

# Blue Grass *exchange*

A Partnership for Safe Chemical Weapons Destruction



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Blue Grass Chemical Agent-Destruction Pilot Plant

**Blue Grass Chemical Stockpile Outreach Office**

1000 Commercial Drive, Suite 2  
Richmond, KY 40475  
(859) 626-8944  
bgoutreach@bah.com  
Hours 8:30 a.m.–5 p.m., M–F  
Other hours by appointment

**Blue Grass Chemical Agent-Destruction Pilot Plant Public Affairs**  
(859) 624-6326

**Blue Grass Army Depot Public Affairs**  
(859) 779-6221

**Blue Grass Chemical Activity Public Affairs**  
(859) 779-6897

**Bechtel Parsons Blue Grass Public Communications**  
(859) 625-1291



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



Photo by John Schlatter

Bechtel Parsons Blue Grass workers direct concrete into forms for the first major concrete placement for the Munitions Demilitarization Building (MDB). This is an important milestone for the project, since this building is where all of the chemical weapons will be disassembled and destroyed. Concrete placements for the MDB are expected to continue for the next two years.

## Message From the Managers



By RALPH COLLINS  
Blue Grass Chemical  
Agent-Destruction Pilot  
Plant Acting Site Project  
Manager



By MARK SEELY  
Bechtel Parsons Blue  
Grass Project Manager

The Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP) is a unique facility. It is being built for a very specific purpose, to destroy the chemical weapons safely stored at the Blue Grass Army Depot. BGCAPP is one of two Assembled Chemical Weapons Alternatives program facilities, but due to the different types of chemical weapons each will destroy, they are each considered one-of-a-kind.

BGCAPP and its sister facility, the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) under construction in Pueblo, Colo., will both use neutralization to destroy the different chemical agents contained in their respective stockpiles. The first key variance between the two plants is that the technologies they will use to destroy the caustic wastewater byproduct of neutralization, known as hydrolysate, are different. BGCAPP will use supercritical water oxidation, while

PCAPP will use biotreatment. But, this is not where their differences end.

The Blue Grass stockpile has rockets that contain VX or GB agent and projectiles that contain mustard, VX or GB agent, while the Pueblo stockpile contains only mustard-agent rounds in three different types of projectiles. The projectiles at BGCAPP can be disassembled in a process similar to the one that will be used at PCAPP. However, with the rockets at BGCAPP, it is particularly difficult to disassemble and then separate the explosives from the agent, so they require a more complicated destruction process. Plus, the presence of three different chemical agents at BGCAPP requires more testing equipment and the process must be run in campaigns by type of agent with a significant cleanup period called “changeover” between each agent campaign.

PCAPP has fewer steps in its process than does BGCAPP, but has many more units to destroy. Its construction phase will be shorter than BGCAPP’s, but Pueblo’s operational phase will take approximately four years longer because of the larger number of units it has to destroy.

Since the missions are the same at Blue Grass and Pueblo, even though the stockpile components are different, people often ask why BGCAPP is taking longer to build and will not finish its destruction mission for

almost four years after PCAPP does. The BGCAPP process is much more complex and involves more specialized equipment. BGCAPP also started construction a year later than PCAPP. The table (below) shows how much larger the BGCAPP project is in terms of construction materials.

How much more material and equipment does BGCAPP need than PCAPP?	
Concrete-related materials	38% more
Structural steel	61% more
Piping/valves	41% more
Electrical	53% more
Instrumentation	76% more
Air monitoring equipment	25% more
Major equipment items due to multiple agents	28% more

Those are the big differences, and the main reasons the sister projects are on different timelines and budgets. But you can rest assured that both BGCAPP and PCAPP are moving as quickly as we can to destroy the stockpiles in a safe manner that protects human health and the environment.

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Betsy Weiner, Public Affairs Officer • Blue Grass Chemical Agent-Destruction Pilot Plant • (859) 624-6326 • [betsy.weiner@us.army.mil](mailto:betsy.weiner@us.army.mil)

Susan Kahler, Editor • Blue Grass Chemical Stockpile Outreach Office • (859) 624-7277 • [kahler\\_susan@bah.com](mailto:kahler_susan@bah.com)

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## *Brubaker Named as Site Project Manager*

By BETSY WEINER  
Blue Grass Chemical Agent-Destruction  
Pilot Plant



Jeffrey L. Brubaker has been selected as the site project manager for the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) in Richmond, Ky. He will be the lead government engineer, responsible for managing the plant's field office and overseeing the systems contract with Bechtel Parsons Blue Grass. Brubaker has worked in the Army's Chemical Demilitarization program since 1988, working on various projects at sites which used incineration technology. In 1997, he joined the Army's Alternative Technology program, serving for six years as an associate project manager, overseeing the neutralization design, development and coordination of preliminary site construction efforts with the U.S. Army Corps of Engineers. Brubaker will start at BGCAPP in late July.

## **BGCAPP Project Staff on the Move**

By JOHN SCHLATTER  
Bechtel Parsons Blue Grass

Employees of the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) are on the move as the staff continues to grow and new buildings are completed on the construction site.

The "downtown" staff is in the process of relocating from three buildings in the Gibson Bay Drive area to newly renovated space in the Richmond Mall. More than 200 employees of the U.S. Army Element, Assembled Chemical Weapons Alternatives (ACWA), Bechtel Parsons, the U.S. Army Corps of Engineers and support contractor FOCIS Associates are making the move.

When the BGCAPP project started up in 2003, the entire staff (fewer than 20 people) was located on Highland Park Drive in Richmond. As the staff increased and eventually outgrew that facility, additional space was leased in two nearby buildings: the White House Clinic and 1000 Commercial Drive, both also located in Richmond.

"This new location will consolidate our people in one location, improve

efficiency and reduce overall facility costs," said Ralph Collins, acting site project manager for the ACWA program.

The BGCAPP team will occupy a 42,000-square-foot space in the mall, located next to the Office Max store. The former retail space was converted to offices by contractors for the mall owner, Richmond Mall Associates, LLC.

Employees working directly on the BGCAPP site are also on the move thanks to the completion of two new buildings at the construction site. The construction team has moved from trailers into the newly completed Personnel Support Building. Property management personnel who were located in a warehouse near the site entrance on Highway 52 are moving into the new Maintenance Building.

The project's training center, adjacent to the Dollar General Store on Highway 52, will remain in its current location, as will the Outreach Office at 1000 Commercial Drive in Richmond.



Old storefronts gain new life as Blue Grass Chemical Agent-Destruction Pilot Plant employees move to the Richmond Mall.

Photo by Susan Kahler

## Operation *Swift Solution* Reaches Successful Close

By DEBRA HOGAN

Blue Grass Chemical Stockpile Outreach Office

The first chapter of chemical weapons destruction in the Commonwealth of Kentucky has reached an ending worthy of celebration. On April 16, Operation *Swift Solution*, the Army's initiative to safely destroy the contents of three deteriorating steel containers, or "ton containers," that held a corrosive mixture of nerve agent GB and its breakdown products came to a close as the last piece of equipment was removed from the *Swift Solution* site on the Blue Grass Army Depot (BGAD).

The following is a brief recap of the Operation *Swift Solution* process:

- Phase 1 began on Nov. 12, 2008, and consisted of draining the liquid agent mixture stored in the containers and neutralizing it using the Chemical Agent Transfer System (CHATS), ultimately producing a wastewater byproduct known as hydrolysate. Phase 1 was completed on Dec. 19, 2008.
- Phase 2 began in early January 2009 with the removal and neutralization of sludge, rust and other solids that had formed over time inside the containers. The containers were decontaminated and sampled to ensure no chemical agent contamination remained and were then cut in half in preparation for shipment to a recycling facility. This phase was completed on Jan. 18.
- Phase 3 involved the processing of legacy and secondary wastes, generated during the management and destruction of the containers in preparation for off-site shipment. Phase 3 was completed when two truckloads of hydrolysate were accepted at Veolia Environmental Services in Texas on Feb. 26.

- The last and final phase, closure activities, consisted of decontaminating and disassembling the mobile CHATS unit, other site equipment and structures, and preparing them for transport to the Edgewood Chemical Biological Center (ECBC) at Aberdeen Proving Ground, Md. This final phase wrapped up April 16.

Operation *Swift Solution* involved a multi-agency effort between the U.S. Army Element, Assembled Chemical Weapons Alternatives (ACWA), ECBC, the U.S. Army Chemical Materials Agency, the Kentucky Department for Environmental Protection as the permitting agency, BGAD as the landowner and permit holder, and the Blue Grass Chemical Activity (BGCA) as the responsible party for safe storage of the chemical weapons. The mission was completed with no injury or incident and eliminated the health and safety risks associated with the continued storage of the three deteriorating steel containers and their associated management wastes.

"Operation *Swift Solution* gave us an excellent real-world opportunity to test our procedures for command and control, emergency response notification, inspection and oversight of chemical agent," said Lt. Col. David Musgrave, BGCA commander. "We are all better prepared for the future."

Joe Novad, ACWA deputy program manager for systems engineering and



Photo courtesy of Blue Grass Chemical Activity

**An Operation *Swift Solution* team member cuts a drained steel container in half in preparation for cleaning and decontaminating the inside.**



Photo courtesy of Blue Grass Chemical Activity

**Shown above is the cleaned and decontaminated interior of one of the steel containers that held the nerve agent GB mixture.**

operations, said, "We've been able to successfully complete this mission in a safe manner and get rid of the risk that was impacting the construction efforts that were going on at the current demilitarization plant. The community is now safer, some agent is gone and we can now set our sights on the larger task ahead with increased confidence and determination."



Photo by Betsy Weiner

Boxes of packaged waste are checked against a roster at the end of the closure phase of Operation *Swift Solution*.



Photo by Betsy Weiner

Packaged and palletized waste is moved from the holding area in preparation for transport to Veolia Environmental Services.



Photo courtesy of Blue Grass Chemical Activity

Operation *Swift Solution* equipment awaits transport from the site on the Blue Grass Army Depot where the destruction operations were previously conducted.



Photo courtesy of Blue Grass Chemical Activity

A truck from the Edgewood Chemical Biological Center's Chemical Biological Applications and Risk Reduction business unit transports a mission trailer from the Operation *Swift Solution* site.



Trucks carrying eurotainers filled with Operation *Swift Solution* wastewater, known as hydrolysate, were weighed as they left the Blue Grass Army Depot in February.

## Horizontal Concrete Placements Continue at BGCAPP

By BETSY WEINER  
Blue Grass Chemical Agent-Disposal Pilot Plant

All horizontal concrete placements for the Control and Support Building, part of the Blue Grass Chemical Agent-Destruction Plant (BGCAPP), have been completed and construction teams are focusing on the Munitions Demilitarization Building (MDB), according to project officials.

Gary Cough, Bechtel Parsons construction manager, said that current plans call for roughly two to three concrete placements each month to continue through July.

“The completed buildings on the site include auxiliary support structures for personnel and maintenance,” he said. “Cold weather that has affected the area recently has slowed work progress because the batch plant (concrete supplier) can’t supply the site if the temperature drops to below 15 degrees Fahrenheit,” he added.

Terry Stroschein, BGCAPP resident engineer, U.S. Army Corps of Engineers, emphasized that construction workers completed another major placement on Feb. 25, and agreed with Cough about the scheduled concrete placements.

“We are expecting increased activity in this area and should be seeing two to three significant MDB concrete placements each month through the spring and summer, as weather permits,” he said. The first substantial concrete placement work on the main processing building for the plant, more than 300 cubic yards, was placed on Feb. 7.

The 87,000-square-foot MDB is the facility where the chemical weapons will be disassembled, explosives removed and the agent neutralized. Moreover, this is the first time a facility will be



Photo by John Schlatter

An AMEC Earth and Environmental, Inc. employee performs a slump test, one of three different tests performed to ensure quality of the concrete used to create the Munitions Demilitarization Building foundation. AMEC is a third-party testing company, who provides unbiased testing results to Bechtel Parsons. Test batches are taken from the trucks as they arrive at the site and the concrete is tested every fifty cubic yards, at a minimum.

constructed to neutralize GB and VX chemical agents that are contained in rocket munitions, according to Ralph Collins, acting site project manager for BGCAPP.

“The concrete placement for the MDB is a critical part of the project,” said Collins. “Because of delays in getting design approval for the explosive containment areas, we have started with the non-explosive areas. When you include the work to complete the vertical walls of the explosive containment area, it will take us nearly two years to complete the entire concrete placement effort. However, we are well on our way.”

A Bechtel Parsons Blue Grass worker directs concrete from a pumper truck into previously prepared forms to create part of the Munitions Demilitarization Building foundation.

## Secondary Waste at Blue Grass: Waste Generated During BGCAPP Operations

By ROGER DICKERMAN  
Washington Demilitarization Company

*Note: The U.S. Army Element, Assembled Chemical Weapons Alternatives, the Department of Defense organization responsible for the destruction of the chemical weapons stockpile in storage at the Blue Grass Army Depot, tasked the National Research Council and Noblis to complete independent technical analyses regarding the treatment of secondary waste and hydrolysate generated during Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) operations. This is the fourth and final of a series of articles to help educate readers about secondary waste and hydrolysate, as well as the findings in these reports and their implications for BGCAPP and the local community.*

Just like a day in your household or office, a day of processing chemical weapons at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) will generate waste. Whereas your household or office waste might consist of non-hazardous paper goods, food wrappers and wastes, and bottles or cans, some of BGCAPP's wastes will be designated as hazardous. This means they must be properly tracked, contained, monitored and disposed of through a permitted disposal process or facility.

Hazardous waste generated at BGCAPP will fall into one of three categories: process, secondary or closure wastes.

### Process Waste

Process wastes are those waste streams generated by the various processes at BGCAPP. They are produced outside of the main chemical agent treatment facility, the Munitions Demilitarization Building (MDB), and are therefore normal industrial type hazardous waste streams. These hazardous waste streams



Photo courtesy of Washington Demilitarization Company

Employees dressed in protective gear package hazardous waste for proper disposal.

at BGCAPP include aluminum filter cake (aluminum residue filtered from hydrolysate feed to the supercritical water oxidation, or SCWO, system), reverse osmosis brine (brine residue from SCWO water treatment system) and scrap metal.

### Secondary Waste

Secondary wastes are the waste products generated during operations, maintenance and closure of the plant. These waste streams are usually generated during work in potentially contaminated areas of the MDB while operators and maintenance workers are performing their duties in the normal every-day care of the facilities. Secondary wastes include, but are not limited to, rags, containers, plastic drum liners, absorbents, solvents, paints, lubricants, tools, power extension cords, personnel protective equipment and failed electrical and mechanical components.

### Closure Waste

When destruction of all of the chemical weapons is complete, it will be time to shut down the BGCAPP facility. Doing so requires the removal and disposal of a number of Systems, Structures, and Components, or SSC's, which are the pieces of equipment that came in direct contact with and were used to handle and destroy the chemical agents. A significant quantity of closure-related wastes will be removed from the agent-processing areas of the plant and will be decontaminated or thermally treated (heated to a temperature high enough to completely destroy any remaining traces of chemical agent), if necessary, and sent off site for disposal to achieve successful BGCAPP closure. These closure wastes include items like tanks, piping, pumps, platforms and instrumentation.

## Information | Exchange

The Blue Grass Exchange is designed to keep you up to date on the chemical weapons destruction project. Submit your feedback and potential story ideas by contacting the editor, Susan Kahler, by phone at (859) 626-8944 or e-mail at [bgoutreach@bah.com](mailto:bgoutreach@bah.com).

## Virtual Information | Exchange

Find out more about ACWA's mission to safely destroy the chemical weapons stockpiles located at Blue Grass Army Depot, Ky., and Pueblo Chemical Depot, Colo., by visiting [www.pmacwa.army.mil](http://www.pmacwa.army.mil).

Current and past editions of the Blue Grass and Pueblo *Exchange* can also be found online. To locate the newsletters, click on the "Information Products" link and then on the word "Newsletters."

### Mark Your Calendar

Your involvement is essential to the success of the project. Please share your views at the Kentucky Chemical Demilitarization Citizens' Advisory Commission and Chemical Destruction Community Advisory Board meetings. Upcoming meetings are scheduled for **June 9, 2009** and **Sept. 9, 2009** at **1:30 p.m.** in the **Carl D. Perkins Building, Rooms A and B** at **Eastern Kentucky University**.

**Blue Grass Chemical Stockpile Outreach Office**  
1000 Commercial Drive, Suite 2  
Richmond, KY 40475

