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As the tides rush out, UXO workers rush in to clean up Maine's Mile Beach
page 2

Three Corps offices support former Camp Maxey removal efforts
page 3

Selecting and siting UXO barricades
page 4

CX facilitates UXO cleanup transfer to Corps districts
page 5

Nashville District engineer enjoys satisfying the customer
page 7

Calendar of Events
page 8

Ordnance • Explosives environment

News From the Ordnance Center of Expertise and Design Center

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Defense looks at UXO contracting practices

With an eye on promoting technological solutions for ordnance cleanup problems, a DOD team seeks incentives and contracting improvements.

The Department of Defense has convened a "UXO Contracting Integrated Product Team (IPT)" to evaluate current practices for contracting ordnance cleanup projects. The IPT was formed under the direction of Dr. Kaminisky, former Undersecretary of Defense (Acquisition and Technology), to ensure that DOD maximizes the contracting industry's interest in and capacity for advancing technologies in the detection and cleanup of unexploded ordnance (UXO).

The IPT has been tasked to make recommendations for changes in DOD's contracting practices, if necessary. The specific focus of

the IPT is to look at contractor indemnification and performance-based contracting issues as they relate to providing the appropriate contracting methods and incentives that encourage innovative approaches.

The acting team chair is Mr. Scott Edwards in the Office of the Deputy Undersecretary of Defense (Environmental Security). Team members include representatives from the headquarters of the military departments' cleanup and contracting offices, along with representatives from the Explosives Safety Board, Acquisition Reform, Defense Procurement, and General Counsel Offices within DOD.

The IPT was established and first met in November 1997. Because Huntsville Center has done the majority of DOD contracting for UXO cleanup, the IPT visited the Center in

Contracts continued on page 6

Single qualification standard for all UXO industry personnel under study

Efforts are in motion to build a single UXO personnel skills standard applicable across DOD. A team of government and industry representatives plan to complete preliminary findings soon.

Based on findings from the Defense Science Board Task Force on unexploded ordnance (UXO), Ms. Sherri Goodman, Deputy Undersecretary of Defense (Environmental Security), established the "Integrated Product Team (IPT) on UXO Personnel Qualification Standards." That IPT is chartered to study and submit a formal proposal for the establishment of a single occupational skills standard for contrac-

tor personnel providing UXO remediation services to the Department of Defense.

Participating in this collaborative effort with private industry is a team composed of representatives from the Office of the Secretary of Defense, the Department of Defense Explosives Safety Board, each of the Armed Services, the National Association of Ordnance and Explosives Waste Contractors, and various individual contracting firms.

The objective of the IPT is to build a single skills standard that all services and DOD components will use in future UXO remediation contracting. With the exception of formerly used defense sites, UXO remediation is a service-specific responsibility. As such, each service

Standard continued on page 6

As the tides rush out, UXO workers rush in to clean up Maine's Mile Beach

by Kim Speer, Huntsville Center PAO

Maintaining public safety is the basis of the Corps of Engineers' Formerly Used Defense Site program, and recent ordnance cleanup activities at Reid State Park's Mile Beach, Maine, is one example of that program's accomplishments.

The cleanup of the four-acre beach strip was instigated after 5-inch rocket warheads and 2-inch rocket mortars began washing ashore after heavy winter storms. Although the munitions were quickly buried by the tide, concerned officials contacted the Corps of Engineers to assess the situation.

The Corps recommended a "time critical" removal action for the beach area, and coordinated extensively with the state to determine the best time to begin cleanup. The Corps' coordination with the state was the key to the success of this project. Protection of the coastal environment, endangered species, and the effects of noise and detonations were all considered.

"The state's familiarity and knowledge concerning the site, weather conditions, and tourism were invaluable," said Ron Sketo, Huntsville Center project manager.

The site, once a target area for World War II American and Canadian pilot training at the Brunswick Naval Air Station, had a history of occasional ordnance finds after heavy storms. The park is open year round and is one of the most popular parks in Maine. The frequent visits by the Navy's Explosive Ordnance Disposal Unit and the concern over public safety during the upcoming summer season prompted the request for a more extensive cleanup.

Based on the state's input, a fall or winter cleanup was determined to be

the best alternative because ordnance had been reburied deeply enough by replenished sand, greatly reducing the immediate risk during the heavily visited summer months.

While Mother Nature initially helped expose the rockets, warheads, and mortars, Mother Nature also helped with the cleanup effort. A marine geologist with Maine's Department of Conservation helped determine the depth of the sand covering the ordnance and determined that the best times for removal would be during the winter months between the last quarter moon and the first quarter moon when the tides are lowest. All suspicious metal objects detected to a depth of 3 feet were excavated and removed from the beach.

"Doing removals in sandy and water-covered areas is difficult, but

our contractor, HFA, Inc., did a very thorough and timely job," said Sketo.

In order to ensure that the public would be safe while cleanup was underway, officials closed the park during the week. Removals, however, were completed within two weeks, and the park was reopened on weekends, so the inconvenience to the public was minimal. The two weeks of work yielded 82 ordnance items, none of which contained explosives or explosive residue.

The timely cleanup was also performed in an environmentally safe manner. Further study of the area will be made in the next year to see if additional work is necessary.

The Corps' cooperation, thoroughness, and focus on safety left state and park officials comfortable with reopening the beach again for the upcoming summer months. □



At Reid State Park's Mile Beach in Maine, a small Bobcat track hoe was used to investigate the subsurface anomalies too far below the water table to be removed with a shovel. Through coordination with the state, the Corps was able to clear the site during fall and winter months so that the beach was safe for the summer tourists.

Three Corps offices support former Camp Maxey removal efforts

by Kim Speer, Huntsville Center PAO

The U.S. Army Corps of Engineers removed over 2,000 unexploded ordnance (UXO) items in two months from old Camp Maxey, a formerly used defense site that is now a federal recreational facility and private property. Located about nine miles north of Paris, Texas, the site surrounds Pat Mayse Lake, a popular site that offers swimming, boating, fishing, and camping to the public.

“The removals represented a joint effort among three Corps’ offices: Fort Worth District, which is the life cycle project manager; Huntsville Center, which is the center of expertise and the design center for ordnance and explosives; and Tulsa District, which manages the Pat Mayse Lake Recreational Facility,” said Bill Sargent, Huntsville Center technical manager.

Most of the site is now occupied by the Pat Mayse Lake Project, a 20,000-

acre Corps flood-control and recreation area. The Texas National Guard maintains a training site (which has retained the name Camp Maxey), while the remaining land is privately owned.

The site was established during World War II as a divisional training camp and occupied about 40,000 acres. The camp included two designated impact areas for weapons firing. Training included the use of pistols, carbines, rifles, tommy guns, automatic rifles, machine guns, mortars, bazookas, anti-tank guns, artillery pieces, land mines, and “booby traps.”

Occasional ordnance finds had occurred throughout the area over the years, and posted signs warned of the potential danger. However, the full extent and dangers of the problem were not known until drought exposed numerous items, including 2.36-inch bazooka rounds, rifle grenades, and

37-millimeter projectiles. Removal of the items was considered necessary and “time critical” because of the potential hazard to the public.

“Most people in the area are aware of the ordnance issue, but the amount and exposure made the site extremely risky,” noted Sargent.

Immediate preparations were made for the removal of items located around the lake (which was a former rocket, bazooka, and rifle grenade impact area) and in a nearby area used for all-terrain vehicle recreation. Because the all-terrain vehicles could disturb several inches of soil, plans were made to remove items down to two feet below surface level in that area.

“Public safety was a priority during the actual removal process,” said Sargent. Arrangements were made to inform area visitors about the potential dangers and plans for removal work were made. Work areas were restricted from public access, and additional precautions were taken to stop work if anyone entered the removal zone.

“Removal of ordnance in the two critical areas was completed in a short span of time considering the large number of items located,” said Sargent. Besides removing 2,180 unexploded ordnance items, workers also disposed of 1,686 non-explosive ordnance items and 5,846 pounds of scrap.

The remainder of the site is now being evaluated and remediation methods recommended through an engineering evaluation/cost analysis (EE/CA) study. About five hundred 100- by 100-foot sampling grids will be placed throughout the former

Maxey continued on page 6



At former Camp Maxey, UXO team members prepare 2.36-inch rockets for demolition operations. The formerly used defense site surrounds Pat Mayse Lake, a popular outdoor recreation area just north of Paris, Texas. During a two-month clearance, the U.S. Army Corps of Engineers safely removed over 2,000 UXO items from the site.

Selecting and siting UXO barricades

by Michelle M. Crull, Ph.D., P.E.,
Huntsville Center Engineering

With safety to the public and site workers the primary consideration at ordnance project sites, Huntsville Center developed standard protective blast barricades and a guide for selecting and siting them.

An accidental explosion produces hazards from primary fragmentation, blast overpressure, and noise and ground shock. For each of those factors, the safe distance from the blast area is calculated. The greatest of those distances then becomes the public withdrawal distance (PWD), which tells ordnance site workers how far effects of a particular blast could reach.

For unexploded ordnance (UXO), the PWD is usually determined from the primary fragmentation distance. If site conditions make it impossible or impractical to achieve that distance, engineering controls—or barricades—are used to reduce the PWD.

In the past, those engineering controls were designed and constructed on a site-by-site basis. To facilitate that design and construction process, Huntsville Center's Structural Branch developed standard designs for ordnance engineering controls and a guide for their selection, siting, and use. The standard designs reduce the time required for design and construction of engineering controls, thereby reducing costs.

Barricade Designs

To defeat the fragments from an 8-inch projectile, a massive steel engineering control has traditionally been



Figure 1 shows a UXO worker carrying a magnetometer from a modular sandbag barricade. To construct the barricade, special pallets strapped with sandbags are stacked by forklift. The advantage of the modular sandbag barricade is that it provides fragment protection in all directions, if needed.

used. The steel plates are 3/4-inch thick and the barricade is 11 feet long by 7 feet wide by 10 feet high and weighs 10,261 pounds.

Besides the steel barricade, the guide describes the four basic barricades developed by Huntsville Center: the bulk barricade, the plate barricade, the open front barricade, and the modular sandbag barricade. Each barricade has certain restrictions on usage because of factors such as ground slope, barricade weight, fragment-mitigating materials, and degree of coverage. Because those barricades provide protection from primary fragments only, they are not intended to reduce the effects of blast overpressure, noise, or ground shock.

The bulk and plate barricades may be used on terrain with a maximum slope of 10 degrees. Both barricades are relatively heavy and require the use of heavy equipment to move the barricades. Also, those barricades provide fragment protection for a limited area in one direction only.

On the other hand, the modular sandbag barricade provides complete fragment protection in all directions but can only be used on flat terrain. As shown in figure 1, this barricade is constructed of sandbags strapped to

special pallets, which are stacked by forklift.

The open front barricade is constructed of aluminum and provides fragment protection in three directions. The legs of the frame are adjustable so that the barricade can be used on various terrain. In order to provide fragment protection in all directions, a canopy and front plates can be added to form an enclosed barricade.

Responding to requests from UXO personnel, Huntsville Center also developed a smaller version of the open front barricade called the miniature open front barricade, shown in figure 2. This is known to field personnel as the "Bud Light"—nicknamed after its developer. Small enough to mount on a trailer, the miniature is 3 feet by 3 feet and stands 3 feet tall at the open end, sloping to 2 feet at the back end. The barricade design protects against fragments from an 81-millimeter projectile or less and weighs about 600 pounds.

Barricade Materials

Various fragment-mitigating materials have been investigated, including concrete, sand, wood, steel, aluminum and LEXAN. Concrete blocks and



Figure 2 shows the miniature open front barricade, which was designed to defeat fragments from an 81-millimeter projectile. Weighing only 600 pounds, the miniature is exceedingly portable and, therefore, reused at various sites.

sandbags may be stacked in the bulk barricade. Plates of wood, steel, aluminum, or LEXAN may be placed in the plate barricade. Because steel can interfere with the UXO detection methods, the open front barricade and its variations are designed with aluminum frames and aluminum plates for the walls and roof.

Barricade Selection and Application

The open front barricade and several miniature open front barricades have

been used successfully on a variety of sites. The miniature open front barricades are the most popular, since they are the lightest and the easiest to move. Once site work is finished, they can be shipped immediately to the next site. The enclosed barricade has been constructed and used on one site, but field personnel say that it is too heavy and cumbersome; therefore, it is not recommended unless it is ab-

solutely necessary to provide a reduced PWD in all directions.

Examples for choosing the appropriate barricade for a specific site and expected UXO are presented in the guide. If the expected UXO is not listed in the guide, the fragmentation characteristics of the expected UXO must be determined and the required thickness of the fragment-mitigating materials calculated.

Because each barricade (except the modular sandbag barricade) has a limit to the thickness of material that may be used, some barricades may not be suitable for use with each UXO item. Also, the miniature open front barricade is too small for larger UXO items. To help with selection, the guide lists the thickness of the fragment-mitigating materials required to defeat the fragments from commonly encountered UXO.

Copies of the guide are available from Dr. Crull, crullm@smtp.hnd.usace.army.mil, commercial 256-895-1653, fax 256-895-1602. Dr. Crull received her BS and MS degrees in civil engineering from the University of Mississippi and her Ph.D. in structural engineering from Vanderbilt University. For the past three years, she has been working on blast effects design and analysis at Huntsville Center. In addition to co-authoring the barricade guide, she has developed several spreadsheets and computer programs for calculating fragment characteristics and fragment ranges. □

CX facilitates UXO cleanup transfer to Corps districts

by Bob Nore, Huntsville Design Center

As the agency responsible for planning, design, and execution of ordnance and explosives (OE) projects for the U.S. Army Corps of Engineers, Huntsville Center has been pursuing a goal of transferring removal actions to the geographic districts. Such a goal is aimed at expanding the Corps of Engineers' response capability, ensuring consistent OE mission funding and cleanup progress, and im-

proving coordination among the project partners.

To support those goals, the OE Center of Expertise issued Interim Guidance Document 98-01, dated 26 February 1998, subject Transfer of Ordnance and Explosives (OE) Removal Actions. That document defines the criteria and process for the transfer of projects from the OE Design Center to another Corps office. It

also addresses contract issues, personnel qualifications, responsibilities, and authorities for safety and quality, training for the district, and formal acceptance of responsibility on the part of the district commander.

Corps districts with an interest in executing removal actions in their geographic areas please contact Mr. Robert Nore at 256-895-1507. □

Contracts *continued from page 1*
January 1998 and collected information on the Corps of Engineers' contracting practices over the last five years. The IPT is also evaluating the contracting process used by the Navy for a large UXO cleanup contract on Kaho'olawe Island in Hawaii.

In addition to collecting information on DOD's contracting practices, the IPT requested input from the UXO and hazardous waste cleanup industry. The team wanted to gain the industry's perspective on which contracting practices and incentives play a role in contractors' abilities to contribute to the development and ad-

vancement of innovative technology. To date, over a dozen responses have been received from private companies and organizations.

The IPT will report recommendations to Dr. Gansler, the current Undersecretary of Defense (Acquisition and Technology). Recommendations from the IPT may influence current contracting practices and encourage innovative technology—all with the goal of providing more effective and efficient UXO cleanup.

The point of contact in the Office of the Deputy Undersecretary of Defense (Environmental Security) is Scott Edwards, edwards@acq.osd.mil. □

Standard *continued from page 1*
has developed its own processes, contracting parameters, terminology, and skills descriptions. To align those processes under a uniform occupational skills standard, the IPT is analyzing explosive ordnance disposal skills, soliciting contractor input regarding actual site requirements, and comparing those requirements with current Department of Labor standards.

When finalized and adopted, a uniform skills standard will help stabilize the work force structure, assist in wage determination, and contribute to private industry's ability to in-

crease UXO remediation capability and capacity.

The IPT on UXO Personnel Qualification Standards is one of three concurrent UXO improvement efforts within DOD. The others are to establish a coherent, coordinated UXO technology and research and development program and to examine current contracting processes for improved efficiency and economy.

The point of contact at the Department of Defense Explosives Safety Board is Capt. Monty Mathews, mathemg@hqda.army.mil. □

Maxey *continued from page 3*
camp property with about 125 acres sampled for ordnance. After performing subsurface work to identify selected anomalies found during sampling, future cleanup actions can be determined.

"All three Corps offices are working together on the EE/CA, just as we did on the time critical action. Having Tulsa District as the lake manager has been beneficial. The lake office per-

sonnel have assisted and cooperated with us extremely well and have really helped us to keep the work progressing smoothly," said Sargent.

"For both the time critical removals and the EE/CA, our focus is safety. Everything we do revolves around safety, whether it's for the public, government and contractor personnel, or the environment." □

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New Area Code

256

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Design Center & CX

As of March 1998, North Alabama has a new area code. The new area code will run in "dual mode" until 28 September 1998. If the new code is not yet activated for your calling area, contact your local telephone company.

Calendar of Events

- ❑ UXO Forum '98—Fifth Global Conference on UXO: May 5-7, Anaheim, CA. Call 1-800-505-8827.
- ❑ Twenty-eighth Department of Defense Explosives Safety Seminar: August 18-20, Orlando. Call 703-325-1375; fax 703-325-6227; e-mail knoblettbr@ddesb.osd.mil.
- ❑ Second DOD Environmental Security Modeling and Simulation Conference: May 4-6, Alexandria, VA. Call 703-697-7363; fax 703-693-2659; e-mail carysv@acq.osd.mil.
- ❑ Jane's Information Group Conference—Mines and UXO: June 17, Washington, DC. Call 703-683-3700; e-mail sullivan@janes.com.
- ❑ Tri-Services Environmental Technology Workshop: August 18-20, San Diego, CA. Call 757-865-7604; fax 757-865-8721; e-mail herrin@stcnet.com.

OE Website

<http://www.hnd.usace.army.mil/oew/index.htm>

- ❑ Innovative Technology
- ❑ OE Policy Documents
- ❑ Business Opportunities/Contracts
- ❑ OE Presentations
- ❑ OE Project Fact Sheets

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Input Wanted! What would you like to see in the OE Newsletter? Below, please list any topics that you would like to see covered. We are also seeking authors for feature articles. If you'd be interested in writing an article, please indicate the topic below and give us your name, organization, and work phone. FAX this page to 256-895-1798 or call 256-895-1778.

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