# Blue Grass exchange

A Partnership for Safe Chemical Weapons Destruction

April-June 2010

IN THIS ISSUE



BGCAPP

Blue Grass Chemical Agent-Destruction Pilot Plant

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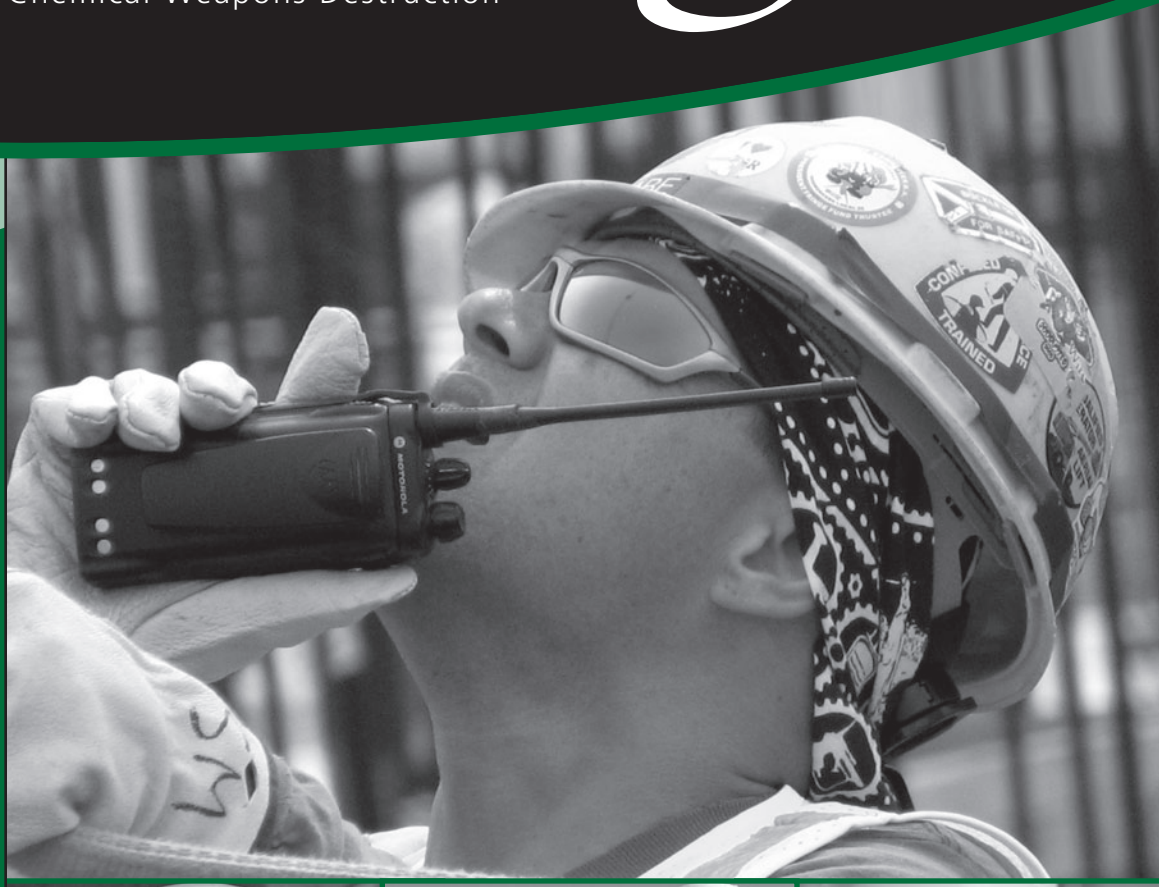


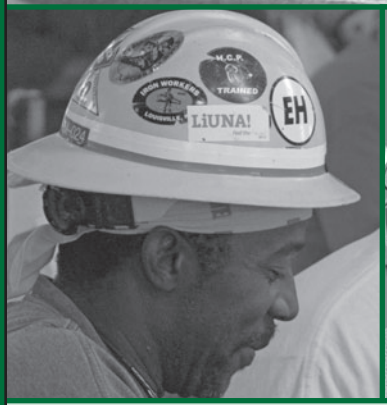




On the Blue Grass Chemical Agent-Destruction Pilot Plant construction site, hard-hat stickers tell stories. They reflect each worker's trade, training and expertise, as well as safety certifications. Information is conveyed through the hard hats of workers across the site, making their training, skills and a few personal sentiments—"I 'Heart' Rebar," for example—available at a glance. Top: Ironworker Scott McCabe is one of the many workers who bring a wealth of skills to the pilot plant construction site and whose years of experience have transformed his hard hat into a patchwork of stickers. Bottom, from left: Cement Mason Joseph Harrison, Laborer Mike Hinton and Labor Foreman Ann Mortiere's hard hats display specific information about their respective training and knowledge.

# Messages From the Managers

By JEFF BRUBAKER
Blue Grass Chemical Agent-Destruction Pilot Plant Site Project Manager

The Blue Grass team recently celebrated a very important milestone – 5 million work hours without a lost-time accident. This is a great accomplishment, and one that could not have been achieved without the dedication and hard work of the entire Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) family. From the men and women on the construction site to our team at the project offices, each and every one of our team members has contributed to this achievement and all deserve the accolades for his or her performance.

The first cornerstone of my management philosophy here at BGCAPP is safety. My goal is for every worker to go home safely to their families each day and to ensure our facility is being built with the safety of the community living near the Blue Grass Army Depot in mind. In light of this priority and our recent accomplishment, we dedicate this issue of the *Exchange* to safety. Safety has been a central focus in all aspects of the facility design and construction, and will remain at the forefront during operations, systemization and closure. Several project positions are dedicated to safety management, safety engineering, explosives safety, risk management, construction safety and occupational health, however, all employees have specific safety and health roles and responsibilities. We are also part of a larger chemical demilitarization community that collectively strives for project safety and actively share lessons learned with our sister site in Pueblo, Colo., to ensure our safety programs are as comprehensive as possible.

These efforts were integral to our 5-million-hour milestone, and I'd like to congratulate the entire BGCAPP workforce on this important achievement. The coming months and years will be busy and exciting, and as we progress through construction and ultimately systemization and operations, I have every confidence that we will be successful in carrying on this exemplary standard.

By MARK SEELY
Bechtel Parsons Blue Grass Project Manager

Safety is a responsibility that my Bechtel Parsons Blue Grass management team and I take very personally. It's about people.

When Bechtel first promulgated the "Zero Accidents" philosophy, company chairman Riley Bechtel said:

*"We measure our safety performance by number of incidents. But let's be clear . . . it's really not about incident rates . . . it's about people. People who have faces, names, families, hopes, and dreams. I believe Zero Accidents is not only attainable, but sustainable. To believe anything else is to believe that it's okay for people to get hurt. And if you believe it's okay for people to get hurt, which ones is it okay to hurt?"*

At Bechtel Parsons Blue Grass we use a variety of tools to ensure a safe workplace. I'd like to talk about two of them – "stop-work authority" and "leading indicators."

On the first day they report to work, every new employee hears a senior manager discuss his or her personal commitment to safety. One of the points management emphasizes is that every employee has the authority to stop work if he or she sees a safety hazard. We make it clear to all employees that we will never sacrifice safety for cost or schedule.

While our incident rates are far better than national averages, those rates are "lagging indicators." You might think of them as a look in the rearview mirror. We focus on "leading indicators," things that are precursors to accidents.

Every month we measure 32 leading indicators on a traffic light scale. For an indicator to be rated green it must be compliant at least 95 percent of the time. Anything between 85 percent and 94 percent is yellow, and below 85 percent is red. When an item turns yellow or red we investigate and take corrective action.

And while much of our current focus is on construction safety, we are already putting systems and procedures in place for safety during plant operations. Our commitment is to protect our workers and the public as we carry out the important work of destroying chemical weapons.

The Blue Grass Exchange is a publicly released quarterly publication of the Assembled Chemical Weapons Alternatives (ACWA) program. It is distributed in hardcopy format and posted in Portable Document Format (PDF) on the ACWA website at www.pmacwa.army.mil.

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# Quarterly Status Update

By JOHN SCHLATTER
Bechtel Parsons Blue Grass

To keep you updated on the Blue Grass chemical destruction project, the *Exchange* will feature a new "Quarterly Status Update" section. Each issue will include information on progress at the site as well as staffing and acquisitions information.

Of special note this issue, is the March 4, 2010 completion of 5 million safe man-hours by the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) workforce. This equates to approximately seven years of work, since project inception in June 2003, without a lost-time injury.

### Facility Design

Design is 99 percent complete. Still to go:

- Standby Diesel Generators
- Electronic Security System
- Entry Control Facility

### Construction

Work progresses at the BGCAPP construction site, with the following projects ongoing:

- Munitions Demilitarization Building blast-area foundations and walls
- Utility Power Centers
- Fire Water Pump House
- Utility Building
- Supercritical Water Oxidation Building earthwork

### Project Staffing - Richmond, Ky.

- Total employment: 557 (50 percent local hires)
- Non-manual personnel: 351
- Manual personnel: 206

### Acquisitions

More than $61 million spent with Kentucky companies since project inception.

U.S. Army photo

**A dense forest of reinforcing steel, or rebar, rises from the blast area of the Munitions Demilitarization Building as project workers prepare for the final foundation concrete placement.**

Photo by Susan Kahler

**Construction site workers demonstrate effective teamwork skills as they install outer panels on the Fire Water Pump House, which will enclose the pumps and other operating equipment for the tanks that will provide potable and fire-suppression water to the pilot plant site.**

U.S. Army photo

**Before a building goes up, work has to go down first. This allows for installation of underground utilities such as water and sewer, and provides the necessary space for placement of the foundation. Here, Supercritical Water Oxidation Building earthwork is progressing.**

# Safety Begins With Worker Responsibility

By DEBRA HOGAN
Blue Grass Chemical Stockpile Outreach Office

Thanks to a safety culture that is embodied on the construction site each day, the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) team surpassed 5 million job-hours without a lost-time injury in March.

"We strive toward giving the workforce all the fundamentals they need to provide a safe working environment," said Sunday Street, BGCAPP safety engineer. "And it is the workforce that should get most of the credit, their daily commitment to ensuring a safe worksite is unwavering."

Several safety programs have set the stage for success at BGCAPP. These programs are intended to prevent accidents and empower individuals to stop work when observing an activity that jeopardizes safety.

For example, the Constructive Attitude Towards Safety, or CATS, team is led by members of the workforce. It conducts safety inspections at the construction site with a "No Name, No Blame" approach. When the team identifies at-risk behaviors or potentially unsafe acts, they act quickly to fix them without singling out or attributing blame to another team member. CATS team safety inspections check everything from housekeeping to hard hats to hammers and team leaders keep statistics of each inspection to identify areas of improvement.

Another workforce-led group, the Star team serves as a bridge between management, workers, safety organizations and the Occupational Safety and Health Administration, keeping workers involved in the safety process. If there is a need for a safety policy change on the BGCAPP construction site, the Star team drafts and implements those policies and rules.

Both the CATS and Star teams hold weekly meetings to discuss safety issues and inspections. Each team chair briefs the workforce on any new policy or rule to be enforced.

"Management plays a role in safety, but the key is that every worker takes personal responsibility for their actions on the job site," said Bechtel Parsons Blue Grass Safety and Health Manager Jeff Weldon.

And it is the hard hats on the construction site that serve as evidence of this commitment. Workers are encouraged to take additional courses to promote safety in their specific areas of expertise. For each course a worker attends, he gets a sticker to add to his hard hat. There are stickers for elevated work training, fall prevention, training on the worksite utility vehicles and numerous other tasks. A visual inspection of any worker's hard hat quickly conveys his safety training record and expertise on the job, and that stickered hat is another symbol of the project's commitment to safe practices.

"I don't know of any sticker-collecting competitions going on among the workers, but you'd think there would be one," Area Superintendent Gene Rhodes said. "It is a testament to their commitment to our mission and to each other."

## Can you count the safety-related items in this photograph of a worker at the pilot plant facility?

1. Observation window in the door
2. Bucket of ice-melter
3. Safety poster
4. Lights to illuminate the stairway and landing in the dark
5. Worker's hard hat, safety glasses and reflective vest
6. Safety railing on stairway
7. Protective cap on the top of the chain stake

Photo by Susan Kahler

***"I've never worked on a job site as safe. The way that everyone looks out for one another out here is really special."***

– **Laborer Nick Helterbrand**

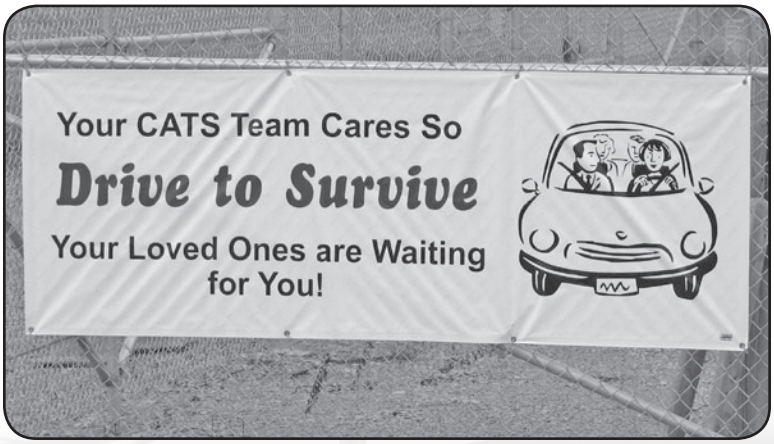



Photo by Susan Kahler

**Signs like this one, placed at the exit of the construction site parking lot, remind workers that safe behaviors extend into their personal lives and apply to more than just worksite activities.**


Photo by Susan Kahler

**Before every crane lift at the construction site, the crane operator and all personnel working on the lift are required to gather for a lift-procedures meeting to ensure the safety of every worker involved.**


Photo by John Schlatter

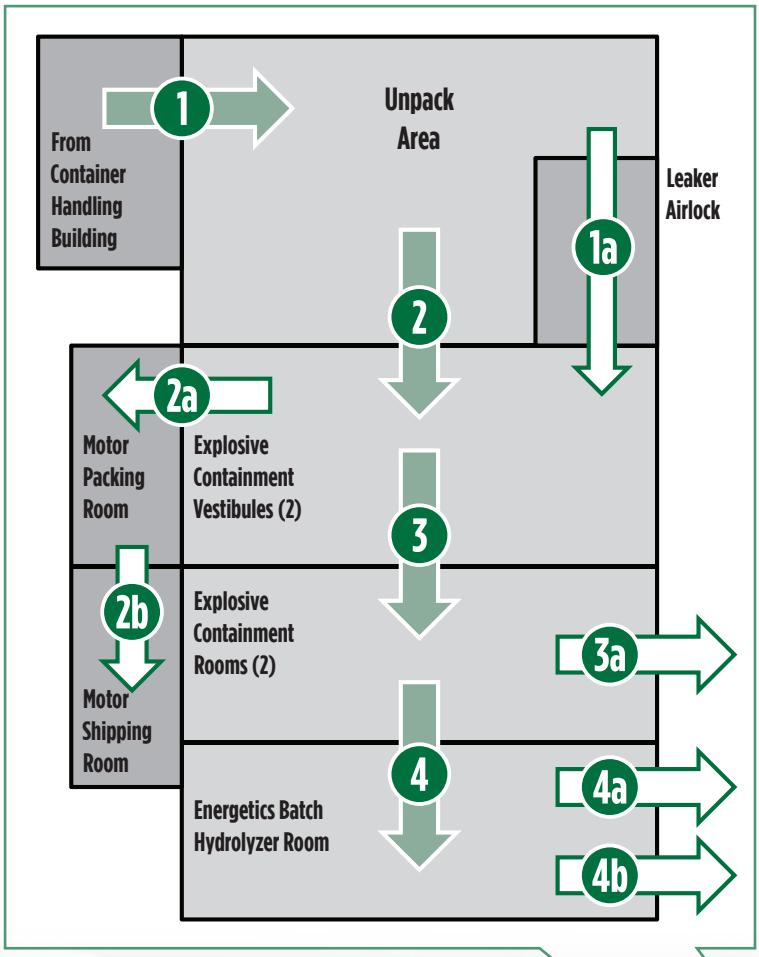
**Project personnel spend many hours working to ensure the safety of the pilot plant workforce. Here, from left, Safety Engineer Sunday Street and Safety and Health Manager Jeff Weldon meet with craftsmen Grover Adams and Rich Scallan, chairmen of two safety teams composed of construction workers, to review procedures for a "Life Critical" safety inspection at the construction site. A Life Critical inspection focuses on hazards that have the potential to cause serious injuries.**

# Chemical Munitions Destruction: A Rocket's Path Through the Pilot Plant Facility

By JOHN SCHLATTER
Bechtel Parsons Blue Grass

Once constructed, tested and operational, the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) will employ a combination of specialized equipment and robotic processes to safely remove and neutralize chemical agent contained in rockets and artillery projectiles. This article will focus on how a rocket is destroyed at BGCAPP.

## Munitions Demilitarization Building West Side




## Rocket's Path

1. Rockets are received in the Unpack Area from the Container Handling Building in an Enhanced Onsite Container (EONC), which is tested for the presence of chemical agent before it is opened.
   - 1a. If chemical agent is detected, the sealed EONC is delivered to the Leaker Airlock. The EONC is opened in the Explosive Containment Vestibule (ECV) by workers in protective gear, who will overpack any leaking or contaminated rockets. The remaining rockets are delivered into the normal rocket destruction process.
2. Rockets are unpacked from the EONC and placed into the automated Rocket Handling System, which transfers them to the ECV. Here the Rocket Cutter Machine separates the agent-filled warhead from the motor.
   - 2a. The motors are transferred to the Motor Packing Room where they are boxed and then monitored to ensure there is no agent contamination.
   - 2b. The motors then proceed to the Motor Shipping Room where workers complete the packaging of the motor box for shipment to an appropriate disposal facility.
3. The warhead portion of the rocket then goes to the Explosive Containment Room, where the Rocket Shear Machine punches holes in the warhead and drains the agent, flushes the cavity and cuts the warhead into four pieces.
   - 3a. The drained agent is pumped to the Agent Neutralization Reactors to be neutralized. The resultant solution, known as hydrolysate, will be processed in the Supercritical Water Oxidation system.
4. The warhead pieces are delivered to the Energetics Batch Hydrolyzer Room, for initial neutralization of explosive components.
   - 4a. Solids from the neutralization process go to the Metal Parts Treater for thermal decontamination.
   - 4b. Liquids from the neutralization process go to the Energetics Neutralization Reactors for further processing.

# Process Equipment Development Ramps Up

By JOHN SCHLATTER
Bechtel Parsons Blue Grass

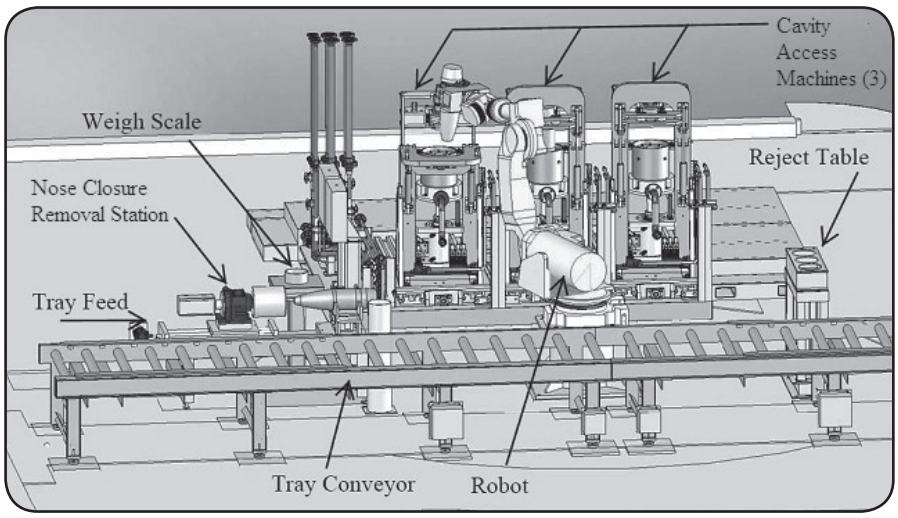
The Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) team has completed fabrication and testing of two major pieces of equipment that will be used to process chemical weapons at the destruction facility. The focus is now on four components that will dismantle munitions and remove chemical agent.

In December 2009, the Parsons team at Pasco, Wash., completed fabrication of the Metal Parts Treater – equipment that will thermally decontaminate metal projectile bodies and project secondary wastes – and shipped it to the BGCAPP construction site. Assembly was completed in April 2010. In early 2010, General Atomics packaged up the Energetics Batch Hydrolyzer, a system that will neutralize explosives and other munition components, at a facility in San Diego, Calif., in preparation for shipment to the Blue Grass project for future assembly.

The next four pieces of specialty equipment to be fabricated for future use at the BGCAPP facility are:

- Rocket Cutter Machine – Separates the motor and warhead sections of M55 rockets
- Rocket Shear Machine – Punches and drains agent from the rockets, washes out the rocket warhead, and then chops the rocket body into four pieces
- Munitions Washout Station – Remotely accesses the cavity of artillery projectiles that contain agent, drains the agent, and washes out the cavity
- Supercritical Water Oxidation (SCWO) unit – Provides secondary treatment of hydrolysate, the byproduct of neutralizing chemical agents

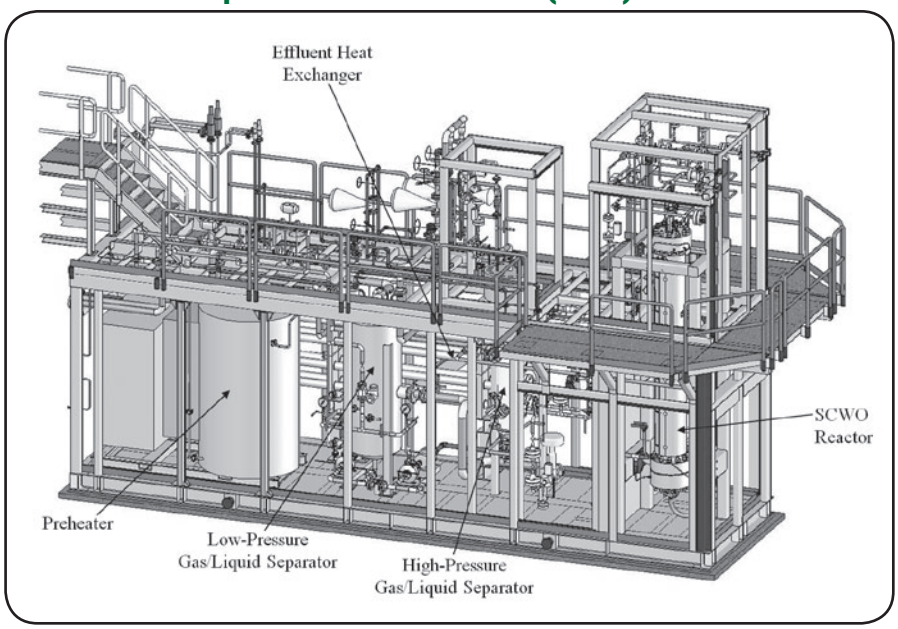
## Munitions Washout Station




Graphic provided by Bechtel Parsons Blue Grass

**In the Munitions Washout Station, a robotic arm will place the projectile upside-down in a device known as the Cavity Access Machine. A hydraulically powered ram will be inserted into the burster well (a tube in the middle of the projectile) and will crush the burster well to access the chemical agent. Agent will be drained from the projectile, then the inside of the projectile will be flushed with hot, high-pressure water. The chemical agent and the washout water will be transferred in separate streams for further processing.**

## Supercritical Water Oxidation (SCWO) Unit




Graphic provided by Bechtel Parsons Blue Grass

**The SCWO unit is the final step in the destruction of the neutralized chemical agent. Agent is first neutralized by mixing it with hot water and caustic solution. The resulting liquid, known as hydrolysate, is then subjected to high temperature and pressure in the SCWO unit, breaking it down into carbon dioxide, water and salts.**

## 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.

## Online Resources

Find out more about the Assembled Chemical Weapons Alternatives (ACWA) program's mission to safely destroy the chemical weapons stockpiles located at the Blue Grass Army Depot, Ky., and Pueblo Chemical Depot, Colo., by visiting www.pmacwa.army.mil. Interested stakeholders may provide feedback to the program by clicking on the "Give Feedback" icon.

Additional information regarding chemical weapons destruction in Colorado and Kentucky can be found at the following websites:

- ACWA Website: www.pmacwa.army.mil
- ACWA Photostream on Flickr: www.flickr.com/photos/acwa
- ACWA YouTube Channel: www.youtube.com/usaeacwa

You may also subscribe to the ACWA Real Simple Syndication, or RSS, feed by visiting http://www.pmacwa.army.mil/connect/acwa_rss.html.

### *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 **Sept. 14, 2010** at **6 p.m.** and **Dec. 14, 2010** at **1:30 p.m.** in the **Carl D. Perkins Building, Rooms A and B** at **Eastern Kentucky University.**

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