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Director’s Message

It was another busy summer and fall for the CBARR business unit, culminating in a year of successful missions and growing partnerships. Our personnel spent most of 2016 on the road, performing field operations and consulting with organizations around the globe. Now, in winter, even as our laboratory and technicians are supporting multiple field sites, and receiving record numbers of environmental samples, we are returning equipment and resources from completed projects to restock and replenish.

While we provide a continuous cycle of operations, performing closure of one assignment while ramping up for another, we’re always mindful of the need to make sure our physical resources are well stocked and ready for the next assignment; and that our employees have a work-life balance that allows them to recharge their internal batteries and be fresh for the next deployment, which is always around the corner.

Now, as we enter the 100th anniversary of the ECBC we look ahead to the next 100 years of missions. Despite political or world climate, we still have a job to do. We’ve learned to adapt and do more with less, as a result of federal workforce reductions, retirements and the lengthy recruiting process for any new hires. We stay focused on our goals and objectives and we never lose sight of our mission. We recognize that there are certain things happening in the world right now that we have no control over, but we hone in on the things we do have responsibility for and we get the job done, again and again.

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Project Updates

Yuma, Arizona

Initially scheduled to be completed by the end of April 2016, operations at Yuma Proving Ground in Arizona continued through the end of July 2016.

CBARR provided air monitoring and laboratory testing services for a remedial investigation feasibility study on two test fields which the U.S. Army Corps of Engineers has earmarked for cleanup. CBARR analyzed water and soil samples from trenches where munitions were previously buried, performed headspace monitoring of soil, scrap metal and even personal protective equipment used at the site; and supported medical monitoring of workers with Miniature Continuous Air Monitoring Systems.

As daytime temperatures hovered in triple digits throughout the summer, project managers and supervisors adjusted the daily start time of the crews, eventually to 4:30 a.m., to allow for work to be done in cooler temperatures.

“Most days, the temperature was 115 degrees and our crews were working outside in the desert sun,” said John Ditillo, CBARR project manager. “We had to look out for our personnel.”

Clean-up and shut down of the project, with crew members returned to their respective home base and equipment returned to Edgewood, was completed by the end of September 2016.

Tooele, Utah

An extensive clean-up effort is under way at two solid waste management unit sites on Tooele Army Depot – South, also called TEAD-S, in Tooele, Utah. This is one of several projects CBARR has worked on at TEAD-S in recent years and a follow-up to an earlier phase of operations at the same sites.

The first phase began in spring 2012, when contractors cleaned more than 50,000 pieces of scrap metal – including munition bodies and drums – off the surface of both sites, said John Ditillo, CBARR project manager. Of that, 235 items were assessed as recovered chemical warfare material and destroyed in separate field operations at Tooele last summer.

Phase II began in September 2015 with remedial feasibility investigation studies on both sites, and concluded in December 2016. The project scope for Phase II is determining if items buried underground are impacting the environment in any way, such as possible leaks into soil. Plumes have been detected coming out of the burial fractures, said Ditillo, but the chemical makeup of those plumes will be determined by analysis performed by ECBC’s Environmental Monitoring Laboratory.

The U.S. Army Corps of Engineers, which is overseeing the project, will determine future phases at these sites based on info gathered during the study, Ditillo said.

Savanna, Illinois

The remedial investigation feasibility study being conducted at the former Savanna Army Depot in Illinois is now complete. Initially, support at the site was expected until mid-July but in early testing performed by CBARR, mustard and associated agent breakdown products were detected in the deeper soil samples. Additional sampling was required to determine the vertical extent of contamination, said Satchell Doyle Jr., CBARR project manager.

CBARR supported the U.S. Army Corps of Engineers in the investigation of three mustard burn areas on the installation. For this mission, CBARR provided near-real-time and historical air monitoring onsite. More than 150 soil and groundwater samples were analyzed at a fixed lab at the Edgewood Chemical Biological Center (ECBC), while several general population monitoring samples were collected onsite and sent to ECBC’s laboratory in Pine Bluff, Arkansas.

Work continued at the site until early December, at which time the U.S. Army Chemical Materials Activity assessed the two items recovered during operations. One munition potentially contains mustard agent and may require explosive destruction at a later date, Doyle said. The second item did not contain any chemical agent and was destroyed onsite.

The site is being reclaimed for a public wildlife sanctuary that already exists on portions of the old depot.
ECBC Successfully Completes Testing of New Model of Explosive Destruction System

P2A EDS is designed to support future operations at Pueblo plant.

Testing of the P2A Explosive Destruction System (EDS) was completed in September at Aberdeen Proving Ground’s Edgewood Area. The system was delivered from Sandia Labs in Livermore, California in mid-June for testing by the Edgewood Chemical Biological Center (ECBC).

The P2A is an asset of the Program Executive Office, Assembled Chemical Weapons Alternatives (PEO-ACWA). The U.S. Army Chemical Materials Activity requested that ECBC perform testing of the explosive destruction technology, which will be operated by ECBC’s CBARR personnel.

The P2A will support future destruction operations at the Pueblo Chemical Agent Destruction Pilot Plant (PCAPP) in Pueblo, Colorado. A different model of the EDS, the P2R, was used for the first destruction phase at PCAPP and remains onsite in a warm shut-down, with routine checks performed by CBARR.

The P2 line of explosive destruction systems is used to safely destroy chemical munitions that, for various reasons, cannot be processed at a chemical agent destruction facility. In some cases these munitions have been recovered for formerly used defense sites, while in other cases they may be part of a chemical weapons stockpile but are unsuitable for destruction in a fixed facility.

The P2A, like all EDS units, uses explosive linear-shaped charges to breach the munition wall and access the munition burster, if present, exposing the chemical fill. Breaching and accessing occur inside a containment vessel. Once the chemical fill is exposed, neutralizing solution is added along with direct steam injection and rotation (agitation) to treat the chemical fill and explosive residue. This converts the chemical agent into less toxic compounds that can be disposed of as industrial waste.

The P2A is the next generation of the P2 explosive destruction system that includes several new modifications. Earlier EDS units have been trailer mounted to allow them to be easily transported to remote locations. The P2A EDS consists of three interconnected skids which will allow easier access to all components and as a result, reduce operator fatigue from ascending and descending a short staircase to a trailer deck. "We will spend less time in preparation and more time in actual destruction operations," said Dennis Bolt, CBARR project manager for the P2A test.

Compared to earlier versions, the P2A also has larger reagent and water process tanks, uses a three-piece clamp for the door, and uses a liquid sample assembly (septum bottle) instead of a sample valve. "The improvements are designed to increase operational efficiency and operator safety," Bolt said.

Over a 20-month period ending in February 2016, CBARR supported PEO-ACWA by operating a P2R explosive destruction system at Pueblo, destroying 549 chemical munitions and 11 Department of Transportation bottles that were unsuitable for processing in the newly-constructed PCAPP facility. The plant will process approximately 780,000 chemical munitions in a series of three campaigns, and munitions that can’t be safely processed using the plant’s automated equipment will be designated for destruction by an EDS. CBARR is expected to resume operations in support of PCAPP in 2017.
CBARR Provides Monitoring and Management of Agent-Contaminated Waste at PCAPP

Team establishes ongoing relationship with commercial incinerator to support PCAPP mission

The first shipment of chemical agent-contaminated secondary waste from the Pueblo Chemical Agent Destruction Pilot Plant (PCAPP) was successfully packaged, transported and destroyed during the first week of November, thanks to a collaborative effort between the Program Executive Office, Assembled Chemical Weapons Alternatives (PEO-ACWA), which manages PCAPP; the Edgewood Chemical Biological Center’s CBARR business unit; and a commercial incineration facility in Port Arthur, Texas.

CBARR is providing air monitoring in support of PEO-ACWA for the transportation of chemical agent-contaminated secondary waste generated at PCAPP in Pueblo, Colo. The PCAPP systems contractor (Bechtel Pueblo Team) is managing the disposal of the waste by a contracted incineration facility in Port Arthur, Texas, said CBARR project manager Brian O’Donnell.

CBARR is assisting ACWA with two aspects of the PCAPP project: a technical piece – air monitoring to support the shipment of the waste – and a planning portion, to ensure that everything has been done to properly package and ship the waste. CBARR’s team worked a year and a half with PEO-ACWA in planning and preparation for the first shipment to actually happen, O’Donnell said.

He and project manager Amy Dean, also on the CBARR project development team, flew to Colorado to oversee the first shipment being packed and loaded according to plans. O’Donnell then flew to Texas, along with Jeff Kiley, PEO-ACWA’s project manager, and CBARR air monitoring operator Mike Glorioso, and met the truck when it arrived in Port Arthur.

Packaged in 55-gallon drums, the waste contains mostly personal protective equipment, rags, tools and other items that were used in destruction operations at PCAPP. The drums are loaded onto a climate-controlled 53-foot trailer truck for the journey to the facility in Port Arthur.

Once the truck arrives in Port Arthur, the CBARR operator connects a near real time chemical agent monitoring system, MINICAMS**, to a valve on the back of the trailer to ensure the air in the trailer is clear prior to opening the doors to access the waste drums. The MINICAMS** remains connected during unloading operations to monitor worker safety as the barrels are removed and expedited to the destruction line. Unlike other shipments of waste that can be stored at the site and scheduled for destruction at a later date, these barrels go straight into the furnace.

The first shipment of secondary waste departed PCAPP on Nov. 7 at 1 p.m., arrived in Port Arthur Nov. 8 at 1 p.m., and was destroyed by 4 p.m. the same day. The truck does not stop for a layover or even a break, except to allow the two drivers to switch, to refuel, or to conduct one of the mandatory safety inspections which occur every four hours. Trucking is provided by a subcontractor company.

The first shipment contained 23 drums. The number and size of future shipments will depend on the workflow at PCAPP but O’Donnell said they estimate at least one or two shipments a month.

This process is expected to continue throughout the operation of the PCAPP facility, including closure of the facility, which is estimated to occur in 2023 or 2024. The relationship with ACWA will continue for the duration, O’Donnell said.

Risk management is a capability CBARR already possesses and is prepared to execute on behalf of its customers. “We’re already trained and have the overall capability, and we’re ready,” O’Donnell said.

Although the work being done by O’Donnell and his team may be a small in scale compared to other operations, CBARR possesses the capabilities to plan for, train for, and execute the disposal of large amounts of contaminated waste. The team is currently working with the Environmental Protection Agency to formalize CBARR’s role in responding to domestic incidents requiring the unique capabilities CBARR has obtained through its world-wide CBWN operations history.
Convergence of Projects Stretches Resources and Makes for Unique Summer at CBARR

Project managers successfully planned, executed simultaneous operations at home and around the country.

Only during the winter will CBARR get a small break in the hectic pace of work out in the field. With only a handful of small projects continuing in operation, remaining personnel are unpacking and restocking equipment, attending more training, and assessing needs for projects already slated for 2017. This brief respite is very much needed as CBARR closes the books on one of its busiest years ever.

CBARR supported several concurrent destruction missions in 2016. The highlight of the year was the successful operation of two explosive destruction systems (EDS) and testing of dual explosive destruction technologies, which all occurred simultaneously over the summer. When the high number of destruction operations are combined with the support to numerous field investigations and remediation projects, the organization emphasizes to its personnel the importance of maintaining safe and productive operations.

“We plan and prepare for this level of effort but it’s rare when this many projects converge on the calendar,” said Tom Rosso, business manager for CBARR.

The support provided by CBARR to the EDS deployments was through a partnership with the U.S. Army Chemical Materials Activity Recovered Chemical Materiel Directorate. CBARR performed destruction operations at Tooele Army Depot — South (TEADS) in Utah from June through the first week of October, and at Joint Base McGuire-Dix-Lakehurst in New Jersey in July.

Also, CBARR personnel conducted operational testing of two new explosive destruction technologies (EDT), the DAVINCH EDS and the P2A EDS, both located side-by-side in separate enclosures at the J-Field at Edgewood Area Aberdeen Proving Ground.

CBARR crews were dispatched to Tooele and Lakehurst to destroy munitions that were recovered in the remedial phase of these projects. CBARR deployed chemical operators, explosive operators, a safety officer, an environmental officer, sampling technicians, chemists, program managers and site supervisors to each site. “It was crucial that we maintain proper staffing at each of these important project sites,” Rosso said.

CBARR destroyed 235 munitions at Tooele, items which were recovered in an earlier remediation of a site at the installation. Even while these munitions were being destroyed, a second team was already supporting another investigation project at Tooele.

While operating in Tooele, CBARR simultaneously conducted EDS operations at Lakehurst for one mustard and one phosgene munition. These items had been in storage at the base since CBARR remediated the site in 2015.

CBARR crews deployed to more than 15 missions between January and September 2016, including continuing operations for projects that began in 2015 and wrapped up this year. At least 10 of those projects overlapped in the summer alone, stretching resources and providing additional challenges to the demanding work that CBARR performs.

“We were as busy as we’ve ever been,” said John Ditillo, who serves as project manager for several CBARR projects, “and our resources were stretched thin.”

A few of the projects involved work at multiple locations on the same site, such as Redstone Arsenal in Alabama, Yuma Proving Ground in Arizona and the Tooele remedial investigation feasibility study, all projects managed by Ditillo. Each location on a site requires its own crew and equipment. Other projects, such as the EDT testing, are not considered field operations yet require the same commitment of skills, training, manpower and resources.

“We are fortunate that our organization is unique and that most of our employees don’t have one specific job,” Ditillo said. “They’re cross-trained to do multiple jobs.”

Cross-training has been key to CBARR’s success and became essential during such a heavy workload. For example, many chemical operators have been trained to conduct field monitoring or laboratory analysis. This provides scheduling flexibility and certified personnel to any site CBARR deploys to, whether it’s for remediation, investigation or destruction operations.

“That flexibility has made the job of staffing projects easier,” said Adam Baker, CBARR project manager for the Lakehurst mission.
Much like the logistics of a package delivery service during the busy holiday season, CBARR, with the support of project managers like Ditillo and support specialist Leah Mott, managed to deliver the personnel and equipment needed to fulfill each assignment. Mott, who is responsible for purchasing equipment and supplies, ensured that each crew had what they needed to do the job, from personal protective equipment and generators to rubber gloves and paper towels. “We have to think of every small detail,” Mott said.

She maintained a continuous restocking schedule, with weekly deliveries of new supplies to each site and overnight deliveries when necessary. She also answered the calls from crews who needed replacements or repairs when items were worn or broken. Calls to Mott and her purchasing team doubled during this time from the usual 10 to 15 calls in an average workflow week.

“It’s imperative to keep them operating,” Mott said. “The last thing you want is to have operations stalled because of something small.”

But even the best made plans can be derailed, like when discoveries of additional munitions are made during operations or when work is otherwise delayed by a customer but crews must remain onsite. Such was the case this summer with a remedial study in Yuma. Work delays by the contractor extended the project past its projected end in March until the end of July.

“That’s a crew and equipment we don’t get back right away,” Ditillo said of the schedule change. And of the contractor delays, he said, “Once you’re there, you’re there to completion. You can’t demobilize a crew and break down a jobsite during a work stoppage. It’s very costly to demobilize.” Ditillo and other project managers then had to find available personnel and equipment for deployment to another field operation that was already scheduled to begin. Cancelling a project is not an option.

“We haven’t had to say ‘We can’t do it,’” Ditillo said.

Delaying a project that CBARR is contracted to begin is also not an option, said Baker, who served as project manager for destruction operations in July for the Lakehurst mission while assisting another project manager with the DAVINCH testing.

CBARR project managers often work onsite while a project is live, at the same time they’re in planning stages for the next client’s project. Plenty of planning and a bit of luck creates a carefully choreographed routine of deployments, field operations, testing or consulting, and demobilization.

“It always helps to be a little lucky,” Baker said.

ECBC Participates in DHS-led Joint Exercise
Environmental Monitoring Lab exceeds exercise goal

CBARR’s Environmental Monitoring Laboratory (EML) recently participated in an exercise designed to simulate portions of a domestic response to potential Malathion contamination in milk and water. The objective of the exercise was to measure proficiency in the process of sample shipment, receipt, processing, analysis and reporting.

The joint exercise was conducted with the Integrated Consortium of Laboratory Networks, chaired by the Department of Homeland Security, which coordinates federally sponsored analytical laboratory services for chemical, biological, radiological, and nuclear incidents. It is made up of a total of nine federal agencies including the Department of Defense, Department of Agriculture, and Environmental Protection Agency.

Thanks to EML Chemist Nam-Phuong Nguyen, who managed the exercise for the lab, the EML successfully completed the receipt, analysis and reporting of 200 samples within three business days, well ahead of the reporting goal for the exercise.

“Phuong embraced the opportunity to participate and highlight our analytical method,” Schwarz said. “This exercise was voluntary. We volunteered to participate because of the importance of demonstrating our capabilities even at no cost. Successfully participating in exercises like this can potentially produce future funded work.”

In past experiences, these types of exercises have been primarily table-top simulation exercises as opposed to real-life testing and reporting. This was the first known exercise of its kind that emphasized actual laboratory demonstration of capability.

Spiked matrices (blinds) were prepared for participating laboratory networks, the Defense Laboratory Network (DLN), Food Emergency Response Network (FERN) and EPA Environmental Response Laboratory Network (ERLN). FERN labs tested the milk, the ERLN labs tested the water, and the DLN tested either based on the labs’ capabilities. However, the EML was the only participating laboratory to receive both substances for testing.

The EML previously developed and validated an analytical method for Malathion in various substances, such as powders, for the DHS. “This exercise was seen as not only an opportunity to evaluate our analytical method,” Schwarz said, “but also as an opportunity to highlight the laboratory’s readiness to support the nation in a time of crisis.”
Fall Brings Busiest Month of the Year for the Environmental Monitoring Laboratory

Staff works 12-hour days to meet customer demands

November registered as one of the busiest months on record for CBARR’s Environmental Monitoring Laboratory (EML) at the U.S. Army Edgewood Chemical Biological Center (ECBC). The lab provides analysis of large volumes of environmental and worker protection monitoring data, with rapid-turnaround reporting for chemical warfare agents and degradation products.
Chemists, scientists, technicians, quality assurance analysts, and other staff at the EML clocked 12-hour days seven days a week and worked through the Thanksgiving holiday weekend to keep up with demand for the lab’s services. The majority of the workload has been in support of soil sample analysis from four remedial investigations across the United States for the U.S. Army Corps of Engineers (USACE) and two investigations here at Aberdeen Proving Ground for the Army Garrison.

In addition to the USACE, the EML routinely supports various projects across ECBC, as well as the U.S. Army Medical Research Institute of Chemical Defense, the U.S. Army Chemical Materials Activity, and industry partners around the world.

“We provide standardized testing services unique to the Army because of the chemical warfare agents we target,” said John Schwarz, analytical chemistry manager for the EML. “We are different than an R&D laboratory and more like a commercial environmental testing lab. It’s a necessary and relied upon service that we are happy to provide.”

The laboratory analyzed 2,663 environmental samples in November, surpassing May, its second busiest month this year when more than 2,300 samples were analyzed. Nearly all of the samples in November were received in the two-week period between Veterans Day and Thanksgiving. Comprehensively, the lab processed nearly 1,000 samples in the month prior. In addition to the environmental sample totals, the EML routinely analyzed between 500 and 1,000 air monitoring samples for chemical warfare agent monthly.

When looking at the stats from a fiscal year perspective, it took only two months into the new fiscal year to surpass the number of samples the lab processed in the first five months of fiscal year 2016. Also, the EML processed 150 more client work orders, or batches of client samples, in fiscal year 2016 than it did in the previous year.

While the numbers are staggering, the hefty stacks of reports that accompany each analysis, with data and quality control checks at every level, bring a visual reminder of the quantity — and quality — of work the EML handles.

“Providing quality accurate results in a timely manner is extremely important, not only for the investigations we support, but for safety,” Schwarz said.

One of the unique features of the EML is its capability to provide fast turnaround on test results, which is key on worksites where the results drive operational decisions, including the release of split samples to commercial labs for further analysis. “We need to report results for samples that are free of agent contamination quickly to not impact specific hold times related to additional commercial laboratory testing,” said Schwarz. “Samples with any presence of chemical warfare agent contamination are not released to commercial laboratories for further analysis.”

Schwarz, a chemist, has been working at the EML for 16 years, and became its manager in 2007. During a recent tour of his lab facilities, Schwarz unlocked the door to a small laboratory with just a few instruments used for metals analysis. “When I started working here, this was where I worked. We were all in one room,” he said.

What started out in one galley-style lab has expanded to three laboratories at ECBC, with an additional space now being converted to a fourth lab. That’s not including three offices for his team to crunch the data and churn out those stacks of reports, with two more offices under renovation.

Schwarz said work began to steadily increase about five years ago when the EML began pursuing accreditation under the Department of Defense Environmental Laboratory Accreditation Program (ELAP), which provides oversight of quality standards and calibration for specific compounds in a variety of environmental matrices. The EML became the first DoD laboratory in the country to meet the requirements of chemical warfare agents and degradation products and received accreditation in 2014. While the workload has increased exponentially in the last few years (twentyfold, by his estimation), the capability to process and handle the work has been boosted.

“Before accreditation, we did more air samples,” Schwarz said. “Now we do more soil and water samples.”

EML personnel include a team of 20, mostly chemists with scientists, technicians and one biologist. Of those, 14 people are stationed in Edgewood and six are permanently located at an ECBC laboratory at Pine Bluff Arsenal in Arkansas. This team travels around the world to work onsite with customers, as well as back at the Edgewood lab. A team of six quality assurance analysts on contract with ECBC pours over field-generated data and reports, just one of the four levels of the data quality review process. Completed data packages are provided to the customer for third-party validation.

Schwarz has had up to nine people on the road at the same time this year, and those who work at local sites travel back to Edgewood to help out after their day ends at the customer’s site. “We’re always busy, but that speaks to the dedication of our employees,” he said.

With a hectic schedule already filled into spring 2017, Schwarz does not anticipate a slowdown anytime soon. “I’ve got good people,” he said. “It takes an entire team effort to sustain the workload and provide quality service.”

[Image: John Schwarz, analytical chemistry manager for the EML, reviews data pertaining to the completion of a recent study for a customer with biologist Laura Elliott.]
Environmental Monitoring Laboratory Keeps Pace with Civilian Counterparts

Mobile lab accredited for Hawaii project

In 2014, the Environmental Monitoring Laboratory (EML) at the U.S. Army Edgewood Chemical Biological Center (ECBC) became the first laboratory in the country to receive accreditation under the Department of Defense Environmental Laboratory Accreditation Program (ELAP) for testing chemical warfare agent and degradation products in environmental samples.

“A few years ago, the U.S. Army Corps of Engineers, a client of CBARR, wanted to standardize the quality system standards for all of its contract laboratories and issued a requirement that labs like ours would have to meet the same standards as the commercial labs,” said John Schwarz, chemist and manager of the EML. “However, the analysis of chemical agent has historically been under the quality system oversight of other Army agencies. We felt that ECBC could meet this challenge. Since we are a research and testing laboratory, we had a desire to strive for ELAP accreditation and meet a customer expectation.”

Commercial labs supporting defense projects, Schwarz explained, are assessed by third-party quality control experts; however, Army labs are assessed internally. “Some say the Army is more stringent; others say it’s less stringent because we’re auditing ourselves,” Schwarz said. “Now with ELAP, we have a third-party accreditation assessment in addition to our Army assessments.”

Schwarz and his team worked diligently for more than two years to meet the requirements for the ELAP accreditation. In the end, the EML was the only lab accredited for chemical warfare agents.

Since then, annual accreditation assessments keep the EML performing on pace and constantly looking for areas of improvement, which is outlined as a requirement in the ELAP. The EML has made improvements to its procedures and improved the efficiency of its methods, all items that ELAP took note of in its most recent accreditation review in September.

A significant accomplishment in the last year for the EML was the extension of the ELAP accreditation to a mobile lab that the EML used in Hawaii. The Kipapa Gulch project stretched the boundaries of the ELAP and boosted the quality of work provided remotely by the EML.

Located in the middle of Oahu, Kipapa Gulch was used by the U.S. Navy to store ammunition in the early 1940s. The Navy drilled more than 120 tunnels into the lava-rock cliffs at the former Kipapa Ammunition Depot and filled them with tons of explosives. Some archival reports indicated that a few of the tunnels may have stored chemical munitions. Providing support to the Army Corps of Engineers, CBARR and a team of agencies mobilized in September 2015 to the old depot and investigated 84 of these tunnels for potential contamination.

Over the course of the project, which lasted through May 2016, the EML performed extraction analysis of more than 500 soil, water and concrete samples collected from the tunnels for sulfur mustard and related degradation products. More than 400 of those samples were extracted and analyzed utilizing the on-site mobile laboratory and the standards set forth by the ELAP. The EML also provided air monitoring during intrusive operations at the site.

“All analyses were done onsite and the data was then sent here to Edgewood for review and reporting,” Schwarz said. “By establishing the ELAP accreditation to the remote mobile laboratory, we were able to provide the same quality results while saving the customer time and money in shipping costs and reduction in analytical turn-around time.”

EML personnel were not directly involved in collecting the samples. Only a single technician or chemist from the EML was dispatched to Kipapa, rotating out every 28 days. Because the work fell under the accreditation scope, Schwarz tapped his senior-level personnel for the mission.

“They had to perform additional quality control samples as well as conduct the sample analysis which is more than our typical mobile laboratory in a remote operation,” he said. “I’m extremely proud of the work we accomplished there.”
CBARR Begins Destruction Operations on Three Ocean-Recovered Munitions

MAPS facility provides capability to assess, treat select items

Three projectiles recovered in the Atlantic Ocean have begun processing at the Munitions Assessment and Processing System (MAPS) facility at the U.S. Army Edgewood Chemical Biological Center (ECBC). The items were discovered in 2014 by commercial fishermen during clamshell dredging off the Delaware coast and brought to Dover Air Force Base.

MAPS is only operational on a limited basis, as very few munitions are approved for transport to the facility for treatability studies, as they are called. Out of the thousands of munitions CBARR has processed in the past five years, only 10 have been processed through MAPS for treatability studies and final disposition, said Cheryl Kyle, CBARR project manager for MAPS.

“The facility was initially built to destroy non-stockpile chemical munitions found here at Aberdeen Proving Ground,” Kyle said, “but those operations have been completed and the facility was transferred to CBARR to perform treatability studies on munitions like the ones we received from Dover.”

The Recovered Chemical Materiel Directorate of the U.S. Army Chemical Materials Activity requested this past year for the 20th Support Command to perform Portable Isotopic Neutrons Spectroscopy (PINS) chemical-assay verification of the three 75-mm projectiles stored at Dover Air Force Base. The PINS assessment was not conclusive, however, all three rounds were determined to contain a chlorine compound.

The assessments also determined the items were safe for transport to ECBC for processing. The items were shipped to ECBC in July 2015 and stored in a bunker at ECBC to await further assessment, and ultimately destruction.

In February, the first of the three munitions was received by CBARR’s process technology team, operators of the MAPS facility. A visual inspection showed a hole in the bottom of the projectile and no liquid fill. To obtain a sample, the operators scraped the inside walls of the projectile. The solid scraped material was placed in a glass container, sealed and packaged for transport to ECBC’s Chemical Transfer Facility. The munition was repackaged and stored until characterization of the sample was made by the ECBC Environmental Chemical Monitoring Laboratory (EML). Sample analysis performed by the EML determined that the empty munition previously contained mustard agent.

In August, the second 75-mm projectile was transported to the MAPS facility for sampling. When the munition was unpacked, liquid was noted in the bottom of the storage container. The liquid was put in a sample jar for analysis. The munition was wiped down and repackaged for storage until characterization of the sample was made.

Also in August, the last of the three munitions was unpacked at the MAPS facility for sampling. Since this munition had no holes, operators placed it in an explosion containment chamber for remote drilling from the control room. Once the hole was remotely drilled and air monitoring cleared the work space, a liquid sample was extracted and analyzed by the EML. The hole was plugged and the munition was repackaged for storage.

Both munitions processed in August were determined to contain chloropicrin, an industrial chemical.

On Dec. 5, CBARR’s process technology team at MAPS began destruction operations on the 75-mm projectile with trace amounts of residual HD. The munition was decontaminated, then moved to the burst detonation vessel and destroyed. The remains of the destroyed munition was placed in a drum and headspace monitoring was performed. Once cleared, the drums were disposed of in an appropriate waste facility.

Awaiting final disposition are two 75-mm projectiles with the chloropicrin fill. Kyle said these two items will be destroyed at a later date.

What is the MAPS Facility?

The Munitions Assessment and Processing System, or MAPS, facility was designed to receive and process a wide variety of stable, explosively and non-explosively configured recovered chemical munitions that are safe for handling and storage.

The primary functions performed at the facility are: separation of liquid fill from munition components; decontamination of munition components; transfer of liquid fill into U.S. Department of Transportation bottles; and destruction of munition carcasses. Decontaminated explosive components are destroyed in a commercial detonation chamber within the facility, and the chemical agent is then transferred to other Edgewood facilities for destruction.
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