

# Monthly Status Briefing

*December 2013*



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)



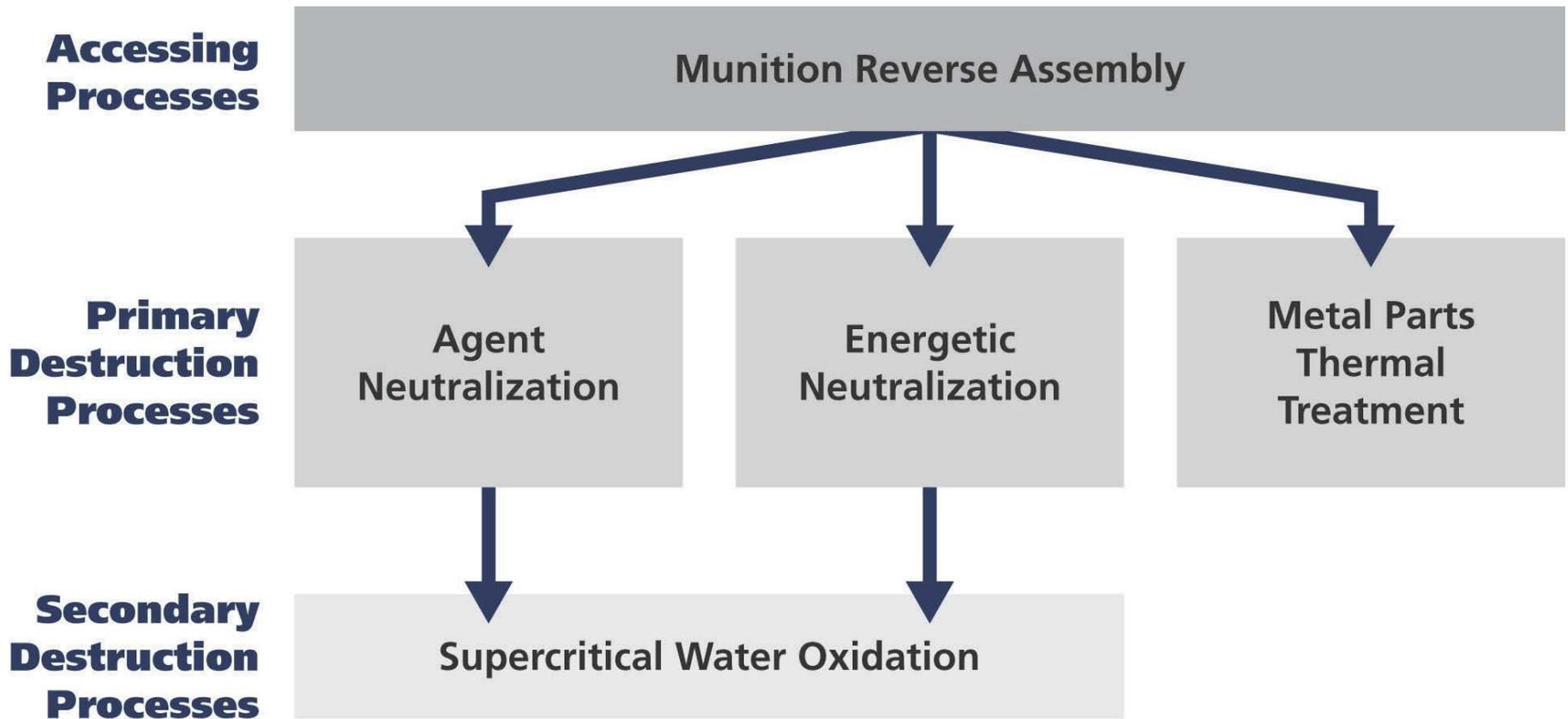
A PARTNERSHIP FOR SAFE CHEMICAL WEAPONS DESTRUCTION

# 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

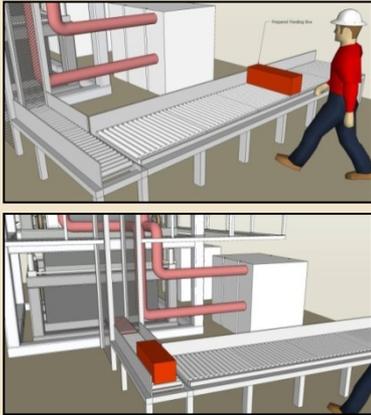
Neutralization followed by supercritical water oxidation will be used to destroy the nerve agent weapons stockpile.



# Explosive Destruction Technology Static Detonation Chamber (SDC)

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

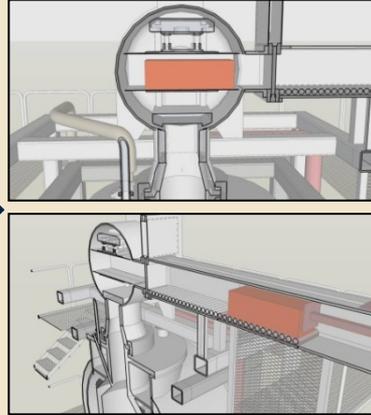
## Step 1



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

System allows for single handling of projectiles by workers

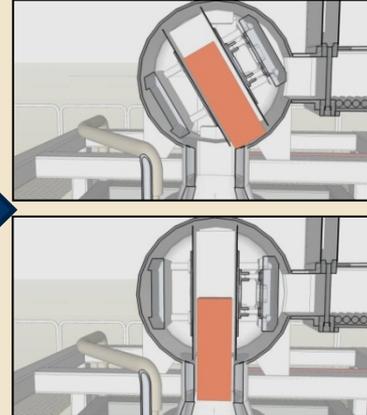
## Step 2



Projectiles conveyed to top of vessel

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

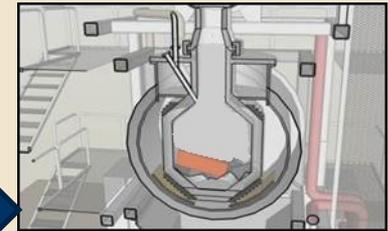
## Step 3



Projectiles fed into electrically heated detonation chamber

Chamber temperature maintained above critical temperature of energetics inside the projectiles

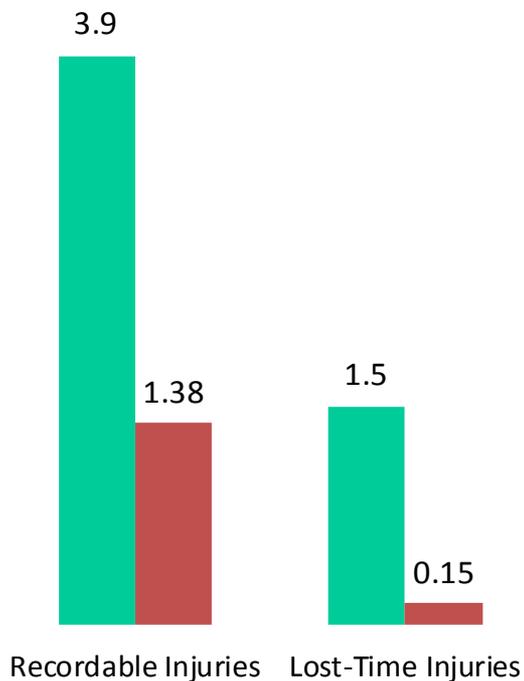
## Step 4



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

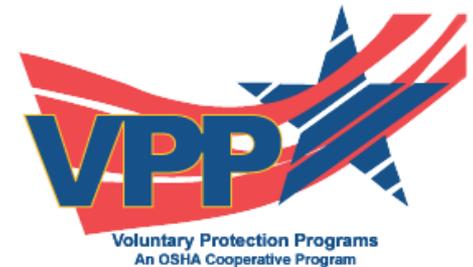
Off-gases treated by air pollution control system

# 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 **90 percent lower** and recordable injury rate is **65 percent lower** than industry average
- As of November 30, 2013, the project has completed 384,126 hours and 33 days without a lost-time accident

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



# Current Project Staffing

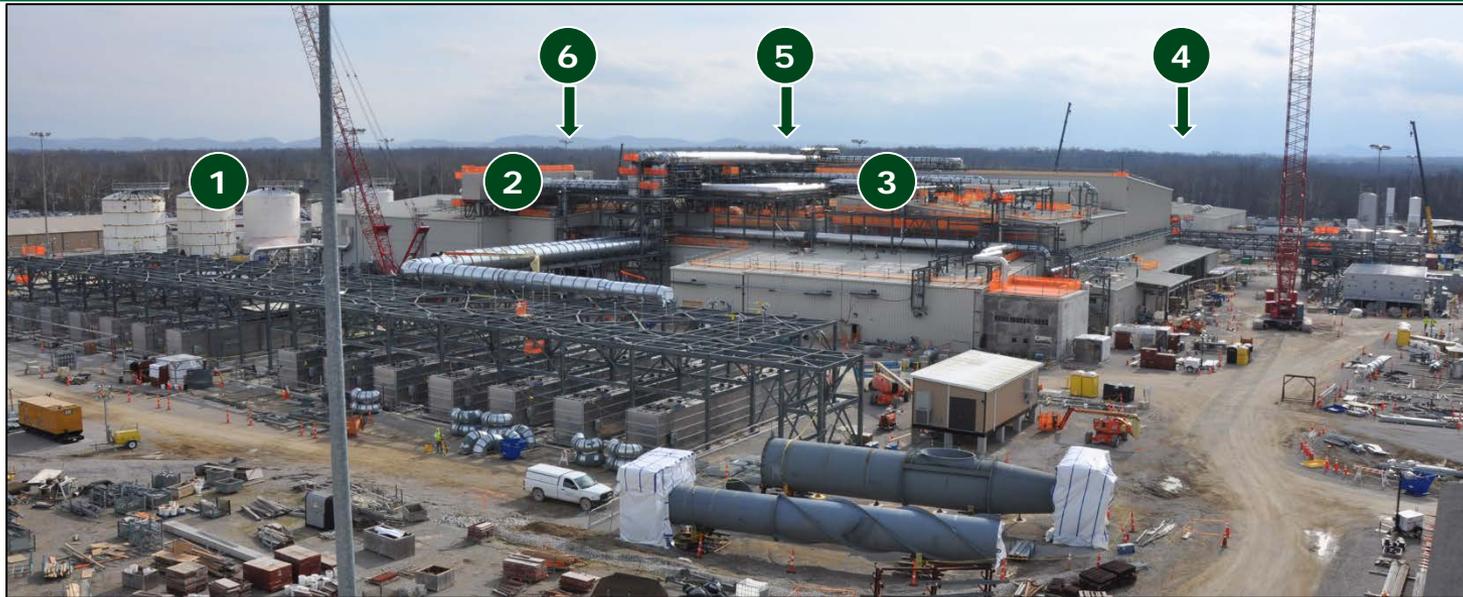
- **Total project employment—1,338**
- **Richmond, Ky.—1,331**
  - Nonmanual—643
  - Craft—688
  - Local hires—59 percent
- **Other locations—7**
  - San Diego, Calif.
  - Columbus, Ohio
  - Reston, Va.



BGCAPP has hired 59 percent of its Richmond workforce from the local area.

- **Acquisitions to date**
  - \$119.4 million spent with Kentucky companies
  - \$68.6 million spent in Madison and surrounding counties
- **Payroll to date**  
(includes nonmanual and craft)
  - \$510 million of local payroll paid

# Main Plant Work in Progress



## 1 Hydrolysate Storage Area

- Exterior tank painting

## 2 Control and Support Building (CSB)

- Facility Control System electrical wiring
- Preparing for systemization beneficial occupancy

## 3 Munitions Demilitarization Building (MDB)

- Heating, ventilation and air conditioning duct work, electrical, piping, mechanical systems
- MDB filter area support steel and stacks

## 4 Utility Building

- Exterior pipe rack support steel
- Preparing for internal systems turnover to systemization phase

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

- Mechanical equipment and lighting systems
- SCWO effluent process tank area foundation

## 6 Laboratory Building (not visible in photo)

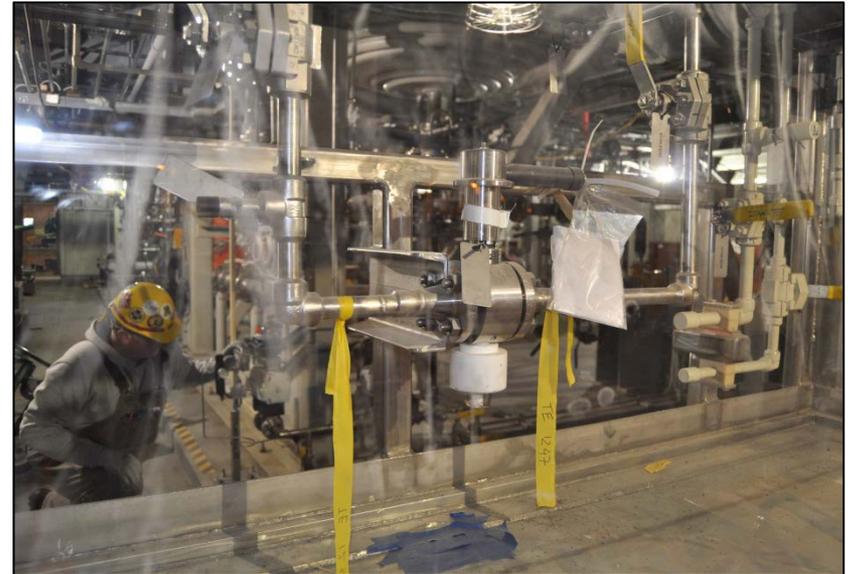
- Systemization complete, personnel occupancy

# Control and Support Building (CSB)



**A cement mason (above left) places finishing grout around the CSB mechanical equipment room doorway. An electrician (above right) installs wiring inside a CSB facility control system cabinet. Once complete, the CSB will house the control room and the integrated control system used to operate the plant.**

# Munitions Demilitarization Building (MDB)



Iron workers and sheet metal workers (above left) install structural steel and cascading ventilation air ductwork at the MDB filter area. During plant operations, the MDB's negative air pressure system called cascading ventilation, draws fresh air into the building. The air returns to the atmosphere only after it passes through a series of carbon filter units that scrub the air as it passes through. A pipefitter (above right) inspects a valve near the MDB energetics neutralization reactors. The MDB is where the chemical weapons will be disassembled, the explosives removed and the agent neutralized.

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



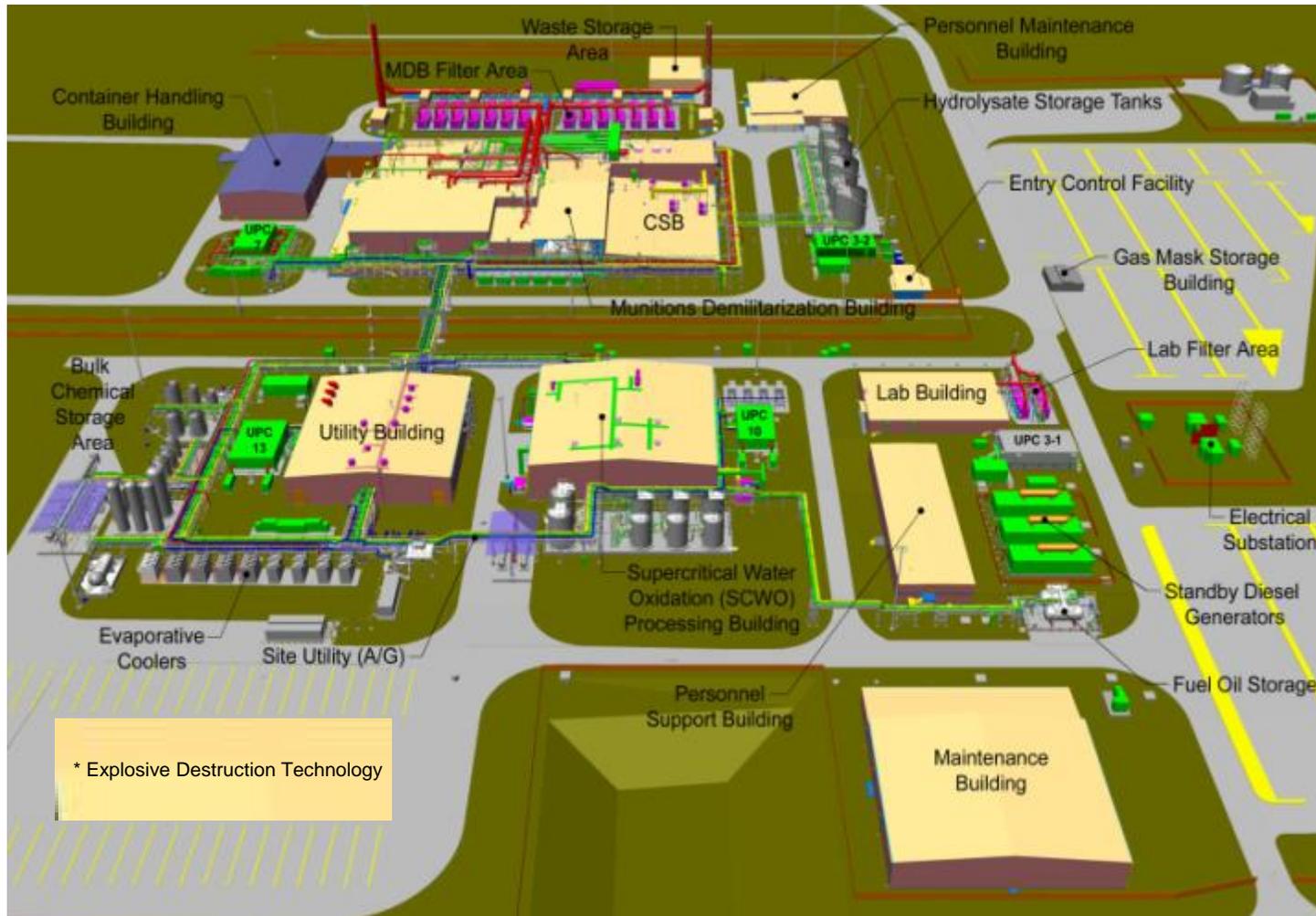
**A worker (above left) uses a lift basket to safely navigate around HSA tank exterior painting work. At the SCWO Process Building (above right), pipefitters work inside a SCWO reactor module assembly. During operations, agent and energetic hydrolysates, byproducts of the neutralization process, are 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.**

# Utility Building (UB)



Electricians (above left) install underground conduit for a future standby diesel generator concrete foundation. During operations, standby diesel generators will supply electricity during an unlikely power interruption to maintain safe plant operations. Electricians (above right) inspect a mechanical equipment control center inside the Utility Building. Once complete, the Utility Building will house equipment to produce steam, compressed air, chilled water and hot water for operations.

# Blue Grass Chemical Agent-Destruction Pilot Plant



\* Design under development