

# Monthly Status Briefing

*September 2014*



Blue Grass Chemical Agent-Destruction Pilot Plant



Program Executive Office  
Assembled Chemical Weapons Alternatives



**BGCAPP**  
Blue Grass Chemical  
Agent-Destruction Pilot Plant

[www.peoacwa.army.mil](http://www.peoacwa.army.mil)



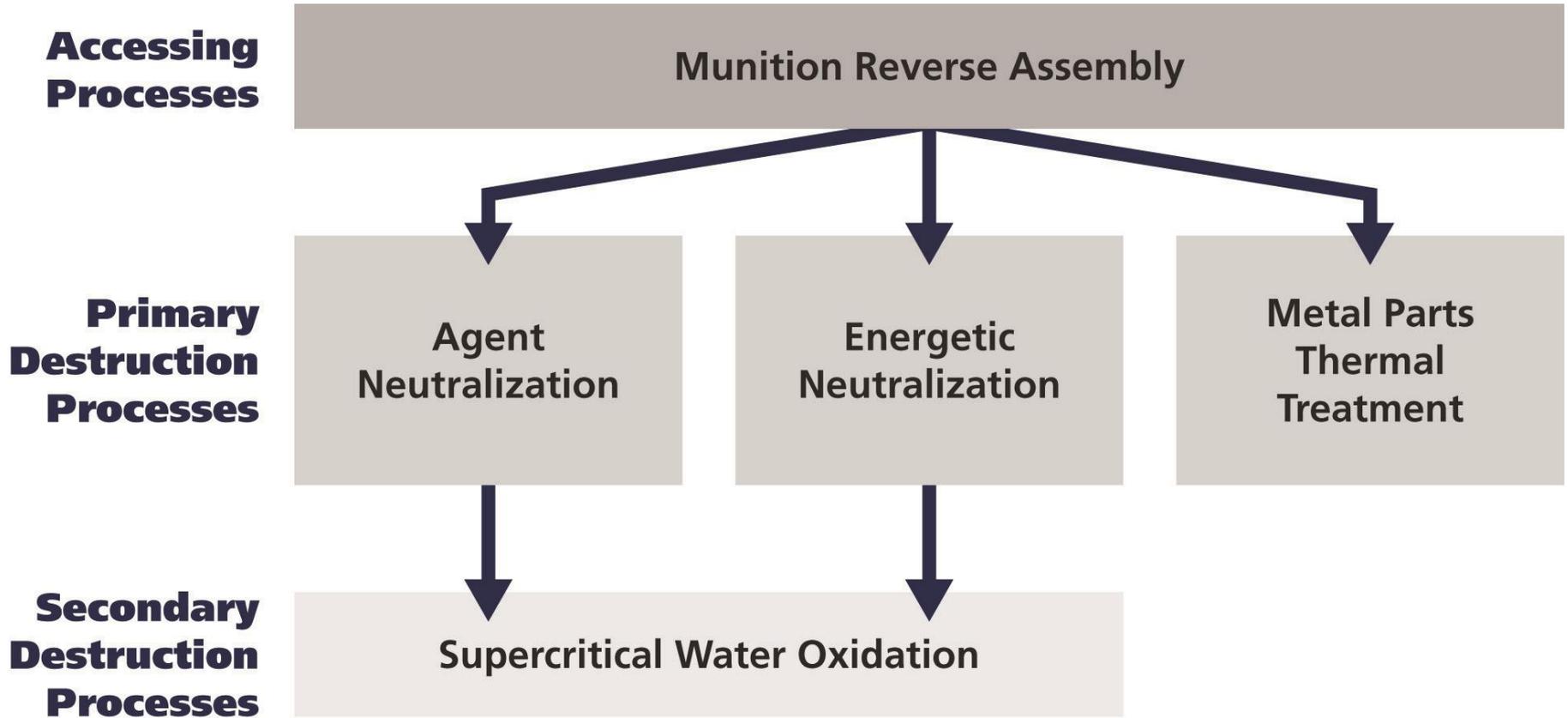
**A PARTNERSHIP FOR SAFE CHEMICAL WEAPONS DESTRUCTION**

# Project Background

- The Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) will safely destroy 523 tons of chemical agent in rockets and artillery projectiles stored at the Blue Grass Army Depot in Richmond, Ky.
- The main plant technology selected by the Department of Defense to destroy the Blue Grass VX and GB (Sarin) nerve agent weapons stockpile is neutralization followed by supercritical water oxidation (SCWO).
- The technology selected by the Department of Defense to destroy the Blue Grass mustard (H) agent weapons stockpile is Explosive Destruction Technology.
- The Program Executive Office, Assembled Chemical Weapons Alternatives (PEO ACWA) Program, headquartered at Aberdeen Proving Ground, Md., is responsible for managing all aspects of the safe and environmentally sound destruction of the chemical weapons stockpiles in both Kentucky and Colorado.
- The Bechtel Parsons Blue Grass Team, a joint venture of Bechtel National, Inc., and Parsons Government Services Inc., along with teaming partners URS Corporation, Battelle, General Atomics and GP Strategies Corporation, is the systems contractor selected to design, build, systemize, pilot test, operate and close BGCAPP.

# Main Plant Destruction Technology

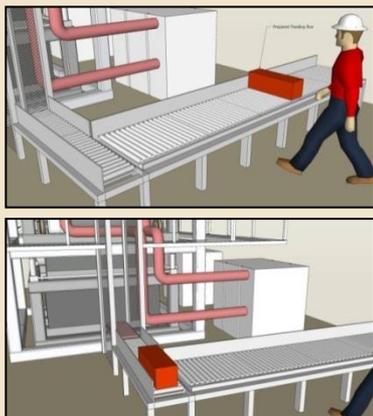
**Neutralization followed by supercritical water oxidation will be used to destroy the nerve agent weapons stockpile.**



# Explosive Destruction Technology Static Detonation Chamber (SDC)

**SDC will be used to destroy the mustard agent weapons stockpile.**

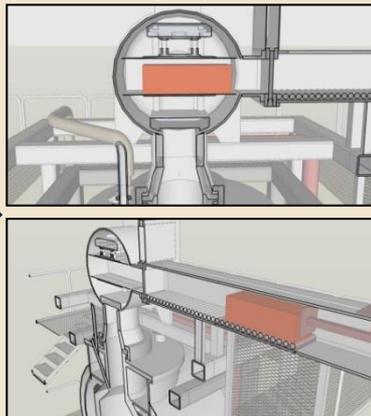
## Step 1



Workers place mustard projectiles in feed tray with aid of material-handling equipment

System allows for single handling of projectiles by workers

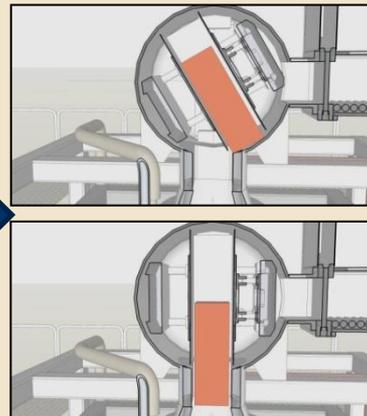
## Step 2



Projectiles conveyed to top of vessel

For added safety, it is a fully automatic, double air-lock feeding conveyor system

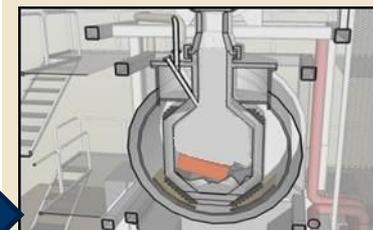
## Step 3



Projectiles fed into electrically heated detonation chamber

Chamber temperature maintained above critical temperature of energetics inside the projectiles

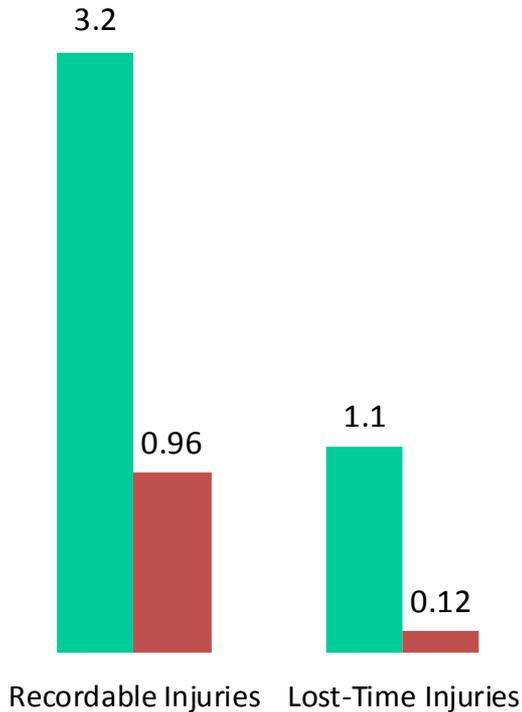
## Step 4



High heat detonate/deflagrate projectiles, mustard agent and energetics destroyed by explosion/thermal decomposition

Off-gases treated by air pollution control system

# Safety



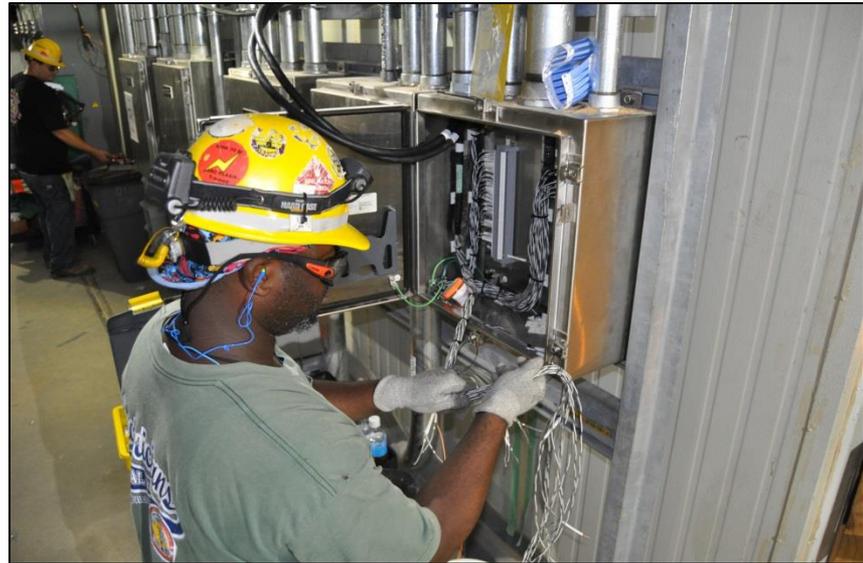
- Safety remains a core value of the project workforce
- Occupational Safety and Health Administration Voluntary Protection Program Star Status site
- Lost-time injury rate is **89 percent lower** and recordable injury rate is **70 percent lower** than industry average
- As of August 31, 2014, the project has completed 1,242,661 hours and 123 days without a lost-time accident

■ Construction Industry  
■ Bechtel Parsons  
(12-month rolling rate)  
Accidents per 200,000 job hours



# Current Project Staffing

- **Total project employment—1,564**
- **Richmond, Ky.—1,557**
  - Nonmanual—820
  - Craft—737
  - Local hires—57 percent
- **Other locations—7**
  - San Diego, Calif.
  - Columbus, Ohio
  - Reston, Va.



**A worker installs circuitry in the Munitions Demilitarization Building.**

# Economic Impact

- **Acquisitions to date**
  - \$130.8 million spent with Kentucky companies
  - \$75.3 million spent in Madison and surrounding counties
- **Payroll to date**  
(includes nonmanual and craft)
  - \$622 million of local payroll paid

# Main Plant Work in Progress



## 1 Hydrolysate Storage Area

- Electrical, piping, heat tracing and insulation

## 2 Control and Support Building (CSB)

- Facility Control System input/output testing
- Systemization beneficial occupancy complete

## 3 Munitions Demilitarization Building (MDB)

- Heating, ventilation and air conditioning duct work, electrical, piping, mechanical systems
- Munitions conveyor systems

## 4 Utility Building (UB)

- Exterior support systems infrastructure
- Internal UB systems in systemization phase

## 5 Supercritical Water Oxidation (SCWO) Process Building (not visible in photo)

- Piping systems and interior walls
- Tank farm fabrication and erection

## 6 Laboratory Building (not visible in photo)

- Systemization complete, personnel occupancy
- Laboratory readiness for receipt of dilute agent solution

# Control and Support Building (CSB)



**BGCAPP team members (above left) test equipment that will monitor plant activities through a control station inside the CSB operations control room. Construction workers (above right) install heating, ventilation and air conditioning equipment. During main pilot plant operations, the CSB houses the control room and the integrated control system used to operate the plant.**

# Munitions Demilitarization Building (MDB)



**Workers install piping in the MDB. During plant operations the MDB is where the chemical weapons will be disassembled, the explosives removed and the agent neutralized.**

# Hydrolysate Storage Area (HSA) and Supercritical Water Oxidation (SCWO) Process Building



**The Hydrolysate Storage Area (above left) is nearing completion. A carpenter (above right) works on interior wall sheetrock in the Supercritical Water Oxidation Process Building. During operations, agent and energetic hydrolysates, byproducts of the neutralization process, are emptied into HSA holding tanks once agent destruction is verified. The hydrolysate is transferred to the SCWO Process Building which houses the reactors where agent and energetic hydrolysates will be subjected to very high temperatures and pressures to destroy their organic content.**

# Support Infrastructure



**As construction nears completion, dirt and gravel roads are giving way to paved surfaces, as in this roadway near the Utility Building.**

# Blue Grass Chemical Agent-Destruction Pilot Plant

