



Pueblo Chemical Agent-Destruction Pilot Plant

# Monthly Status Briefing

*August 2012*



**PCAPP**  
Pueblo Chemical  
Agent-Destruction Pilot Plant

A PARTNERSHIP FOR SAFE CHEMICAL WEAPONS DESTRUCTION

# Project Background

- The Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) will safely destroy 2,611 tons of mustard agent in mortar rounds and artillery projectiles stored at the U.S. Army Pueblo Chemical Depot (PCD).
- Neutralization followed by biotreatment is the technology selected by the Department of Defense to destroy the Pueblo chemical weapons stockpile.
- The Program Executive Officer, Assembled Chemical Weapons Alternatives (ACWA), headquartered at Aberdeen Proving Ground, Maryland, is responsible for managing all aspects of the safe and environmentally sound destruction of the chemical weapons stockpiles in Colorado and Kentucky.
- The Bechtel Pueblo Team (BPT) is a partnership of Bechtel National, Inc., URS, Parsons, and Battelle Memorial Institute. The BPT functions as the systems contractor selected to design, build, systemize, pilot test, operate, and close the PCAPP.



# Bechtel Pueblo Team

## Systems Contractor

- Project management
- Business services
- Safety and quality



- Design/engineering
- Procurement/subcontracting
- Construction

## Teaming Subcontractors



- Systemization
- Pilot testing
- Operations
- Closure



- Process design
- Process equipment fabrication
- Support to systemization and operations



- Environmental permitting and compliance
- Laboratory management
- Pilot testing

# Staffing



- Bechtel Pueblo Team non-manual: **596**
  - Pueblo: 592 (152 local hires)
  - Other locations: 4
- Construction Workers: **360**
  - Bechtel direct-hire craft workers: 311
  - Subcontractor personnel: 49

# Employment Opportunities

## Hotline

(719)549-4003

## Website

<http://pueblo.bechtel.com>



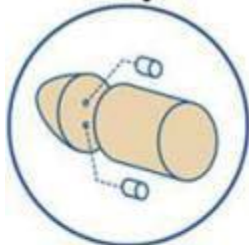
As of July 31, 2012,  
PCAPP Project staff accomplished:

- 96 Safe Work Days
- 545,958 Safe Work Hours



# Destruction Technology

## Step 1



### REMOVAL OF ENERGETICS

Robotic equipment removes energetics (explosives) from the weapon. The energetics will be disposed of at a permitted facility off site.

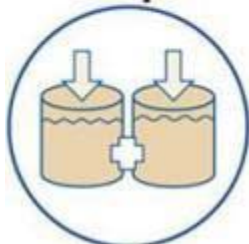
## Step 2



### REMOVAL OF MUSTARD AGENT

The inside of the weapon is remotely accessed, and mustard agent is washed out with high-pressure water.

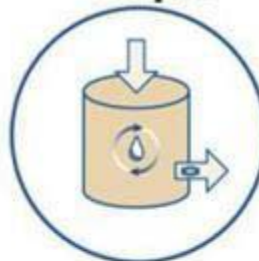
## Step 3



### NEUTRALIZATION OF MUSTARD AGENT

The mustard agent is neutralized with caustic solution and hot water. The byproduct is called hydrolysate.

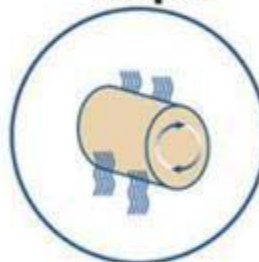
## Step 4



### BIOTREATMENT

The hydrolysate is treated with microbes that break down the solution into water and biosludge. Water is recycled in the plant, and biosludge is shipped for disposal at a permitted facility.

## Step 5

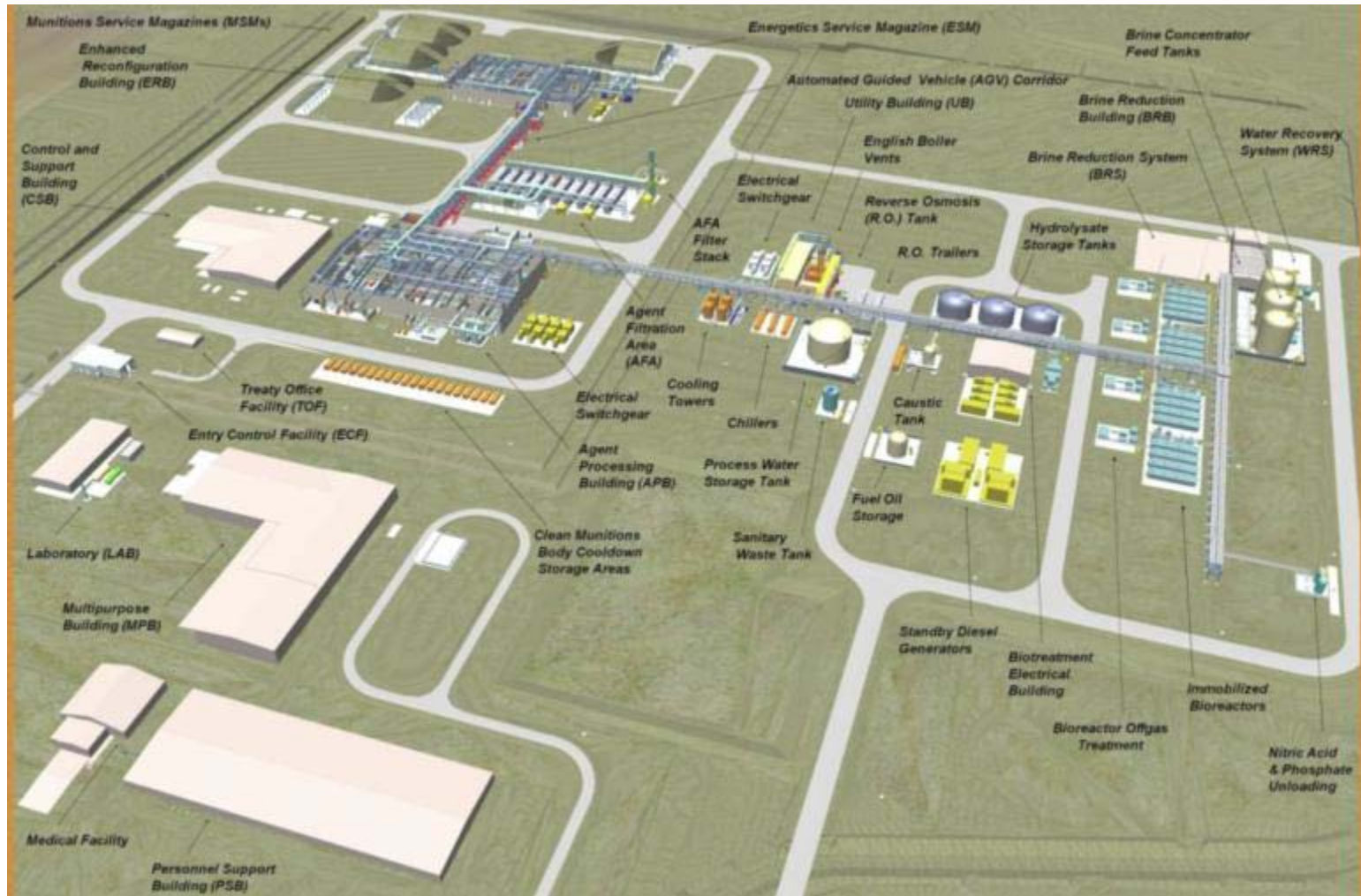


### DISPOSAL OF METAL PARTS

Metal parts are heated to 1,000 degrees Fahrenheit for 15 minutes and can then be recycled.

**Neutralization followed by biotreatment will be used to destroy the Colorado chemical weapons stockpile.**

# Pueblo Chemical Agent-Destruction Pilot Plant—Site Plan





# PCAPP Site Overview



Northwestern Corner - Observation Point

- |          |  |          |  |
|----------|--|----------|--|
| <b>1</b> | <b>Enhanced Reconfiguration Building</b> | <b>5</b> | <b>Agent Filtration Area</b>               |
| <b>2</b> | <b>Automated Guided Vehicle Corridor</b> | <b>6</b> | <b>Munitions Service Magazine</b>          |
| <b>3</b> | <b>Agent Processing Building</b>         | <b>7</b> | <b>Control and Support Building</b>        |
| <b>4</b> | <b>Biotreatment Area</b>                 | <b>8</b> | <b>Munitions Service Magazine corridor</b> |

# Construction Status – In Progress

- **Enhanced Reconfiguration Building**—Continuing electrical punch list items. Completed energetics work, preparing for coatings placement in the Munitions Service Magazine area.
- **Agent Processing Building**—Continuing electrical installations, piping and instrumentation installations.
- **Laboratory**—HVAC and electrical installations.
- **Balance of Facilities**—Continue final grade, sidewalks in the yard area
- **Biotreatment Area**—Continuing coatings preparations for the Immobilized Cell Bioreactor pads; completed hydro testing of the Brine Concentrator Feed tanks and 30-day hydrolysate storage tanks.
- **Brine Reduction System**—Completed electrical installations, including installations for Biotreatment Electrical Building
- **Entry Control Facility**—Electrical installations continuing.



## As the project transitions from construction to systemization, the following systems have been turned over to the start-up group to begin the systemization process:

- Instrument Air—IA Compressor "A," Dryer "A," Main Air Receiver and Yard Distribution Piping
- Hot Process Water—Hot Process Water Tank and Heating Coil. Distribution to various Agent Processing Building (APB) unit heaters and HVAC units\*
- Agent Collection and Neutralization System—Hydrolysate Collection and Storage—Yard
- HVAC Hot Water—Pumps and related tanks, Heat Exchangers and Outside Rack Piping
- Breathing Air—Bottle Filling Station
- Enhanced Reconfiguration Building (ERB) Supply Air Handling Units/Control Room and Support Areas Ventilation System
- Steam Supply—Fuel Oil Piping, Natural Gas Piping, Amine Feed Skid, Boiler "A" and Outside Rack Steam
- Steam Supply—Boiler "B"
- Steam and Condensate—APB/Biotreatment Area (BTA)/Brine Reduction System (BRS) Distribution
- Bulk Chemical Storage and Distribution—DAP, UREA and 25% caustic
- Projectile Handling and Projectile Disassembly—Projectile Mortar Disassembly systems and Related Equipment—Lines 1, 2, and 3.
- Water Recovery—Tanks "A", "B", and "C"



To learn more about Systemization, watch the video at [http://www.pmacwa.army.mil/info/video/systemization\\_yt.html](http://www.pmacwa.army.mil/info/video/systemization_yt.html)

# Systemization (cont.)

- Bioreactor Off-Gas Treatment—Module 1 thru 4
- Potable Water—BRS Distribution
- ERB 480V Substation
- Brine Reduction Belt Feed System
- Water Recovery— Brine concentrator Feed Tanks Off-Gas Treatment
- Chilled Water—Distribution to various APB HVAC units, recirculation units, autoclave and Off-Gas Treatment scrubber
- Decon Solution Storage and Distribution—APB
- Immobilized cell bioreactor (ICB) Feed, Biotreatment, ICB Blower and Air Distribution — Modules 1/2/3/4
- Plant Air—BTA Distribution
- Plant Air—APB Distribution
- Process Cooling Water—BRS Distribution\*
- Potable Water—APB Potable Water Break Tank, Booster Pumps and Distribution\*
- ERB Electrical Room Ventilation System\*
- Process Cooling Water—PCW Pumps, Tanks, Chemical Feed Skids, Cooling Towers\*
- Main Sanitary Waste—Lift Stations, Waste Tank and Pumps\*
- Non-Essential Power Panel-Entry Control Facility (ECF)\*
- Critical Power Panels—ERB\*
- Essential Power Panel—ECF\*



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[http://www.pmacwa.army.mil/info/video/systemization\\_yt.html](http://www.pmacwa.army.mil/info/video/systemization_yt.html)

\*Newly added

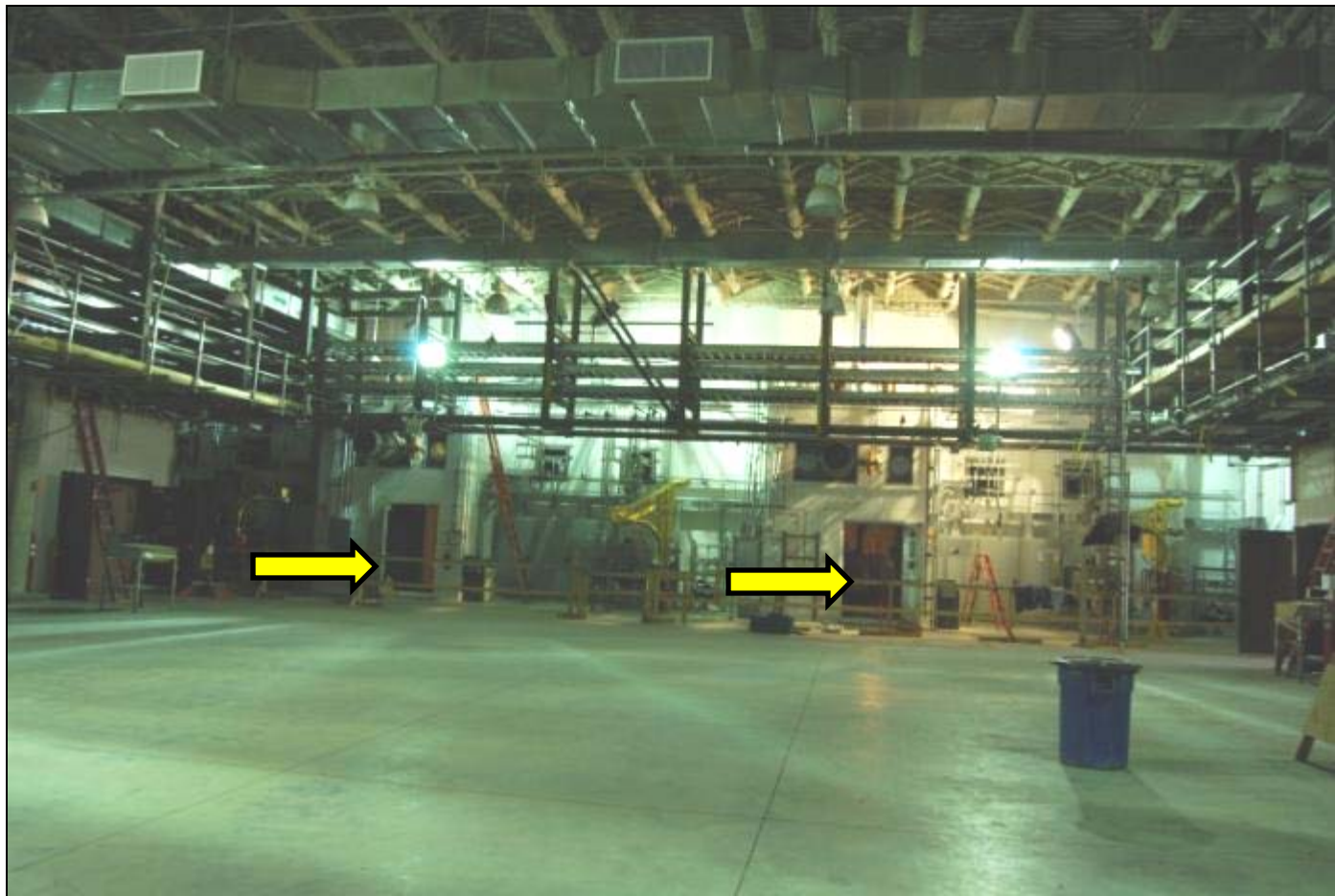


# Entry Control Facility



**Outside the Entry Control Facility (ECF), workers place concrete for sidewalks. The ECF will be the main point of entry for PCAPP workers as the project moves closer to operations.**

# Enhanced Reconfiguration Building



**Inside the Enhanced Reconfiguration Building's Receiving and Travelling Area, two of the three entries into the Explosion Containment Rooms can be seen.**

# Agent Processing Building



**Water used from the Hot Process Water Storage Tank (left) will support processing for the neutralization reactors. The Hydrolysate Holding Tank (right) pumps neutralized agent from the reactors where samples are taken prior to sending to the 30-day Hydrolysate Storage Tanks.**

# PCD Commander Tours PCAPP



**On July 25, PCAPP Plant Support Manager Dan Hall (left) gave a tour to U.S. Army Pueblo Chemical Depot Commander, Lt. Col. Tim Greenhaw, and new Deputy Commander Daniel Hancock.**



# Contact Information



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U.S. Army Element, Assembled  
Chemical Weapons Alternatives

