operations

- **PSOA Project:**
  - **Add a stabilizer to the steam cleaning sludge before it is vacuumed out of pits.**
    - **Stabilizer will render the waste non-hazardous and may reduce disposal costs.**
    - **Waste stream will not be reduced or eliminated – it will still ultimately go to a landfill.**

Painting Operations

- ANAD uses multi-component Chemical Agent Resistant Coating (CARC) paint
- Hazardous waste is generated from:
  - wasted paint and solvent mixtures
  - paint filters

Painting Operations

- **Site Visit Findings:**
  - ***The multi-component CARC hardens quickly***
    - **Cannot be carried over from one shift to the next.**
    - **Solvent is needed to thin the paint**

Painting Operations

- PSOA Projects:
  - Procure multi-component paint mixing systems
    - Mixes paint on an as-needed basis
  - Convert to a single-component CARC.
    - Army Tank-automotive and Armaments Command (TACOM) has approved a single-component CARC paint that does not harden as quickly as multi-component CARC.

Moving Forward

- ANAD aligned the PSOAs with EMS objectives and targets to systematically implement the PSOA projects.
  - Example:
    - Objective
      - Reduce the air emissions and hazardous waste generated by abrasive blasting.
    - Target
      - Create plans of action to implement new blast media options and improved equipment maintenance schedules
    - Progress:
      - Conducted testing on blast media alternatives
        - One failed, others are currently being investigated
      - Developed and implemented a plan for optimizing and maintaining equipment in two buildings
        - Will roll out similar plans to other buildings with blast equipment

Lessons Learned

- Focus on the big picture
  - Don’t get lost in the details, focus on the major issues first
- Work as a team
  - Include personnel from all appropriate organizations
- Prioritize options
  - Don’t get bogged down with too many projects

For Additional Information

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