



US Army Corps
of Engineers ®

The Corps

Environment

July 2005

Vol. 6, No. 3

Galveston District security upgrade environmentally friendly

By MARILYN UHRICH
Galveston District

The time was right: the opportunity and the funding were present. Security, plus habitat, plus cost savings, were built into the plan.

With all these factors present, there was no reason not to depart from the sterile security design of iron fencing and concrete barricades and instead build a security system that would be a catalyst for community environmental education and outreach.

Thus was the reasoning of the Project Delivery Team, led by landscape architect Rhonda Brown. The team was charged with the responsibility of bringing the Galveston District's headquarters up to the standards required by Homeland Security Department guidance.

As a secondary benefit, the project brought the district honorable mention in the 2005 White House "Closing the Circle Award."

Funded through a grant from Homeland Security, the entire project cost \$428,000.

Included were relocation of an existing guard house, excavation of two acres of two to six foot deep water barriers, raising and widening of the main entrance road, installation of a new bullet resistant guard house with restroom and installation of new entry gates, conduit and entrance card readers.

The Jadwin Building, built on the eastern end of Galveston Island overlooking the Gulf of Mexico and Galveston Bay, is head-



U.S. Army Photo

Galveston District's Jadwin Building overlooks the Gulf of Mexico and Galveston Bay. A sustainable environment barrier was created to bring the headquarters up to Homeland Security Department guidance standards.

quarters for the Corps Galveston District. The PDT looked at the advantages of creating "sort barriers," i.e., wetlands, as opposed to installing the traditional hard structures.

Resistance to the plan faded as

"Security, plus habitat, plus cost savings were built into the plan."

the team explained the benefits of such a plan and persuaded District leadership to venture "out-

side the box."

The district could receive savings of more than \$10,000 a year by eliminating of mowing and fertilizing the areas that would be turned into water barriers.

Emissions from the mowing, therefore, would be reduced. The excavated material would be recycled for use as fill to raise and widen the entrance road for the new guard-house providing a savings of more than \$18,000 on construction costs through not trucking the fill to the site.

Most important was the creation of a sustainable environment, which would serve as a

community education tool.

Once established, the wetlands and its typical plantings would require only occasional invasive species control, estimated at around \$4,000 every three years. The typical iron fencing would have cost \$500,000 and would have required thousands of dollars in annual painting due to the corrosive coastal environment.

The Seaborne Challenge Corps, a local program for high school students with personal challenges, and a local Boy Scout Troop joined with the Corps on the project—planting trees and shrubs, **See Security on Page 14**



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The Corps Environment

is printed quarterly by the U.S. Army Corps of Engineers as an unofficial newsletter published under the provisions of AR 360-1. The purpose of this newsletter is to provide information about Corps environmental actions, issues, policies and technologies. Opinions expressed are not necessarily those of the U.S. Army. Inquiries can be addressed to U.S. Army Corps of Engineers, Attn: CEHNC-PA, P.O. Box 1600, Huntsville, AL 35807-4301. Phone: (256) 895-1692 or fax (256) 895-1689.

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The Corps Environment welcomes submissions. Please send your information (article, photos, events, letters to the editor, etc.) or questions via e-mail to: joan.g.burns@HND01.usace.army.mil

Deadline for publication:

Feb. 15 (April issue)

May 15 (July issue)

Aug. 15 (October issue)

Nov. 15 (January issue)

All submissions are subject to editing.

The Corps Environment is available on the World Wide Web at: hq.environmental.usace.army.mil/newsinfo/current/current.html

Environmental awards showcase Corps work

For the past several years, the U.S. Army Corps of Engineers has received recognition from the Department of Defense, the Army and this year, the White House Closing the Circle Award for excellence in environmental work.

However, those are not the only entities that recognize people and projects promoting the Corps' environmental ethic. There are many organizations and programs that offer Corps districts, divisions and employees the opportunity to showcase their work, but many are little known.

Here are just a few of the possibilities:

The American Academy of Environmental Engineers sponsors an Excellence in Environmental Engineering Award, which is open to individuals, companies and organizations that have demonstrated a comprehensive, integrated approach that considers all environmental media.

The Federal Energy and Water Management Awards are sponsored by the Interagency Task Force, Federal Energy Management. This award recognizes outstanding contributions in the areas of energy efficiency, renewable energy, water conservation and cost-beneficial landscaping practices. Military nominations are submitted through the Department of Defense and are limited to 30 nominations.

The Wildlife Society recognizes organizations or groups that accomplish outstanding achievements to benefit wildlife with the Group Achievement Award.

The Innovations in American Government Award, sponsored by the Ford Foundation and the John F. Kennedy School, recognizes creative governmental initiatives especially effective in addressing vital domestic public needs including base conversion, energy conservation, and environmental protection. All units of government are eligible for recognition and awards.

Sept. 25 and 26 are the deadlines for the three awards sponsored by the International Erosion Control Association: the Environmental Achievement Award, Excellence in Technology Award and Sustained Contributor Award. Check out www.jeca.org for information on these awards that recognize efforts in the erosion control field.

Keep America Beautiful, Inc., honors individuals, groups, and companies working to prevent litter and improve communities' waste handling practices and environment with the Keep America Beautiful National Award of Excellence. This year's deadline is Sept. 3.

The National Association of Environmental Professionals issues the President's and National Environmental Excellence Awards in up to eight categories: NEPA Excellence, Education Excellence; Environmental Management; Planning Integration; Public Involvement/Partnership; Environmental Stewardship; Conservation Programs and Best Available Tech-

nology. Send email to: office@naep.org for more information.

The National Trust for Historic Preservation sponsors three awards for those who work with historic sites. Check out www.nthp.org/preservation_awards.

The National Wild Life Federation recognizes those people who have demonstrated a long-term commitment to conservation and environmental protection with the National Conservation Achievement Award. More information can be found at www.nwf.org/about.

Recognizing the importance of teamwork in public service is the goal of the Public Service Excellence Awards, sponsored jointly at federal, state and local levels. Programs should demonstrate substantial improvement in productivity or services, increased quality of life for Americans, and most cost-effective government programs or services. Contact the Public Employees Roundtable for more information.

Renew the Earth sponsors awards in five categories: Conservation and Sustainable Use of Biological Diversity; Clean Energy and Protection of the Atmosphere; Integrated Natural Resource Management; Sustainable Agriculture and Food Security; and Pollution Reduction and Prevention. See www.renewtheearth.org/index.cfm.

The River Network River Heroes Award recognizes an individual who has successfully worked with a river conservation organization to improve a river and its watershed. See www.rivernetwork.org/index.cfm for more information.

The Award for Excellence in Cultural Resource Management is presented by the Society of American Archeology to an archaeologist or group of archaeologists working in a cultural resource management setting, whose innovative research, or repeated and enduring contribution, has contributed significantly to archaeology. The deadline is Dec. 20. Check out www.saa.org/Aboutsaa/Awards/crm.html.

The Soil and Water Conservation Society sponsors three awards, all with a Dec. 12 deadline, the Scholl Excellence in Conservation Award; the Merit Award and the Hugh Hammond Bennett Award. Check out www.swcs.org/en/awards/.

The U.S. Bureau of Reclamation sponsors the Water Conservation Awards, recognizing individuals, public and nonprofit organizations, government agencies, and/or private companies who are leaders in water conservation.

Three awards, the President's Award, the Touchstone Award and the Distinguished Service Award, are all presented by the Wildlife Management Institute. All three are open to federal, state or provincial natural resource agency divisions, departments or programs. Check out www.wildlifemanagementinstitute.org.

Editor's note: Information about these awards was compiled by the Army Environmental Center Public Affairs Office.

Tulsa District leads multi-agency team in Tar Creek cleanup

By JONNA POLK
Tulsa District

In the 50-square-mile part of Oklahoma known as the Tar Creek Superfund Site, tainted waters run orange in creeks and streams; poisonous mountains of chat define the horizon; hundreds of dangerous and deteriorating open mineshafts dot the landscape; sinkholes constantly threaten; and children have high blood lead levels.

How did Tar Creek happen?

Tar Creek's disastrous environmental conditions come from nearly 100 years of hard rock mining for rich ore containing lead and zinc. Underground mining began in 1891 and lasted through 1970.

The Mississippian Boone Formation, the major source for the lead and zinc, was also saturated with groundwater. Mining companies had to continually pump large volumes of water from their extensive underground workings. The amount of lead and zinc contained in the crude ore in the Picher Field averaged only 4 to 6 percent combined.

The low-grade ore meant that about 95 percent of the crude ore mined was discarded on the surface in the form of mill tailings in enormous chat piles and large flotation ponds. Due to inefficient milling processes, only about 80 percent of the lead and 50 percent of the zinc were removed from the crude ore; the rest

remained in the mill tailings.

As milling technology improved, increased amounts of lead and zinc were recovered. Between 1916 and 1924, more efficient crushers, jig mills, and shaker tables were developed. The improved technology also created the opportunity to remill the tailings stockpiled on the surface.

By 1924, a new milling process, flotation, was installed in most mills. Small particles of lead and zinc could be made to float on a chemical bath for extraction. Over the years, almost all of the chat piles were remilled, most at least twice. However, about 10 percent of the lead and 25 percent of the zinc still remained in the mill tailings.

About 5,000 surface acres, including most of the Picher and Cardin communities, are covered with various forms of mill tailings. Large parts of the towns were built on lands that were formerly mill ponds, flotation ponds, or chat piles.

In 1980, Oklahoma's governor established the Tar Creek Task Force to investigate the acid mine drainage into Tar Creek. In 1981, the Environmental Protection Agency proposed the Ottawa County area encompassing five communities for the National Priorities List. It was number one on the list at its inception and is still the nation's largest superfund site.

Since EPA's final listing in 1983, four Operable Units have been established for Tar Creek. OU-1 addressed surface water and groundwater;

that work is complete, and cleanup of water was determined to be technically infeasible.

Through OU-2, EPA has remediated more than 2,000 residential yards and public areas. An emergency action, OU-3, removed drums and chemicals from a mining company laboratory. Under OU-4, EPA is investigating chat piles, mine and mill residue, smelter waste, and flotation ponds; a Record of Decision is expected next spring.

What's Happening Now?

At Tar Creek, federal and state agencies and ten tribal governments face environmental damage issues so severe that no single agency has the authorities needed to undertake them all.

With the support and encouragement of Sen. James Inhofe, R-Okla., a Tar Creek Memorandum of Understanding was signed by the EPA, Department of Interior, and U.S. Army Corps of Engineers in May 2003, with support from the State of Oklahoma and Quapaw Tribe.

The MOU has encouraged agencies to work together and share information and resources to identify methods to address the area's many problems. Partners now have joint public meetings, monthly team meetings hosted and facilitated by the U.S. Army Corps of Engineers Tulsa District, and a website for information and data exchange.

The Tar Creek MOU assigned the Corps the task of developing a Watershed Management Plan (WMP). In August 2004, Tulsa District issued a Draft WMP within budget and on schedule.

The federally funded Reconnaissance Study was completed under the Corps' General Investigations civil program. The 12-month process provided an opportunity to build a team of the many stakeholders. The resulting report documents the area's problems as well as past, ongoing, and planned work by the various agencies and tribes.

Most importantly, communities identified serious watershed problems that were not being addressed at all. These included hundreds of open mineshafts, the likelihood of more subsidence, flooding, and continuing surface water and sediment contamination.

Gene Lilly, former Tar Creek project manager and lead planner for the watershed study, notes that Tar Creek problems require **See Tar Creek on Page 7**



U.S. Army Photo

An open mine shaft just north of the Picher-Cardin High School. Most shafts are 200-300 feet deep. Because of its location, it was the first shaft closed by Tulsa District.

Puget crew keeps Puget Sound hazard free

By **PATRICIA GRAESSER**
Seattle District

The crew of the *Puget* clears navigation hazards from Puget Sound waters to provide safe vessel passage, and now they're able to protect the Sound from environmental hazards as well.

Last fall the *Puget* crew worked with the U.S. Navy, U.S. Coast Guard and other participants to test new oil skimming and collection equipment for use on the *Puget*.

The system is comprised of four basic components—the skimmer unit, motor, hydraulic controls and boom.

With a skimmer attached to each side of the *Puget* and booms that reach 1,000 feet to a small vessel ahead in the water, the *Puget* is transformed into an oil collecting machine.

The booms direct oil into the skimmer, where hydraulic belts pick up the oil and feed it into a hopper, and from there it is pumped into a barge tanker provided by the Navy or the Coast Guard.

"The belt turns pretty quickly and it uses a six-inch hose so it can move quite a bit of oil quickly," said Joe Gustafson, who manages

the floating plant for U.S. Army Corps of Engineers Seattle District.

The Coast Guard, having worked with the *Puget* on spill response and training in the past, approached the district in spring of 2004 to see about testing the equipment with the *Puget*.

The *Puget* worked along with 80-100 other responders to try out the new equipment and run through a spill drill. During the October 2004 exercise, "the water was choppy," and the agencies didn't know quite what to expect.

"It worked better than I thought it would," said Gustafson. "The Coast Guard was happy with it."

The new equipment will be stored at the Hiram M. Chittenden Locks on trailers. The Corps' role will be to store the equipment at the Locks, respond with the *Puget* either to the Locks or the spill site (whichever is closer), and provide the *Puget* as a work boat for responders.

If the *Puget* is in the area, it can motor back to the Locks, load the equipment in about half an hour and be on its way to a spill. The equipment requires two operators per skimmer. Coast Guard operators would meet the

Puget at the spill site and climb aboard to begin clean-up.

In the October test, they were able to get everything set up and begin collecting oil in about an hour to an hour and a half.

The Coast Guard and Corps are working out details of a memorandum of agreement about responsibilities, but any costs to the Corps are reimbursed by the Coast Guard—labor, materials, and equipment.

The systems should be at the Locks and ready to move into action in August, when another spill exercise is planned.

The Navy and the Coast Guard simply don't have available to them another vessel like the *Puget*. The *Puget* provides a flat work surface, is self-propelled and has a crane and operator. These features make it ideal for the skimmer systems.

There are a number of Corps snag vessels operating around the country—a handful of which are built very similar to the *Puget*. The *Puget* will be the first in the nation to work with the Coast Guard to use the new skimming equipment.

For more information call the Seattle District Public Affairs Office at (206) 764-3760.

Conference looks at coping with change in new Corps environment

By **CANDICE WALTERS**
HQ USACE

ST. LOUIS – Sustainability and the U.S. Army Corps of Engineers environmental ethic took center stage May 3 – 5 here as more than 550 USACE professionals from the environmental and natural resources communities met to discuss "Teamwork - Coping with Change in the New Corps Environment."

The biennial USACE Environmental and Natural Resources Conference covered a wide range of strategic, operational and career program topics facing USACE.

Working sessions included Policy and Implementation of the Civil Works Strategic Plan for Environmental Sustainability; New Mitigation Rule Making; Environmental Stewardship Budget Evaluation; Invasive Species; The Truth about Communities of Practice; Interpretive Management Solutions; Land and Water Use Policy for Recreational Requests; International Munitions and Explosives of Concern Operations; and

others.

All told, participants had more than 140 breakout sessions from which to glean information from their fellow Corps professionals.

It brought together Corps professionals committed to working together to find common ground, learn new tools and techniques, meet new people and discover steps they can take to truly make a difference for the Corps.

During his address to the conference, Chief of Engineers Lt. Gen. Carl A. Strock stressed the need to make the USACE Environmental Operating Principles "a reality" and an integral aspect of the Corps' culture, "just as safety is today." It's time to take them beyond seven principles found in a brochure, he said.

The principles, which grew out of the E&NR Conference four years ago, focus on the concept of sustainability and the need to balance environmental considerations with economic and security concerns.

The Chief challenged conference partici-

pants to learn what the Environmental Operating Principles mean and be able to discuss them with stakeholders. He explained the principles are "guidelines for Corps employees and a report card for others to use to grade the Corps on just how well the principles are being implemented."

Incorporating the principles in everything the Corps does will help the Corps become "better, faster, cheaper, safer and greener."

The environment cannot be looked at in isolation, and it is imbedded in everything the Corps does.

It is also one of six common themes found across all Corps business lines. The other common themes are external focus, meeting commitments, integrated solutions, sustainability and adaptive management.

The Chief stresses the importance of working through communities of practice, noting that the conference and the work being done here to keep technical skills sharp was moving the Corps in the right direction.

That was the message of John McQuary,
See Conference on Page 14

New Jersey community pines for beach season

By JOANNE CASTAGNA
New York District

It's below 30 degrees on a February day on Bradley Beach in New Jersey. A group of ear-muffled U.S. Army Corps of Engineers personnel walk along the shore of Bradley Beach with a group of local residents and local and state officials surveying the dune work the community has created.

The residents are literally "pining" for beach season. For the past five years they've been donating their used Christmas pine trees to the town to create dunes along the mile long Bradley Beach shoreline to maintain the sand nourishment work completed by the Corps in 2001.

The Bradley Beach shoreline had experienced erosion due to previous storms and was in need of sand nourishment. In July 1999 the Corps of Engineers' New York District began a sand nourishment project on Bradley Beach, in Monmouth County, N.J., as part of the Corps' Sandy Hook to Barnegat Inlet Beach Erosion Control Project.

The Corps contracted Weeks Marine to create seven groin notches and four outfall extensions, and to place 3.1 million cubic yards of sand on the shore, adding over 200 feet of beach front.

"Dune creation was not a part of the Corps' project because they are not needed in this project area for protection because the area has a naturally high backshore. If dunes were needed the Corps certainly would have added this feature," said Lynn Bocamazo, Senior Coastal Engineer, USACE New York District, who designed and monitored the completed beach nourishment project.

After the project was completed in January 2001, a local effort arose. The Bradley Beach residents wanted to take an additional step to protect the Corps' work, so they decided to create beach dunes. Beach dunes control beach erosion by limiting wind-blown sand loss.

"We wanted to protect the beach's promenade from future storms and give it a new look, like no other town has," said Richard Bianchi, Operating Supervisor of Public Works for Bradley Beach who is a life long resident of Bradley Beach and designer of the dune project.

"We also wanted to block out the noise for sunbathers on our beaches. The only noise that you hear now is the sound of the waves and birds. The dunes also protect beach residents' homes and provide them a beautiful ocean front and privacy."



U.S. Army photo

Christmas trees with snow fencing and dune grass capture windblown sand, aiding in dune growth and resulting in erosion control on Bradley Beach.

Bocamazo said, "Bradley Beach is not the first community along the 21-mile Sandy Hook to Barnegat Inlet Beach Erosion Control Project area to create dunes. Manasquan Beach and Monmouth Beach created dunes using fencing or dune grass, or a combination of planting and fencing. Bradley Beach is the first to use Christmas trees."

Every January Bradley Beach residents leave their used Christmas trees (that are pine trees) on the curbside where a truck from the Bradley Beach Public Works Department picks them up.

So far an estimated 20,000 trees have been used to create a stretch of dunes, four to nine feet high, along the mile-long oceanfront. This past holiday season an additional 3,000 trees were added.

On the beach, the trees are placed on the ocean side of the dune system in what is called a sawtooth design. "Snow fences are being placed on an angle along the promenade side of the dune to support the dune system. This also makes the beach look appealing from the shore side," said Bianchi.

"When the project began, the town planted 50,000 plugs of dune grass on the dunes to keep the dunes anchored," said Bianchi. "We are in the process of receiving a grant for an additional 25,000 to 50,000 plugs of dune grass."

The beach dunes have proven to be successful. "The placement of Christmas trees in combination with snow fencing and dune

grass has proven to be very effective in capturing windblown sand that results in the growth of the height and width of the dunes," said Bianchi.

The dunes provide a more diverse habitat than just sand alone. "The dunes create a sanctuary for sparrows. They also attract all kinds of insects that all wild birds eat," said Bianchi.

Bianchi adds that the public now has a personal connection with their beach that draws 20,000 residents every beach season. "Their donated trees will be there forever. They don't rot. The residents are now a part of the beach."

Community officials are also very supportive of the project and think it's beneficial to the public. "When you walk through the dunes to get to the beach from the promenade, psychologically it provides the illusion that you are leaving one world for another," said Stephen Schueler, Mayor of Bradley Beach who is a strong backer and the financial supporter of the project. Schueler will be funding the project till 2008, the year the dune project is expected to be completed.

It's this type of community involvement that the Corps likes to see. Bocamazo said, "A proactive municipal public works department is a beneficial addition to any Federal or State beach erosion control project. Bradley Beach is trying to aggressively maintain the sand that was placed there and is an active participant in the project's success."

For more information contact the New York District Public Affairs Office at (212) 263-9113.

District archaeologist helps preserve cultural history

By HANK HEUSINKVELD
Wilmington District

During a mid-morning archaeological dig where a Native American village lies near the Roanoke River in Roanoke, Va., two contract archaeology technicians patiently brush away soil from what was once a fire pit used for cooking. Near the pit they've carefully unearthened bits and pieces of rock—called *flakes*.

“This was debris of what was chipped away to make stone tools,” says Genevieve Taylor. “And we’ve also found pottery shards that indicate a settlement.”

Nearby, District archaeologist Richard Kimmel chats with fellow archaeologists about what they’ve found and how the project is developing. As the contracting officer’s representative, he determines the need for work at a project like this, then develops the scope of work, negotiates it with a contractor, and sees that the scope of work is carried out.

Kimmel is one of a rare breed of U.S. Army Corps of Engineers team members whose job is to see that historic resources are identified and protected from damage during construction.

This site is part of the Roanoke River Upper Basin, Virginia, Headwaters Area and is located in an area that will eventually be used for flood prevention. The team of contract workers from TRC Garrow Associates is comprised mostly of archaeology graduate students. They sift through tons of sandy clay and layers of earth to find clues about how Native American people lived here hundreds of years before Europeans arrived on the scene.

“We do this because it’s the law and because it’s the right thing to do,” says Kimmel. “The law’ is the NHPA, the National Historic Preservation Act. It first passed in 1966 and has been amended several times since then. It requires federal agencies to consider the impacts of all potentially ground disturbing activities on historic properties like historic buildings and sites, prehistoric archaeological sites, sacred sites and objects, etc.”

Kimmel adds the NHPA also requires coordination of decisions with designated state historic preservation officers and any other identified interested parties, which might include Native American tribes and organizations. There are other laws that guide activities on Federal lands, but the NHPA covers all of USACE activities, including those affecting private or state-owned lands. All of the Wilmington District’s



U.S. Army Photo

Richard Kimmel, Wilmington District archaeologist, and Deanna Beacham, Program Specialist of the Virginia Council on Indians, watch an archaeology graduate student sift soil.

activities in Virginia are coordinated with the Virginia Department of Historic Resources. Kimmel also coordinates USACE projects with Deanna Beacham, program specialist of the Virginia Council on Indians. It’s an advisory group for the governor and general assembly of Virginia for issues having to do with state-recognized Indian Tribes and nations. The VCI ensures that sites are treated with dignity and respect, especially when human remains are found, and works with archaeologists to educate the public about such sites.

“Personally, it’s of immense interest because I like what can be found from archaeology as well as from history,” said Kimmel. “I think archaeology can tell us a lot. And it’s great to work for the Indian community and work in collaboration with archaeologists, es-

pecially if they’re respectful about cultural issues.”

According to Kimmel, what makes archaeology more than just a job is the proverbial “thrill of the hunt.” Before the project began, he and his contract workers made historical and intuitive decisions about where exactly to dig. And they were right on target.

“We know from historical documentation where the most recent Native American activity was, purported locations of villages and contact sites. And we know just from the casual collection of artifacts that Native American remains are going to be found near all of the major rivers in Virginia and North Carolina and many of the minor tributaries as well.

“Recent” means as far back as more than a
See Roanoke on Page 14

Tar Creek

Continued from Page 3

the expertise and authorities of multiple agencies.

“I believe that the Corps is a tremendous asset to the public in helping identify a holistic watershed approach to resolve the many technical and social challenges. At the same time, the unique challenges at Tar Creek are providing the Corps an opportunity to demonstrate new and innovative approaches to the planning and implementation of civil works projects.”

Tulsa District began its construction projects in August 2004; Jim Martell is the technical lead. First, the district closed two open mineshafts under a relatively new Water Resources Development Act authority, the Restoration of Abandoned Mines Program. Previously, RAMS funding has only been provided for projects in the western portions of the U.S.

Section 111 of the Energy and Water Appropriations Act was written specifically for the Corps to address environmental hazards at the Tar Creek site. It authorized \$15 million for demonstration projects to mitigate hazards to the public, with \$6.5 million appropriated over fiscal years 2004–2005. The Section 111 work is a cooperative effort with the state of Oklahoma to construct projects to protect the community.

One has been completed and others are under way. The first — located between the Boys and Girls Club and the Picher-Cardin schools — covered a former flotation pond area with a clay cap and soil and then planted native grasses. Before the work was done, very fine particles with high levels of metals could be dispersed easily in the wind because there was no vegetation covering the contaminated site.

A Mineshaft Closure Program began in November 2004. Citizens identified 43 shafts as presenting the greatest concern. The sites were prioritized through work with community members, and the first one closed was immediately north of the Picher-Cardin schools on Indian Trust lands.

Although the property was fenced, the mineshaft was accessible to the public and had a rappelling rope hanging from its edge.

Through the Tar Creek MOU with the Department of Interior, the Corps was the first agency to work cooperatively with the Bureau of Indian Affairs and gain access to conduct mitigation work. The program will continue through



U.S. Army Photo

Creeks and streams in the Tar Creek area run orange from contaminants in the soil and water.

this summer, and BIA plans to provide work permits for further closures on Indian Trust lands.

E. A. Freeman, mayor of Picher, said, “I’m very satisfied with the work of the Corps, and they’ve done a good job of taking care of the citizens of Picher. There’s still a lot of work left to be done but they’ve made a great start.”

Hazard mitigation work will start this spring on a 29-acre site in the city of Picher to protect nearby residents from windblown mining waste containing high levels of metals. It has been coordinated with the city of Picher and the state of Oklahoma.

Tulsa District is also leading a team (federal, state and contractors) to evaluate the relative potential risk for subsidence in parts of Ottawa County. The initial evaluation of high population areas and major traffic corridors is expected to be completed by the end of October.

In February, a Programmatic Agreement was executed to address the National Historic Preservation Act for the area. Because of its complexities and the number of tribal governments potentially affected, the State Historic Preservation Office deferred to the Advisory Council on Historic Preservation.

With Tulsa District as the lead, the agreement was executed within a few months with signatures from the advisory council, the preservation office, the Quapaw Tribe, and several state and

federal agencies. It allows work in the area to proceed.

John Roberts, deputy district engineer for program management has been involved in Tar Creek for years. He says, “While participating on the original governor’s task force, I had visions of holistic solutions being applied at Tar Creek that would result in both remediation of the health risks and restoration of the environment for future beneficial use.

“I am so proud that Tulsa District is an integral part of helping make this vision come true. Many people thought that because the site was so enormous and so complex, solutions would never be identified. Because our Project Delivery Team is so talented, so passionate about this project, and so effective in communicating and working with other agencies and the public, I am confident that we will prove them wrong.”

It’s been more than 100 years since mining began in the tri-state district and more than 20 years since clean up started at the nation’s longest-standing Superfund site. Tremendous challenges remain. Tulsa District and the other MOU signatories will continue to look for answers and authorities to address problems in the area that’s become known as Tar Creek.

For more information call the Tulsa District Public Affairs Office at (918) 669-7361.

Wilmington District getting excellent results by following nature's lead

By CHARLES R. WILSON and
DOUG PIATKOWSKI
Wilmington District

Ecosystem restoration is a high priority mission for the U.S. Army Corps of Engineers. The Wilmington District has evolved in its approach to restoration design, now conducting ecosystem-based projects that address a range of habitats and consider site context to promote ecological functions and provide sustainable projects.

Where earlier restoration practices were focused on marsh establishment, recent projects have incorporated trees, shrubs, marsh grass, seagrass, and oyster reefs to achieve natural structure and function, increasing ecological values.

In 1987, three North Carolina disposal islands were enhanced by marsh construction as part of a pilot study assessing the feasibility of a nationwide fisheries habitat restoration and creation. Three 70-meter by 185-meter rectangular areas were excavated by the Corps, planted by N.C. State University, and monitored by the National Marine Fisheries Service (NMFS).

The sites grew lush vegetation but demonstrated that a more natural form and structure would be better and that protection would improve habitat sustainability.

In 1995, the district constructed a successful restoration project as mitigation for dredging and construction at the U.S. Army Reserve Center at Morehead City, N.C. Working with federal and state agencies, goals and evaluation criteria were developed to establish a functioning estuarine ecosystem and assess project success. The project plan included excavation of fill from an upland dredged material disposal island. This tidal creek within a protected cove layout incorporated a diversity of habitats including marsh, mud flats, and oysters.

The protected environment is safe from erosion, and provides a quiet shallow water habitat for juvenile fish development. Construction required grading, planting of dune and marsh grasses and placement of oyster culch. Three years of Corps monitoring assessed ecological growth. Trawling, seining, and oyster monitoring by the state measured the abundance of animals. A final monitoring report in 1998 demonstrated project compliance with success criteria. Site inspections and sampling in 2004 indi-



U.S. Army Photo

Island 13 in the Cape Fear River is a design for an ecosystem following nature's lead.

cate outstanding natural sustainability including continued expansion of marsh area and regeneration of oysters over 10 growing seasons.

Island 13 restoration provided mitigation for impacts from deepening the Cape Fear River Channel to the Port of Wilmington. Like earlier projects, the goal was to construct a protected estuarine ecosystem using a disposal island as raw material.

This time, however, the design shoreline would generally follow natural contours while avoiding specimen trees. By allowing a wider variability in gradient, a more natural transition from upland to subtidal aquatic habitats was achieved.

This *design with nature* approach resulted in a lengthened shoreline that provided more edge, increasing the habitat value for fish and wildlife. Varying slopes and aspects resulted in a complex pattern of marsh growth intermixed with open water, providing a natural appearance. The result is a sustainable estuarine ecosystem, appropriate in its setting.

Estuarine shoreline at Festival Park, near Manteo, N.C., was eroding, causing the loss of important fish and wildlife habitat. The district used a Continuing Authorities Program (CAP) Aquatic Ecosystem Restoration Authority (Section 206) to restore five acres of marsh, seagrass, oysters, and forest. Eroded bottom was replaced,

native marsh and trees were planted, and an oyster reef was built.

An offshore rock sill will assure sustainability and increase habitat diversity by providing erosion protection and structure for the marine attachment, and calm interior waters will promote growth of seagrass and juvenile fish.

The Festival Park project's major contribution was not technical, but a new standard in partnership and customer satisfaction. The team included the Festival Park and the N.C. Coastal Federation staff and their volunteers, the U.S. Army Corps of Engineers, Cape May Plant Materials Center, N.C. Forest Service, U.S. Fish and Wildlife Service, N.C. State University, N.C. Divisions of Water Resources and Marine Fisheries, and the Nature Conservancy.

By combining funding, expertise, and equipment, a significant environmental problem was addressed, and new doors of cooperation were opened between agencies, and non-governmental organizations.

This approach will be used in the Wilmington District's future ecosystem restoration projects and ongoing basin-wide studies within the Neuse River Basin, Tar River and Pamlico Sound, and the Currituck Sound.

For more information contact the Wilmington District Public Affairs Office at (910) 251-4626

Seattle District embracing environmental sustainability

By **ANDREA TAKASH**
Seattle District

Every day Mother Nature tirelessly tries to keep up with the growing earth, but she is running out of steam as more people consume diminishing natural resources.

The U.S. Army Corps of Engineers made a commitment to do its part in protecting the world's most precious resources by promoting seven Environmental Operating Principles, which are applied to all decisions and projects.

"When the Corps developed the principles, I felt Seattle District needed to rally around putting them to use," said Brenda Bachman, a biologist in the Seattle District's Hazardous, Toxic and Radioactive Waste section. "So I asked Col. (Debra) Lewis (Seattle District Engineer) if I could form an Environmental Operating Principles/Sustainability working group."

The group's goal is to promote sustainability principles and its use in work and home lives. Sustainability is one of the key parts of the Environmental Operating Principles, Bachman said.

"There is a misconception that sustainability only deals with environmental issues. But, it actually stresses balancing social, economic and environmental issues in every program," she said.

Seattle District is the only district in the Corps to develop long-term sustainability goals for its business processes, operating projects, and customers. The nine goals were accepted by the Seattle District Executive Team in March.

The team has developed an implementation plan. "That is where we have a real and measur-

able effect. Then this 'concept' will become reality for everyone sitting at their desks and focusing on their work," she said.

The group is forging ahead in making sure Seattle District operates under the sustainability principles. They are focusing on such as recycling and alternative fuel vehicles.

"I am working with the building manager on the office waste recycling program," Bachman said. "GSA plans to switch their contract to Weyerhaeuser because they estimate giving \$500 to \$2,000 a month in recycling proceeds to the building's daycare center. This is a great example of benefiting social issues."

Most people know about the importance of recycling for the environment, but many don't understand the benefits of alternative fuel vehicles, she said.

"Seventy percent of all new vehicles in our fleet must use alternative fuel; however, people are refilling these vehicles with regular petroleum gasoline, which defeats the purpose," she explained.

The district has had alternative fuel cars since 1999, but the compressed natural gas to refuel the vehicles is not readily accessible, said Joe Hathaway, the district's fleet manager.

"CNG benefits the environment because it reduces emissions. However, there are only a few places where we can purchase CNG with our Voyager credit card," Hathaway said.

"Until CNG becomes more readily available to the general public, Tony Slamin, the district's mobile equipment server, will fill up the motorpool alternative fuel vehicles," Hathaway said.

"Using alternative fuel and reducing emission by-products means less impact on human health. Recycling returns money to the economy and conserves natural resources, which again benefits our own well-being.

"In the case of recycling paper, more trees can grow, which means less carbon released into the atmosphere, reducing greenhouse effects," she said.

"We are using resources faster than the earth is producing them," Bachman said. "A variety of convenient alternatives exist for people who are willing to embrace sustainability."

For more information call the Seattle District Public Affairs Office at (206) 766-6447.



Photo by Andrea Takash

Joe Hathaway, Seattle District's fleet manager, fills one of the District's alternative fuel vehicles with compressed natural gas.

Cold Regions Research, Engineering Laboratory opens new greenhouse

By **BRUCE LYNDES**
Cold Regions Research and Engineering Laboratory

The U.S. Army's Cold Regions Research and Engineering Laboratory (CRREL) features some of the world's most sophisticated cold-weather testing facilities, but its newest building will be toasty warm, year round.

The new \$650,000 greenhouse facility in Hanover, N.H., quadruples the space of the old greenhouse and lab and features the latest technologies in growing and studying plants.

"It's probably the 'state of the art' for any similar sized research-type greenhouse in all of New England," said Tony Palazzo, CRREL

agronomist.

The new building features radiant floor heat and a polyacrylic exterior that triples the "R" value, or heat retaining capacity. Palazzo added, "I'm very happy with it. Everything is centralized- the greenhouse, analytical equipment and environmental chambers that can grow plants at proper temperatures, and office space. Other ERDC labs have already expressed interest in some joint research projects."

The new equipment includes a push-pull shade system, computerized root-imaging system, photosynthetic fluorescent/gas exchange system and a temperature-controlled seed room.

CRREL will use the greenhouse for germination and root-growth studies in support of ba-

sic and applied research in revegetation and phytoremediation, or the use of plants to stabilize or break down pollutants in soil.

Soils microbiologist, Dr. Mike Reynolds said, "It's really an impressive facility. It will really enhance our capabilities in soil microbiology and plant root research."

CRREL acting director James Wuebben said he believes the greenhouse will provide a direct benefit to the military by providing opportunities to better support sustainable military training lands, both in rehabilitation through revegetation and in cleanup of contaminated soils.

For more information contact the Cold Regions Research and Engineering Laboratory Public Affairs Office at (271) 398-5569.

Horse farm makes strides to protect New York City drinking water

By JOANNE CASTAGNA
New York District

A gathering of thoroughbred racehorses quietly grazes in a pasture on the Akindale horse farm, 45 miles north of New York City in Dutchess County. Some of them are in training to be gold cup winners, but the farm where they graze is already receiving high points for the Best Management Practices it's efforts to protect New York City's drinking water, under a program being funded by the U.S. Army Corps of Engineers New York District.

"The Corps' New York City Watershed Environmental Assistance Program, is an inter-agency effort that assists in the implementation of projects that protect the water quality of New York State's watersheds that provide drinking water to nearly half of New York State, including primarily New York City residents," said Rifat Salim, project manager, USACE New York District.

"The program aims to do this without harming the economy of the communities," she added.

The inter-agency team includes the U.S. Army Corps of Engineers, New York State Department of Environmental Conservation and the New York City Department of Environmental Protection.

A watershed is an area of land that catches rain and snow and drains or seeps into a marsh, stream, river, lake or groundwater. Watersheds come in all shapes and sizes and are usually part of a larger watershed system. This water eventually gets stored in reservoirs, a place where water is collected and kept for use when wanted, such as to supply a city.

The New York City watershed region encompasses approximately 2,000 square miles and includes three watershed systems – The Catskill, Delaware, and Croton Systems - all located north of New York City in the counties of Delaware, Greene, Schoharie, Ulster, Sullivan, Westchester, Putnam, and Dutchess.

The Watershed Agricultural Council's (WAC) Whole Farm Planning program, in which the Akindale Farm is taking part, is one of the projects the Corps' program supports. There are many farms located throughout the New York City watershed region making the watersheds potentially

vulnerable to non-point source pollution.

"Non-point source pollution is contamination that is not directly placed in the water," said Douglas Leite, project advisor, New York District. "For example, storm water passing through barnyards can transport the phosphorus and pathogens, or parasites, which are present in animal manure and deliver them to the streams that flow into the

"...already the compost pad made the farm's manure handling and composting system 1,000 times better."

**Michael Saviola
Watershed Agricultural Council,
East of Hudson
Program Manager**

reservoirs. Algae can feed off these nutrients and deplete the water's oxygen, adversely affecting water quality."

The Watershed Agricultural Council's Whole Farm Planning program is a voluntary program that works with farmers lo-

cated in the watershed region to create and implement methods to improve how their farms are operated in order to protect the watersheds from non-point source pollution without compromising the farm's business.

Under the Whole Farm Planning program, a team of WAC specialists visits farms and identifies and assesses potential sources of pollutants, reviews existing farm operations and works with the farmer to develop new operational strategies and best management practices (BMPs) for decreasing impacts to the environment and improving water quality in the watersheds.

The new operational strategies and BMP recommendations or "Whole Farm Plan" is then developed in a team approach with the farmer, WAC and in some cases the local County Soil and Water Conservation District. The farmer then signs an agreement to implement the BMPs listed in the plan with assistance from the WAC team.

Presently, approximately 300 WAC approved Whole Farm Plans have been created. One of these is with the Akindale Farm that is proving to be an example of the program's success.

See Akindale on Page 11



Rifat Salim, New York District project manager, pets an Akindale horse.

U.S. Army Photo

Innovative tent to help quicken pace of Lot 18 cleanup

By **MARY BETH THOMPSON**
Baltimore District

When Spring Valley Lot 18 Project Manager Craig Georg was challenged to speed up the work at the site, he and his team thought outside the box. More precisely, they thought outside the tent. The team directed its thoughts and research beyond the types of tents that have been used throughout the United States for such work.

Spring Valley is a Formerly Used Defense Site

in a residential neighborhood of Washington, D.C., that U.S. Army Corps of Engineers Baltimore District is cleaning up. Lot 18 is a debris field dig site, one of several projects in the Spring Valley program. The type of work and the safety of the neighborhood requires that the Lot 18 dig be conducted inside a tent with engineering controls.

"To increase production, we needed larger equipment, and larger equipment requires a bigger structure to work within," Georg said. "The

biggest problem with a larger tent is that the tent needs to be anchored and sealed to provide protection to workers and the public, but the uneven terrain at Lot 18 made sealing a larger structure nearly impossible."

Looking beyond U.S. boundaries, the Corps team found an innovative, British-made "inflatable building" that can be configured to 60 feet by 100 feet. The structure, made up of air cells, is strong but relatively light in weight,
See Tent on Page 13

Akindale

Continued from Page 10

"The Akindale Farm project demonstrates an excellent example of a local, regional and federal partnership," said Michael Saviola, WAC, East of Hudson Program Manager.

Akindale Farm is a 358-acre horse farm located in the Town of Pawling in Dutchess County, on the Croton Watershed. Horses represent a large investment in livestock inventory and equine infrastructure and occupy most of the agricultural land use in this region.

Akindale Farm produces high quality thoroughbred racehorses and provides training for horses both owned and boarded at the farm.

The farm breeds and trains approximately 26 thoroughbred race horses and also has 45 mature horses, 30 young horses, and 6 Holstein Steers. Approximately 200-acres of the land is permanent pasture and 100 acres is forest land.

In 1998 the farm created a Whole Farm Plan in collaboration with the Dutchess County Soil and Water Conservation District. So far several of the plan's BMPs have been successfully completed.

One of the most successful BMPs implemented on the farm included using exclusion methods to keep livestock away from streams.

"Exclusion fencing was installed on one of the farm's pastures to limit the access of brood mares and foals, or young horses, to a nearby stream that runs adjacent to the farm," said Saviola.

"By keeping the animals away from the stream we are preventing potential animal pathogens from entering the water supply."

Saviola continued, "Since we excluded the animals from their primary watering source,

we had to provide the animals an alternative water source in an area that was not wet or deemed 'hydrologically active.' We designed and constructed a winterized animal watering system so that the horses no longer had to rely on the nearby stream as a watering source."

Another BMP measure that was recently performed and funded by the U.S. Army Corps of Engineers was the redesign of the farm's manure composting facility. "The farm has a compost facility designed to treat potential parasites and alleviate the need for and the operating expense associated with transporting manure for off-site utilization and/or disposal," said Saviola.

The farm collects manure and straw bedding from foals, or young horses, and temporarily stores it on an outside 100- by 200-foot asphalt compost pad with a reinforced concrete push wall, a filter field and diversion.

The farm's manure compost facility was improved to prevent any potential pathogens from migrating from the pad to a nearby watercourse during heavy rainfall.

"Although the compost facility was just completed, already the compost pad made the farm's manure handling and composting system 1,000 times better," said Saviola.

"It was designed to be a more stable surface with a grass filter area which was created on the down slope side of the compost pad to intercept and treat any storm water that happens to run off the pad during intense rainfall events."

Other BMPs in progress on the farm include measures to control the distribution of manure. One way the farm is doing this is by executing a Comprehensive Nutrient Management Plan that will recommend the proper type and amount of fertilizer needed to sustain good vegetative cover in pastures and to

prevent excess nutrients from entering the water supply.

Another measure includes a prescribed grazing plan to rotate livestock to reduce soil compaction and improve the quality of the pasture grasses.

Storm water runoff, which may carry manure, into the streams is also being controlled by BMPs. The farm is installing a barnyard water management system designed to divert clean water away from any potential agricultural pollutant sources.

Stream banks are also being stabilized with vegetation to prevent soil and manure from running off of the banks into the streams. In addition, the farm is improving access road construction to limit diffuse sources of sediment from the roads to streams.

Best management practices that don't involve managing manure, excess nutrients or sediment are also being implemented. The farm is making sure that all fuel products are stored away from streams to prevent water contamination.

Best management practices not only protect drinking water, but also support the local economy and survival of wildlife habitats. According to WAC, well-managed farms keep space open, provide refreshing destinations for tourists and provide food and fiber for the community. In addition, they can improve the habitats of local wildlife, in particular fish species.

Farmers and others interested in learning more about WAC's Whole Farm Planning program should visit: www.nycwatershed.org or call 914-962-6355.

Those interested in the Corps' New York City Watershed Environmental Assistance Program should contact the author at: Joanne.castagna@usace.army.mil

Environmental management partnership works regionally

By **PETER VERSTEGEN**
St. Paul District

The Upper Mississippi River, flowing from the headwaters in Minnesota to the open river at Cairo, Ill., has challenged the U.S. Army Corps of Engineers to work regionally, both within its own organization and with the other river stakeholders.

The Corps' Environmental Management Program (EMP), designed to protect and restore the river ecosystem, offers lessons in how a wide-ranging community of practice works across agency, geographic and political boundaries for the goal of environmental stewardship.

For many years, Mississippi River navigation pools created by the locks and dams in the 1930s to provide a nine-foot navigation channel, supported a wealth of fish, wildlife and aquatic habitat.

But by the 1980s, the ecological health of the Upper Mississippi River system was being stressed by erosion, sedimentation, diminished aquatic plant beds and declining habitat diversity.

Congress, in response to the public and stake-

holders, authorized the EMP in 1986. The legislation recognized the Upper Mississippi River as both a nationally significant ecosystem and a nationally significant commercial navigation system.

Rock Island District, centrally located on the upper river, became the central dispatcher for overall program management.

"We come to the table and talk hard issues for betterment of the river," said Roger Perk, EMP program manager, Rock Island District.

"Nowhere else in the country does a waterway serve as both a system of major national wildlife refuges and a commercial navigation system," said Perk.

"The priorities of the program focus on both the rehabilitation and enhancement of existing habitats as well as long-term monitoring of the river.

Perk's interaction with district EMP managers reflects regional processes. With input from each of the Upper Mississippi River Corps districts, he develops consolidated budget and funding requests; reports program financial execution to Mississippi Valley Division, Vicksburg, Miss.; monitors and manages the long-term monitor-



U.S. Army Photo

Aerial view shows Spring Lake Island during construction.

ing resource program; facilitates meetings of the EMP coordinating committee; and consolidates
See Partnership on Page 15

Investigation, removal actions resumed at Former Camp Wellfleet

By **TIMOTHY DUGAN**
New England District

The National Park Service (NPS), the U.S. Army Corps of Engineers, and the Massachusetts Department of Environmental Protection (DEP) are continuing efforts to determine the extent of military ordnance identified in the past at the Former Camp Wellfleet military site located at the Cape Cod National Seashore in Wellfleet, Mass.

The Corps' contractor, Zapata Engineering, under the direction of the U.S. Army Engineering and Support Center, Huntsville, Ala., resumed performing an Ordnance and Explosives (OE) investigation and removal action in portions of the Former Camp Wellfleet from Feb. 28 to March 28.

Zapata Engineering performed investigation and removal at four areas on the site. These areas included a 4.5 acre portion of the site south of the Marconi Beach Bathhouse.

This area warranted further investigation because ordnance related scrap was found and removed in this general area during the last investigation. Further investigation will confirm if additional scrap is buried.

This area is a potential piping plover nesting area, therefore the investigation was performed before the plovers return to the area for nesting.

The other three areas are inland of the dunes. They consisted of an area where military canisters were located. The canisters were previously tested, and were found not to be hazardous.

Another area that was investigated had potential ordnance burial pits. The last area of concern was an area where 150 M28A1 flash tubes for 105mm cartridge cases were removed last year.

The investigation was conducted to locate any additional flash tubes if they exist.

During the field effort miscellaneous debris and ordnance-related material were located and disposed of properly. Soil samples taken at the area where the ordnance-related debris was found were sent to a laboratory for testing. Results are expected in June. If results are negative, this will be the last field effort for ordnance. The next phase will be Institutional Controls. If results show contamination, additional field work will be scheduled.

The Former Camp Wellfleet site consists of developed and undeveloped land, the majority of which is owned and maintained by the Na-

tional Park Service. The investigation for the Wellfleet site was conducted during the winter to minimize impacts to natural resources such as the piping plover and to minimize the impact of closures to area residents and visitors.

Zapata Engineering met daily or as needed with the National Park Service staff to coordinate safety measures and any necessary area closures.

All reasonable efforts were made to minimize inconvenience to the public and to allow public access to the primary visitor sites. Access to Marconi Site and Marconi Beach were restricted at times during the project.

It was the goal of the National Park Service to have the beaches and site open on weekends and only close either the beach or the site on a day-by-day basis, when necessary.

The recommended removal actions for the various areas inside the Former Camp Wellfleet are derived from the Final Former Camp Wellfleet Engineering Evaluation/Cost Analysis (EE/CA) completed in May 2000 and the subsequent Action Memorandum, which was signed in April 2001.

For more information call the New England District Public Affairs Office at (978) 318-8777.

Earth Day brings together Corps, Ala Wai Association

By DINO W. BUCHANAN
Honolulu District

In partnership with more than 460 volunteers, the Ala Wai Watershed Association, state environmental offices and 25 local civic organizations, the U.S. Army Corps of Engineers continued to focus on excellence, innovation and enthusiasm for the environment during Earth Day 2005. This year's theme was "Mother Earth, For You a Lei."

At the April 23 event, the Corps' Pacific Regional Visitor Center (RVC) at Ft. DeRussy in Waikiki served as a hub for free trolley transportation to one of seven Earth Day study,



Photo by Dino W. Buchanan

Elementary school students and parents board a trolley at the Pacific Regional Visitor Center en route to the Waikiki Aquarium on Earth Day 2005.

information and educational sites located throughout the Ala Wai watershed area.

At these sites the public and volunteers participated in activities ranging from Corps environmental project seminars and informational booths to stream trash cleanups, storm drain stenciling and a fish re-stocking at the beach adjacent to the Waikiki Aquarium.

Inside the Corps' RVC more than 75 volunteers and information specialists provided a plethora of environmental information and informational seminars about the environment and Corps environmental projects.

"The Regional Visitor Center was our focal point for the 2005 Earth Day celebration as we had more than 10 environmental government, state and local agencies promote the environment with information booths.

"Our informational seminars featured local professional and educational environmental experts who provided the most current information on the Ala Wai Watershed and Hawaiian reef restoration projects. It was a great event for the Corps, Hawaii and the environment," said Lt. Col. David E. Anderson, Commander, Honolulu Engineer District.

One seminar participant agreed with Lt. Col. Anderson that Earth Day 2005 was an important informational event.

"Reef Check Hawaii appreciated the opportunity to present to the community findings



Photo by Dino W. Buchanan

Elementary students listen as a water hydrologist explains the salinity content of a Pacific Ocean water sample at the Pacific Regional Visitor Center in Waikiki during Earth Day 2005.

from our surveys in the Waikiki area and to provide updates to the public on our project status," said Dave Raney, Community Outreach Coordinator of Reef Check Hawaii.

For more information, log on to the HED web site at: <http://www.poh.usace.army.mil>, or contact the Public Affairs Office at (808) 438-9862.

Tent

Continued from Page 11

does not require a crane to move and conforms to rugged topography. It is self-supporting and designed for extended outdoor use.

"It takes less time to move, and it can be used in very steep areas," Georg said. "It will give us much more flexibility."

The team plans other improvements to increase production. A larger excavator will dig. Dirt and debris will be sorted on a shaker table instead of the present manual sifting table. Until now, the soil has been packed into drums and loaded onto trucks and carted from the site.

The soil will now go into a more efficient roll-off container that will be moved by conveyor to a truck. Tarps will cover the soil during the loading and removal to keep it contained when leaving the site and until it is ultimately disposed of at an approved site. A plan is also being developed to make air monitoring more

efficient.

These changes have been reviewed at all oversight levels, including the regulatory partners — D.C. Health and the Environmental Protection Agency; the Corps' Engineering and Support Center, Huntsville; Corps Headquarters; and the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health.

Georg said he expected to have enough of the improvements in place to be able to restart digging at Lot 18 in June. Assuming nothing is found that changes the character of the investigation, the Lot 18 work should be completed by late January 2006. Six underground metallic anomalies in the vicinity will also be investigated, making the expected completion of the Lot 18 area to be spring 2006.

"The increased efficiency comes with a price tag," said Gary Schilling, program manager, "but the Corps and the Army are making sure the cost

of accelerating the Lot 18 work does not slow the other ongoing Spring Valley investigations."

For information, call the Baltimore District Public Affairs Office at (410) 962-2626



An inflatable tent structure will be used in the Spring Valley Lot 18 work.

Roanoke

Continued from Page 6
thousand years.

“When we look at a site with pottery we know it’s going to be dated after 1000 B.C. because that’s when the use of pottery became widespread. And we know through radio carbon dating that the Roanoke project sites date to around AD 1300, because it’s a period when pottery’s being made and people were living in settled villages and growing crops instead of just hunting and fishing, and they had a more complex social structure.

By combining science and historical knowl-



Kimmel inspects artifacts found at the Roanoke excavation site.

edge, archeologists are able to make accurate predictions about where to dig. A lot of the time they rely on their sixth sense.

“Intuition is probably one of the better guides, but it’s intuition based on years of experience. We know that any flat topographic feature near a major watercourse is likely to have prehistoric remains. Likewise, ridge tops overlooking floodplains are likely to have the same.”

Kimmel says it’s hard to determine which people made arrowheads and pottery and left the fire pit scattered with tiny clues.

“In this case, we can’t point to a particular tribe and say this material came from this tribe. What we do have are state recognized tribes, in this case the Monacan Indian Nation whose ancestors were in the area and who are willing to take possession of human remains and to re-bury them with the appropriate Native American ceremony. And that’s what will happen. They’ll be carefully excavated and returned to the Monacan tribe for reburial.”

In some cases, archeologists could double as forensic scientists. Kimmel still has the urge to dig under some rocks, and see what, if anything, lies beneath that might be historically significant.



Richard Kimmel, Wilmington District archaeologist, shows an artifact taken from an excavation site in Roanoke, Va.

“It is fascinating. We’re always learning something or we’re always surprised by things we don’t expect. The discovery is the fun part.”

For more information contact the Wilmington District Public Affairs Office at (910) 251-4626.

Security

Continued from Page 1

installing wetland plants, building benches, and installing signage to educate others about the “water barriers.”

A local non-profit program, Water Education for Teachers, will enable teachers to use the fresh water habitat as an outdoor classroom for environmental education.

Other groups that have expressed interest in using the habit include Texas Parks and Wildlife Department, U.S. Fish and Wildlife, the



Students from a local high school install wetland plants as a part of the security upgrade.

Audubon Society, Coastal America and customers of the Corps of Engineers Regulatory Branch.

For more information call the Galveston District Public Affairs Office at (409) 766-3005.



A local Boy Scout Troop joined with the Corps on the project, planting trees and shrubs.

Conference

Continued from Page 4

president of Fluor Corporation, who spoke about communities of practice and how the 38 “knowledge” communities within Fluor are working.

McQuary said Communities of Practice improve business performance through global adoption of best practices, improved work processes, reduced overhead and delivery of timely expert solutions.

Communities of Practice:

- Are people-driven activities;
- Are more than just Web sites, but ways for people to connect with one another to gain knowledge;
- Require that everyone in the community has a role;
- Require communication to be successful; and,
- Will ultimately affect future performance.

The plenary sessions also included discussions on the Corps’ role in the Global War on Terror, the CP18 Career Program and the new National Security Personnel System. The two and one-half day conference was followed by an eight-hour Operations Project Managers Seminar.

Partnership

Continued from Page 12

work plans, funding priorities and contract award recommendations to division.

“We work together to make the program a success. The team focuses on the whole system. Collectively, we determine the higher priorities and move money from one district to another for a project,” St. Louis District EMP project manager Mike Thompson said.

Engineer districts in St. Paul, Minn.; Rock Island, Ill.; and St. Louis, Mo., with oversight by the division, coordinate with a variety of federal and state agencies, associations, the public and non-profit natural resource agencies, such as The Nature Conservancy and Audubon Society.

The U.S. Geological Survey, a regional partner in La Crosse, Wis., oversees the collection of data on water quality, vegetation, fish, sediment, aquatic insects and land use for long-term resource monitoring. The USGS Upper Midwest Environmental Sciences Center analyzes the data to assess the health of the river and forecast future trends as part of its long-term resource monitoring.

“As a research agency, the role of USGS is to act as an unbiased science advisor for the partnership,” said Barry Johnson, chief of the aquatic sciences branch, USGS Upper Midwest Environmental Sciences Center, La Crosse, Wis.

“A large part of the funding that comes to USGS is passed on to state-operated field stations in the five Upper Mississippi River border states to conduct the annual field sampling and participate in data analyses. Just managing the data collected is a big job. The fisheries database alone has more than 3 million lines of data.”

Johnson said one of the challenges for the partnership is to integrate habitat rehabilitation projects with long-term monitoring.

“Only a program like the long-term river monitoring project that operates at large spatial scales and over a long time period can provide the data needed.

Regional coordination and project management extends to wildlife refuges operated by the U.S. Fish and Wildlife Service.

The Upper Mississippi River National Wildlife and Fish Refuge encompasses approximately 240,000 acres in four states in a more-or-less continuous stretch of 261 miles of Mississippi River floodplain from near Wabasha, Minn. to near Rock Island, Ill.

Other refuges in the Upper Mississippi complex include Trempealeau, Wis., and the Driftless Area, a collection of small, scattered

tracts near McGregor, Iowa.

Dick Steinbach, manager of the Mark Twain Wildlife Refuge complex headquartered in Quincy, Ill., said, “Our fingers are pretty well entwined with the Corps out on the river in meeting overall federal responsibilities for this multi-use resource.”

The Mark Twain complex includes four wildlife refuges: Middle Mississippi River, Marion, Ill.; Port Louisa, Wapello, Iowa; Great River, Annada, Mo.; and Two Rivers, Brussels, Ill.

Said Don Hultman, refuge manager, Upper Mississippi River National Wildlife and Fish Refuge, Winona, Minn., “Before EMP, we could do little but stand by and watch the habitat decline. As much as anything, EMP has restored both hope and optimism.

“EMP has also been a catalyst for improving working relationships with the Corps and the states and finding the common ground among agencies with often different missions and purposes on the Mississippi,” Hultman said.

“There is nothing quite as powerful as bringing people together to work side-by-side on projects which make a difference for fish and wildlife and the public who enjoys them.

“The creation of the refuge and the authorization of the nine-foot navigation channel forever linked the service and the Corps. EMP has helped turn that linkage from one of conflict to one of mutual benefit.”

An EMP coordinating committee meets four times a year to keep check on the program. Although the Corps is the primary manager, the coordinating committee provides oversight. Participants include the Corps; Fish and Wildlife Service; USGS; the Environmental Protection Agency; the Upper Mississippi River Basin Association; and representatives from the states of Minnesota, Wisconsin,

Iowa, Missouri and Illinois.

Regional management extends beyond the coordinating committee to technical teams. Project delivery teams of technical specialists, such as biologists and engineers, from the three upper river Corps districts, gather at workshops every other year to exchange lessons learned and discuss other project and program information.

Said Perk, “Mississippi Valley Division oversees overall program execution and review, approval of all budget documents, funds allocation, approvals of schedules, costs and approval of definite project reports. MVD [the division] coordinates all program issues, guidance, Congressional items and funding with Corps’ headquarters.”

“Future project selection will use a process that looks at projects from a reach and system-wide perspective, rather than just individually with the districts,” said Don Powell, EMP project manager in St. Paul.

Budget and geographic constraints have challenged the team. “A large number of projects, which are in different phases of development, would be capable of expending the full EMP authorization each year,” said Perk. “However, due to numerous budget priorities, the funding allocations have not come near to the full authorization amount for the program.”

Perk said the overall EMP has a continual authorization of \$33.52 million per year. The fiscal year 2005 allocation was \$17.5 million, with nearly full funding in the recently released fiscal year 2006 budget of \$33.5 million.

Said Powell, “It is also important to maintain program flexibility and the individuality of each district in order to be responsive to all the stakeholders.”

For more information call the St. Paul District Public Affairs Office at (651) 290-5200.



Bulldozer shapes Spring Lake Island from the discharge of the dredge, Iowa.

U.S. Army Photo

Army Sustainability



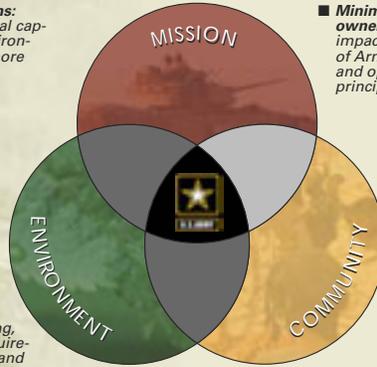
■ **Strengthen Army operations:** strengthen Army operational capability by reducing our environmental footprint through more sustainable practices.



■ **Foster a sustainability ethic:** foster an ethic within the Army that takes us beyond environmental compliance to sustainability.



■ **Meet test, training and mission requirements:** meet current and future training, testing, and other mission requirements by sustaining land, air, and water resources.



■ **Minimize impacts and total ownership costs:** minimize impacts and total ownership costs of Army systems, materiel, facilities, and operations by integrating the principles and practices of sustainability.



■ **Enhance well-being:** enhance the well-being of our Soldiers, civilians, families, neighbors, and communities through leadership in sustainability.



■ **Drive innovation:** use innovation, technology, and the principles of sustainability to meet user needs and anticipate future Army challenges.



“Triple Bottom Line”

The Army’s new *Strategy for the Environment* outlines our long-term vision and sustainability goals as they relate to the triple bottom line of mission, community, and environment.



The new Army Sustainability poster can be obtained from the Office of the Director of Environmental Programs, Sustainability Division, DAIM-EDS, 600 Army Pentagon, Washington, DC 20310-0600, 703-601-1573, douglas.warnock@hqda.army.mil.

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