

# Blue Grass *exchange*

A Partnership for Safe Chemical Weapons Destruction



October-December 2010

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Blue Grass Chemical Agent-  
Destruction Pilot Plant

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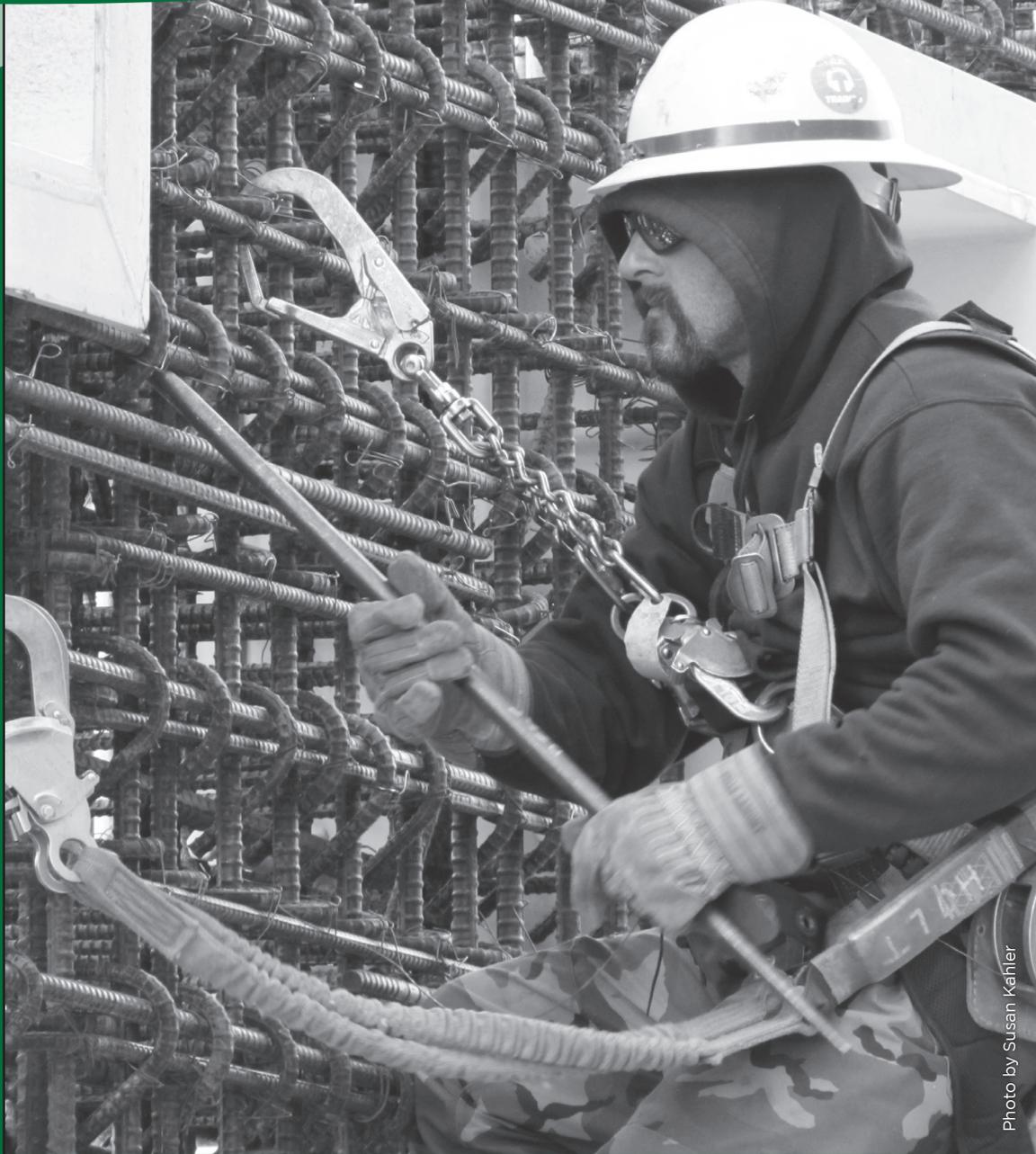


Photo by Susan Kehler

Dana Holt, Bechtel Parsons ironworker, spaces rebar to ensure the proper fit for a concrete form that will be placed on the Munitions Demilitarization Building (MDB). Concrete will be placed within the form to create a blast-containment wall, which will protect pilot plant workers during operations of the destruction facility. For an update on the MDB, please see page 3.

## Messages From the Managers



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

As the saying goes, “time is money.” This sentiment certainly rings true for the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) project, but not because our team is working to make money; it’s because we are working hard to save it.

My team and I understand that we are stewards of your tax dollars. This is why efficiency is such a priority for us. In fact, I’ve made it a cornerstone of my management philosophy and I feel it is important that we feature it in this edition of the *Exchange*.

We work to ensure the most efficient schedules, use of manpower and equipment, and placement of materials to maximize savings and workforce efficiency. Seven Department of Defense chemical demilitarization facilities preceded BGCAPP, and lessons learned from those projects have been crucial to the design, construction and eventual operation of our facility. We consistently coordinate with our colleagues around the country to ensure that we use the best practices to save time and money. We also employ industry standard management tools, such as Lean Six Sigma, to streamline processes and procedures to achieve the greatest efficiency in all areas of the project.

This is a complicated and unique project. Everyone here at BGCAPP understands how important our mission is, and we approach it with the greatest level of care. This is a one-of-a-kind facility, so we put extra planning into every step to avoid making mistakes that could cost time or money. We may live by a lot of mantras, but one we’ll never adhere to is, “money grows on trees.”

One more point I would like to emphasize is that you can learn all about the BGCAPP project on the Internet at the Assembled Chemical Weapons Alternatives program website, as well as through our Facebook, Twitter, YouTube and Flickr sites. We provide updated information and photographs to keep you informed about the project, and feedback links so you can share your comments with us. Please check us out today by accessing the links printed on the back page of this newsletter.



By MARK SEELY  
Bechtel Parsons Blue  
Grass Project Manager

As the pilot plant systems contractor, we share Jeff’s commitment to efficiency. While the Department of Defense is our direct customer, we recognize that taxpayers and the residents of our community are also our customers. We are taxpayers ourselves, and we also want our taxes used efficiently on our primary mission. We always want to remain unwavering in our focus.

Efficiencies can be achieved in many ways. Our three key areas are people, processes and products.

The people on the Bechtel Parsons team bring years of experience in managing major engineering and construction projects as many of them have worked at other chemical demilitarization sites and bring a wealth of knowledge and lessons learned to Blue Grass. We have combined their talents with those of the local community to maximize value and create a seamless integration between stakeholder involvement, design, construction, systemization, and eventual operations and closure of the facility.

Our people use proven processes that ensure we design and build a safe and quality facility. However, we constantly look for ways to improve our processes through the use of Lean Six Sigma, a highly effective process improvement tool that is yielding safety, quality and time savings in the way we perform our work.

Our third element of efficiency is the products we select. We use products that are safe, effective and cost-efficient. A prime example is self-consolidating concrete, an innovative construction product that makes it easier to place concrete in walls with very dense reinforcing steel. The value of self-consolidating concrete was proven recently when we successfully placed the concrete in the first blast-containment wall of the Munitions Demilitarization Building.

We’re confident that our people, processes and products are the right combination to safely and efficiently construct – and operate – the facilities to destroy the Blue Grass chemical weapons stockpile.

## Quarterly Status Update

By DIANE OSBOURNE  
Bechtel Parsons Blue Grass

### Construction

Work continues at the Blue Grass Chemical Agent-Destruction Pilot Plant construction site, with the following projects ongoing:

- Munitions Demilitarization Building blast-containment walls
- Utility Power Centers
- Fire Water Pump House
- Utility Building
- Supercritical Water Oxidation Processing Building foundation

### Richmond Project Staffing

- Total employment: 623 (52 percent are local hires)
- Non-manual: 367
- Manual: 256

### Acquisitions

More than \$66.8 million has been spent with Kentucky companies since project inception.

## Munitions Demilitarization Building Update

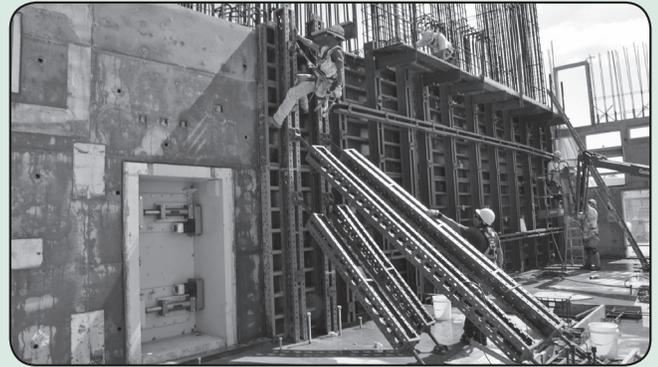


Photo by Chris Higginbotham

Pilot plant workers remove the forms from the newly placed blast-containment wall on the Munitions Demilitarization Building foundation. Self-consolidating concrete (see page 6) was used to ensure proper flow around all the structural rebar in the wall.

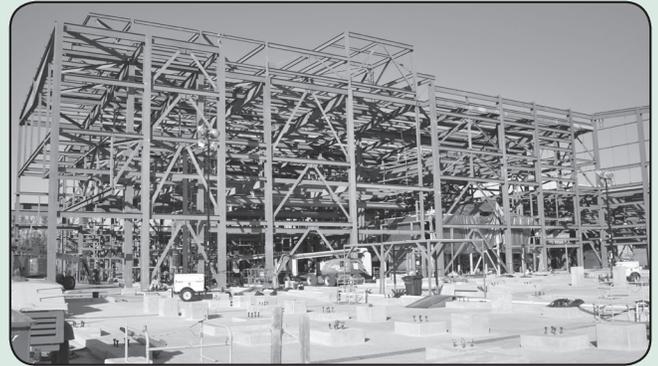
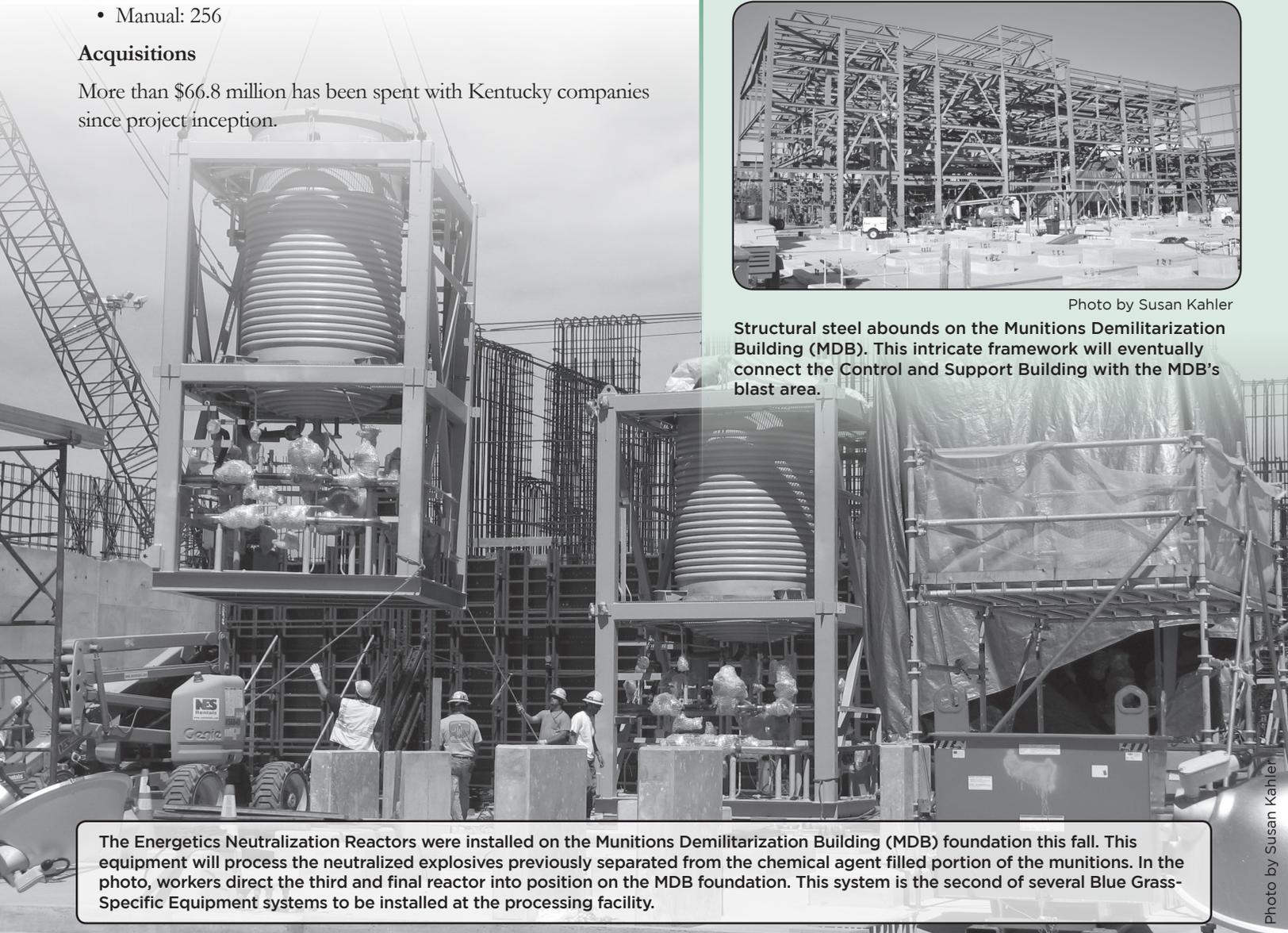


Photo by Susan Kahler

Structural steel abounds on the Munitions Demilitarization Building (MDB). This intricate framework will eventually connect the Control and Support Building with the MDB's blast area.



The Energetics Neutralization Reactors were installed on the Munitions Demilitarization Building (MDB) foundation this fall. This equipment will process the neutralized explosives previously separated from the chemical agent filled portion of the munitions. In the photo, workers direct the third and final reactor into position on the MDB foundation. This system is the second of several Blue Grass-Specific Equipment systems to be installed at the processing facility.

## Pilot Plant Workers: Thinking Outside the Box

By SUSAN KAHLER  
Blue Grass Chemical Stockpile Outreach Office

Open-minded thinkers. Dedicated workers. Folks in tune with the industry.

It takes a diverse group of people to design, construct, test, operate, and close a facility like the Blue Grass Chemical Agent-Destruction Facility (BGCAPP). Fortunately for the project and its stakeholders, BGCAPP workers are experts in these fields. But why is this so important?

On a project of this scale, with so many processes and procedures running at once, efficiencies can often be lost in the push to design and construct the plant. But the BGCAPP project encourages workers to think outside the box using Lean Six Sigma methodology and come up with new ideas that can save the project time and money and increase safety. Read on for a few great examples:

### Stayform Concrete Forms

Conventional methods of placing concrete foundations can be time consuming. For a project like the Munitions Demilitarization Building, workers would have to build frames around all of the rebar, which would be a long and arduous task. It's also difficult and potentially hazardous to make adjacent placements, as workers would have to rough up the edges of the existing concrete first, creating silica dust and power tool hazards. So when project construction, engineering and safety personnel approached Bechtel Parsons management with an alternative method, they were all ears.

A thin sheet of metal mesh called Stayform can easily be worked around the existing rebar in the place of conventional wood forms, needing no additional work to prepare walls for adjacent concrete placements. After

being tested and reviewed by project engineers, Stayform was approved for use at BGCAPP.

Stayform takes a little more time to install than conventional forms, but does not need to be removed, which frees workers for other jobs. This saves the project both time and money, as well as being safer for the workers.

"Stayform is great," says Bechtel Parsons safety specialist Jason Smith. "It removes risk to our workers, and it's a huge efficiency boost."

### Control Account Manager e-Notebooks

As a Bechtel Parsons project controls engineer, Alicia Broaddus saw an improvement opportunity for accessibility of performance-reporting information. Project Controls Engineers were running reports and assembling them into hardcopy notebooks for Control Account Managers (CAMs). While useful, these notebooks were unwieldy, often not organized the same way between managers, and were not readily available to other project representatives.

"It's a good idea to make information standardized and centrally located," says Broaddus.



Photo by Chris Higginbotham

Alicia Broaddus has a background in graphic design, so she's no stranger to computers. Using her design skills, Broaddus created an electronic information management system to help organize data that project personnel need to accomplish their missions.

Upon Broaddus' recommendation, CAMs now access their project information directly from a centralized electronic system Broaddus designed for that purpose. This makes the information easily accessible to anyone who needs it. Comments can be made within the system; reports can be accessed, and details can be seen at a glance. This proves important for validation reviews as well – reviewers can access information immediately



Photo by Debbie Hogan

Stayform, an innovative concrete joining product requiring no adjoining concrete preparation or removal, has been used by the construction team to save time in preparing for concrete placements.

and follow accounts through the whole review process. During the life of the project, this streamlined CAM information process will save BGCAPP more than \$180,000.

Broaddus is now working with a team to redesign the Bechtel Parsons internal project website. This new tasking has a similar objective of making relevant information easily accessible to team members across the project.

### Laboratory Filters

Dr. John Barton, Bechtel Parsons Blue Grass chief scientist, and a team of project personnel have saved the BGCAPP project more than \$3 million.

They did it with a redesign of the pilot plant's laboratory, which will handle and analyze low concentrations of chemical agent when operations begin. The original design called for a cumbersome external air filtration system based upon historical guidance for laboratories that handle only pure chemical agent. Recently updated guidance for labs that handle only dilute agent solutions, like the BGCAPP laboratory, allowed Barton and his team to examine alternative

designs—such as using internal exhaust filters which consume less power and take up only overhead space. Using Lean Six Sigma methodology, his team developed and presented their concept and gained the acceptance of oversight and regulatory agencies and other stakeholders; BGCAPP was granted the ability to use 14 individual filters on chemical hoods within the lab instead of the two large filtration units that would have been built into additional housing outside of the lab.

The individual filters are of standard commercial size, making them much easier and less expensive to purchase. They're easier to install, easier to dispose of and require less maintenance. Another benefit – space.

“Square footage is precious on the BGCAPP site,” says Barton. “By freeing up the area that would have been taken by the large filter housings, we now have space we can use for something else.”



Photo courtesy of Tooele Chemical Agent Disposal Facility

**Chemical filter banks (outlined in white, right) at the Tooele Chemical Agent Disposal Facility are stored outside of the site's laboratory. The filter banks at the Blue Grass Chemical Agent-Destruction Pilot Plant will be installed inside the lab, saving precious space in the site's limited footprint.**

## Meet the New Commanders

### Blue Grass Army Depot

On July 13, 2010, Col. Brian Rogers assumed command of the Blue Grass Army Depot from Col. Joseph A. Tirone, as part of the U.S. Army Joint Munitions Command's rotational command structure. Rogers earned his commission through Officer



Col. Brian Rogers

Candidate School in 1987. He served at the Pentagon and in several combative commands including 1st Infantry Division and 10th Mountain Division. He comes to the Blue Grass Army Depot from the Naval War College in Newport, R.I., where he was a Professor of Joint Military Operations. His major deployments include Operation Desert Shield/Storm, Operation Uphold Democracy and Operation Iraqi Freedom. He holds a Bachelor of Science degree from the Catholic University of America and a Master of Arts degree from Kansas State University.

### Blue Grass Chemical Activity

On June 14, 2010, Lt. Col. Steven G. Basso assumed command of the Blue Grass Chemical Activity from Lt. Col. David L. Musgrave. Basso was commissioned through the U.S. Army Chemical Corps in 1994. He has served in several support and command positions including commanding the 7th Chemical Company in Iraq and was deployed to Afghanistan twice. He holds a Bachelor of Science degree in Economics from Texas A&M University and a master's degree in National Security and Strategic Studies from the Naval War College.



Lt. Col. Steven G. Basso

## All Concrete, All the Time

By SUSAN KAHLER  
Blue Grass Chemical Stockpile Outreach Office

Concrete is a simple formula, but its application isn't always so simple. In its basic form, concrete is made up of three components: water, aggregate (rock, sand, or gravel) and Portland cement (a hardening binding agent). In this form, or with a few changes, concrete is used all over the world – in roads, parking lots, buildings, and even artistic statuary. It sets up hard to make a very versatile and durable finished product.

One of concrete's shortcomings, however, is that it is not designed to flow into and through confined spaces. The blast-containment walls of the Blue Grass Chemical Agent-Destruction Pilot Plant's (BGCAPP) Munitions Demilitarization Building (MDB) are 26 inches thick and chock full of reinforcing steel, designed to contain an explosion in the unlikely event of one occurring during the processing of the chemical munitions. This dense congestion of reinforcing steel provides the structure for and strength within the concrete wall, but that protective intricacy also makes the placement of concrete a challenge because it's difficult for standard concrete to flow through the narrow gaps. Any voids or spaces the concrete does not reach will make the wall ineffective and require workers to break out all the concrete and start from scratch.

Enter self-consolidating concrete (SCC). According to Aaron Renfro, U.S. Army Corps of Engineers, it's a concrete-like material that flows more readily to fill gaps and get into tight spaces, but still has the strength and durability of regular concrete.

The goal of every SCC mix is to have a highly fluid material that doesn't

sacrifice stability. Renfro says these qualities make it the perfect material for filling the dense rebar structure on the MDB. It does not need vibrating to work out air pockets, as necessary with conventional concrete; it flows readily into tight areas and around obstructions, eliminating rework in the event of conventional concrete not totally filling an area. It requires fewer discharge points, reducing the movement of equipment and workers around the site. Workers keep an eye on the flow of the concrete, but have to do less to make sure it's properly placed. This means a placement takes less time and fewer man-hours, making the process much more efficient.

The American Concrete Institute says, "Properly proportioned and placed SCC can result in both economic and technological benefits for the end user. The in-place cost savings, performance enhancements, or both, are the driving forces behind the use of SCC." This has been the case on the BGCAPP site, as this special concrete has saved the project both time and money through reducing the time needed to place the concrete and in the reduced use of manpower in its placement.



Photo by Chris Higginbotham

If you can barely see light through this wall of rebar on the Munitions Demilitarization Building, imagine the difficulty of getting concrete to fill in and around all of it. Self-consolidating concrete, a flowable but still structurally sound concrete material, is being used on the pilot plant to overcome this problem.



Photo by Debbie Hogan

A mock blast-containment wall was constructed at the pilot plant site last year to test the self-consolidating concrete and familiarize project workers with blast-containment wall construction procedures.

## It's Not Easy Being Green ... But It's a Pilot Plant Goal

By CHRIS HIGGINBOTHAM  
Blue Grass Chemical Stockpile Outreach Office

Birds are chirping in Jeff Krejsa's office. He reaches over and grabs his cell phone off the desk.

"It's a text," he says as he turns his ringer off. "It came preloaded with all kinds of environmental sounds." The phone is made from recycled plastic and yes, it's even green.

It's the perfect phone for Jeff's job; he is the Blue Grass Chemical Agent-Destruction Pilot Plant's (BGCAPP) environmental manager, charged with supervising the project's environmental efforts and making sure the plant stays in compliance with state and federal environmental regulations.

His is a job that will require a lot of flexibility through the years. Although the project is now in construction phase, eventually it will be destroying more than 500 tons of lethal nerve and mustard agent.

It's the kind of mission that might bring up some environmental concerns.

"We certainly get scrutinized a lot due to the nature of what we'll be processing," he says. "But we have the resources necessary to achieve our mission."

According to Seattle Public Utilities, construction and demolition waste account for 40 percent of the nation's municipal waste. In light of that, BGCAPP employs aggressive waste management strategies. Extra steel and wood, the two largest sources of waste at BGCAPP, are two of the materials recycled by local vendors. The steel is separated on site and the wood and all other waste is picked up by a local firm that separates recyclables off-site. Any money made from recycling materials is put back into the project budget.



Photo by Susan Kahler

"Dumpster Divas" Alyssa Marcischak, left, and Amy Jackson, Bechtel Parsons hazardous waste operators, audit a scrap metal bin to ensure only the proper materials have been deposited. Playfully nicknamed by their coworkers, they ensure that specific kinds of construction materials are separated for recycling on the pilot plant site.

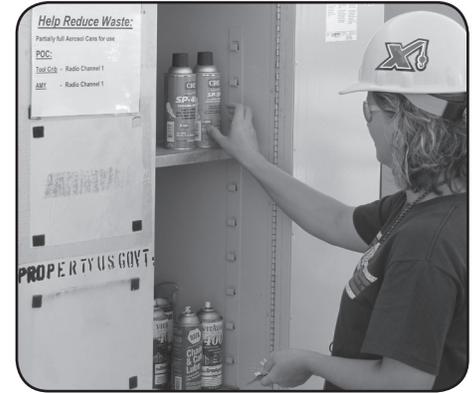


Photo by Susan Kahler

On some construction sites, partly used cans of products such as penetrating oils are often just thrown away when the first user is done using them. At the Blue Grass site, those cans are stored in a special locker for workers to finish off. Amy Jackson, Bechtel Parsons hazardous waste operator, checks the contents of the Product Reuse Locker.

"We'd like to have dedicated waste receptacles for all waste streams, but we just don't have the space on our small construction site," says Bechtel Parsons Blue Grass Environmental Manager Kevin Regan.

Project managers also work with material suppliers to minimize waste that will result from material and products delivered to the site.

"Packaging can be a problem when it comes to waste," says Regan. "If we order six units that are normally packaged individually, we can ask our suppliers to consolidate everything into one package." That, in turn, makes for less in the trash can.

The government team and Bechtel Parsons conduct internal audits regularly – some as often as daily – to ensure compliance with regulations and project expectations.



Photo by Susan Kahler

Water runoff from a construction site after a heavy rain can dump sediment into area waterways, clouding and clogging them. To keep the waterways clear, the pilot plant is using a basin to retain sediment while the cleaner water continues on to streams and lakes. Jeff Krejsa, left, Blue Grass Chemical Agent-Destruction Pilot Plant environmental engineer, and Kevin Regan, Bechtel Parsons environmental manager, evaluate the basin after a storm.

Regan explains that the environmental mission is about more than just regulatory compliance.

"There's really a willingness to go above and beyond the regulations," he says. "We're always trying to think of ways that we can be good stewards of the environment."

## 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@iem.com](mailto:bgoutreach@iem.com).

## Online Resources

Find out more about ACWA's mission to safely destroy the chemical weapons stockpiles located at the Blue Grass Army Depot, Ky., and U.S. Army Pueblo Chemical Depot, Colo., by visiting [www.pmacwa.army.mil](http://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](http://www.pmacwa.army.mil)
- ACWA Page on Facebook: [www.facebook.com/pmacwa](http://www.facebook.com/pmacwa)
- ACWA Page on Twitter: [www.twitter.com/acwanews](http://www.twitter.com/acwanews)
- ACWA Photostream on Flickr: [www.flickr.com/photos/acwa](http://www.flickr.com/photos/acwa)
- ACWA YouTube Channel: [www.youtube.com/usaecwa](http://www.youtube.com/usaecwa)

You may also subscribe to the ACWA Real Simple Syndication, or RSS, feed by visiting [http://www.pmacwa.army.mil/connect/acwa\\_rss.html](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 **Dec. 14, 2010** and **March 8, 2011 at 1:30 p.m.** in the **Carl D. Perkins Building, Rooms A and B** at **Eastern Kentucky University**.

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