

Monthly Status Briefing

July 2014



Blue Grass Chemical Agent-Destruction Pilot Plant



Program Executive Office
Assembled Chemical Weapons Alternatives



BGCAPP

Blue Grass Chemical Agent-Destruction Pilot Plant

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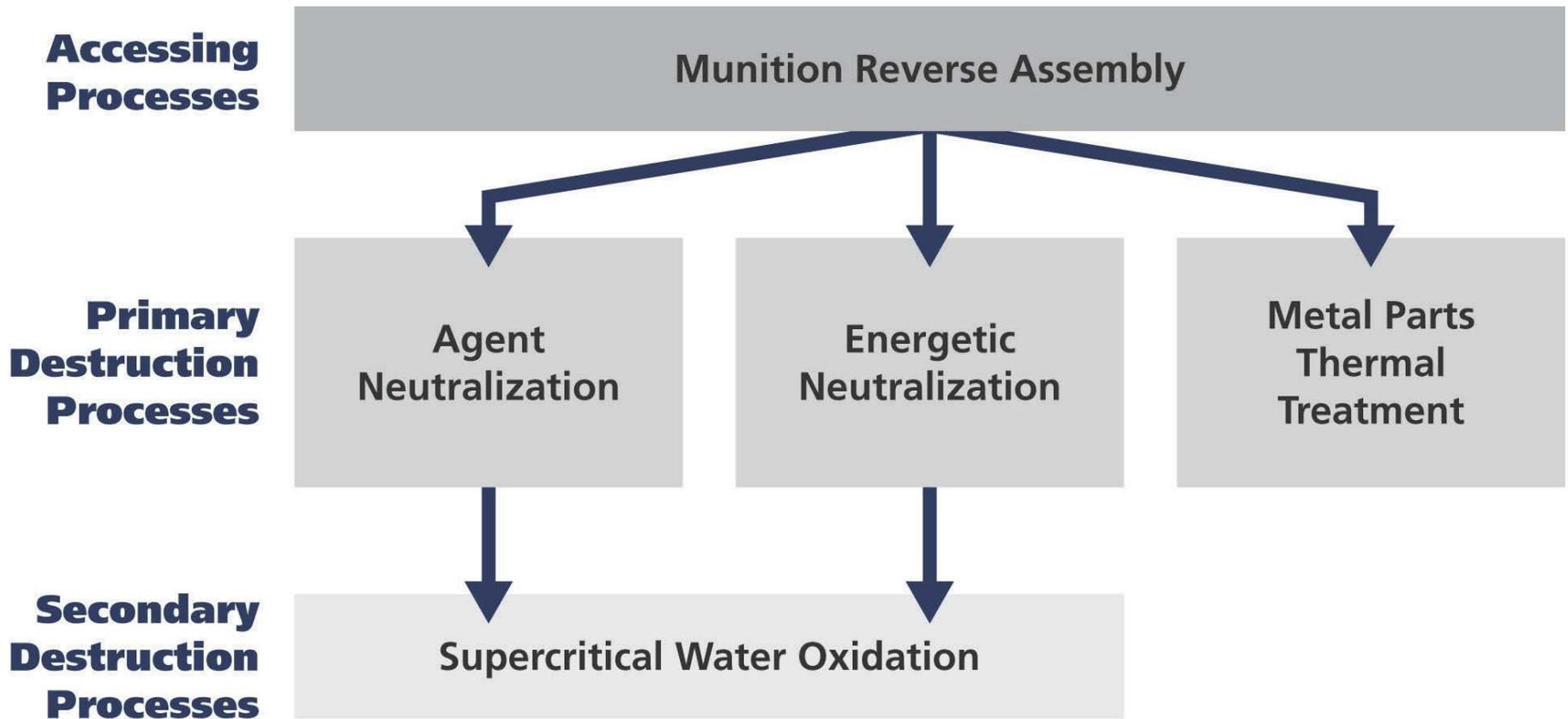
A PARTNERSHIP FOR SAFE CHEMICAL WEAPONS DESTRUCTION

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

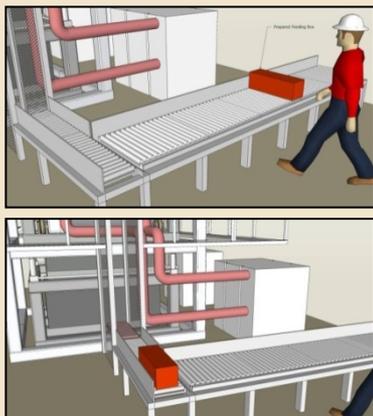
Neutralization followed by supercritical water oxidation will be used to destroy the nerve agent weapons stockpile.



Explosive Destruction Technology Static Detonation Chamber (SDC)

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

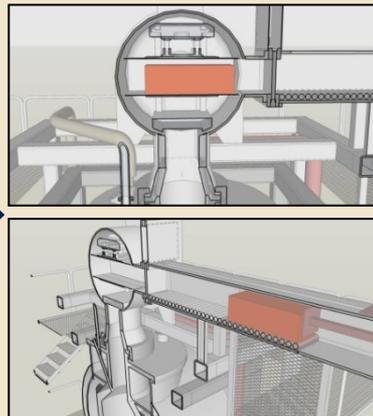
Step 1



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

System allows for single handling of projectiles by workers

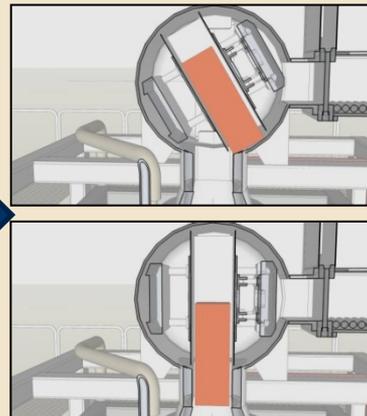
Step 2



Projectiles conveyed to top of vessel

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

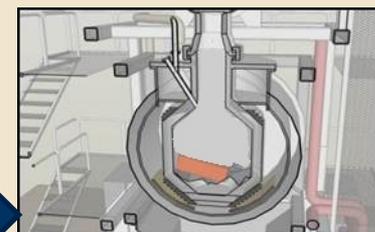
Step 3



Projectiles fed into electrically heated detonation chamber

Chamber temperature maintained above critical temperature of energetics inside the projectiles

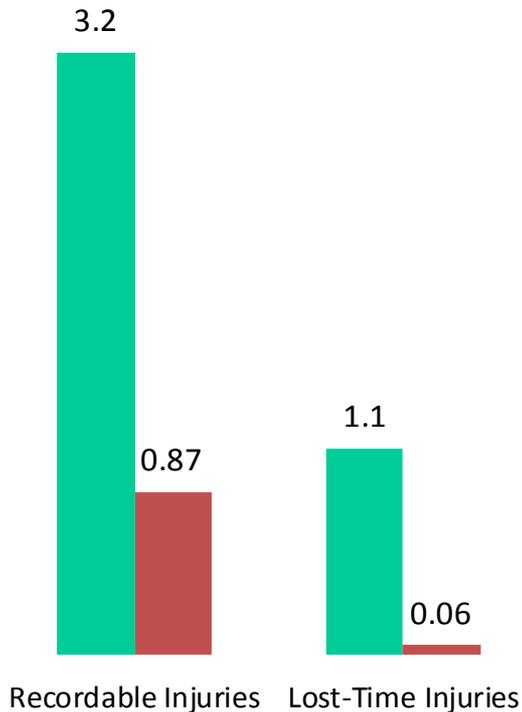
Step 4



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

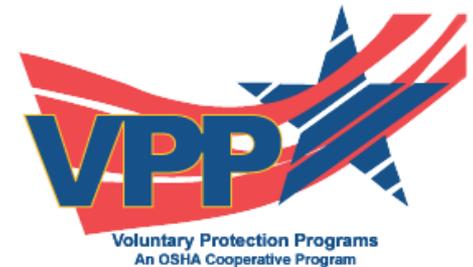
Off-gases treated by air pollution control system

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 **95 percent lower** and recordable injury rate is **73 percent lower** than industry average
- As of June 30, 2014, the project has completed 2,543,050 hours and 291 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—1,549**
- **Richmond, Ky.—1,542**
 - Nonmanual—781
 - Craft—761
 - Local hires—57 percent
- **Other locations—7**
 - San Diego, Calif.
 - Columbus, Ohio
 - Reston, Va.

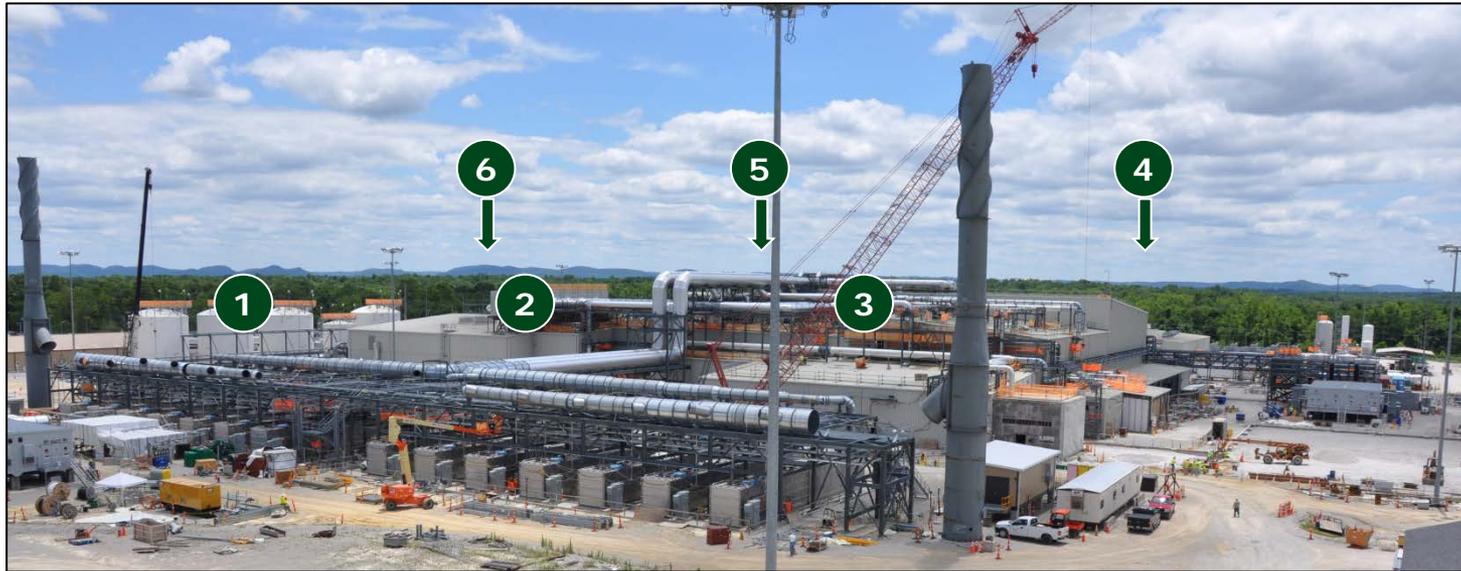


A pipefitter torques a bolt to specification inside the BGCAPP Munitions Demilitarization Building.

Economic Impact

- **Acquisitions to date**
 - \$127.4 million spent with Kentucky companies
 - \$73.4 million spent in Madison and surrounding counties
- **Payroll to date**
(includes nonmanual and craft)
 - \$595 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
 - Fire detection and fire protection 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)



Systemization team members review procedures inside personnel work areas (above left) and test CSB Facility Control System inputs/outputs (above right). 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)



An iron worker (above left) reviews drawings 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 is scrubbed in a series of carbon filter units. Workers (above right) continue MDB Container Handling Building foundation activities. During plant operations, munitions from the stockpile are transported to the Container Handling Building via the Enhanced On Site Container (EONC) transport system. The Container Handling Building provides a safe and secure storage area for the EONCs for a ready supply of munitions to support continuous plant operations. The MDB is where the chemical weapons will be disassembled, the explosives removed and the agent neutralized.

Hydrolysate Storage Area (HSA)



HSA tanks are being outfitted with heat tracing and insulation while associated electrical and piping installations are underway. During operations, agent and energetic hydrolysates, byproducts of the neutralization process, are emptied into HSA holding tanks once agent destruction is verified.

Supercritical Water Oxidation (SCWO) Process Building



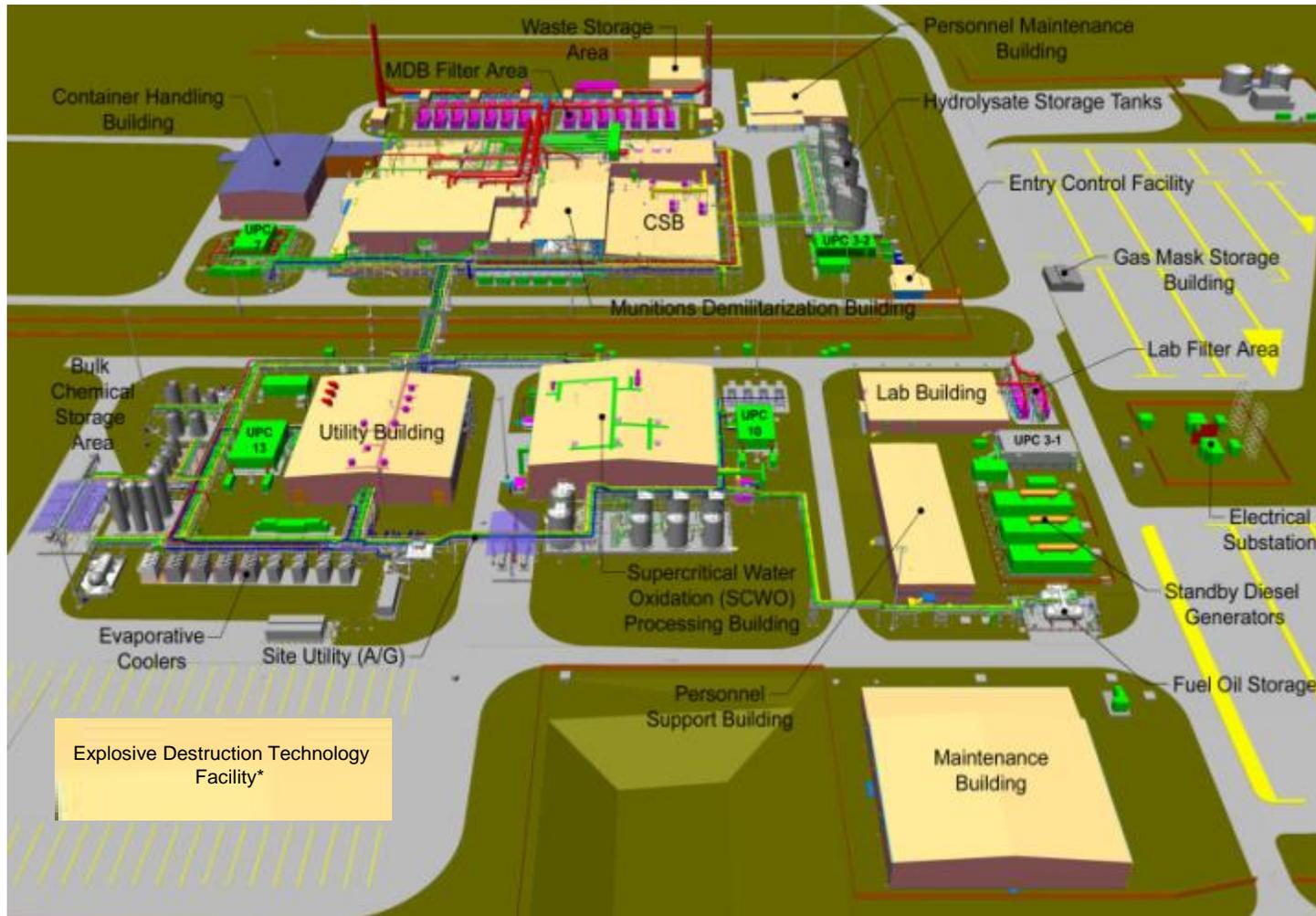
A series of SCWO Process Building air compressors (above left) rest atop concrete pad locations. Inside the SCWO Process Building, a pipefitter (above right) welds a support together for more piping installations. The SCWO Process Building will house the reactors where agent and energetic hydrolysates, byproducts of the neutralization process, will be subjected to very high temperatures and pressures to destroy the hydrolysates' organic content.

Support Infrastructure



Electricians (above left) install conduit within support steel that will carry utilities such as chilled water, steam and electricity to support plant operations. Crews (above right) excavate for a future paved roadway near the Supercritical Water Oxidation Process Building.

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* Design under development