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Excavation of pit 4 in progress in winter 2000.



Restored wetland area at pit 4 site in spring 2000.



Pond with floating contamination in spring 1999.



Restored pond in spring 2001.

Corps completes Superfund cleanup at Maryland site

By **MARY BETH THOMPSON**
Baltimore District

Baltimore District officials took part in a gathering near Hollywood, Md., to mark the completion of the cleanup of a Superfund site to full residential standards.

The Environmental Protection Agency hosted the July 10 community and media event at which EPA officially turned over the former Southern Maryland Wood Treatment Plant property to the State of Maryland.

According to project engineer Edward T. Hughes, Baltimore District Construction Division, most Superfund sites are cleaned to industrial

standards.

This heavily contaminated site was cleaned to the highest standard, which gives the state a broad scope for its re-use. The property can now be developed for residential, agricultural or industrial use.

"It's clean as a whistle," Hughes said.

Baltimore District managed the \$61-million-dollar cleanup.

Using thermal desorption—a process that extracts creosote and pentachlorophenol, or PCP, with heat—the Corps processed 274,000 tons of soil from five source pits and more than 50 million gallons of water.

The soil was mixed with leaf

mulch to replace nutrients and redeposited in the pits. It was later graded and seeded.

"Just a few years ago, the appearance of this site was a far cry from the rolling green fields of grass we see here today," said District Engineer Col. Charles J. Fiala, Jr., who spoke at the event.

"I know everyone involved in it and everyone here today join me in expressing our pleasure at being able to call this a former Superfund site," Fiala said.

For more information about this project, contact Baltimore District at 410.962.2809.

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U.S. Army Corps of Engineers issues new regulatory guidance

By **BECKIDOBYSN**
Corps Headquarters

Responding positively to a report from the National Research Council/National Academy of Sciences, the U.S. Army Corps of Engineers released new official guidance to its regulatory offices on Oct. 31. Regulatory Guidance Letter (RGL) 01-1 requires more stringent standards for mitigating permitted impacts to the aquatic ecosystem, including wetlands.

Mitigation Procedures

Although the Corps currently requires mitigation when authorizing permits with environmental impacts, the NRC/NAS report recommended improving mitigation procedures in several ways:

- rely less on onsite mitigation, which often fails due to altered hydrology from the permitted action,
- ensure that mitigation projects function as intended,
- ensure that planned mitigation projects are indeed built, and
- take a watershed approach to mitigation.

"The intent is to require better mitigation and enforce permit compliance, and at the same time apply a consistent standard nation-wide," said John Studt, the Corps Regula-

tory Chief.

"The guidance is a thorough response to the legitimate concerns raised in the report. It should result in immediate environmental benefits while still allowing for the economic benefits of property development," he said.

Mitigation can offset adverse impacts by restoring former wetlands, enhancing existing ones, establishing new wetlands where none existed before, or preserving high-value wetlands threatened for development. The new guidance requires an apples-for-apples method for quantifying different mitigation techniques with a "credit" and "debit" system.

The guidance also requires that approved mitigation consider regional aquatic resource requirements. Corps Districts "should take an ecosystem approach to the formulation of compensatory mitigation projects considering the resource needs of immediate and nearby watersheds," the guidance letter states.

The guidance has garnered criticism from environmental groups. Their primary objections say the Corps is falling short of the long-standing "no net loss" of wetlands goal by allowing preservation as a mitigation method, and for not staffing the letter with the Environmental

Protection Agency prior to release.

In addressing these criticisms, the regulatory staff points out that the goal for "no overall net loss" is unchanged, as stated in the letter's first page. Additionally, preservation as a mitigation method has been allowed since the interagency guidance on mitigation was issued.

The new RGL clarifies that preservation projects are more accurately defined in terms of protection and maintenance. Further, the letter itself was not staffed with other federal agencies because it is internal guidance only. Also, the conceptual direction in the letter, which has been in development for about five years, had been coordinated with other agencies, including the EPA, as a part of the development of the "mitigation banking guidance and in-lieu-fee guidance."

Regulatory Guidance Letter 01-1 and the National Research Council/National Academy of Sciences Report as well as myths and facts about the letter's intent are accessible online at http://www.usace.army.mil/civilworks/hot_topics/rglmitigation.htm.

Access the Regulatory Program Web site at <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/>.

Groundbreaking marks start of aquatic ecosystem project

PITTSBURGH - A ground breaking for Pittsburgh District's Nine Mile Run Aquatic Ecosystem Restoration project was held recently in Pittsburgh, Pa. The \$7.7 million effort to improve the health and quality of the aquatic ecosystem of the Nine Mile Run stream represents a partnership between the Pittsburgh District and the City of Pittsburgh with participation by several local and state agencies and organizations.

Maj. Steve Roehmildt represented the district at the recent ceremony. U.S. Rep. Mike Doyle, Pittsburgh Mayor Tom Murphy and Pennsylvania Secretary of Environmental Protection David Hess were principle speakers.

Nine Mile One is one of the last open accessible streams within the city of Pittsburgh.

For details contact John Reed at 412.395.7503.

Norfolk District leads award-winning Elizabeth River environmental restoration study

By GERALD W. ROGERS

Norfolk District

Many people believe that the ancient proverb, “It takes an entire village to raise one child,” is alive and well. If so, imagine what legions of Hampton Roads, Va., villagers, inspired by an award-winning environmental restoration study, could achieve in their quest to restore the health of the Elizabeth River — from 300 years of abuse.

In July, 1998, the U.S. Army Corps of Engineers’ Norfolk District project team was urged to begin a study to restore the Elizabeth River basin by the Elizabeth River Project, a grassroots non-profit organization. The organization called the proposed District study their number one priority for improving the health of the Elizabeth river.

It was a daunting mission facing the team, but it’s one that the team members knew was important.

Today, under the management of Robert Pretlow and the technical leadership of Craig Seltzer, the project team has formulated an acceptable environmental restoration plan. It includes using environmental dredging for contaminated sediment remediation, and the construction of wetland areas for habitat restoration.

That plan netted the District project team the Corps’ Outstanding Planning Achievement Award for fiscal year 2000. And for his leadership and vision, Seltzer was selected a co-winner of the 2000 Chief of Engineer Planning Excellence Award.

During the award ceremony, Army Chief of Engineers Lt. Gen. Robert B. Flowers praised Seltzer and the project team for making a significant contribution to the restoration of a nationally and regionally vital water resource.

Seltzer, an oceanographer, used his technical creativity in guiding the team, the Steering Committee, and the subcommittees in developing an innovative means of determining various target levels of sediment cleanup. Seltzer and the team also devised a unique functional scoring system for quantifying the contributions of wetland restoration.

Marjorie Mayfield Jackson, executive director of the Elizabeth River Project, felt tremendous pride when she heard of Seltzer’s and the team’s accomplishment. “...At last, the world is starting to realize the merits we have long seen in this (environmental restoration) effort,” said Jackson.

“This study was a tremendous learning experience for all who participated in its development,” said Seltzer. “One of the most

rewarding aspects was to see our five cost-sharing sponsors gradually take ownership of the project and become intimately involved in the decisions which eventually led to the study recommendations.

“When it became apparent that the river’s restoration would not be accomplished without a cooperative effort among all of its users, political boundaries suddenly became meaningless, and the focus shifted from an individual to a group effort,” he said.

The Elizabeth River remains one of the more seriously degraded urban rivers in the United States. Originally a broad, shallow estuary of the Chesapeake Bay, the river has been dredged to twice its normal depth and filled to 75 percent its normal width to accommodate three centuries of development.

Toxins accumulating in the river’s muddy floor have been linked to health problems in fish, including tumors, cataracts and other abnormalities, and pose risks for human health as well. Aquatic life has a hard time finding habitat; as much as 50 percent of tidal wetlands have been lost on the Elizabeth River since World War II.

Some of the river’s problems have abated with the environmental consciousness of the last decades. Industrial discharges into the river are regulated and significantly cleaner. Municipal improvements include a state-of-the-art sewage treatment plant. Large challenges, however, remain for the 300-square-mile watershed, and that’s where the District’s

environmental restoration plan takes center stage.

The recommended \$13 million first strike calls for creating 18 acres of shoreline wetlands at eight sites in Norfolk, Virginia Beach, Chesapeake and Portsmouth, and for the removal of harmful bottom sediments in Scuffletown Creek in Chesapeake. Sediment cleanup involves removing 60,000 cubic yards of sediment tainted by petroleum-based pollutants which would be dredged and placed on land, where biotreatment would use microscopic organisms or “bugs” to eat the contaminants.

The second wave of attack features the ongoing efforts of the Elizabeth River Project to enlist volunteers and educate the public. And help continues from all quarters.

Currently 60 area businesses, known as River Stars, are providing wetlands and wildlife habitat — on their own — and going beyond legal requirements to prevent pollution.

And the mayors of the four cities along the Elizabeth River banks remain engaged with state and federal agencies to keep the restoration project on the radar screen.

The Elizabeth River Restoration Project is certainly a work in progress, but as long as the Hampton Roads community stays the course and keeps their vision alive — much like villagers who band together to raise a child — a river may be reborn.

For more information, contact Gerald Rogers at 757.441.7606.



Photo courtesy of the ELIZABETH RIVER PROJECT

Aerial view photo of the Elizabeth River in Virginia.

Revised DERP Management Guidance indicates upcoming changes for Corps environmental cleanup programs

By CANDICE WALTERS
Corps Headquarters

Because of the many changes in the new Defense Environmental Restoration Program (DERP) Management Guidance, people within the U.S. Army Corps of Engineers working with Army environmental cleanup programs can expect to see new Army specific implementation guidance soon.

The Office of the Secretary of Defense issued the revised DERP Management Guidance on Sept. 28 with a number of new provisions that reflect changes in law, regulations and Departmental policy. It provides guidance, procedures, and responsibilities to the military services for the restoration program at operating and closing military installations and Formerly Used Defense Sites (FUDS).

At the Army's DERP Workshop 2001 Nov. 6 in Corpus Christi, Texas, Rick Newsome, of the Office of the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health), discussed the three major changes in the DERP Management Guidance.

"It establishes a military munitions response program, clarifies reporting of environmental liabilities, and changes work classifications," Newsome said.

The guidance requires each service to develop a program that identifies and investigates known and newly discovered sites, other than operational ranges, that might require military munitions response, he said.

Consistent cost-to-complete estimates that are able to withstand external audits is a goal OSD hopes to achieve through its environmental liabilities reporting changes.

The change in work classification will affect projects, such as groundwater treatment facilities, that involve construction or improvements to real property facilities costing more than \$500,000, Newsome added. Those projects, classified as military construction projects, will require transferring environmental restoration funds to a military construction appropriation account along with notification to Congress.

The revised guidance also:

- sets an eligibility/cut off date for new sites in the Army cleanup programs;
- identifies site closeout requirements and criteria for transfer to compliance;
- requires a Community Relations Plan for every installation;
- establishes a process for disbanding ineffective Restoration Advisory Boards

(not the same as RAB adjournment procedures) and;

- incorporates military munitions responses requirements into Installation Action Plans for active installations or Management Action Plans for FUDS properties.

The Army Environmental Center and Headquarters, U.S. Army Corps of Engineers are working to incorporate the DoD DERP Management Guidance into implementation guidance for the Army's cleanup programs, said Karen Wilson, of the Office of the Director of Environmental Programs for the Army.

"We'll use the DERP guidance to develop our own implementing guidance, which we'll do in the Army Installation and Base Realignment and Closure (BRAC) Environmental Management Plans," she said.

People who work in the FUDS program also can expect changes as a result of the revised DERP Management Guidance. Revisions to the FUDS Program Guidance, or FUDS Program Manual. It will follow the Army implementation guidance issued by Headquarters Department of the Army.

The DERP Management Guidance can be found online at http://www.dtic.mil/envirodod/DERP_MGT_GUIDANCE_0901.pdf.

Programmatic Environmental Impact Statement for Army Transformation

The Department of the Army has prepared a Programmatic Environmental Impact Statement (PEIS) to assess the potential impacts that implementing Army Transformation would have on the environment. The PEIS, which has been an ongoing effort as The Army plans for Transformation, was prepared pursuant to the National Environmental Policy Act of 1969. The Environmental Protection Agency announced the notice of availability in the Oct. 26 *Federal Register*, thus beginning the 45-day public comment period on the PEIS.

The Army proposes to implement transformation as rapidly as possible, while continually maintaining the warfighting readiness of its operational forces, improving its installations and business practices, and taking care of its people. To validate early transformation concepts, the first two brigades of an Interim Force are currently being fielded at Fort Lewis, Wash. These two brigades are being fielded with both advanced technology and off-the-shelf equipment to support evaluation and refinement of new doctrinal Organizational and Operational concepts.

These two brigades will be followed by an additional four to six brigade combat teams, fielded at various installations. The Interim

Force will be a transition force - one that leverages today's technology and serves as a bridge to the future, with modernized legacy forces, until the Army achieves the Objective Force.

The Objective Force will achieve the Army's transformation objective. It will be capable of dominating across a full spectrum of operations and rapidly transitioning across mission requirements without loss of momentum.

The PEIS examines both the proposed transformation program and a "no action" alternative and discusses numerous issues including noise, impacts to wetlands and riparian areas, soil erosion, water quality, and endangered species. The PEIS will examine transformation as a whole — Army installations will also conduct site-specific environmental documentation as required and appropriate.

More information about Army Transformation and the PEIS can be found at <http://www.army.mil/vision/Transformationinfo.htm>. For further information please contact: Headquarters, Department of the Army, Office of the Chief of Public Affairs, Media Relations Division, 1500 Army Pentagon, Washington, DC 20310-1500. Phone 703. 697.7592 or e-mail Karen.Baker2@hqda.army.mil.

Graduate student helps Charleston District protect loggerhead turtles

By MARY SCIANNA

Charleston District

The United States Endangered Species Act lists the loggerhead sea turtle as a threatened species. Every summer, between May and August, loggerhead females crawl onto many of South Carolina's beaches to lay their eggs. Sand nourishment projects occur on many of these beaches. Nourishment projects can sometimes alter the parameters of the natural beach. The effects of these changes on turtle nesting are unclear.

Therefore, the U.S. Army Corps of Engineers' Charleston District has been investigating the effects of beach nourishment projects on loggerhead sea turtle nesting since July 2001. The Corps, in conjunction with the United States Fish and Wildlife Service (FWS), hired me, a College of Charleston (C of C) graduate student, to take on this project. I am in the Master of Environmental Studies Program in the Environmental Science Track with a concentration in Biology. I am from Reading, Pa., where I graduated from Albright College with a B.S. in Biology. I am working closely with Alan Shirey, Jimmy Hadden, Paula Sisson (FWS), and Dr. Dave Owens (C of C) in accomplishing this work and am receiving additional support from Robin Collier-Socha, Doug Marcy, Mill Dowd, LaVar Miller, and Sally Murphy (South Carolina Department of Natural Resources).

Our goal is to determine if there is a preferred beach profile for turtle nesting and if the post-nourishment beach tilling requirements can be reduced. If a preferred beach profile can be identified, then the District can conduct future beach renourishment projects in a "turtle-friendly" manner. If beach tilling requirements can be reduced, thousands of dollars can be saved on future beach renourishment projects.

For this project I am working with a team, collecting data on sand grain size and color, sand compaction, and beach profiles. Studies are taking place on Hilton Head Island, which was last nourished in 1999, and Kiawah Island, which has never been nourished. Using both beaches and historical data from Bill Eiser (Ocean and Coastal Resource Management), the team and I hope to find a beach profile type that South Carolina loggerhead turtles prefer.

Typically, nesting females will dig a hole in which to lay their eggs immediately seaward of the dunes, in an area where there is a distinct elevation change. It seems that if there is no change in elevation, the turtles will turn around and head back out to sea without laying their eggs on South Carolina's beaches at all. Because it takes so much energy for females to crawl onto the beach, they may not have enough energy left to venture to another beach to lay their eggs. There is currently no data in South Carolina to support this observation, so the District has set out to

gather enough data to be able to select a beach profile range that is more suitable for turtle nesting.

Therefore, for future projects, the District can build a beach slope that does not negatively impact the turtles' nesting behaviors.

We also hope to find a compaction level that is not too hard for the turtles to dig in. Typical compaction measurements range from 300-1,000 psi (pounds per square inch). Presently, FWS requires that the Corps till any beach that is more than 500 psi. The data they used to determine this number was from Florida's beaches; however, the beaches and turtles there are different. In fact, Cape Island, S.C., which has never been nourished, has compaction levels that average more than 1,000 psi, and it has the greatest abundance of loggerhead nests.

The team is gathering data on both a natural and nourished beach to compare the compaction levels and number of nests on each beach. The data may show that, in fact, it is not the compaction levels that are hindering turtles' nesting success. The Corps would then save potentially thousands of dollars due to reduced tilling requirements. The team also collected sand samples from both beaches in order to analyze the sand grain size and color. The goal is to keep the sand grain size and color similar to those before the nourishment project because sand grain size and color affect compaction levels and temperatures.

All of these parameters are thought to have an effect on a turtle's decision to nest on a certain beach as well as success at nesting.

During the past few years, the number of loggerhead nests on South Carolina's beaches have been decreasing. With this in mind, the team and I hope to help improve beach nourishment methods to make the beaches more desirable and suitable for the turtles. As mentioned previously, similar studies have been completed on this topic on Florida's beaches, but because our beaches differ in various ways, there is a need for more information for our state.

The results of this project will give engineers, biologists, and coastal managers a better idea of the requirements for more successful turtle nesting. And in turn, the Corps can reduce the negative effects that beach nourishment projects can have on sea turtle nesting and make South Carolina's beaches a more "turtle-friendly" place.

For more information, contact Mary Scianna at 843.329.8180.



Charleston District has been studying the effects of sand nourishment projects on the nestings of loggerhead turtles. Shown above are hatchlings.

District removes pipelines, storage tanks from former Ramey Air Force Base, Puerto Rico

By **NANCY GOULD**
Savannah District

When the former Ramey Air Force Base in Aguadilla, Puerto Rico, closed in the late 1940s, hazardous material stored there in tanks remained intact, as well as pipelines containing hazardous residue. Last February, Savannah District, a U.S. Army Corps of Engineers Hazardous Toxic and Radioactive Waste (HTRW) design district, removed the pipelines and storage tanks at Crash Boat Beach, the first of 16 sites being investigated for contamination at Ramey.

Since the Department of Defense (DoD) awarded a \$325 million Total Environmental Restoration Contract (TERC) in 1996 to clean up Formerly Used Defense Sites (FUDS), Savannah District has played a major role in cleaning up hazardous material in the southeastern United States. The TERC was developed as an alternative contracting method to expedite and maximize the application of innovative techniques and technologies for environmental restoration. The contract's general scope of work allows greater flexibility than fixed-price task orders to accomplish work but also requires greater government oversight. The TERC contractor is paid a fixed fee and is reimbursed for whatever costs are incurred.

In 1999, International Technology (IT) was awarded \$3 million for the Ramey site removal work, which included environmental assessments and monitoring, interim remedial actions, removal actions, feasibility studies, and preparing regulatory decision documents.

Zainul Kidwai, a Savannah District project geologist, managed the project's technical direction and worked closely with IT to ensure quality assurance. Other experts, including geologists, chemists, contract specialists, technicians, engineers, and industrial hygienists from the Savannah District office, Jacksonville District, and IT worked as a team in the remediation work.

Since the project falls within Jacksonville District's FUDS boundaries, Jacksonville performed the initial site evaluation to determine FUDS eligibility. After

determining the site eligible for FUDS, Savannah District determined the scope of work and estimated the total cost for investigation and remedial actions.

Project team members, including Robert Bridgers, Jacksonville District project manager; John Keiser, overall contracting officer representative, Savannah District;



Two 900-foot steel pipelines, one 18 inches in diameter, the other 12 inches, were removed from Crash Boat Beach pier in Aguadilla, Puerto Rico.

Pablo Vazquez-Rviz, construction contracting officer representative, Jacksonville District; and Kidwai, project technical lead, decided that Crash Boat Beach would be the first site at Ramey to undergo remediation. The site is approximately four miles southwest of Ramey's main cantonment area.

"There is high public visibility at the Crash Boat Beach site," said Keiser, adding that many local residents use the beach for recreation.

Remediation work began with removal of two 900-foot-long steel pipelines, one 18 inches in diameter, the other 12 inches.

These parallel pipelines extended under the beach access road, merged along the beach on concrete piers and extended 300 feet into the ocean, according to Kidwai. They were used by ocean-going tankers to off load fuel to the Crash Boat pump house.

Before the pipelines were removed and transported to a local landfill for disposal, they were drained, emptied, rinsed and flushed of 10,500 gallons of non-hazardous petroleum contaminated water.

The 1,800 linear feet of aboveground pipeline that rested on the concrete piers supporting the pipeline was dismantled and taken to a landfill suitable for disposal of asbestos, a coating found on the pipe. The soil beneath the pipeline was later tested and found free of contaminants. The 96 concrete

saddles that rested on the concrete piers to support the pipeline were also removed to provide a more aesthetically appealing pier and beach area for the public.

The 50-foot section of underground pipe that extended from the pump house to aboveground piping was grouted in place to avoid demolishing the beach access road. The concrete pier supporting the pipeline was hand cleaned, patch grouted, and left for the city of Aguadilla's recreational use.

Altogether, four tanks were removed at Ramey—a 2,000-gallon aboveground storage tank was drained, rinsed and flushed of 1,311 gallons of non-hazardous petroleum material before dismantling and disposal; and three 25,000-gallon underground storage tanks at site were drained and flushed of 71,330 gallons of non-hazardous petroleum material. These tanks were removed and transported to a local metal recycler station. Soils samples taken from the excavated areas indicated no previous environmental contamination.

Accomplishing the work at the Crash Boat Beach site presented some health and safety challenges, according to Glenn Quarles, IT project manager at Ramey. Although there were no accidents, slips, trips, and falls were of major concern on the pier because of tough working conditions, especially the risk of falling into the water under the pier. To prevent that, workers were tied to a lanyard—a rope or wire used to secure them—and wore a floatation device at all times. Machinery used at the pier site also made the work area difficult for workers to maneuver.

Lead, asbestos, and petroleum contamination caused further concern during pipe cutting activities. Proper ventilation and monitoring were critical safety issues.

Securing the work site on the public beach was another concern. The beach area remained open during pier work. Fishermen and local residents sometimes entered the private work area to fish, dive and snorkel, causing IT eventually to hire special security.

The next work, removing abandoned transformers around the base, is tentatively scheduled to begin in January or February, according to Quarles.

For details, contact Nancy Gould at 912.652.5279.

Camp Good News cleanup discovers, destroys UXO

By TIMOTHY J. DUGAN
New England District

The U.S. Army Corps of Engineers' New England District is using its authority under the Defense Environmental Restoration Program to rid Camp Good News, a Formerly Used Defense Site (FUDS), of unexploded ordnance.

As part of its efforts to clean up contaminated soil at Camp Good News, the District discovered two rounds of unexploded ordnance, and destroyed them in place on Aug. 16 to ensure the public's health and safety.

Since then, the Corps has secured the site from public entry. Additional investigations will also be undertaken to determine the extent and degree of site contamination to include any unexploded ordnance. Any unexploded ordnance discovered during the Corps' investigation will be removed.

Camp Good News is private property that abuts a portion of the easterly boundary of the Massachusetts Military Reservation. The FUDS parcel consists of approximately 55 acres of the 183-acre camp. A portion of the 55-acre parcel is known as the Former H Range South.

Former H Range was active during World War II and mortar-firing positions were located on Camp Good News property. Former H North is located on the Massachusetts Military Reservation.

Former H North and Former H South historically formed one large training

area. The training area included mortar firing positions, bunkers and other training facilities.

On Aug. 13, Weston (the Corps' contractor) mobilized onto Camp Good News to begin removing lead-contaminated soil from a former small arms range. Weston began to clear the brush from the access road and the contaminated soil area as an initial task. As part of the brush clearing operation, the area was scanned for potential unexploded ordnance for safety. The unexploded ordnance scan identified approximately 85 suspect items. Each of these items was excavated and identified. Two items were identified as unexploded ordnance and destroyed in place. Three items were fragments and the other 80 were metallic debris (nails, wire, etc.).

In 1999, the Corps determined that this site was once used by the Department of Defense and therefore eligible for the DERP.

An investigation will follow to locate other suspicious items within the Former H Range safe firing area. Other investigations at the Camp Good News FUDS parcel include removal of approximately 600 cubic yards of lead and dieltrin contaminated soil, soil sampling at military features such as bunkers, and ground water sampling for petroleum hydrocarbons.

For more information, contact Timothy Dugan at 978.328.8264.

Massachusetts Military Reservation work includes short, long range goals

CONCORD - In August 1999, the Joint Program Office (JPO) at the Massachusetts Military Reservation (MMR) tasked New England District to provide MMR and surrounding communities on Upper Cape Cod with a three-million gallon per day drinking water supply system. Providing the drinking water system had been directed by the Deputy Under-Secretary of Defense for Environmental Security (DUSD-ES) because of contaminated groundwater in the area caused by past military activity on the reservation.

The project consists of four interrelated activities: water source development, environmental documentation, design, and construction. The project team, which includes New England District's contractor, Foster-Wheeler, is required to find the correct quantity of environmentally safe water in accordance with Massachusetts Department of Environmental Protection requirements, then design and construct a water distribution system to provide the drinking water. Construction of the project began in September 2000 and was completed in July 2001.

In January 2000, the Army National Guard asked the Corps to furnish a Donovan Blast Containment Chamber in support of its upcoming ordnance and disposal efforts at MMR. A demonstration of the chamber was conducted in June 2000. The chamber continues to be used at the site. To date, hundreds of items of unexploded ordnance (UXO) have been destroyed in the chamber. The district is also working with the Guard to safely store ordnance encountered during investigation activities and to develop alternatives to safely destroy items in an environmentally compatible way.

In September 2000, the National Guard Bureau announced its decision to use the New England District as supervisory contractor for the Impact Area Groundwater Study.

The study is being conducted in accordance with Administrative Orders by EPA under the Safe Drinking Water Act. The transition to supervisory contractor was complete in January 2001. The work is estimated to cost \$250 million, last six to 10 years and involve completing groundwater and UXO studies followed by cleanup project implementation. The Corps is currently working with the Guard to develop long- and short-term goals to accomplish the project.

Chesapeake Bay oyster recovery program

Corps 'plants' oyster spat to yield more mollusks

By **MARY BETH THOMPSON**

Baltimore District

If the Chesapeake Bay is one of Mother Nature's jewels, then oysters must be considered a facet that helps this ecological gem shine.

The Chesapeake Bay is the largest estuary in the United States. Fed by several rivers, from the Susquehanna in the north to the James near its mouth, the bay covers about 3,000 square miles and pierces two states.

It contributes to the economic health of the region through the fishing, shipping and recreation industries it supports. It also comprises a valuable and complex ecosystem.

Oysters play a key role among the many environmental factors that affect the bay's health. They filter its waters, removing pollutants that make the water murky and prevent light penetration. This lack of light diminishes the growth of grasses and habitat for fish and crab.

University of Maryland scientist Roger Newell estimated that the Chesapeake's oyster population in the 1880s could have filtered the entire bay in about six days, but in the 1980s, it would take more than 300 days to accomplish that feat.

"Maryland oyster populations have declined dramatically since the turn of the [20th] century," said Claire D. O'Neill, oyster recovery project manager for Baltimore District. She

cited parasitic diseases, over-harvesting and loss of habitat as reasons for the drop. Harvests that averaged 10 to 15 million bushels a year in the late 1800s turned drastically lower in recent years.

"Oyster landings in Maryland decreased from 1.6 million bushels in 1986 to 381,000 bushels in 2000," O'Neill said.

Baltimore District became involved in regional efforts to restore oysters in the bay in the 1990s when its leaders signed a project cooperation agreement with the



Bags of spat are transported via boat to one of the project river sites for eventual placement on oyster bars.

Maryland Department of Natural Resources.

With other resource agencies, educational institutions and individuals, the partnership set up a multi-year project called the Chesapeake Bay oyster recovery program. The current goal of the restoration effort, as laid out in the

Chesapeake Bay 2000 agreement, is to increase oyster habitat ten-fold by the year 2010.

"Restoring habitat means creating oyster bars, laying down shell, giving them their home," O'Neill said.

"If Mother Nature was doing everything she's supposed to be doing, natural spat (oyster larvae) would attach to, or 'set' on, natural oyster bars," explained Robert N. Blama of Operations Division, the construction and design manager for the project. That happens, but oysters are not setting as well as they have in the past.

"A lot of natural bars are covered with sediment, so we put down shell," Blama said. "We dredge fossilized shell and put it down over a natural oyster bottom to form a clean base."

Oysters spawn in state hatcheries where the larvae settle on pieces of shell. When attached to shell, the larvae are called spat. The spat is placed in bags to facilitate movement from one location to another.

"We put the bags in the river so that the spat can feed, start to grow and adapt to the river," he said. After a month or two, the bags are pulled out. They are split open, and the spat is put on the clean oyster bars, seeding them so that the oysters can grow.

The first phase of the project started in 1997. The process of creating and seeding the bars was carried out in the summers of 1997 through 2000.

Seed bars were built in Kedges Strait and Eastern Bay. New oyster bars were created in the Choptank, Patuxent, Chester, Magothy and Severn Rivers.

During this first phase, the oyster restoration project team tested several design features and monitored the features' effectiveness.

In particular, the oyster bars have been monitored by University of Maryland oyster biologist Ken Paynter for disease, survival and growth for the past three years.

The second phase begins this year. Funds for this phase are being shared with the Norfolk District so that oyster habitat in the entire bay receives attention. Virginia activities will focus on oyster bar creation in Tangier Sound. In Maryland, oyster bars will be constructed and others cleaned in the Choptank, Chester and Patuxent Rivers.

The federal share of Phase I is \$2.5 million. Phase II funds, which are divided between Norfolk and Baltimore, total \$3 million for this fiscal year, and \$1.5 million is proposed for fiscal year 2002.

Officials believe that with future funding for the Corps' project, and efforts by resource agencies, the oyster industry and citizen groups in Maryland and Virginia, the overall ten-fold goal will become a reality.

For more information, contact Mary Beth Thompson at 410.962.4088.



Volunteers and contractors place the bags of spat in a river bed.

High school students help Huntsville Center develop BRAC ordnance safety video, information material

By **KIM GILLESPIE**

Huntsville Center

The first reaction of contractor Erica Lane of Erica Lane Enterprises (ELE) Inc., to an ordnance safety awareness video production using local students was, "You want me to do what...by when?!" The concept of creating a video warning outdoor recreational users about potential encounters with unexploded ordnance at Base Realignment and Closure (BRAC) sites fit into Lane's experience with military videos, but having students involved "elevated the challenge," she said. As she learned more about potentially life-saving benefits of the video, and the community involvement the U.S. Army hoped to include, Lane admits, "It was a great idea." The result is a 10-minute video and sample information materials that were largely shaped and developed by local high school students and local small business contractors.

The request for a video and sample information materials such as brochures, posters and magnets, came from the U.S. Army BRAC Office to the U.S. Army Corps of Engineers' Huntsville Center earlier this year. "The BRAC office knew that the Corps was responsible for risk reduction for the Army's Formerly Used Defense Site Program, and that these sites require public involvement with civilian stakeholders. As the Corps' Center of Expertise for Ordnance and Explosives, Huntsville Center has extensive safety and public involvement experience," explained Glenn Earhart, Huntsville Center's BRAC liaison for the project.

Earhart next asked the Huntsville Center Public Affairs Office about doing the video and information materials. The only requirement was that the video and information be generic enough to use at any BRAC site, and that the specific outdoor recreation scenarios of hunting, hiking and camping be addressed. The materials were also to be completed by Oct. 5.

The Public Affairs Office made several suggestions and began coordinating immediately. "Karen Roberts, a public affairs intern with an education degree, first suggested we use the local high school students to help create the product. She

knew that the high school had concentrated areas of study in pre-engineering, drama and photography. She coordinated with the school and they were immediately supportive of the idea," said Earhart. "The Public Affairs Office developed the concept for the video, and brought a local [small business] contractor (ELE Inc.) on board for the video,



The videographer, right, captures an ordnance-encounter scene for BRAC's ordnance safety awareness video.

and another local small business contractor, Interactive Graphics Technology (IGT), for the information materials."

The concept for the video and materials focuses on the relatively untouched natural habitats and abundance of vegetation and wildlife at BRAC sites. But the video also provides a constant reminder that the sites were used for military training, and the resulting risk of potentially encountering unexploded ordnance. "The video emphasizes that while the risk of encountering unexploded ordnance is low, technology limitations and possible ecological damage from cleanup activities mean there will never be a 100 percent 'ordnance free' guarantee," said Earhart. "The video has a warning message, and it explains the procedure for responding to a possible ordnance encounter, but it's not preachy. You learn about the good and the bad at these sites."

Both contractors agree that the students from the drama, photography and art classes at Lee High School in Huntsville immediately grasped the concept and probably have a better knowledge of the BRAC program than most adults. "We showed the students examples of previous information materials and asked them to develop similar products. They only had one computer at the school, so we set up six computers at our office and brought students in to work for the after-

noon. We weren't sure how much help and oversight they would need, but it turned out to be very little. They had their own designs and some designs we helped them with, but they basically created all the products with our software and computers," said Donna Anthony of IGT. "One student, Preston Lux, even had his mother bring him in after school hours so he could continue to work on his project. He was just having such a good time," said Anthony. "It was a real learning experience on both ends," she said.

The students did everything from research and script writing, to acting, design and layout. "The students worked with us, and they also shadowed us. The teachers, Ron Harris from Drama and Chuck Mathews from Photography were extremely professional in how they structured classes around our work," said Lane.

The week after the project was completed, the high school and the Corps hosted a "world premier" of the video at the school for the students, parents, media, local representatives and school board members. In addition to showing the video and their information materials, the students also made presentations about what they had learned from the project. Using a PowerPoint slide show, the group emphasized their knowledge of the BRAC process and unexploded ordnance.

But there was also interest in government employment and the associated career fields. Two students expressed admiration and interest in the public affairs field after working with the public affairs intern. "That is really the whole point of this project. Huntsville Center hopes that we can bring other projects to the school and the community so they understand every phase of our work-from initial planning, funding, contracting and scheduling, to the more technical aspects and actual execution. We want to inspire young people to think about careers with the Army, and we also want the community to see how we contribute to serving our nation," said Earhart.

For details, contact Glenn Earhart at 256.895.1577.

FUDS quality assurance review under way

By KATE PETERSON

HTRW CX

The Formerly Used Defense Site (FUDS) Program is currently undergoing review by several external agencies. From the Cost to Complete (CTC) estimates to the No Department of Defense Action Indicated (NDAI) determination stage, FUDS data is being carefully scrutinized. Recently, the General Accounting Office (GAO) and the Army Audit Agency (AAA) looked at the FUDS program and associated estimates. The audits identified several areas of concern.

CTC estimates must be updated each year according to the Defense Environmental Restoration Program (DERP) Management Guidance. For the past three years the Hazardous, Toxic and Radioactive Waste Center of Expertise (HTRW CX) has conducted quality assurance (QA) reviews on the FUDS CTC estimates. This year the HTRW CX will once again perform a QA review of the CTC estimates. However, the FY 2003 budget QA reviews will be more comprehensive in nature than in previous years and will include a QA review of additional project documents in conjunction with their review of the CTC estimates. To ensure there is consistent, credible, and defensible data for each FUDS project in the FUDS Management Information System (FUDSMIS), the quality assurance review team will take its show on the road to each FUDS district. The team will perform QA reviews, CTC estimates, administrative record files, project files and other project related records.

The QA review teams will consist of representatives from the HTRW CX and the Ordnance and Explosive Center of Expertise (OE CX). Each team

GAO Audits

- Status of FUDS Cleanup Actions as Indicated in FUDSMIS
- Basis for No DoD Action Indicated (NDAI) Determination at 4,100 FUDS Properties
- FUDS Outreach to Regulator/Stakeholders
- Records on Initial FUDS Inventory and Process for Identifying Area of Environmental Contamination (Particularly in Guam)
- DERP Environmental Liability (Including FUDS)
- DERP PRP Cost Sharing and Cost Recovery (Including FUDS)
- Spring Valley

AAA Audits

- Environmental Liability for Unexploded Ordnance
- FUDSMIS System Development and Integration with RACER

Information from October USACE MP Briefing

will consist of an HTRW cost engineer, OE cost engineer, HTRW Regulatory Specialist and an OE CX team member. A QA review team will visit each FUDS district and review a random sample of FUDS project files, the data in FUDSMIS associated with that project file, the project cost to complete and the administrative record files. In addition, the team will provide brief instructions on development of cost to complete estimates, tips on FUDSMIS data maintenance, and administrative record training.

The team's goal is to ensure that the FUDS program has defensible data from the cost to complete stage to the NDAI determination in order to stand up under GAO and AAA scrutiny and to adequately support future FUDS budget requests.

A QA team will be coming to your district soon!

For details contact Kate Peterson at 402.697.2610.

DENIX Web site provides electronic 'meeting place' for environmental professionals

The Defense Environmental Network & Information eXchange (DENIX) Web site provides DoD personnel in the environmental security and safety and occupational health arena with timely access to environmental legislative, compliance, restoration, cleanup, and DoD guidance information. It is intended to serve as a central electronic "meeting place" where information can be exchanged among environmental professionals worldwide.

DENIX is the first of a number of environmental initiatives to be fielded by the DoD's Defense Environmental Security Corporate Information Management (DESCIM) Program Office. It was developed and is currently maintained and operated by the U.S. Army Corps of Engineers' Engineer Research and Development Center, Construction Engineering Research Laboratory.

A DENIX account (login and password) provides access to the DENIX Electronic Subscriptions. These subscriptions provide a wide range of environmental, safety, and occupational health related information, i.e., the latest news, regulatory guidelines, emerging policy discussions, and scientific articles and standards. All of the electronic subscription periodicals and datasets that DENIX carries may be conveniently found on DENIX at: <https://www.denix.osd.mil/denix/DOD/News/news.html#fedpubs>. There are four daily publications, four weekly publications, four bi-weekly publications, one quarterly publication and five datasets that currently comprise the DENIX proprietary subscriptions. Included in the subscriptions, just to name a few, are FEDERAL EMPLOYEES NEWS DIGEST, DEFENSE ENVIRONMENTAL ALERT, CLEAN AIR REPORT, etc., and on a trial subscription is DEFENSE CLEANUP. It's to your advantage to take a few minutes and examine this web site and its resources.

DENIX can be accessed at: <https://www.denix.osd.mil>. All users must first register for a DENIX account at: <https://www.denix.osd.mil/denix/register.html>. Registration is free and user IDs and passwords are mailed electronically shortly after registration.

For more information, contact Fran Sweeney at 916.557.6660 or Judy Welsch at 916.557.7057.

Turning brownfields into 'fields of dreams'

By VANESSA VILLARREAL
Chicago District

"Hiding under the scars of every brownfield in America is perhaps a future doctor's office or a little league field. It's time to turn brownfields into fields of dreams," said Christine Todd Whitman, EPA administrator, at the opening session of this year's national brownfields conference in Chicago.

It's been five years since the first brownfields conference took place in Pennsylvania in late September. This year's brownfields conference, presented by the Engineers' Society of Western Pennsylvania, packed in more than 3,000 participants at Chicago's McCormick Place Convention Center.

With 22 co-sponsors, 270 endorsers, and 173 exhibitors, the conference touched on everything from the nuts and bolts of brownfields redevelopment to new directions in Department of Defense partnerships. On Sept. 24, several guest speakers helped open the conference.

I believe that America's efforts to find sustainable ways for our communities to thrive is one of the most critical and complex issues facing our country," said Patricia A. Rivers, chief of the U.S. Army Corps of Engineers Environmental Division, during her keynote address. "Finding sustainable ways to thrive reaches deeply into the Army, as well."

While Army installations are addressing issues of installation cleanup and ensuring that local communities do not come too close to training ranges, the Corps of Engineers plays a major role in flood control, disaster relief, hydropower, wetlands and shore protection, environmental cleanup and natural resource protection, she said.

"The Corps is working with stakeholders and the Administration to lay the groundwork for authority to perform other tasks that will help communities, such as urban waterfront renovation and brownfields cleanup. Today, and into the future, the Corps is a committed federal partner in the efforts to make our communities more livable, environmentally healthy and economically sustainable," Rivers said.

Thomas Skinner, administrator for U.S. EPA's Region V, said, "Bringing a brownfield redevelopment project to completion takes time. But it starts with the basis for this brownfields conference—listening, learning and networking. During the two and a half days of this national conference, you will have an opportunity to hear about, and see first-hand, numerous demonstrations of the positive results of communities working to develop broad-based cooperative efforts for the cleanup and reuse of contaminated properties."

Skinner also said that partnerships are critical: "Developers, lenders and government need to work together to ensure that issues are resolved up front and in a timely way. Hopefully, you will have a chance to form these relationships this week."

Representing Chicago's Mayor Richard M. Daley was Bill Abolt, commissioner of Chicago's Department of Environment. This department is responsible for the development and implementation of Chicago's environmental programs, regulations and policies. This includes the reclamation of polluted,

brownfield industrial sites, natural area restoration and education, energy policy, and emergency environmental response.

"Chicago's brownfields program was born of necessity," Abolt said. "The continued existence of abandoned industrial properties would have presented potential hazards to our neighborhoods and inhibited job growth and economic development."

To date, more than 20 brownfields sites have been cleaned up in the city of Chicago.

"We are assessing and cleaning up about 70 sites, or nearly 1,000 acres," he said. "We estimate the government brownfields program has created or retained more than 2,000 jobs and increased the city's tax base by millions of dollars."

Whitman said that brownfields redevelopment is a top environmental priority of our country today.

"You can be assured that both President Bush and I are committed to the work of brownfields cleanup and restoration. ...In fact, every dollar that the federal government invests in brownfield redevelopment brings 2 1/2 dollars of private investment. Every acre of brownfields reused saves 4.5 acres of green space."

The 2001 Phoenix Awards for excellence in brownfields redevelopment was one of the highlights of this year's conference. Each year, the Phoenix Awards recognizes outstanding brownfields projects from across the United States. This year's Grand Prize winner for excellence in brownfields redevelopment was the Erie Front Street Complex in Erie, Pa.

For more information, contact Vanessa Villarreal at 321.353.6400, ext. 1302.

EPA Regional Awardees

- Region 1: North Colony Street Industrial Park - Meriden, Conn.
- Region 2: OENJ Elizabeth Metro Center - Elizabeth, N.J.
- Region 2: The Crane Site - Trenton, N.J. (Community Impact Award)
- Region 3: **Erie Front Street Complex - Erie, Pa.**
- Region 4: Manchester Cinema - Rock Hill, S.C.
- Region 5: Chrysler Center Remediation and Redevelopment Project - Highland Park, Mich.
- Region 5: Alton Center Business Park - Alton, Ill. (Community Impact Award)
- Region 6: American Airlines Center/Victory Development - Dallas, Texas
- Region 7: St. Louis Commerce Center - St. Louis, Mo.
- Region 8: Innerlock Business Park - Denver, Colo.
- Region 9: East Baybridge Center - Emeryville, Calif.
- Region 10: Astoria Mill Pond - Astoria, Ore.



Estimating budget costs for Ordnance and Explosives projects

OE models in the RACER (Remedial Action Cost Engineering Requirements) System

By JIMPETERSON and
KATEPETERSON
HTRW CX

Huntsville Center's Ordnance and Explosives (OE) Design Center and the Hazardous, Toxic, and Radioactive Waste Center of Expertise developed the Remedial Action Cost Engineering Requirements (RACER) OE models and will continue to verify and update the models using historical data and incorporating user comments. Research into recently developed innovative technologies and applied engineering solutions was used to update the models in 2001. These efforts enhance the Corps' ability to continue to estimate defensible budget estimates for OE projects.

Development of accurate and consistent cost estimates for projects and their associated phases is a critical step to any organization responsible for budget submissions, contract negotiations, and/or financial decision-making. RACER is a parametric, integrated cost estimating software system specifically developed for estimating costs associated with environmental remediation projects. RACER provides a range of cost estimating detail from an order-of-magnitude in a project's preliminary stages to a refined, detailed definitive estimate at the time of project execution. RACER also was accredited in FY 2001 in accordance with requirements of DODI 5000.61, *DOD Modeling and Simulation Verification, Validation, and Accreditation (VV&A)*. It is the only budgetary cost estimating program to be accredited to date.

With the recent high visibility of OE projects, the U.S. Army Corps of Engineers has developed new RACER OE cost models to enable project and program teams to develop more reasonable and defensible cost estimates for OE projects. Each of these OE models can be coupled with other existing RACER models to develop an estimate for the total project cost. It is *very important* to note that these models are *not* static and are frequently updated, as new information becomes available.

The RACER OE models include:

Archives Search Report Model. The ASR model in RACER develops costs in the site inspection phase of many projects. The primary purpose of the ASR is to provide an overall evaluation at a site to differentiate those sites (current or former) that pose a potential threat to public health, welfare, or the environment.

OE Engineering Evaluation/Cost Analysis Model. The OE EE/CA model estimates the cost to characterize the nature, location, and concentration of Ordnance and Explosives (OE) by providing description of the OE related problems affecting human use of the site; identification and analysis of reasonable risk management alternatives; recommendations for a proposed alternative. The EE/CA process seeks public comments and participation, and documents the process for use in final decision making and judicial review.

Ordnance and Explosive Removal Action Model - This quantitative model estimates the costs of searching for, marking, and removing unexploded ordnance (UXO) from munitions contaminated property. The major cost drivers are the area to be cleared, type of topography and vegetation, depth of OE clearance, and the variety and concentration of munitions to be cleared.

Ordnance and Explosive Institutional Controls Model - This model combines estimates for options of legal controls on land use to limit the public's exposure to OE and passive controls and engineered solutions to limit the public's exposure to OE. Examples of elements in this model include programs to educate individuals about potential exposure risks, response actions, emergency plans, etc.; the legal options available: including controls related to ownership of the land, easements, zoning and siting restrictions, etc.; and engineering controls that limit the public's access to a site.

Ordnance and Explosive Monitoring Model - This model addresses the cost of site monitoring following the implementation of an OE Removal Action project to assess the effectiveness of the removal.

For more information, contact Jim Peterson at 402.697.2612, or Kate Peterson at 402.697.2610.

Vicksburg District's innovative approach to levee underseepage earns award

VICKSBURG — A new method of protecting Mississippi River levees from underseepage has earned the Vicksburg District of the U.S. Army Corps of Engineers an Honorable Mention in the annual Chief of Engineers Design and Environmental Awards Program.

A system of relief wells was installed at Fidler, Miss., to collect the underseepage and drain the water in a safe, controlled manner. Large earthen levees are constructed along the banks of the Mississippi River to prevent floodwaters from entering adjacent states. "Sometimes these levees have problems with water seeping underneath," said C. C. Hamby of the district's design branch.

The usual method of preventing the water

from seeping underneath the levee is construction of an earthen berm, which requires excavation of borrow material from riverside of the levee.

The reach of the levee at Fidler, which is known as the Tallula-Magna Vista reach, has a history of underseepage problems and is considered prime black bear habitat. "The original plan of constructing a berm called for clearing approximately 500 acres of timberland," Hamby said. "Instead of constructing berms, we elected to install relief wells."

In addition, the use of relief wells avoided the need for excavating lands to obtain borrow, which provided environmental benefits. "We estimate 275 acres of

forest were saved because no borrow material was required," Hamby said.

"Also, an additional 100 acres of forest and wetland were saved, since no soil berms were required."

Economic benefits also occurred. The original estimated cost of the relief wells was \$2.3 million, but due to faster installation, the final cost was \$1.8 million.

Installing relief wells instead of constructing soil berms provided an economical solution, made the lands and people in the state safer and protected valuable habitat riverside of the levee.

For more information, contact Patty K. Bates at 601.631.5053.

Saltwater intrusion study has benefits for 'best management' practices

By VERDELL LAMBERT
Savannah District

Coastal communities that get their drinking water from the Floridan aquifer face a threat to the long-term quality of the water because of saltwater intruding into the aquifer. In 1999 scientists began a six-year comprehensive study to determine the exact nature and extent of the intrusion, and Savannah District's jack-up barge, the *Explorer*, has been a key tool in that investigation.

The study of saltwater intrusion in the Floridan aquifer is being conducted by the Georgia Department of Natural Resources (GADNR) as a joint venture with the South Carolina Department of Health and Environmental Control (SCDHEC) and the United States Geological Survey (USGS) under the umbrella of Georgia's Sound Science Initiatives Program.

"We're conducting a comprehensive study of saltwater intrusion, the impacts on water supply issues, and potential remedies," said Bill McLemore, the state geologist for Georgia, who manages the Sound Science Initiatives Program.

"The impetus for the study is that saltwater intrusion is actually occurring at Brunswick and on the northern end of Hilton Head Island, and this is a potential threat to the long-term drinking water supply in Savannah, Brunswick and other coastal communities, including those in South Carolina and Florida," explained McLemore.

The fact that Georgia put limits on how much groundwater counties could withdraw from the Upper Floridan aquifer was also a driving force for the study, according to Fred Falls, hydrologist with USGS. The counties wanted to know how the limits were determined and what alternatives are available if they reach the limit.

The USGS was brought in because of its regional and localized groundwater flow models, which predict responses of the aquifer to pumping.

"The study is collecting additional information to enhance the ability of these mathematical models to predict the effects of groundwater withdrawal along the coast—the effects being both changes in water pressure within the aquifer and saltwater intrusion," said Falls, who coordinated the drilling of some of the deep wells along the coast of Georgia as well as some offshore drilling.

Recent marine seismic data indicate that

areas may exist offshore from Tybee and Hilton Head islands where the Miocene confining layer above the aquifer is thinned or missing altogether. To get this kind of information, temporary wells had to be constructed in the offshore, and that is a job particularly suited for the *Explorer*, one of only two jack-up drill barges on the East Coast.

Savannah District's role in the study was to drill and construct temporary groundwater monitoring wells offshore, which



Photo by JONAS N. JORDAN

Savannah District's jack-up barge, *Explorer*, was a key tool for investigating the intrusion of saltwater into the Floridan Aquifer.

requires several days of effort without any movement from the drilling location. To accomplish this, Savannah District's core drill operators worked around the clock in 12-hour shifts.

The first set of wells was constructed in 1999 off Port Royal Sound, S.C., followed by wells off Hilton Head Island, S.C., off Tybee Island, Ga., and in July 2001 in Calibogue Sound, S.C.

The wells gave scientists access to the aquifer to test the water quality and measure the water level. Scientists also analyzed the structure of the Miocene confining layer above the aquifer and measured the thickness of the layer.

"The *Explorer* is equipped with differential GPS, so we can set up at an exact location," said Explorer Capt. Tony Maze. "The customer knew from seismic studies where they wanted the holes drilled."

"Since the water quality objective was to determine the impact of intruding or leaking seawater on the freshwater of the Floridan aquifer, extreme care had to be taken to prevent seawater contamination of

the borehole during drilling and sampling," explained Cardwell Smith, geologist and technical coordinator for the *Explorer*.

To seal off any saltwater from getting into the aquifer, a length of 10-inch diameter pipe was installed from the barge deck down to clayey sediments above the Miocene layer. A smaller 6-inch pipe was then installed inside the 10-inch, down to the limestone of the Floridan and grouted in with cement. Core and water samples were then taken through the 6-inch pipe down to total depth. [Some analysis of the samples was done onboard by South Carolina DHEC.] When sampling was completed, the abandoned hole was filled with cement and the pipe from about 5 feet below the bottom of the ocean was withdrawn using a special release joint.

"The offshore drilling that the Corps was involved in is all done," said McLemore. "By the end of this calendar year, 95 percent of all the drilling will be completed." The study will produce many reports and all the findings will be published by Dec. 31, 2005, he said.

Falls said the final summary report for offshore drilling will tie back to information on the onshore wells that were drilled. "The wells that we're drilling in Georgia for the onshore project will be linked to wells in South Carolina and northern Florida to show how the geology and saltwater are distributed along the Georgia coast and into the adjacent states," he said.

"The data will not only be critical in determining 'best management' practices for the area's freshwater resources," said Smith, "but also useful in the effort to determine the potential for saltwater intrusion into the Floridan aquifer as a result of deepening the Savannah Harbor. This allows all parties concerned, including the Corps of Engineers and the Georgia Ports Authority, to thoroughly weigh all factors, environmental and economic, in making a sound decision to deepen or not deepen the Savannah Harbor."

For details, contact Savannah District at 912.652.5758.

Navy course recommended for HTRW risk assessment training

By **TERRY WALKER**
HTRW CX

In case you haven't noticed, the USACE PROSPECT training course #222, "Risk Assessment for Hazardous, Toxic and Radioactive Waste Sites," is no longer being offered. The Department of Defense looks at courses across the services to ensure that there is not duplication. In FY01, the USACE Hazardous, Toxic and Radioactive Waste Center of Expertise (HTRW CX) participated with other DoD services in the review of the Navy's Civil Engineer Officers School (CECOS) risk assessment courses and determined that they met the Corps' needs.

CECOS currently offers two environmental risk assessment courses, "Ecological Risk Assessment" (A-4A-0081, three days) and "Human Health Risk Assessment" (A-4A-0078, three days). Both courses have been reviewed and approved for the Army by the Hazardous, Toxic and Radioactive Waste Center of Expertise (HTRW CX) and the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), as part of the Interservice Environmental Education Review Board (ISEERB). Although specifically designed for the Navy's process in which most technical aspects of environmental investigations are performed or reviewed by the remedial project manager (RPM), Corps personnel will find these classes to be adequate for gaining an understanding of the risk assessment process. Most aspects of the courses are applicable to Corps investigations conducted under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or the Resource, Conservation and Recovery Act (RCRA).

As listed on the CECOS Web site, the target audience for the ecological risk assessment course is: personnel who plan, scope, or review ecological risk assessments or use findings or conclusions from ecological risks assessments in decision making. This includes RPMs, Remedial Technical Managers (RTMs), Base Realignment and Closure (BRAC) Environmental Coordinators (BECs), and Engineers in Charge (EICs). The course curriculum is designed primarily for personnel who have at least six months of environmental restoration experience or have attended an introductory environmental restoration course. The target audience for the human health risk assessment

course is Installation Restoration Program RPMs, BRAC site Environmental Coordinators, Underground Storage Tanks EIC's, and any Department of Defense personnel responsible for assessing or managing risks associated with environmental contamination.

The Ecological Risk Assessment class will be given twice in FY02: April 9-11 in Norfolk, Va., and Sept. 10-12 in San Diego. The Human Health Risk Assessment class will be given three times in fiscal year 2002: Jan. 15-17 in Norfolk, Va., Feb. 26-28 in Hawaii, and April 23-25 in San Diego.

To learn more about the CECOS program, course offerings or to request a place in a class (Quota Request), go to the CECOS Web site at <https://www.cecos.navy.mil/about.asp>. The risk assessment classes are listed under "Course Information," then "Environmental - Restoration."

Additional environmental restoration courses offered by CECOS are also listed on the Web site. Be sure to consult the individual course descriptions to determine whether the course is ISEERB-approved. If a course is ISEERB-approved, then it has been reviewed by the Corps and meets Corps requirements, as well as those of the other DoD services.

For more information, contact Terry Walker at 402.697.2591 or Terry.L.Walker@usace.army.mil.



Photo courtesy of BROSINAN COMMUNICATIONS

Former president receives District coin for video spot

Former President George Bush (left) receives a District coin on Sept. 15 from Bill Hubbard, Chief of the New England District Environmental Resources Section, for Bush's contributions to a Coastal America commemorative video.

New lead-based paint guidance available

Tech update

The U. S. Army Corps of Engineers Hazardous, Toxic, and Radioactive Waste (HTRW) Center of Expertise (CX) has completed four new Engineering Pamphlets (EPs) related to lead-based paint hazard assessment, clearance, and pre-design surveys. Three of the EPs provide standard scopes of work for the project manager to use for lead-based paint surveys and assessments at target housing/child occupied facilities. The fourth EP provides a much-needed standard scope of work for lead and/or asbestos pre-design studies at any type of facility, to help preclude the “surprises” often encountered during remodeling/rehab or demolition activities. Three EPs, originally published in September of 2000, and one previously unpublished EP, were revised to incorporate recent Housing and Urban Development (HUD) and USACE criteria defining lead hazards, and were published in final form on Aug. 31, 2001.

The lead and asbestos activities covered by the standard scopes of work include: (1) performing lead-based paint risk assessments at residential target housing/child-occupied facilities; (2) performing combined lead-based paint inspections/risk assessments at target housing being considered for property transfer under BRAC; (3) performing lead hazard clearance inspections at target housing/child-occupied facilities; and (4) performing pre-design lead or asbestos surveys at any facility. The newly published EPs are as follows:

- EP 1110-1-28 “Lead Hazard Risk Assessment for Target Housing/Child-Occupied Facilities Standard Scope of Work;”
- EP 1110-1-29 “Lead Hazard Clearance Inspection for Target Housing/Child-Occupied Facilities Standard Scope of Work;”
- EP 1110-1-30 “Pre-Design Lead/Asbestos Survey Standard Scope of Work;”
- EP 1110-1-31 “Combined Lead Inspection/Risk Assessment for Target Housing Property Transfers Standard Scope of Work;”

These EPs are now available on the USACE Publications web page (www.usace.army.mil/inet/usace-docs/) in both PDF and Word format. [The Word format allows the project manager to edit and customize the Scope of Work on a project-specific basis.]

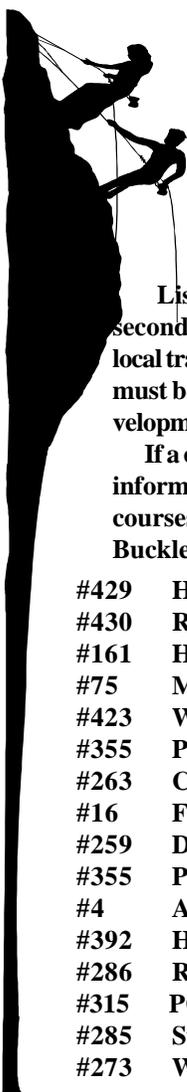
Questions concerning these Engineering Pamphlets can be directed to Rod Dolton, 402.697.2586, or e-mail: rod.j.dolton@usace.army.mil.



At left, the photo shows one of the standard types of techniques and Personal Protective Equipment that would be employed in any type of lead remediation work.

THE CHALLENGE TO EXCEL

CLOSING NOTES



Professional Development Opportunities

Listed below are environmental PROSPECT training courses for the second quarter of FY02. To enroll in any of these courses, supervisor and local training coordinator approval must be obtained and a completed DD1556 must be forwarded to the Registrar's Office of the USACE Professional Development Support Center (PDSC), phone 256.895.7421, or fax 256.895.7469.

If a course is full, you may request to be put on a waiting list and you will be informed if a space becomes available. Additional information about these courses is available on-line at <http://pdsc.usace.army.mil>, or contact John Buckley, 256.895.7431.

#429	HW Manifest/DOT Recert	Feb. 5-6	San Diego
#430	RW Manifest/DOT Recert	Feb. 5-6	San Diego
#161	Hydro Analys for Ecosys	Feb. 11-15	Davis, Calif.
#75	Master Planning	Feb. 11-15	Denver, Colo.
#423	Wetland Plant Ident (SE)	Feb. 11-14,	Apalachicola, Fla.
#355	Project Management	Feb. 12-14	Huntsville, Ala.
#263	Coastal Ecology	Feb. 25-March 2	Monterey, Calif.
#16	Facilitator Workshop	March 4-7	Huntsville, Ala.
#259	Diving Refresher	March 12-21	Key West, Fla.
#355	Project Management	March 12-14	Portland, Ore.
#4	A-E Contracting	March 18-22	Pittsburgh, Pa.
#392	Hist Structures I	March 18-22	Seattle, Wash.
#286	Real Prop Mgt	March 18-22	Huntsville, Ala.
#315	PCA/Finance Plan Dev	March 19-22	Huntsville, Ala.
#285	Streambank Eros/Prot	March 25-29	Vicksburg, Miss.
#273	Wetlands Eval	March 25-29	Mobile, Ala.

Upcoming Events



Installation Management Institute

Jan. 14-18, 2002
Orlando, Fla., Wyndam Hotel
POC: Rebecca Diamond at 703.697.2892 or
rebecca.diamond@hqda.army.mil

National Defense Industrial Association 28th Environmental and Energy Symposium

March 25-28, 2002
Charleston, S.C.
POC: Khaggquist@ndia.org

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