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OE Stand-Down Promotes Safety, Teaming, Integration

By Kim Gillespie
Huntsville Center PAO

The Huntsville Center Ordnance and Explosives (OE) Directorate held its FY99 OE Stand-Down the week of December 13-17. The Stand-Down has become an annual event that brings together the entire Huntsville Center OE Team and other Huntsville Center partners and stakeholders to discuss OE issues.

"Safety, policy and technology were the focus of the Stand-Down," said Anne McCauley, project manager for the OE Team's Center of Expertise and co-coordinator for this year's event.

The main purpose of the Stand-Down has always been to bring together the safety personnel from the field for interaction and discussion with team members working out of the Huntsville Center office. Because of the number of projects and on-going requirements for safety personnel on-site, many field personnel move from site to site and have little opportunity to return to the Huntsville Center. "I must admit," said Anne McCauley, who has worked for the Center less than a year, "it was the first opportunity I've had to actually meet some of our field people." The Stand-Down is scheduled shortly before the end-of-the-year when projects are generally shut down for the holidays.

Headquarters and District Corps of Engineers personnel participated in two and a half days of Stand-Down activities, while contractors participated in two days of activities. Contractors were invited, but not required to attend.

"We are actually getting more requests for invitations than we issued," said Carol Youkey, also a project manager for the OE Center of Expertise and co-coordinator of the Stand-Down. "We limited our invitations to the Corps and those businesses that have a direct interest in Huntsville Center's OE work because we want to keep groups small enough to allow total participation."

McCauley, however, emphasizes that outside participation is imperative to the Huntsville Center processes, and has enhanced the quality of the Stand-Down. "This year, we had from Corps of Engineers Headquarters Bob Lubbert, Chief, Formerly Used Defense Sites (FUDS), Environmental Division, Jim Coppola, FUDS, Environmental Division, Phil Steffen, Office of Counsel, and Harris Yeager, Headquarters' Safety Office, along with Capt. John Bowles from the Department of Defense Explosives Safety Board, to give us feedback."

In all, over 250 attendees participated in the various presentations, panel discussions and breakout sessions that focused on issues ranging from contracting and a Range Rule update, to implementation of field technology.

One example of the type of feedback and progress the Stand-Down promotes was in the area of geophysical data collection, which is crucial to the OE investigation and cleanup process. "Bob Selfridge, a Huntsville Center geophysicist who provides technical support to the OE team, shared 'lessons learned' concerning the proper operation and use of geophysical data collection equipment with both

(See OE Stand-Down, page 7)

INSIDE

Director's Corner

OE Business Development Strategy

The following message is from Huntsville Center OE Team Director David Douthat. The Director's Corner will become a regular feature of OE Environment and appear each quarter.

As a result of several recent Department of Defense (DoD) Directives and an increasing awareness of issues related to sustainability of DoD ranges, nthe OE Team hasdeveloped strategies on how to meet the market needs in this arena. A significant factor in range sustainability is processing of the range residue (scrap) resulting from training on the ranges. The OE Team has implemented a three-part strategy, which includes OE issues related to the closed, transferred and transferring (CTT) ranges, the active ranges, and the development of a Life Cycle Range Support Business Plan.

The CTT program is the U.S. Army Corps of Engineers' historical OE mission. In FY99, the OE program executed $62m in OE project work (which includes range residue issues). On the active range program, it is important to note that this initiative does not include range maintenance or operations. This initiative is providing a capability to certify and dispose of range residue from the range training program. The Corps has visited approximately eight installations to brief on Corps capabilities and has several contracts executing range residue projects with a program at approximately $10m. Finally, the Corps has prepared a draft Life Cycle Range Support Business Plan that is currently being staffed through the Corps Headquarters to address a program that provides capability in all phases of OE work.

These business development initiatives are on-going conjunction with the intent to transfer OE removal actions to the geographic districts that have the capability to perform these actions safely and cost effectively. An extensive effort is also underway to coordinate and support OE activities with the Corps' Regional Business Centers. This effort is considered a major objective for the Corps' OE program.

In summary, the Corps will continue to pursue these business initiatives by aligning itself as a contributor in maintaining sustainability of DoD ranges and providing engineering services to support the Army. If you have any questions, please contact Glenn Earhart of the Huntsville Center's Center of Expertise (CX) at (256) 895-1577, or e-mail at glenn.h.earhart@HND01.usace.army.mil.

OE Team Award Measures in Place for FY00

By Bob Britton, OE Directorate Business Team Leader

In order to meet the Huntsville Center Ordnance and Explosives Directorate's goal for continuous improvement, the Ordnance and Explosives Directorate's Business Team has developed 12 measures as the baseline for Team Performance Awards for FY00.

The Center directed that there be at least one measure developed in the following categories: Customer Satisfaction, Quality, Cost, Schedule / Responsiveness, Internal communications, and External Communications. Several of the new measures have emphasis on process improvement, rather than simply striving for a grade or number.

The team award system enables the director to reward employees for achieving team goals established through business action plans, thus completing the action plan cycle started through the Center's strategic planning.

The measures are also designed to support the Chief of Engineer's CORPS PLUS strategy and its three goals: (1) Revolutionize effectiveness; (2) Seek growth opportunities and; (3) Invest in people. The measures also support the Center's participation in the Presidential Quality Awards, and through this year, the Army Performance Improvement Criteria (APIC) Program. The APIC Program first applied

(See measures in place, page 3)

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Team Measure Expands OE Removal Work to Districts

Huntsville Tranfers Former Lowry Range to Omaha

By Brad McCowan, Huntsville Center OE Design Team Project Manager

As part of the Huntsville Center's OE Team measures (see related business strategy articles, page 2), the Huntsville Center is transferring OE removal work to the Corps geographic districts. The first project proposed for transfer in FY00 is the former Lowry Bombing and Gunner Range (Buckley) in Aurora, Colo., to Omaha District.

From the beginning of the removal phase approximately two years ago to the present, Huntsville Center has supported Omaha Distrtict in executing this highly visible project. Huntsville Center has provided support for contracting, Restoration Advisory Board (RAB) meetings and meetings with regulators with one goal in mind: that Omaha District would have a successful and safe OE project.

Once discussions were held with Omaha District to arrange for the transfer of the removal phase, Huntsville Center began work to bring the district up to speed on the requirements for a district to perform the removal action. The goal was to begin transferring the Buckley work in phases at the end of January 2000, and complete the transfer within three months.

At this time, the transfer is working out according to plan, and is expected to be complete by the end of April pending final completion of all administrative requirements.

Throughout the transition period, the Huntsville Center will continue to support Omaha District with safety and technical support until the district has met the safety and quality requirements for taking over these duties.

Even after Omaha District has assumed all of the duties for accomplishing the Buckley project, Huntsville Center will continue to assist the district on an as-needed basis.

Various types of ordnance items being removed from the former Buckley site are pictured above.

Measures in place

(Continued from page 2)

the use of criteria for the assessment of quality in American businesses to the Army's management practices.

The OE Directorate established three cost measures: (1) baseline goals for the Directorate's direct overhead hours; (2) a goal established for the average cost of an Engineering Evaluation / Cost Analysis (EE / CA) and; (3) the average cost of a removal action.

The safety measure is a goal related to the Army's accident rate. The quality measure involves the development of two new processes that target improved quality for the products the OE Directorate provides.

The schedule / responsiveness measures involve awarding contract delivery orders as scheduled on the program workplans.

In order to support the Chief's "revolutionize effectiveness" goal, there are two measures that involve demonstration and integration of new technologies. The Huntsville Center OE Directorate is exploring new opportunities by expanding the OE removal work to the geographical Districts, and improving external communications by partnering with each of the Corps' Regional Business Centers.

Other measures include the execution of the OE Directorate's approved training plan and establishing two new processes that will improve customer satisfaction.

These measures were presented and finalized after OE team feedback at the OE Stand-Down in December 1999. The OE team is comprised of employees who reside in the Center's OE Directorate and Center matrix employees that charge over 50 percent of their yearly hours to the ordnance program. It is important to understand that all employees contribute to the team award and, therefore, accept responsibility for knowing and assuring the success of meeting the goals established. The goals were designed this year to demonstrate real process improvement and not rely on more subjective measures such as a survey or accounting statistic that would allow a "passing grade." In the future, the OE Directorate will be expanding its goals by persuading contractors and other team players to demonstrate improvement and prove they are also more efficient by establishing the same type of metrics.

ERRO Instructs Community at Chemical Munitions Site

By Ted Henry, Baltimore District Public Affairs

Educating the surrounding Aberdeen Proving Ground businesses and neighborhoods of protective measures at the job site is one of the most important aspects of the cleanup project, according to Bruce Ware, acting resident engineer of the Environmental Remediation Resident Office, or ERRO.

This guiding principle directs Baltimore District's efforts to reduce long-term risks to public health and the environment from munitions and chemical warfare materiel buried at Aberdeen. Since 1996 ERRO has been responsible for planning and managing the day-to-day field activities for the Lauderick Creek Chemical Warfare Materiel Removal Action. Later this year, the removal work will begin.

Neighborhood Door-to-Door

As part of the education process, ERRO and its contractors performed a door-to-door campaign to train local residents on Shelter-in-Place procedures and to inform them of how they can stay informed of the Lauderick Creek Removal Action work while it is ongoing.

In addition to the hands-on-Shelter-in-Place training, two support programs were presented to the community. ERRO is working with the Environmental Protection Agency and the Department of Energy to provide information to residents who would like to make their houses more energy efficient, and thus better for Shelter-in-Place. ERRO is also working with the Harford County sheriff's office to explore the possibility of establishing safe houses in each neighborhood.

"These safe houses would provide children with choices of homes where they could take shelter, if the emergency sirens ever sounded while they were outside playing or otherwise in between their homes and destinations," said Billy Sanders, ERRO project manager for Lauderick Creek.

Mobile Community Office

With the assistance of the Edgewood Chemical Biological Center at APG, ERRO recently established the Lauderick Creek Mobile Community Office, which was used to host a series of informational block fairs.

"The fairs allowed residents who were not home during the door-to-door visits to meet with us and obtain Shelter-in-Place information, and those who were contacted previously to learn more about the project and ask follow-up questions," said Sanders. "We've also mailed the Shelter-in-Place materials to those we didn't reached through our direct efforts."

Schools and Tools

Shelter-in-Place educational resource materials and supporting presentations were provided to the faculty and staff of the four Edgewood schools. Other meetings are planned with school officials to delineate potential accident scenarios and how school staff should respond, according to Carrie Johnston, community project manager for the Lauderick Creek team.

"We're also working with facilities management to identify and make any necessary electrical improvements so the staff from each school can easily shut down their respective ventilation systems in response to a chemical release," said Ware.

"Our door-to-door training, supporting block fairs and various school efforts have allowed us to identify specific community concerns within the community," said Ware. "Residents asked questions about how to identify a real emergency siren compared to a test; where they will go if they can't go home after work; and how they can protect their pets. We're working with them to address these and other concerns to make sure everyone is informed and prepared."

There is a website, information phone line and informational radio station to keep the community informed of the Lauderick Creek activities on a daily basis.

"The radio station will be particularly valuable since concerned residents will be able to get daily updates without a computer or having to pick up the phone," said Johnston. "Additionally, we will have the ability to broadcast Shelter-in-Place information within a few seconds of activating the emergency sirens if there is a release."

Ted Henry discusses the Lauderick Creek removals with local residents.

(See ERRO instructs, page 7)

HTRW CX Provides Perspective On Secondary Explosives in Environmental Media

By Ed Bave, Omaha District HTRW Center of Expertise

This is the first of a three part series presented by the Hazardous, Toxic, and Radiological Waste (HTRW) Center of Expertise (CX), Omaha (Neb.) District. Topics to be presented, in the order of discussion will be secondary explosives program issues, the classification of secondary explosives in environmental media as a RCRA hazardous waste, and the classification of secondary explosives in environmental media as a DOT hazardous material.

Site settings with explosives in environmental media typically include OB / OD areas, munitions wash out facilities, and manufacturing sites with their associated pink / red water lagoons.

For HTRW Districts, environmental media that is contaminated with explosives should immediately generate two questions during initial project planning. First, who is the organizational lead? Second, what are the organizational roles? ER 1110-1-8153, Ordnance and Explosives Response, defines program roles and responsibilities. In order to determine roles, the nature of the explosives must be determined as primary or secondary.

In the case of primary explosives (i.e., extremely sensitive explosives such as Lead Styphnate, Lead Azide Mercury Fulminate, etc.) and propellants, the Ordnance and Explosives (OE) Center of Expertise (CX) must be contacted. The OE Design District and the CX will determine roles and responsibilities on a site specific (case-by-case) basis.

For secondary explosives (i.e., less sensitive bursting and boostering explosives such as TNT, Composition B, and Ammonium Picrate) in soil, the ER 1110-1-8153 defines roles and responsibilities based on the definition of "explosive soils" (i.e. > 10% by weight secondary explosives). For both investigative and remedial / removal action work, the HTRW Design District has the lead.

Prior to beginning any sampling of soils known or suspected to be contaminated with secondary explosives, the work plan and Site Safety and Health Plan (SSHP) must be submitted to the OE CX for review. The HTRW CX can help with the development of the sampling and analysis plan. When "explosive soils" are expected or known to be present, the District is required to have on-site UXO support during the sampling.

For remedial / removal actions when "explosive soils" are to be present, the HTRW Design District, as the lead organization, must prepare an explosive safety submission (ESS) for review and comment, concurrence, and forwarding to higher headquarters by the OE CX.

Fieldwork cannot commence prior to approval. The work plan, health and safety design analysis and the SSHP are to be provided to the OE CX for review. Listed project documents, including the sampling and analysis plan are to be submitted for review to the HTRW CX.

Two thoughts merit consideration regarding "explosives soils" sampling. For sites where gross (bulk) contamination occurs, there may not be a need to know the actual concentration of secondary explosives based on an off-site lab analysis. Field analytical methods may provide the necessary information.

The HTRW CX can provide additional information on these techniques. Further, typical sites have secondary explosives at levels that are visible to the naked eye. A 10% determination can be made qualitatively if discrete layers, chunks, or flakes of secondary explosives are visible within the soil matrix. For program purposes, it may be appropriate to assume the soil, at least discrete areas of the site, contain > 10%. Early coordination with the HTRW and OE Centers will streamline the process.

Omaha District and Huntsville Center CX personnel work together to resolve HTRW/OE issues. Some of the team members include (l. to r.): Rob Wilcox, Roger Young, Heidi Novotney, John Sikes, Sandra Frye, Steve White and Johnette Shockley.

Innovative Solution Means Ordnance Success Story at Jefferson Barracks

By George Hanley, Kansas City District PAO

An innovative solution to an ordnance problem spelled success for the Kansas City District.

The textbook solution to the ordnance problem that was encountered at Jefferson Barracks, Mo., was removal and detonation. But, with a river system like the Mississippi that is subject to high levels and a wet cycle and showed no signs of relenting, that choice was out. The solution selected – revetting (covering of the riverbank with large 2-ton stones) – was found to be both most protective as well as implementable.

The dangerous remains of French-designed rifle grenades and British-designed mortar shells had been buried bankside, at Jefferson Barracks since World War I. Collectors of military artifacts were placing themselves at tremendous risk — digging on this site.

Fortunately, it was nature, the natural scour action of the river, and not a trespasser who unearthed dangerous unexploded ordnance on the banks in 1996. To protect the public, the Missouri Air National Guard (MoANG) called upon the U.S. Army Corps of Engineers, Kansas City District, to eliminate this hazard.

Jefferson Barracks, established in 1826 is the oldest Army post in continuous use west of the Mississippi. The river is the eastern boundary of this installation, which is within the St. Louis, Mo. city limits. The Missouri Air National Guard (MoANG) currently owns that portion of the property overlooking the riverbank ordnance dumpsite. This area was used from the late 1800's to early 1900's. Disposal in the river was a common and acceptable practice during this time period.

Erosion and fluctuating river levels uncovered the old riverbank disposal site a few years ago. That dump was initially thought to contain mostly refuse from everyday 19th century military life. But, in spite of efforts by the MoANG to keep this area of the riverbank off-limits to the public, amateur artifact hunters still combed the shoreline looking for relics. Fencing the area was not practical because of maintenance problems and the fluctuating river levels.

Four years ago the site turned from an attractive nuisance to a potential killing ground when live Stokes Mortar shells – the predecessor to the modern 81mm mortar, French design rifle grenades and hand grenades, fuses, flash tubes and .30 caliber ammunition appeared among the debris.

What made the situation especially dangerous were two facts: First, some of the most deadly rusted ordnance resembled relatively harmless objects, such as a muffler or starter coil and; secondly, there were six elementary schools within easy walking distance of the unsecured site.

The situation demanded immediate action. A three-part program of education, elimination, and remediation was decided on. Educating and warning the public was done through press releases, signs, posters and school assembly programs.

Simultaneously, unexploded ordnance was removed and detonated. In the three years preceding actual construction of the final remedy at the site, some 1,363 ordnance items were recovered and disposed of by the Fort Leonard Wood Explosive Ordnance Disposal (EOD) Unit.

Work continued on remedial design and construction. Press events and public meetings were used to inform the public of this less visible effort. Josephine Newton-Lund, the District's environmental manager for Jefferson Barracks, summarized the program. "Three alternatives were considered before recommending a revetting. The Missouri Department of Natural Resources and the U.S. Environmental Protection Agency agreed to this remedy. Encapsulation of the UXO under large rocks was the best solution to protect human health and safety," she said.

Since the dump was on a Formerly Used Defense Site (FUDS), the Kansas City District was responsible for funding the remedial action and coordinating public involvement activities. The Hydrologic and Hydraulics Branch of the St. Louis District prepared the design and specifications for the project and also provided on-site supervision. Additionally, an ordnance and explosives team from St. Louis District provided on-site ordnance avoidance and removal activities. The Corps' Huntsville (Ala.) Center performed technical review of the project design and suggested locations for warning signs. MoANG was responsible for installing the warning signs. Total project cost was estimated at $500,000.

The riprap, quarried from a site on the opposite bank of the river, was moved by barge. A barge-mounted crane and dragline placed thousands of tons of rock along approximately 650 linear feet of shoreline, burying the potential hazard from the curious.

OE Stand-Down

(Continued from front page)

Corps and contractor field personnel. Everyone agreed that Bob provided some really valuable information that can help save time and money, and most importantly, make the data more accurate," related McCauley.

The Stand-Down also offered the opportunity to further discuss the use of Meandering Path Geophysical Investigations for data collection. "Innovative technology is something that everyone is interested in, and a technology that allows us to eliminate the use of grids is even more exciting. The more people in the field learn about it, the more they are interested in trying it," said McCauley.

Institutional controls and recurring reviews were also presentations that were extensively discussed. Institutional controls and recurring reviews are both means to implement risk management. An institutional control plan informs the community about potential hazards, fosters cooperation among individuals and various levels of government, and establishes local initiatives that require conformance with rules that provide for development and reasonable land use while minimizing OE hazards. A recurring review is the long term monitoring of an OE response action to ensure the response action remains protective of the public. "Both of these processes rely extensively on local public involvement, understanding and support, to ensure risks remain minimized as much as possible. We shared Huntsville Center's experiences with the group. The primary issue is still safety," said Rob Wilcox of Huntsville's OE Center of Expertise.

According to Wayne Galloway, Chief, Huntsville Center, OE Safety, Stand-Down 99 highlighted positive, rather than negative, safety issues. "We saw our lowest accident rate ever in FY99, and we are seeing even greater participation at the Stand-Down from our partners. This year, in addition to Corps District personnel and Unexploded Ordnance (UXO) contractors, we also had a chance to interact with Architectural-Engineering (AE) design contractors and specialty contractors like geophysics firms."

New safety requirements for 40mm grenade ranges were also unveiled. "For work at 40mm grenade ranges, we are requiring the use of handheld magnetometers at all times and the burn-off of all vegetation before UXO is cleared. A risk analysis will also be performed to determine if additional site-specific safety measures are needed," said Galloway.

Plans for next year's Stand-Down are already being discussed. "We are already talking about the composition of next year's Stand-Down. "The overwhelmingly positive feedback we received regarding this year's Stand-Down gives us even more ideas about what we want and need to continue to improve the OE program," concluded McCauley. Presentations from Wednesday and Thursday of the Stand-Down are available on the OE web site at www.hnd.usace.army.mil/oew/index.htm.

ERRO instructs

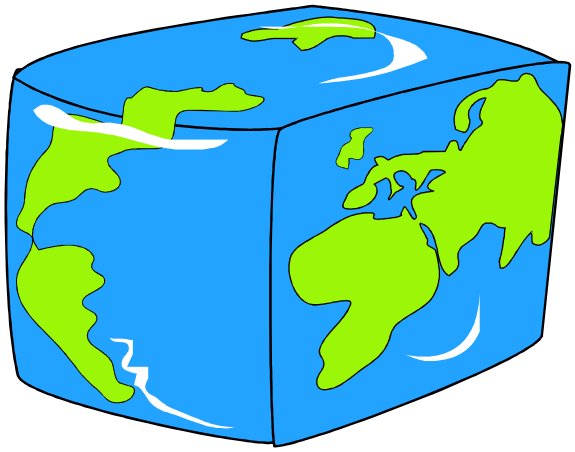
(Continued from page 4)

Although the probability of an accidental release is remote, ERRO plans to make every effort to ensure local residents are well informed and prepared to protect themselves just in case.

"Before we begin intrusive activities, we'll mail each resident an announcement with the specific start date and a grid map of the Removal Action area," said Sanders. "The map and daily update will keep residents informed of our digging at any given time.

"Additionally, Lauderick Creek outreach personnel will station the Mobile Community Office within the neighborhood closest to the grid being excavated each day," said Sanders. "This will help remind residents about the removal action and give them access to project personnel for Shelter-in-Place refresher information and to ask questions."

Wayne's World of OE Safety



By Wayne Galloway, Huntsville Center OE Safety

The other Friday night after work, I was sitting back and cooling my jets from the previous week of being dedicated, by relaxing and drinking some red wine. Come to think of it, it could have been the other way around. Anyway, I was relaxing on a Friday night after a week of work. While relaxing in this manner I found myself playing this personal game of entertainment that exists inside my private world of OE .

The game is trying to mentally peel layer by layer the proverbial OE onion; trying to find the various layers and the core of the onion from (of course) a safety perspective.

I asked myself the question: "What is the objective of the world of OE?" The answer seemed to be that there are many and various objectives depending on your point of view is from.

Understanding this, I had to ask myself if I could only chose one objective for the whole OE world what would it be? Thinking about this for awhile, my answer was that the main objective was to clear the land of Unexploded Ordnance (UXO).

That, I thought was a pretty good answer, but then I had to ask myself why do we have to do that? My answer was (after giving it some thought) because DoD had caused this contamination and we have been tasked with the clean up of these items.

But then I was still left with the question: "Why do we have to clear the lands of the UXO concerns?" I heard myself saying that we needed to dispose of the UXO contamination so that the land could be used by the public or other parties with a need.

Upon hearing this I had to peel off some more layers of the onion and asked myself: "Why don't we just turn the land over as it is?" "So the public or other interested parties with a need could gain access and use this land without having the presence of an UXO hazard which could possibly cause an injury to these people," I answered.

Are you getting the idea of this game? It can get frustrating sometimes as you get closer to the core of the onion if you keep peeling away the various layers. So many other issues make up the layers of the onion, you think you have the answer, and then there is another layer to peel away.

I felt we were getting closer to the core of this OE onion. Then I heard myself say that the objective is providing OE safety for the public, and that our mission is to reduce the level of risk to the public from UXO, and yes — to provide safety from UXO hazards on these projects. I've heard something like this before.

I think ordnance and explosives safety is and always has been our core objective within the OE community. I think it has to be the heart and soul of the OE program at all levels. Whenever I've gotten close to the core of this OE onion, I've found the basic focus and purpose to be about UXO safety and everything else as different layers growing out from this basic core. Sometimes it seems that as we become more involved with the concerns of time lines, cost, technology, and politics, it's difficult to remember that the real objective is, and ALWAYS HAS BEEN ABOUT OE SAFETY.

Sorry about rambling on and taking up your time. But I wanted to provide you with just a small example from my game of peeling the OE onion that exists within my private world of OE and see what you thought about it. There are a lot of these OE onions of various sizes that should be mentally peeled to find the core of some of our logic and reasoning; I think it a good exercise for everyone within the world of OE. Try it. I don't think anyone will say anything and you can be guaranteed not to cry.

Huntsville Center OE Safety Alerts are posted at www.hnd.usace.army.mil/oew/SafetyAlerts/saindex.htm

Helicopter System Detects and Maps UXO

Huntsville Center, ORNL Introduce New Technology

By Scott Millhouse, Huntsville Center and David Bell, Oak Ridge National Laboratory

In June 1999, the Huntsville Center and the U.S. Department of Energy's Oak Ridge National Laboratory (ORNL) conducted an innovative airborne geophysical survey at the former Badlands Bombing Range (BBR) in South Dakota as part of a technology demonstration and validation for the Environmental Security Technology Certification Program (ESTCP) office.

The primary objective of the survey was to validate detection and characterization of ordnance and ordnance-related debris in previously surveyed areas (using surface-based technologies) by using airborne geophysical systems. The secondary objective was to examine the use of this technology to support the evolving footprint reduction methodology. The technology developed for use at these sites was an airborne magnetometer system deployed on a commercial helicopter platform.

Located in the northwestern-most portion of the Pine Ridge Indian Reservation is a large plateau known as Cuny Table. This area is approximately 10,000 acres in size and is characterized as having relatively flat topography. This area has been used and is currently being used for farming and grazing of livestock.

Helicopter magnetometer system surveying Cuny Table at Badlands Bombing Range.

The Cuny Table is part of the BBR and is known to contain a number of aerial gunnery targets, aerial bombardment targets, and waste burial pits associated with the presence of ordnance and explosives.

The project team conducted surveys at six sites. These sites were at two known bombing targets, two known disposal pits, a calibration test site, and a recently discovered potential target in an area of Cuny Table known as the Stronghold area. The survey consisted of approximately 400 acres across these six sites.

The technology demonstrated at BBR consisted of an innovative array of cesium-vapor magnetometers mounted in carbon-fiber "booms" attached to the airframe of a commercial four-passenger helicopter. This configuration enabled the magnetometers to be flown at altitudes ranging from three to nine feet above the ground surface at speeds upwards of 50 m.p.h..

This configuration optimized the sensitivity of the magnetometers enabling performance approaching that of surface-based magnetometer systems. However, unlike surface-based systems, this airborne system enabled detection and precision mapping (sub-meter accuracy) of potential UXO without risk to humans and without damaging sensitive plant or animal habitats or significant cultural sites.

Newly discovered potential bombing target at the Stronghold Area on Cuny Table.

The airborne magnetometer system identified more than 2000 "anomalies." In fact, for the newly discovered site at the Stronghold area, more than 600 anomalies were identified within a 60-acre area.

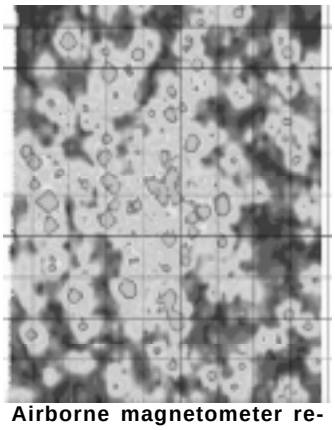
As part of the ground truth necessary for results validation, a sampling of these "anomalies" was excavated. More than 150 pieces of UXO and UXO-related debris were recovered, including three "live" rounds.

More than 90% of the items recovered were M-38 practice bombs and 2.25-inch aerial rockets. These items were recovered at depths ranging from a few inches to more than three feet.

Based upon these preliminary results, the project team believes that this is an appropriate and cost effective technology for this project's OE objectives.

The project team will be returning to BBR during the summer of 2000 to perform another ESTCP-funded project using the next generation of airborne geophysical technology.

Additionally, efforts are underway to integrate this technology in the Engineering Evaluation / Cost Analysis (EE / CA) project currently underway at BBR as well as investigating the application of statistical methods to airborne geophysical detection and mapping for UXO.



Airborne magnetometer results for a portion of the Stronghold Area.

DDESB Approves DeMil International's Donovan Blast Chamber

By Ed Vaughn, DeMil International

The first transportable contained-detonation chamber designed for rapid-fire repetitive use has been approved by the Department of Defense Explosives Safety Board (DDESB) as safe for disposing of conventional unexploded ordnance (UXO). It will be on-site at Massachusetts Military Reservation in late April 2000.

The DDESB approval of the commercially developed T-10 Transportable Donovan Blast Chamber, manufactured and marketed by DeMil International of Huntsville, Ala., came on the basis of an Explosive Safety Submission submitted by Huntsville Center.

The trailer-mounted T-10 permits detonation, every 5 minutes or less, of munitions equivalent to two 81-millimeter mortar rounds plus the donor charge used to initiate the detonation. Huntsville Center estimates that more than 90 percent of the UXO at the more than 700 formerly used defense sites falls into this category.

Previous uses of a T-10 system include a Region IV Environmental Protection Agency (EPA) cleanup of munitions after an explosion and fire at an Alcohol, Tobacco and Firearms (ATF) licensed explosives manufacturer in Tennessee; California EPA cleanup of an ordnance development and testing facility in California; and Corps disposal of civil war ordnance on a private site in St. Louis.

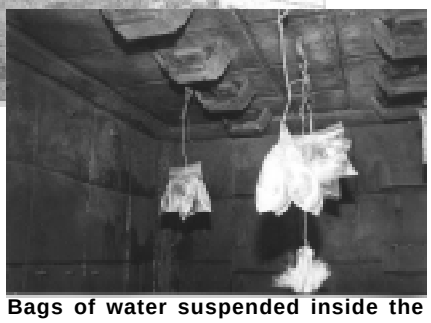
At the National Guard's Massachusetts Military Reservation, the T-10 will be used to clean up UXO on a firing range.

David Douthat, director of Huntsville Center's OE Directorate, says, "This is another step forward for the Army in environmental stewardship, and another tool in our toolbox to meet safety needs."

The T-10 system comprises three major components:

—The patented Donovan Blast Chamber consists of a steel box-within-a-box, 6-feet-7 inches wide by 6-feet-7.5 inches long by 7-feet-11-inches high. The chamber has armor plated interior walls. The blast chamber contains pea gravel on its floor and silica sand filling the spaces between the boxes, acting as blast-shock absorbers. The UXO is placed inside the detonation chamber after being wrapped with a sheet-explosive donor charge. The donor charge crushes the UXO mitigating shrapnel energies. Plastic bags of water inside the chamber quench and cool the detonation fireball.

The T-10 Tranportable Donovan Blast Chamber includes (r. to l.) the blast chamber, expansion chamber and air pollution unit.



Bags of water suspended inside the armor-plated Blast Chamber quench and cool the detonation fireball.

—The steel Expansion Chamber is larger (7.5 feet x 8 feet x 9 feet) than the Blast Chamber. It provides a controlled volume of space where the overpressures from the detonation expand and cool further before entering the Air Pollution Control Unit..

—The Air Pollution Control Unit (7 feet long, 8-feet-6 inches wide, and 10- feet-2 inches high) is an "off the shelf" air filtration system. It captures the particulates down to 0.5 microns before venting the remaining gases into the atmosphere. There is no visible emissions from the system.

Cleaning up UXO with the T-10 is faster, cheaper, cleaner and quieter than customary open-burn / open-detonation techniques. The T-10:

--Reduces movement and handling of the munitions.

--Eliminates dependency on the weather and time of day.

--Eliminates residues that could contaminate soil and ground water.

A destroyed 81-mm mortar round and an assembled 81-mm mortar round.

(See DeMil Blast Chamber page 11)

DeMil Blast Chamber

(Continued from page 10)

--Reduces noise to acceptable industrial standards

--Eliminates shock waves that disturb nearby populated areas.

--Increases productivity and further decreases costs, with its capacity for shooting repetitively.

--Further increases productivity and decreases costs by eliminating nuisance noise from detonations, which permits operations to continue up to 24 hours a day in any weather.

The patented Donovan Blast Chamber technology was originally developed by John Donovan of Donovan Demolitions Incorporated (DDI), Danvers, Illinois, to permit the safe, clean detonation of sheets of explosives to depth-harden metal castings for railroad crossings and other applications.

According to Donovan, "This technology offers a safe, economical and environmentally friendly method to destroy UXO and demilitarize unserviceable ordnance. We look forward to working with DoD in future UXO remediation and demilitarization efforts." Donovan joined forces with Andy Lowery of Huntsville, Ala., in 1998 to create DeMil International.

Two D-100 Donovan Blast Chambers were used at Milan Army Ammunition Plant in Tennessee to dispose of 25 thousand M483A1 155-mm high explosive artillery shells.

A D-100 stationary Donovan Blast Chamber is about to begin operations at Blue Grass Army Depot in Kentucky.

This was the first of a series to be built under contract to the Defense Ammunition Center, McAlester, Okla.

DeMil International will start construction on another D-100 under this same Broad Agency Announcement at Anniston Army Depot in Alabama later this year.

'One Door to the Corps' Assists MMR

By David Skridulis, Huntsville Center Project Manager

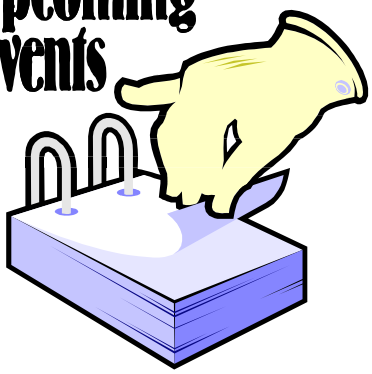
The Huntsville Center Ordnance and Explosives (OE) Team was recently requested by the New England District to support an ordnance clearance project at the Massachusetts Military Reservation (MMR) in Falmouth, Mass. The New England District has been providing environmental remediation support to the Army National Guard at this site. Since it was determined that upcoming field work scheduled for this summer would take place within known ordnance impact areas, the New England District Project Manager, Darrell Deleppo, contacted the Huntsville Center to see what type of assistance or partnership could be put together to meet the needs of his customer.

This project is under intensive regulatory scrutiny regarding concerns that explosive residue is potentially contaminating the underlying groundwater. Therefore, there is an express preference to control any additional Unexploded Ordnance (UXO) waste products generated as a result of demolitions in support of environmental investigations.

The Huntsville Center, through its contractor, will provide a contained detonation chamber that will be used to process all UXO that is deemed safe to move (see preceding story, "DDESB Approves Use of DeMil International's Blast Chamber"). This chamber will be used to not only destroy the existing stockpile of UXO items, but will also be used to destroy other UXO items uncovered during the excavation work scheduled for this summer. The blast chamber to be used, DeMil International's T-10 Transportable Donovan Blast Chamber, has been tested and proven to contain residues, thus eliminating any chance of contaminating soil and ground water.

The New England District, by serving as the "One Door to the Corps," provided the customer with an environmentally safe cleanup alternative, and potentially saved time and money by tapping into existing resources available within the Corps.

Upcoming Events



Worldwide Range & Training Land (RTLP) Workshop
April 24-26, 2000
Kailva-Kona, Hawaii
POC: Jim Bowser
Commercial: (757) 878-2320
DSN: 927-2320
E-mail: bowserj@atsc.army.mil

UXO/Countermine Forum
May 2-4, 2000
Anaheim, Calif.
POC: Charlotte Galyon (Participant Registration/Exhibits)
1-888-808-5303
E-mail: TheForum@tva.gov
Darlene Edwards (Sponsorship Opportunities)
(410) 436-6866
E-mail: Darlene.Edwards@aec.apgea.army.mil

Explosive Ordnance Recognition and Safety Workshop
(Corps of Engineers PROSPECT course)
May 15-19, 2000
Huntsville, Ala.
POC: Ms. Joy Rodriguez
(256) 895-7448
E-mail: Rebecca.J.Rodriguez@usace.army.mil

Project Management – HTRW & OE
(Corps of Engineers PROSPECT course)
5-9 June, 2000
Sacramento, Calif.
POC: Ms. Joy Rodriguez
(256) 895-7448
E-mail: Rebecca.J.Rodriguez@usace.army.mil

29th DoD Explosives Safety Seminar
July 18—20, 2000
New Orleans, La.
POC: Mr. Brent E. Knoblett,
DSN: 221-1375
Commercial: (703) 325-1375
Fax: (703) 325-6227
E-mail: Brent.Knoblett@HQDA.Army.Mil