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Demil Dispatch

Recent Progress on the Blue Grass Army Depot Demilitarization Effort

*Kentucky Department for Environmental Protection
Division of Waste Management
Hazardous Waste Branch
Blue Grass Army Depot Section*

Permitting Update

A significant milestone was reached September 23, 2016 when Kentucky's Division of Waste Management (Division) issued two Resource Conservation and Recovery Act (RCRA) permits for the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP). BGCAPP's Explosive Destruction Technology (EDT) Facility and Mustard Sampling Facility are now permitted for hazardous waste management activities necessary for the destruction of mustard agent munitions and mustard agent sampling to fulfill obligations under the Chemical Weapons Convention.

The EDT and Mustard Sampling permits implement RCRA provisions including standard RCRA aspects such as providing security, training personnel, establishing procedures to prevent hazards, and emergency response. These permits also include requirements unique to destroying chemical munitions and unique operating requirements including: assuring 99.9999% efficient destruction and removal of mustard agent, providing engineering controls to prevent releases of agent to the environment, and demonstrating emissions from the facilities cannot adversely affect human health or the environment.



These permits are now modules in the overall Blue Grass Army Depot (BGAD) Hazardous Waste Management Permit that previously was limited to storage and movement of conventional munitions, depot-related hazardous waste, and chemical

munitions. The Depot's open burning and open detonation (OBOD) activities remain under interim status and the BGCAPP Main Plant has a Research, Development, and Demonstration (RD&D) permit, both of which are separate from, and not currently covered by the overall BGAD RCRA permit. Applications are under review and permits are anticipated to be issued during calendar year 2017 for the

OBOD units and to update the existing Main Plant RD&D Permit.

Since issuing the EDT and Mustard Sampling permits, project schedule revisions have delayed the mustard campaign until after main plant operations complete both the GB and VX campaigns. Currently, EDT and mustard sampling operations are projected for 2023.

Welcome - New KDEP Team Members

Rocky Ferris – Environmental Scientist

KDEP has hired a new Environmental Scientist to work at the Richmond Field Office in the Bluegrass Army Depot Section.

On September 1, **Rocky Ferris** started his new position for KDEP. The North Carolina native earned a degree in Chemistry at Averett University.

Rocky's previous work experience includes 4 years as an analytical chemist for environmental laboratories and one year working in hazardous waste.

Rocky enjoys hunting and fishing, and also plays in an amateur pool league here in Richmond.



Rocky Ferris



Kyle Howell – Environmental Scientist III

KDEP has hired a new Environmental Scientist III to work at the Richmond Field Office in the Bluegrass Army Depot Section.

On September 16, Kyle Howell started his new position for the Division of Waste Management, Richmond Satellite Office. The Hi Hat, KY native earned a Bachelor of Science in Geology at Eastern Kentucky University. He is also registered as a Geologist-in-Training within the Commonwealth of Kentucky and is currently pursuing his Professional Geologist registration.

Kyle's previous work experience includes that as a Geologist with a private engineering and environmental firm, Turner Technology, Inc., out of Prestonsburg, KY. There he performed many different geotechnical and biological services mainly for coal companies in the Appalachian region. Kyle also worked as an Environmental Scientist II with Kentucky's Division of Mine Reclamation and Enforcement where he reviewed mining permits, evaluated coal violations, and performed various geologic investigations related to mining across the state.

Kyle is an avid outdoorsman and sports enthusiast. He enjoys hunting, fishing, and cheering on his favorite sports teams which include the Kentucky Wildcats and the Atlanta Falcons. He recently married his wife Chasity and they reside in Danville, KY. He plans to learn as much as he can about the operations ongoing at BGAD and looks forward to beginning his new position.



Kyle Howell

Progress in Permitting Open Burning and Open Detonation

The Blue Grass Army Depot (BGAD) Section of the Division of Waste Management (DWM) is responsible for permitting all of BGAD's activities that are regulated by the Resource Conservation and Recovery Act (RCRA). While chemical demilitarization is typically in the spotlight, the Division has stayed busy permitting another major BGAD activity: open burning (OB) and open detonation (OD) of non-chemical, or conventional, weapons.

Open burning and open detonation are used to destroy conventional munitions that would be expensive or unsafe to destroy by other methods. At BGAD, open burning is conducted in two steel pans mounted on concrete pads. Open detonation occurs in 30 pits dug into a designated demolition site. After a round is placed in a pit, it is covered with soil to reduce ground vibration, noise, and dispersion of hazardous wastes.

BGAD has conducted OB and OD for decades. When RCRA went into effect, certain waste management units were allowed to continue to operate under "interim status" until they were placed under a permit. Facilities with such units were required to submit a permit application by a certain deadline, which BGAD did. Since then, BGAD and the Division have been working together to put OB and OD under a RCRA permit.

Under RCRA, OB and OD are considered Miscellaneous Units, which don't fall under any of the well-defined categories of waste management units, such as tanks or landfills. Since miscellaneous units can vary, miscellaneous unit regulations are fairly broad and general, and permitting these units can be a challenge.

Over the years, BGAD has submitted several permit appli-

cations for OB and OD, none of which contained all the details needed for DWM to deem them complete. These previous permit applications for OB and OD also included BGAD's D-100 Controlled Destruction Chamber (CDC), another Miscellaneous unit under interim status. Because of its limited capacity, the CDC has been used intermittently at BGAD. BGAD is considering changes to the CDC unit to increase its functionality. To expedite permitting for OB and OD while the CDC undergoes changes, BGAD will submit the CDC permit application separately.

The OB and OD sites have also seen recent improvements. BGAD has increased run-off controls at both sites. The OB sites are graded to send run-off to basins that capture sediment, which may contain hazardous material. At the OD site, run-off is diverted to two riprap barriers to prevent sediment from entering nearby creeks.

The Division examined the new controls during a visit last summer. On other site visits, we observed environmental sampling, studied the OB/OD equipment and terrain, and viewed operations from a safe distance. The Division also met with BGAD officials and OB/OD operators to discuss potential alternative technologies and additional environmental improvements that BGAD is considering.

In 2016, the permitting effort experienced a significant boost. BGAD submitted an updated application in June and an air modeling and risk assessment report in September. The Division recently sent a Notice of Deficiencies (NOD) to inform BGAD of additional information that the application must contain. Once we receive a complete application and draft a permit for OB and OD, that permit will be public noticed. The Division projects that a permit for OB and OD may be issued before the end of 2017.

KDEP Attends the Governor's Conference for Energy and the Environment

In September, representatives from businesses, universities, and state and local governments gathered in Lexington for the annual Governor's Conference for Energy and the Environment. The two-day conference focused on technologies and policies that are helping Kentucky keep pace with the national push towards sustainability.

The Division staff who attended enjoyed presentations and booths that showcased innovative methods of reducing waste and pollution. Toyota touted its landfill gas-to-energy project in Cynthiana, and How\$martKY described their success in helping Kentuckians in Appalachia retrofit their homes to save energy. In addition, government officials dis-



cussed their approaches to serving taxpayers and the regulated community. Several speakers mentioned the value of cooperation between federal and state agencies. Bruce Scott, Deputy Secretary of the Energy and Environment Cabinet, emphasized efficiency and thoughtfulness in addressing the state's evolving needs.

Notably, attendees had a chance to learn about the armed forces' energy initiatives. Presentations about Fort Knox and the Kentucky National Guard showed that military staff across Kentucky share BGAD's commitment to environmental conscientiousness. R.J. Dyrdek described Fort Knox's impressive energy security and micro grid project.

Dyrdek explained that after a 2009 ice storm crippled the local infrastructure, Fort Knox committed to energy independence. The base developed methods of providing efficient, low-emissions heating and cooling. They constructed a geothermal well field, a geothermal pond, and small-scale natural gas power plants. These power plants were placed near buildings that can use the excess energy emitted from the generators. In addition, officials showed residents simple ways to lessen their impact on the environment. Such measures have significantly reduced waste, energy use, and water use on the base.

Similarly, the Kentucky National Guard has increased its staff's environmental awareness. Jayson McDonald told the audience that the Guard has worked to "institutionalize sustainability." Facilities across Kentucky have been networked in a web-based automation system. The system allows McDonald and his staff to view energy use in buildings and make real-time recommendations to each facility. Lighting, heating, and cooling in each building can be matched to its hours of operations. McDonald also detailed the retro-commissioning of older Kentucky National Guard buildings, some of which were constructed in 1850. The Guard installed insulation and upgraded to high-efficiency lighting. In addition, several facilities have been outfitted with solar panels. McDonald declared that from 2003 to 2016, when the cost per kilowatt-hour has more than doubled, the Kentucky National Guard's energy cost has increased from \$2.47 million to only \$2.75 million—although they have even more facilities to power than before.

The Conference highlighted Kentuckians' growing interest in protecting the state's natural resources. While industry has taken the lead in sustainability, government officials are finding creative, effective ways to meet both our economic and environmental needs.

Facility Construction Certification

All Hazardous Waste permits require the permittee to submit a letter to the Cabinet signed by the permittee and a professional engineer stating that the facility has been constructed or modified in compliance with the permit. This is called the Facility Construction Certification, or FCC.

The Kentucky Department for Environmental Protection has received an FCC letter for the Explosive Destruction Technology (EDT) Facility at Blue Grass Army Depot. The letter was signed by Harry G. Summers, P.E. of HGS Engineering, Inc. of Anniston, Alabama.

HGS Engineering, Inc. employees have been on site for several years to ensure that both the main plant and the EDT Facility have been constructed in accordance with the permitted design drawings. The regulated components of the EDT Facility include concrete, coatings, and the static detonation chamber and pollution control equipment.

As a part of the Facility Construction Certification review, engineers with the Energy and Environment Cabinet conducted an inspection of the EDT Facility on December 19, 2016.



Budget Problems Lead to Delays

The Blue Grass Chemical Agent Disposal Pilot Plant (BGCAPP) team became aware of budget shortfalls earlier this fall, and briefed stakeholders in November and December. Due to unexpected costs at BGCAPP and its sister project in Pueblo, Colorado (PCAPP) and related factors, it appears that available funding will not allow the Explosive Destruction Technology (EDT) plant (destruction of H mustard munitions) to become operational until after main plant operations (destruction of GB and VX nerve agent munitions) are completed. The desire to destroy the higher-risk GB (Sarin) munitions first was also a factor in the decision. The main plant operations will be somewhat delayed due to limited funding to complete systemization activities.

The Army has not yet presented a formal schedule,

but the latest plan is to begin main plant operations in 2020, and to begin EDT operations in 2023. Prior to the budget problems, the proposed accelerated schedule was to begin EDT operations in 2017 and main plant operations in 2018.

In response to the budget challenges, the BGCAPP contractors have reassigned or laid off some personnel and have taken other cost-saving measures, including a delay in the start up of the EDT plant. It is uncertain whether additional funding may be provided in 2017 to avoid some of the delays. Regardless of the outcome of the budget situation, the KDEP team will continue to work with the BGCAPP team to resolve the many technical and permitting challenges ahead.



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The mission of the Kentucky Division of Waste Management is to protect human health and the environment by minimizing adverse impacts on all citizens of the Commonwealth through the development of fair, equitable, and effective waste management programs.



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Aerial view of BGCAPP, 2016

Photographs courtesy of ACWA, BGCAPP, CMA, and KDEP