US Army Corps of Engineers ®

The Corps Environment

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Photo by Dino W. Buchanan

Two students prepare to test a water sample from the Manoa Stream at Manoa Valley District Park in Hawaii. More than 75 students from four schools in the Ala Wai Watershed participated in the 2004 World Water Monitoring Day.

Students evaluate Ala Wai Watershed

By DINO W. BUCHANAN
Honolulu District

More than 75 enthusiastic Honolulu-area students braved rainy conditions on Oct. 15 to participate in the 2004 World Water Monitoring Day at four sites within the Manoa Valley and Ala Wai Watershed.

During the five-hour event, 76 students in grades 7-12 created a water quality snapshot of the Ala Wai Watershed under the supervision and guidance of the U.S. Army Corps of Engineers Honolulu District and the State of Hawaii Department of Health, Clean Water Branch.

"This was a fun and safe field investigation and a lift off point to taking action in a water quality improvement project," said Iwalani Sato, co-event coordinator who works at the U.S. Army Corps of Engineers Pacific Regional Visitor Center. "We (event organizers) recognize and applaud our local schools' dedication and commitment to improve the Ala Wai Watershed through hands-on education. The most visible sign of event success is the students who are confident and empowered with valuable skills including data collection, critical thinking and action-taking. "

World Water Monitoring Day was initiated by America's Clean Water Foundation (ACWF) in 2002 as a significant part of the events held in observance of the 30th anniversary of the United States Clean Water Act (1972).

Science teachers Carrie Bashaw from Kaimuki High School, Debbie Jensen from Washington Middle School, Karen Langdon and Katie King from Jarrett Middle School, Nakana Wong from Kula Kaiapuni O Anuenue

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US Army Corps of Engineers ®

The Corps Environment

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Chief lauds environmental accomplishments

Since assuming command in July, I have proudly carried the message of how the men and women of the U.S. Army Corps of Engineers work daily to improve the defense, economic prosperity and the environmental quality of our nation. I'm proud that this publication, *The Corps Environment*, also carries the message of what Corps employees accomplish for the nation in both environmental restoration and sustainable design. It's an excellent resource to learn about the great environmental efforts throughout the command.

You have reason to be proud. Throughout the Corps there are many examples of restoration efforts, many of which you've read on these pages. Today we aren't focused on restoration only, we are also actively incorporating the environment into everything we will do. We have embraced the concept of sustainability - balancing social, economic, mission and environmental considerations.

What that means for us is that we must incorporate environmental considerations early in a study process so we can fully understand and address the environmental implications of our work. Gone are the days when we designed an engineering or economic solution first and afterward considered and mitigated the environmental impacts. Considering the environmental implications at the same time as we design an engineering solution helps us to achieve an appropriate solution more thoroughly and comprehensively.

The Corps' Upper Mississippi River Navigation Study is an example of balancing multiple considerations. Thanks to many people and organizations, we now have a proposal that includes $5.3 billion for the environment and $2.4 billion for navigation improvements.

Sustainability also includes developing solutions that in and of themselves sustain the natural environment. This includes sustainable design and adaptive facilities that can be modified to changed missions and requirements; using natural lighting and recycled materials, and considering how to reuse structures. It's a true life cycle approach.

The Corps has many tools to help us achieve sustainable solutions. We have an Environmental Advisory Board of experts from industry and academia, who advise us on our direction and activities. Also, our internal transformation has positioned us to work together more effectively and efficiently as we find sustainable solutions. Two other important tools are the Civil Works Strategic Plan and our Environmental Operating Principles.

The "Strategic Plan for the Civil Works Program for Fiscal Years 2004-2009" describes our commitment to sustainable watershed development and environmental restoration. I encourage you to read the plan and its five strategic goals so you can help explain the Corps' direction.

The first goal is to "provide sustainable development and integrated management of the nation's water resources." As part of that goal, we are encouraging Congress and the Administration to assist us in taking a more holistic approach to water management.

The second goal is to make right some of our past environmental wrongs. We recognize that there are some environmental impacts to our work, some of which were understood when we made decisions, some of which were not understood. Now, we have an obligation to go back, to the degree we can, and fix the damage.

The plan's other goals include: ensuring that those who rely on us for our authorized Corps missions know that we will stay committed to our traditional project purposes, maintaining our disaster response capability, and maintaining our technical competence.

Our second enabler is our Environmental Operating Principles. They are meant to embed an environmental ethic into us so that it's second nature to automatically and intuitively consider environmental concerns as we make decisions. I view the principles very seriously and think of them as our report card. When I speak to groups that have an environmental interest, I ask them to read the principles and to let me know if and why they think we are not adhering to the principles. I ask that you continue to take these principles seriously, comply with them, and let others know we want them to challenge us if those principles are not reflected in our work.

The Civil Works Strategic Plan and Environmental Operating Principles complement "The Army Strategy for the Environment: Sustain the Mission - Secure the Future." This new strategy is based on sustainability - addressing present and future needs while strengthening community partnerships to improve the Army's ability to organize, equip, train and deploy Soldiers.

The Army's long-term vision applies a community, regional and ecosystem approach to natural resources on installations, and moves from compliance-based environmental programs to a more active approach.

Although the Army and the Corps have good enablers, your actions will determine our success. Our environmental mission is a commitment I take very seriously. In fact, I think about it the same way as I think about safety; it must be embedded in everything we do. From now on, when I visit projects, I will ask about timeliness, cost, quality, safety, to include force protection, and the environment. I'll want to know what environmentally sustainable features are built into the project. For example, are recycled materials being used? How about solar energy? I'll also ask what is being done at the project level that will have a positive impact on the environment.

Thank you for all you have done so far to protect and improve our nation's environment. I look forward to working with you to find the environmentally sustainable solutions that will enhance our nation's quality of life. Keep up the great work.

Lt. Gen. Carl A. Strock
Chief of Engineers

Army announces comprehensive strategy

The Army has a new comprehensive strategy to enable it to meet its mission now and into the future.

The strategy, titled "The Army Strategy for the Environment: Sustain the Mission, Secure the Future," transitions the Army's compliance-based environmental program to a mission-oriented approach based on the principles of sustainability.

The six-point strategy, unveiled on Oct. 19, replaces the Army's current "Environmental Strategy into the 21st Century," published in November 1992.

The new strategy builds on the lessons learned from sustainability pilot programs conducted at several Army installations, such as Fort Bragg, N.C.; Fort Lewis, Wash.; Fort Hood, Texas; Fort Carson, Colo., and Fort Campbell, Ky., and institutionalizes those efforts.

As a result, this strategy will build stronger relationships with local communities in order to find common solutions to environmental issues, while protecting training lands for Soldiers.

Two documents the U.S. Army Corps of Engineers previously adopted, the Environmental Operating Principles and the Strategic Plan for the Civil Works Program of Fiscal Years 2004-2009, complement The Army Strategy for the Environment: Sustain the Mission — Secure the Future.

Environmental sustainability is at the core of the seven Environmental Operating Principles and two of the Civil Works Strategic Plan goals stress the Corps commitment to sustainable watershed development and environmental restoration.

"We have learned over the past decades that simply complying with environmental regulations will not ensure that we will be able to sustain our mission," said Les Brownlee, Acting Secretary of the Army, and Gen. Peter J. Schoomaker, Chief of Staff of the Army, in a joint letter released with the Strategy.

"The United States Army has long recognized that our mission is only accomplished because America entrusts us with its most precious resources – its sons and daughters. It is our obligation to ensure that our Soldiers today – and the Soldiers of the future – have the land, water and air resources they need to train; a healthy environment in which to live; and the support of local communities and the American people, " Brownlee and Schoomaker stated.

The Army began drafting its environmental strategy in November 2003, pulling together personnel across all function areas for input and assistance. The Army Strategy for the Environment: Sustain the Mission, Secure the Future outlines the Army's long-term vision and sustainability goals. The goals are:

•Foster a Sustainability Ethic: Foster an ethic within the Army that takes us beyond environmental compliance to sustainability.

•Strengthen Army Operations: Strengthen Army operational capability by reducing our environmental footprint through more sustainable practices.

•Meet Test, Training, and Mission Requirements: Meet current and future training and 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 innovative technology and the principles of sustainability to meet user needs and anticipate future Army challenges.

"This is a long-term commitment to radically change the way we design, build, buy, transport, and otherwise perform our mission, as we transform our weapons systems, tactics, and installations over the coming decades," said Ray Fatz, Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health. "It requires radical changes in almost all of the core business processes the Army performs today."

From this strategy document, the Army will develop a strategic plan that will contain more specific objectives and initiatives to meet its goals. As it develops its strategic plan, the Army will collaborate with a wide variety of internal and external experts and stakeholders.

"We view this Strategy as an ongoing process where we will build upon the good ideas from within the Army and from our partners and stakeholders outside our fences to help us achieve our goals," said Fatz.

For more information, contact the U.S. Army Public Affairs Office at (703) 697-7591. The document is available on Army Link, a World Wide Web site on the Internet at www.army.mil/publicaffairs. To read "The Army Strategy for the Environment: Sustain the Mission, Secure the Future" in its entirety, visit https://www.asaie.army.mil/Public/ESOH/1ESOH_default.html .

(Army News Service)

Funding available for research, development

The Department of Defense, through the Strategic Environmental Research and Development Program, will be funding environmental research and development in five core thrust areas: cleanup, compliance, conservation, pollution prevention, and unexploded ordnance.

The objective of this effort is to identify, develop, and transition environmental technologies that relate directly to defense mission accomplishment. SERDP intends to fund multiple projects within each core thrust area. Projects will be selected through a competitive selection process.

Pre-proposals for the non-federal sector are due by Jan. 6. Proposals for the federal sector are due by March 10.

The program will also be funding environmental research and development through the SERDP Exploratory Development program.

The SEED program is designed to provide initial funding for high-risk, high payoff projects in all five core thrust areas.

For 2006, SEED is focusing on Compliance and Conservation. All SEED pre-proposals are due by March 10.

Detailed instructions for federal and private sector proposers are available on the SERDP Web site at www.serdp.org/funding/funding.html.

Group documents untold history of Army environmental stewardship

By CANDICE WALTERS
HQ Public Affairs

Many people believe that the Army, and the U.S. Army Corps of Engineers, only began thinking about the environment in 1970 with the advent of Earth Day and the National Environmental Policy Act.

They would be wrong. In fact, the Army's involvement in natural resource conservation, stewardship and in managing the impacts of its missions on the natural environment goes back more than 200 years to the earliest years of the United States. The problem is that most people don't know it.

It's a problem that a small group of Army historians and others with an interest in the environment and history are trying to correct through the U.S. Army Environmental History Project.

For about 18 months, eight to 10 individuals from the Corps Office of History, the U.S. Army Construction and Engineering Research Laboratory, the Army Environmental Center, the Army Environmental Policy Institute and the U.S. Army Center for Health Promotion and Preventive Medicine have been trying to document the "untold stories of Army environmental discovery and stewardship," as stated in a small eight-page brochure on the project.

"We believe that there's a great deal of useful information out there that should be preserved and used for lessons learned," said William Baldwin of the Corps Office of History and one of the project team members.

"The Army has a very complex and rich environmental history, stretching from Lewis and Clark and before to what we're doing today," he said. "It's a fascinating project, and one that is likely to produce significant results.

"The Army has done some good things for the environment as well as some that probably weren't quite as good. We don't know either story as well as we should. We want to document both because we can learn from both.

"Our goal is to support good, solid, objective and scholarly historical research about the Army's environmental efforts, and we'll let the chips fall as they may," Baldwin said. "We're hoping to stimulate interest in historical studies and research on the Army's environmental program. And eventually we would like for it to be Department of Defense wide, not just the Army."

The Army Environmental History Project will sponsor articles and oral histories, gather collections of images and other documents, and make all of it available online at https://eko.usace.army.mil/cop/envhistory/.

Four examples of the types of historic themes the group is addressing in the project include the work done by the Corps of Topographical Engineers in the 1840's, the living

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U.S. Army photo

Soldiers in the U.S. Canal Zone during the 1930s did not have to worry about contracting yellow fever thanks to earlier work by the Army Medical Corps in eradicating it.

Society awards sustainable rivers project

At the 134th Annual Meeting of the American Fisheries Society in Madison, Wis., President Ira Adelman, presented Mike Turner, U.S. Army Corps of Engineers, Louisville District and Dr. Richie Kessler, The Nature Conservancy with the 2004 President's Fishery Conservation Award. Approximately 1,800 scientists and aquatic experts from 30 countries attended the Aug. 22-26 meeting.

The award recognizes accomplishments or activities that advance aquatic resource conservation at the regional, national, or international level. This year's selection committee (the AFS Past Presidents' Advisory Council) chose the Sustainable Rivers Project, which modified water releases from Green River Lake to conserve the rich biodiversity of aquatic life downstream of the dam. The cooperative effort was the first of its kind nationally between The Nature Conservancy and the Army Corps of Engineers.

Beginning in 1999, Richie Kessler, Ph.D., Green River Bioreserve Director, Kentucky Chapter, The Nature Conservancy and Mike Turner, Chief, Environmental Resources, Louisville District, U.S. Army Corps of Engineers jointly led a cooperative effort between the Kentucky Chapter and Louisville District completing environmental studies of the lake and river enabling the local conservation organization and district office to initiate a three year experiment modifying water releases from Green River Lake. This cooperative effort and pilot project was the first of its kind nationally between The Nature Conservancy and the Corps.

U.S. Army photo

Mike Turner, Louisville District, and Richie Kessler, The Nature Conservancy, won the 2004 President's Fishery Conservation Award.

Multiple alternatives and their potential impacts to lake and river aquatic resources were examined between 1999 and 2002. Careful examination was given to each alternative as the Green River is home to 71 mussel species and 151 fish species contributing to its rank as the fourth-most biologically diverse river in the nation. The jointly recommended alternative plan received final Corps approval in June 2002.

This plan improved passage of water through the dam to more closely mimic naturally occurring downstream flows, as would occur without the reservoir, benefiting the spawning and life cycles of many fish and mussel species while retaining full flood control benefits and extending recreational boating and fishing opportunities on the lake later into fall.

What began as a local effort to benefit approximately 100 miles of the Green River led directly to development of a joint national program, the Sustainable Rivers Project, which examined over 600 COE reservoirs identifying 14 candidate sites on 10 rivers across 11 states for immediate study of alternative regulation plans. The announcement of the Sustainable Rivers Project in July 2002, by TNC and COE officials in Washington, D.C., brought both local and national media attention to the Green River.

For more information contact the Louisville District Public Affairs Office at (502) 315-6835.

Abandoned mines work exemplifies virtual teaming

By MONIQUE FARMER
Omaha District

You might say Kim Mulhern's motto is "think virtual."

As Omaha District project manager for the Restoration of Abandoned Mine Sites program, Mulhern said virtual teaming is the best choice, "when you have a bunch of federal and state agencies working together. It avoids duplication, saves tax dollars and ensures everyone at the table gets what they need."

Some may agree the concept is still in its incubation stage as only a handful of Omaha District project managers take advantage of it. However, with PMBP in the oven, P2 on the rise, and USACE 2012 on the table, district employees can expect to see it used more often.

A virtual team is born

In the fall of 2002, Sacramento District requested assistance from Omaha District with RAMS work for the Bureau of Land Management.

"They heard good things about some of the work Omaha District was doing in Montana and wanted to work with us," said Mulhern.

Thus, a virtual team developed. In the midst of leading RAMS work for BLM at two abandoned gold mine sites in Nevada (Golden Butte and Easy Junior), Mulhern accepted a six-month developmental assignment/position swap in Sacramento District.

"Because the person I was swapping jobs with was not a geologist, I retained the RAMS work," said Mulhern. "I knew my workload would be heavy and that I would need help."

With mining expertise in the Corps consolidated between Alaska, Albuquerque, Omaha, Portland, Sacramento, Seattle, Tulsa, and Walla Walla Districts, Mulhern had limited choices. Since she previously developed solid contacts with Albuquerque during earlier RAMS work, she called on them.

"I don't worry about geographic boundaries," said Mulhern. "I just find the right people to do what needs to be done."

Representatives from Albuquerque District agreed to come on board.

Civil Engineer Cecilia Horner of Albuquerque District assisted with technical engineering, wrote scopes of work, established government estimates, reviewed contractor plans and conducted meetings on site with BLM.

"In this day and age, it's invaluable to be able to pull from various technical resources and have a team come together this way," said Horner. "It makes it easier to keep things going and pick up from where someone else left off, when necessary, so we don't lose time."

The benefits

"As an example of some of the fiscal benefits associated with using virtual teaming, management costs with RAMS do not exceed 8 percent of the project," said Sacramento District RAMS Project Manager Mark Cowan. "Also, when we developed the virtual team

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Remote data collection used for mines

By SCOTT ACONE,
New England District
DAN LAWSON and KATE WHITE
Engineer Research and Development Center

The New England District has been supporting the Environmental Protection Agency Region I by providing engineering assistance at the abandoned Elizabeth Mine site in Strafford, Vt., since 1999, and later at the abandoned Ely Mine site in Vershire, Vt. Acid mine drainage, containing elevated metals concentrations and high silt content, results from surface water and ground water interaction with waste materials at these sites.

Both the district and the U.S. Army Engineer Research and Development Center's Cold Regions Research and Engineering Laboratory have been working with EPA to operate and maintain monitoring programs at both the Elizabeth and Ely mines that address the community concerns, define the contamination at the sites, its potential impacts to human health and the environment, and develop appropriate remediation measures.

The Elizabeth Mine is an abandoned copper and copperas mine that was discovered in 1793 and worked intermittently for nearly 150 years until the 1950's.

Historic operations generated about 50 acres of waste rock and tailings materials that were deposited in three primary piles on the site. The largest tailings pile contains waste from ore processing in the 1940s and 1950s, and is more than 30 yards maximum thickness.

Mining activities at Ely Copper Mine included ore extraction, crushing and smelting on-site.

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Mines

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for this, we brought on team members that could do the work when we'd need it done, so we were able to do things faster and cheaper."

"Sometimes it's difficult to quantify all of the benefits of virtual teaming because it's primarily duplication of effort that is avoided," said Mulhern. "Virtual teaming within and outside the Corps saves a lot of time and that results in saving a lot of money."

In addition to time and cost savings, Mulhern said stakeholders working together as part of the team also serves as a benefit.

The ability to find the right person for the job gives us so much more flexibility both internally and externally," said Cowan. "Externally, it allows the customer more say-so in how a project will be worked on."

For instance, with RAMS work in Nevada, Cowan said the Corps allowed BLM to select project managers from a list of resumes. "They were most impressed with the resumes of Deb Kobler and Kim Mulhern, who accepted the invitation to work on the virtual team."

"We always want to meet the goal of satisfying the customer," said Mulhern. "With this project, we wanted to make a good impression on BLM by stepping up to the challenge of providing them with the best possible service, especially with this being our first opportunity to come out here and do something."

"The Corps has been a tremendous help in reclaiming these sites," said Lynn Bjorklund, environmental protection specialist with BLM. "Their expertise in completing contracting and scopes of work in an efficient and timely manner worked unbelievably smooth and easy."

Mulhern specifically handles contracting actions and communication for work at a total of six mine sites in Nevada via virtual teaming with Sacramento District. All are part of RAMS work for BLM.

She attributes smooth interaction between the team to frequent and elaborate communication achieved through email and conference calls. "Once you determine what expertise you need and organize it, the rest is communication," said Mulhern.

She said once everyone is communicating regularly and coming together to solve problems, the process flows naturally.

Pitfalls to avoid

Mulhern warns of the following virtual teaming obstacles.

Obstacle #1: Transferring Money across districts. "It used to be very difficult moving funds around," said Mulhern. "BLM supplied us with funds under a Memorandum of Agreement between Nevada BLM and Sacramento District."

In this particular virtual teaming scenario, Nevada BLM transferred the funds to Sacramento District, and then Sacramento District transferred them to Omaha District.

"The process of how we receive funds into a program can be a little discouraging, but bugs are being worked out and the process is supposed to be more simple once P2 gets better established," said Mulhern.

Obstacle #2: Forming virtual teams. Cowan said the development of a virtual team in the first place can serve as an obstacle. The idea still intimidates some.

"The biggest challenge we've had to tackle with this program is trying to truly implement virtual teaming," said Cowan. "We still find a lot of districts are hesitant to do things outside of the normal stove-pipe that exists."

One way to overcome that obstacle is to carefully select team members who are open to change and not afraid to try something new, he said.

Obstacle #3: Defining roles. "With so many people involved, it's important to state upfront who will handle what," said Mulhern. **"Constant communication is the key."**

What's that? You're interested in virtual teaming?

Mulhern advises more project managers to take advantage of virtual teaming "in order to get all the skills and expertise they need to get a project done."

"The opportunities for virtual teams are where people seek them," Mulhern said. "Most of the information about where a particular expertise lies can be discovered through word of mouth."

Mulhern said project managers interested in exploring the option might consult with branch, separate office or division chiefs to determine who might have a particular skill set. P2 also will make the process easier as it allows project managers to go into the system and fund the people with skill sets they need regardless of geography.

Bjorklund said she's excited about the RAMS program and satisfied with the overall result of working on it via a virtual team. "This program and process are a complete success," said Bjorklund. "It's demonstrated by the amount of work we have accomplished. It's phenomenal. We've had fantastic communication—good ideas and brainstorming, and lots of engineering expertise from the Corps. What we've come up with is a better product with more input and lots of team participation."

For more information contact the Omaha District Public Affairs Off ice at (402) 221-3917.

Cleanup at Monterey Airport proceeds

By DAVID KILLAM and CINDY VINCENT
Sacramento District

When Jerry Vincent assumed control of the environmental clean up of the former Monterey Naval Auxiliary Air Station in 2000, he was facing a myriad of problems. The community in Monterey seemed to be in the dark, and the clean up was proceeding at a snail's pace, which the local media felt was evidence of a cover up.

Vincent is the Program Manager for the Formerly Used Defense Sites Program for the Sacramento District. FUDS is a program which environmentally restores defense sites that were owned, leased or under the control of the Department of Defense before October 1986.

Vincent's first step was to reassess the FUDS effort at Monterey.

"The cleanup had been taking place for seven years," Vincent said. "Work had been done on a piecemeal basis. We needed to get information out to the community and the media. We needed to convince them that we were serious and would follow through to a remedy."

Monterey Naval Auxiliary Air Station was commissioned in 1942 to support, operate and maintain aircraft, as well as train personnel during World War II. In 1949 the Navy terminated its lease of the base with the county. Subsequently, the Naval Postgraduate School leased a portion of the site until 1982, when it was turned over to the Monterey Peninsula Airport District.

Photo by Cindy Vincent

Sacramento District installs a groundwater monitoring system at Monterey Naval Auxiliary Air Station.

In 1991, after the Airport District removed two 50,000 POL (petroleum, oils and lubricants) tanks and cleaned up the soil around and underneath where the tanks had been, the Corps of Engineers installed groundwater wells which produced data showing evidence of a below ground toxic POL plume at the airport. Additional investigations uncovered evidence of a trichloroethylene under the airport, which had spread to the surrounding community. There were also records of five former target ranges, a possible medical waste site and a former firefighting training area at the air station. All of these sites were investigated and no contamination was found from previous DOD activities.

After Vincent assumed control of the project, he and his team launched a massive outreach effort aimed at the public and local media. The team held public meetings to disseminate restoration updates as well as to gather community feedback and concerns on the project. In 2002, the team established a Community Relations Plan, which identified and addressed community fears and laid out a future public relations plan to continue the growing outreach efforts. By using fact sheets, community surveys and media interviews, the team gradually turned negative publicity into positive.

"We also worked hard to gain support from the airport staff and their board of directors," said Vincent. "We established a Technical Review Committee with members of the airport staff and representatives from the City of Monterey, Monterey County Health Department, the California Regional Water Quality Control Board and members of the community."

The work was divided up into four phases: preliminary assessment, site inspection, remedial investigation and currently, the feasibility study. Long term monitoring will determine the effectiveness of the remedy. Investigation also revealed that the Airport District had removed two 50,000-gallon POL tanks and had cleaned up the soil around and underneath where the tanks had been. Sacramento's team also investigated sites for the target ranges, the medical waste and

See Monterey on Page 13

Students adopt stream in Mississippi

By ERNIE LENTZ
Vicksburg District

Photo by Jennifer Smith

Park Ranger Jamie Burge assists students with water sampling.

Environmental Studies students at Magnolia Heights School in Senatobia, Miss., were eager to return to school at the end of the summer break.

As part of the Adopt-A-Stream Program, the group of 10th graders has adopted the section of Senatobia Creek near State Hwy 4, east of Senatobia to monitor and conduct water quality tests and macroinvertebrates sampling for the 2004-2005 school year.

Initiated in October 1998, the Adopt-A-Stream Program began as a three-year project in conjunction with the U.S. Army Corps of Engineers, Arkabutla Lake Field Office, Mississippi State Department of Environmental Quality and the Mississippi Wildlife Federation. Because of the program's success and extreme interest among the student body, the environmental program is now beginning its seventh year.

Since the inception of the program in 1998, 96 students from Magnolia Heights School have participated, resulting in the most successful Adopt-A-Stream school program in the state, according to Charles Cockrell, retired Adopt-A-Stream Coordinator.

On Oct. 1, the Environmental Studies Class, along with ranger personnel from Arkabutla Lake, participated in the 2nd annual World Water Monitoring Day activities at the stream.

Local media coverage included NBC affiliate WMC, Channel 5, Memphis, for the station's local educational segment, "Making The Grade."

Six parameters are tested when the group goes to the stream. The students use the test kit supplied by the Corps staff and test the stream's temperature, pH, alkalinity, turbidity, dissolved oxygen and chloride levels.

The results determine the water quality, which is very important to the aquatic life in the stream as well as Arkabutla Lake.

The students also conduct macro-invertebrates testing by collecting specimens from the bottom of the stream using nets.

The class spends approximately one hour every month conducting the different tests at the stream. Also, while at the stream, the class picks up the litter that has been left by ungrateful visitors.

The goal of this project is not only environmental awareness but also to establish and record water quality data concerning this particular stream. Hopefully, this will encourage some students to choose a career in the numerous job fields that cover the aspect of environmental stewardship.

History

Continued from Page 4

Army medical lab otherwise known as the U.S. Canal Zone, work the Corps of Engineers did in the late 1800's that resulted in the landmark Rivers and Harbors Act of 1899 to protect waterways from dumpers and polluters, and transforming wasteland into a wildlife refuge at Rocky Mountain Arsenal in Colorado.

Right now the group is scouring any and all records it can find, as well as launching an oral history program, talking with some of the early pioneers in the Army's environmental program, such as Dee Walker and retired Col. Tom Magness.

"Our plan is to put the transcripts of these oral histories up on the Web site," Baldwin said. "Oral histories are important supplements to the written material that has already been preserved.

"Actually the oral histories are, in some cases, better than the documentation we have about more recent events. With electronic records and the use of telephones, the written documentation is sometimes not as good as it should be. That's why the oral histories are so important."

As the program grows and expands, Baldwin said the group would like to see enough money come its way so it could sponsor research efforts on selected topics, including projects by graduate students in Army institutions and students in history and environmental studies departments across the nation. A preliminary list of topics of interest is identified on the Web site.

"This is a long-term effort. It's definitely a multi-agency effort within the Army, and we're reaching out more and more to different agencies.

"Each time our group meets, we learn more. There is environmental work going on throughout the Army, and something like this project can provide context and perspective," Baldwin said. "Too often people work in isolation, and it's helpful for them to see the broader perspective. If they look to, and learn from, the past, they may find different dimensions and ways to expand their horizons."

For more information about the Army Environmental History Project, check out the Web site at https://eko.usace.army.mil/cop/envhistory/ or contact the managing editor, Susan I. Enscore at susan.i.enscore@erdc.usace.army.mil.

Volunteers lend Hawaii a helping hand

By SARAH H. COX
Honolulu District

Thousands of volunteers from all over the United States came together in their local areas to take part in National Public Lands Day on Sept. 18.

What started in 1994 as a small event sponsored by three federal agencies has now become one of the largest annual volunteer clean-up efforts in the country with 90,000 participants in 600 different locations.

On Oahu, 300 of these dedicated volunteers met at the Regional Visitor Center to begin cleaning the Ala Wai Canal and Small Boat Harbor, Ala Moana Beach Park, the area around the Hawaii Convention Center and Fort DeRussy Park.

The event, held in conjunction with the Ocean Conservancy's and UH Sea Grant Program's *Get the Drift and Bag It Program,* yielded six tons of unsightly trash and dangerous items such as broken glass, fishing lures and hypodermic needles.

"It was a great day, with the focus on our volunteers. They were the heart and soul of the day, coming together in a coordinated effort for a great cause," said Park Ranger, Iwalani Sato. Sato served as coordinator for the cleanup and worked tirelessly with various civic groups and government organizations to help orchestrate the event.

"It was a true community effort." Sato said. The 300 volunteers were divided into seven teams to clean about 98 miles of coastline from Ala Moana Park to Diamond Head.

Local businesses, government agencies and volunteers worked as a team. The city and county of Honolulu Refuse Department provided the dumpsters; the Harbor Master's Office opened the gates allowing volunteers to scoop out debris; Home Depot provided rakes, buckets and tarps; Hawaii Yacht Club members used small boats to push debris closer to shore; Waikiki Yacht Club members used bigger boats to haul marine debris from the water; Hawaii Department of Transportation provided trash bags and gloves and the Ocean Conservancy provided the data cards used to categorize the debris and the three hundred volunteers provided the manpower.

Afterwards, a pau hana party was held at Magic Island for the Honolulu Police Academy recruits and other volunteers. The Hawaii Hotel and Lodging Association donated the hotel prize package for the random drawing for one lucky volunteer.

Volunteers ended their day at the USACE Regional Visitor Center where they dropped off their data cards, which also served as entries for the prize.

The information on the cards will be entered into the Ocean Conservancy's international database to help identify debris and devise solutions to problems plaguing America's shores.

Photo by Alexander Kufel

"Get the Drift and Bag It" volunteers gather and document trash at the Ala Wai Small Boat Harbor Sept. 18 as part of National Public Lands Day.

National Public Lands Day is managed by the National Environmental Education & Training Foundation chartered by Congress in 1990.

For more information contact the Honolulu District Public Affairs Office at (808) 438-9862.

FedCenter.gov offers one-stop compliance help

By DANA FINNEY
Engineer Research and Development Center

Federal facilities' environmental compliance managers have a new resource to help them deal with the complex business of complying with all of the nation's environmental laws. The web-based FedCenter, or Federal Facilities Environmental Stewardship and Compliance Assistance Center, was launched in October at www.fedcenter.gov.

The Environmental Protection Agency funded the Engineer Research and Development Center to develop FedCenter as a replacement for an existing web resource, FedSite. The Construction Engineering Research Laboratory at ERDC designed the new Web site in coordination with EPA's Office of Environmental Compliance and Assurance and the Office of the Federal Environmental Executive.

"A goal of having the Corps develop the center was to increase participation by those federal managers who may have had a perception that posting lessons learned on the previous site could result in an adverse action," said Stephen Luzzi, CERL's project leader for FedCenter. "The EPA also wanted to take advantage of the Corps' expertise in environmental management systems and in regulatory compliance work with DoD, which is far ahead of most civilian federal agencies in its stewardship."

The center also greatly expands the resources that had been available on FedSite. FedCenter includes information on federal and state regulatory requirements, lessons learned in efforts to reduce pollution, green product guides, notices about workshops, conferences, meetings, and training, best management practices, mailing list subscription services, access to subject matter experts, and much more. FedCenter will become even more comprehensive over the next few months as information continues to be added.

The Web site is being hosted in conjunction with the Centers Platform, an EPA-funded network of compliance assistance centers targeted for the public sector. The developers can maintain the content easily and quickly, ensuring timely posting and relevance of existing information. The EPA will fund FedCenter's maintenance and continued development over the next two to three years, after which it is expected that other federal agency stakeholders will share in the cost, enabling them to participate in the direction and governance of the center. While the Web site is available to the public, it includes a secure data capability to meet certain privacy requirements.

"FedCenter represents a major initiative by EPA to help all federal agencies better comply with the environmental regulations that apply to them," said Luzzi.

For more information contact the Engineer Research and Development Center Public Affairs at (217) 373-6714.

Missouri River Fish and Wildlife Recovery Program

A comprehensive 20-year plan to recover protected fish and birds along more than 2,000 miles of the Missouri River has been put on the table by the Northwestern Division of the U.S. Army Corps of Engineers.

The integrated set of measures proposed by the Corps, called the Missouri River Fish and Wildlife Recovery Program, would be taken over the next 20 years in collaboration with the U.S. Fish and Wildlife Service, Tribes, states and other stakeholders in the basin.

Particular emphasis would be put on recovery of fish and birds listed for protection under the Endangered Species Act and the ecosystem upon which they depend.

The Missouri is the longest river in nation, extending 2,619 miles from the mountains of Montana to its confluence with the Mississippi River north of St. Louis.

Over the past century, much of it has been turned into reservoirs behind six large dams or straightened and armored by the Corps to serve congressionally authorized purposes of flood control, navigation, irrigation, power generation, water supply, water quality, recreation and fish and wildlife, including endangered and threatened species.

The loss of nesting and spawning habitat resulting from the construction of the dams, navigation channel and erosion control structures has been particularly hard on the endangered pallid sturgeon and interior least tern and the threatened piping plover.

More than a million acres of habitat were covered with water or turned into farmland.

The recovery program will include projects from Three Forks, Mont., to the Mississippi as well as a number of tributaries, including the Kansas River.

The basic components include:

- Continuation of the Corps' current efforts to create shallow water habitat for the pallid sturgeon and emergent sandbar habitat for the terns and plovers.
- Enhancing pallid sturgeon propagation efforts in six rearing facilities by upgrading water systems, fish transport units, and holding and rearing capabilities. Successful collection, spawning, rearing and stocking will partially offset the current lack of natural reproduction.
- Improve and modernize the monitoring and evaluation techniques and data collection and communication tools used to monitor the nesting success of the terns and plovers. Sampling efforts for the pallid sturgeon population assessment were started in 2001 and been gradually expanded.
- Tests of river flows to create and condition sandbar habitat.

A wide variety of specific recovery actions will be identified and evaluated in coordination with a recovery implementation committee, which will include broad and diverse stakeholder representation. The committee will recommend particular actions to the federal agen-

See Missouri on Page 16

Data

Continued from Page 6

Copper was produced here intermittently, but from 1854 to 1882 the Ely Mine was one of the largest copper operations in the country, with peak production between 1879 and 1882. In the late 1940s, some Ely Mine waste was transported to Elizabeth Mine for reprocessing.

The Elizabeth and Ely mines were placed on the National Priorities List on June 14, 2001 and Sept. 13, 2001, respectively. Because of their geological similarities, Elizabeth and Ely mines could be expected to share many similarities in their environmental signatures and overall impact.

However, because of differences in ore-processing techniques and the hydrologic setting of the mine workings and waste material, significant differences exist between the sites.

The complexities of remediation and restoration of abandoned mine lands with acid mine drainage require cost effective investigations that are coupled with in situ parameter measurements and monitoring, sometimes in near real-time.

The CRREL has been partnering with New England District to provide such in situ measurements at monitoring sites at both the Elizabeth and Ely abandoned mine sites.

We have employed various types of instrumentation to monitor surface and ground water hydrology, meteorology and water chemistry. We installed a combination of off-the-shelf and innovative, state-of-the-art instrumentation and equipment to support site characterization and near real time monitoring. As is typical of most remote sites, power was not available, so each data collection platform was powered by three solar panels.

At the Elizabeth Mine, acid mine discharge and various water quality parameters are monitored continuously at five remote sites, three near tailings seeps' points of discharge.

Data are stored on Campbell data loggers and periodically transmitted via radios to a cell phone for transmission to a database for rapid graphical display on a password-protected web site.

Because of the rugged terrain, we used radios to transmit from three of the sites, which were tucked deep within valleys to a central site. This central site then transmitted data from the four sites to a single central location at a fifth site.

All data were transmitted from this site via cellular telephone transmission to a computer at CRREL. Data received at the CRREL office were uploaded to an on-line database and immediately made available on a password-protected web site.

In order to characterize variations in drainage sources and metal loading to the local stream during spring runoff at Ely Mine, we used water quality meters to measure water temperature, conductivity and pH in the streams at 20-minute intervals. Depth of flow in the stream was measured with a pressure transducer in a weir every five minutes.

In addition, air temperature and rainfall, were recorded at five-minute intervals. This information was also stored on a Campbell data logger.

To determine the metal content in the runoff, water samples were collected remotely using an automated sampler (ISCO suction sampler).

The sampler was triggered by rainfall events to collect water samples every 15 minutes, thereby allowing us to analyze total metals loading during thunderstorms.

Remediation and restoration of abandoned mine lands require data on runoff and contaminant loading. Many such AML sites are located in areas without power and easy access, but also require some data to be available within a relatively short time.

The project provides an example of the successful application of relatively inexpensive methods of data collection and transmission under such remote conditions, using mostly off-the-shelf, battery-operated devices and data loggers that are accurate and provide near-real time access to data.

Such an application can include early warning of storm and other events of interest.

For more information contact the New England District Public Affairs Office at (978) 318-8264.

Agencies agree on toxicity values for risk assessments

By TERRY L. WALKER and ANITA K. MEYER
Hazardous, Toxic and Radioactive Waste Center of Expertise

Confidence in selection of the appropriate toxicity values for trichloroethylene (TCE) has been low since the United States Environmental Protection Agency withdrew their values from the Integrated Risk Information System (IRIS) database in 1994.

This article will follow recent changes, through an evaluation of USEPA documents and State of Colorado policy, and provide USACE risk assessors with appropriate procedures for conducting human health risk assessments for exposure to TCE.

In August 2001, the National Center for Environmental Assessment (NCEA) of the USEPA released the document *Trichloroethylene Health Risk Assessment: Synthesis and Characterization* for external review. The document evaluated recent studies of TCE toxicology and proposed toxicity values to be used in assessing human health risks, which suggested that TCE was a much more potent carcinogen than was previously thought, especially by exposure through the inhalation pathway.

The HTRW Center of Expertise, along with other Army and Department of Defense scientists, provided review and comment, concluding that the methodology was flawed and thus, risks were overestimated.

To date, the EPA document has not been revised, and the disposition of DoD comments remains uncertain. As is being done with perchlorate, the National Academy of Sciences is conducting a review to help clarify the science.

The Colorado Department of Public Health and Environment has used the proposed EPA values in a draft policy that addressed screening and remediation levels for TCE that may be present in indoor air.

The HTRW CX, Army and other DoD components also provided review and comment on this policy, which were sent to Colorado from DoD.

The DoD cover letter with the attached comments stated "DoD cannot agree with CDPHE's use of the proposed values found in the United States Environmental Protection Agency's 2001 draft risk assessment, especially in light of unresolved scientific, legal, and policy issues related to those values. If the CDPHE decides to adopt a provisional slope factor for indoor air risk assessments (i.e., vapor intrusion), the most appropriate value to use in any rule would be a factor that corresponds to the appropriate exposure pathway - - the slope factor derived from human inhalation studies instead of the factor from drinking water studies in mice.

This is the approach that the California Environmental Protection Agency has employed and that EPA Region 9 has adopted at several sites. We urge CDPHE to consider application of the CalEPA value and approach in any rule-making proceedings until the on-going National Academy of Sciences review is completed and subsequent EPA efforts lead to defensible guidance."

Despite the comments received on the draft policy, the Colorado Department of Public Health and Environment has implemented an interim final policy that uses the EPA draft 2001 toxicity values for TCE. They state in their response to comments that the values in their opinion, meet the criteria for Tier 2 and Tier 3 toxicity values (see below) and also in their opinion represent the best available science.

"Risk assessors... have discussed this issue and reached consensus on how we, as the Army, should proceed."

See www.cdphe.state.co.us/el/hot_topics/TCEandToxicologypolicy.pdf for the Colorado TCE policy. As discussed above, DoD and the Army do not agree with Colorado that the EPA Draft values represent the best available science.

In 2003, the EPA published the memorandum, *Human Health Toxicity Values in Superfund Risk Assessments* (OSWER Directive 9285.7-53, Dec. 5, 2003), which revised the established hierarchy of human health toxicity values. This guidance identifies three tiers of preferred toxicity values:

Tier 1 values are those found in USEPA's IRIS database.

Tier 2 values are the USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs). The PPRTVs are developed by the Office of Research and Development, the National Center for Environmental Assessment, and the Superfund Health Risk Technical Support Center on a chemical-specific basis when requested by the Superfund program.

The PPRTVs were available on the EPA's external web site, but recently have been removed from public access. As the PPRTVs constitute the second tier of approved values, we expect that EPA will somehow provide access to the values for use outside of their agency.

Tier 3, Other Toxicity Values, are additional EPA and non-EPA sources of toxicity information. As stated in the OSWER directive, "priority should be given to those sources of information that are the most current, the basis for which is transparent and publicly available, and which have been peer reviewed." Two common examples of Tier 3 values are the USEPA's Health Effects Assessment Summary Tables and the California EPA Office of Environmental Health Hazard Assessment Toxicity Criteria Database.

Regarding TCE toxicity values, many EPA regions and several states are requesting that risk assessments use the draft 2001 values. This, however, is not in accord with the 2003 OSWER directive regarding human health toxicity values, and is therefore not recommended.

Risk assessors at the USACE HTRW CX and the U.S. Army Center for Health Promotion and Preventive Medicine have discussed this issue and reached consensus on how we, as the Army, should proceed. Conformance with the OSWER directive is advised for risk assessments in the Army IRP, BRAC and FUDS programs, and district risk assessments should utilize the CalEPA toxicity values for TCE.

The CalEPA Toxicity Criteria Database can be accessed at: www.oehha.ca.gov/risk/ChemicalDB/index.asp. If a state or regional regulator insists on utilization of the proposed values, the district risk assessor should contact their HTRW CX risk assessment POC for advice and assistance on how to proceed.

This procedure should remain in effect until the NAS has finished review of the draft reassessment and provides scientifically validated toxicity information.

Emergency application for operating plants

By MARK J. FISHER
Hazardous, Toxic and Radioactive Waste Center of Expertise

There are three major industries covered by OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120/29 CFR 1926.65). They are: 1) cleanup operations on uncontrolled hazardous waste sites; 2) operation of Resource Conservation & Recovery Act of 1976-permitted treatment storage and disposal facilities (TSDFs); and 3) emergency response operations for hazardous substance spills.

What is rarely ever evaluated, but is a critical part of determining when HAZWOPER applies, is "employee exposure to contaminant-related hazards." The HAZWOPER standard applies and is really only beneficial to workers if they are likely to be unacceptably exposed to the contaminants they handle when cleaning up hazardous waste sites, operating TSDFs, or responding to emergencies.

For obvious reasons, HAZWOPER for cleanup of uncontrolled hazardous waste sites is often times applied to groundwater treatment plants (GWTP) operated on hazardous waste sites, but it is often times not necessary because there is very little contaminant-related exposure. Experience has shown that groundwater contaminant levels typical for GWTP operations just do not generate unacceptable occupational exposures to workers. Part per billion (ppb) and even part per million (ppm) contaminant levels in groundwater to be treated are not high enough to generate unacceptable occupational exposure, especially in plants with process equipment that is closed and vented to the outside.

The one area of the HAZWOPER standard that does apply and makes sense to apply to operation of GWTPs is emergency response. Operational accidents that result in a spill or leak of contaminated groundwater or treatment process chemicals are situations where applying the HAZWOPER emergency response requirements is necessary.

So what's the big deal? HAZWOPER this, HAZWOPER that (or not)!! How will this regulatory analysis help the USACE HTRW program or projects?

Employee training and medical qualifications specified under HAZWOPER emergency response are much more relevant to GWTP operators and easier to comply with than HAZWOPER for cleanup operations. Employees do not have to attend 40 hour off-site training and annual refresher training as required for cleanup workers. Training can be taken care of on-site without inconveniencing employee work schedules. Medical surveillance examinations need only occur when an employee exhibits a sign or symptom of contaminant-related exposure when a spill occurs. Benefits to USACE are as follows:

1. Increased bidding competition for GWTP operation contracts. There are many technically qualified water treatment plant operators who do not carry HAZWOPER-for-cleanup-operations qualifications. Eliminating HAZWOPER for cleanup operations and requiring HAZWOPER emergency response only allows more potential operators to compete for the work.

2. Project-focused employee training and decreased training costs. The training will teach employees how to respond to a spill of site-specific contaminated groundwater or treatment process chemicals and will focus on plant operational safety. Emergency response training (initial and refresher) at the awareness and first responder operations levels can be provided on-site during the course of a normal working day eliminating off-site travel and tuition costs.

To help assure that the GWTPs are operated and maintained safely and with minimal chemical exposure, specify the following requirements

1. Use of licensed water treatment plant operators. Require the operator to be licensed to operate water treatment plants in the state where the GWTP is located. Licensed water treatment plant operators have to have water treatment plant safety and occupational health knowledge and experience to pass licensing examinations.

2. Compliance with HAZWOPER emergency response (29 CFR 1910.120 (q)) only. HAZWOPER for cleanup operations and HAZWOPER for treatment storage and disposal facilities are not relevant or beneficial to GWTP operations.

3. Project specific training. Train treatment plant operators to the "First Responder Operations" level defined in 29 CFR 1910.120 (q) so that operators know how to implement the site-specific emergency response plan, and can safely minimize or contain a leak of groundwater from the treatment system or a leak of treatment process chemicals.

4. Industrial hygiene review, operational assessment and hazard mitigation training. Require that the operator hire an industrial hygiene consultant to evaluate and document chemical exposure to operation and maintenance staff, make exposure reduction recommendations (if necessary), and advise on the need for personal protective equipment. Require the industrial hygienist to brief workers on the chemical hazards (if they exist) of operation and maintenance procedures, proper implementation of exposure control equipment, and prescribed personal protective equipment.

5. Emergency response coordination and Emergency Response Plan (ERP) development. Require that the operator coordinate with local emergency responders to define responsibilities for the operator and local responders. Require the operator to document responsibilities in the ERP.

6. Compliance with Occupational Safety and Health Administration's Permit Required Confined Spaces Standard (29 CFR 1910.146) to assure that operators know how to enter and work in confined spaces throughout the plant.

7. Implementation of OSHA's Hazard Communication Standard (29 CFR 1910.1200) to assure proper handling and management and storage of treatment process chemicals.

OSHA's HAZWOPER standard provides meaningful and cost effective protection to workers when it is properly applied. However, proper application and implementation of the standard requires both an evaluation of the work activity and the potential for employees performing the work to be exposed to contaminants. In the case of many GWTPs operated on hazardous sites, the potential for workers to be unacceptably exposed to contaminants (or other chemicals) never really happens until there is a spill or leak of contaminated groundwater or treatment process chemicals. It is for this reasons that districts responsible for operating GWTPs should consider applying and implementing only the emergency response part of the HAZWOPER standard. Employee training requirements focus on the real hazards, are less extensive than what is required for "cleanup operations" and allow for more bidding competition among operating contractors. As a result, workers will get better training and it may be possible to operate the plant for less money.

For more information contact the HTRW Center of Expertise at (402) 697-2587.

Lowry Range tests pilot program

By THOMAS O'HARA
Omaha District

Federal and state legislatures gathered with Corps officials and community representatives to discuss a pilot program to be tested at the Former Lowry Bombing and Gunnery Range, outside Aurora, Colo., near Denver.

A new program, fixed price remediation with insurance (FPRI), is slated to be tested on a military munitions project for the first time in a portion of the Lowry project, Bombing Target #5. While FPRI contracts have been around since 2002, this is the first attempt to apply the contract to a military munitions project. Conceptually, the contractor bids a fixed price to complete the entire project and ensures the bid by finding an insurer to cover unexpected cost overruns.

Congressman Bob Beauprez (R-Colo.) hosted the Oct. 13 meeting, attended by Ray Fatz, deputy assistant secretary of the Army, (environment, safety and occupational health), Col. Jeff Bedey, commander of the U.S. Army Corps of Engineer's Omaha District, as well as state health officials and community representatives.

The Corps has been working at the Lowry Range since the mid-1990s. The range, approx. 100 square miles in size, was used as a bombing range during World War II and a training range for various units through the early 1970s. Various munitions response sites on the range still contain unexploded military munitions and ordnance scrap. The Corps has been working with its state partners in cleaning the range to reduce the potential hazards that remaining military munitions on the range pose to the public.

Once a highly contentious project, the partnership has worked and is on track to complete overall restoration in the next five to eight years.

"I'm delighted that the U.S. Army Corps of Engineers and other related agencies have worked so proactively to provide additional funding and resources to quicken the environmental cleanup at the Lowry bombing range," said Beauprez. "I look forward to continuing to work with these folks to make sure we get the job done."

With funds authorized by the National Defense Act for 2004, a $4.6 million contract was awarded by the Engineering and Support Center, Huntsville to CH2M Hill to complete the Target #5 portion using the FPRI contract vehicle. This is in addition to the already appropriated $8 million for the greater Lowry project. The Omaha District will manage both projects.

CH2M Hill is one of three contractors identified for this program under an indefinite delivery/indefinite quantity multiple award remediation contract (ID/IQ MARC) by the Corps. The others are Tetra Tech FW, Inc., and Weston Solutions. The FPRI model will be used for various environmental programs including: Formerly Used Defense Sites (FUDS), DoD Base Realignment and Closure (BRAC) projects, as well as active military installation projects.

"The attention to this project by the addition of these funds and this program is greatly appreciated by the citizens," said Bonnie Rader, who has served as the local community co-chair for the Lowry Range's Restoration Advisory Board (RAB). The RAB was established in July 1996. "Hopefully it will help the progress gained in the next chapter of the Lowry project."

The Colorado Department of Public Health and Environment has also served on the RAB and provides regulatory oversight on the Corps project.

Jerry Hodgson, project manager for the Corps, presented a brief summary of the pilot project. Bombing Target #5, which will be the focus of the CH2M Hill contract, is approximately 493 acres and falls under a RAB-established priority of 6 (from 12) project-wide. Various practice bombs up to 100 lbs, incendiary bombs, photo flash bombs and other mutation debris have already been found in this area.

"We selected Target #5 for this program since it best fit the expected programmed funding level, and was definable within the greater Lowry project," said Hodgson.

According to the contractor schedule, planning efforts will continue into February 2005 with field operations beginning soon after. Reporting and final closeout for the Target #5 portion is expected to be completed by fall 2006.

For more information on the Lowry Project, visit the Web site at www.flbgr.org or call the Omaha District Public Affairs Office at (402) 221-3918.

Monterey

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firefighting training and found no evidence of contaminants.

Vincent's team conducted a human health risk assessment in the area to determine if pathways of contamination exposure existed. Soil gas was monitored in crawl spaces beneath homes and businesses and groundwater was sampled. Three routes of exposure were discovered: inhalation of contaminated chemicals by office workers at the airport; ingestion of produce irrigated with contaminated groundwater from personal wells; and skin contact and ingestion of contamination by construction workers at the airport. The health risk for all concerned was found to be within the Environmental Protection Agency's standards of acceptable limits.

The team decided to take two different approaches to cleaning up the toxic plumes: For the plume that spread from the airport to nearby Casanova Oak Knoll Park, the team decided on treatment remedy of in situ chemical oxidation. Groundwater would be extracted through granulated activated carbon and released into a tank. Hydrogen peroxide would then be injected into the water and would mix with naturally occurring iron compounds in the water to form hydroxyl radicals, which would then break down the contaminants. The groundwater would be reinjected into the ground. Contaminants would then break down into carbon, water and other non-hazardous compounds.

For clean up of the toxic plume at the airport, the team decided on a technique of in situ biodegradation. In this process, POL-contaminated water is extracted from the POL plume and pumped into a treatment system. Oxygen, potassium and nitrogen are then added to the water. The water is injected into the groundwater, up gradient of the POL plume, where the POL plume serves as food for oxygen, potassium and nitrogen microbes. The microbes then stimulate biodegradation within the TCE plume. Both the TCE and POL contaminates break down in the groundwater. For the final stage, water is then extracted and filtered through activated granulated carbon, mixed with peroxide and then reinjected into the groundwater table down gradient of the TCE plume to create a hydraulic wall to prevent further migration of the TCE plume.

Contractors provided a huge amount of work on this project. The EM Assist was responsible for the engineering and operations of the treatment system. Tetra Tech has been responsible for construction and maintenance of the system.

For more information contac the Sacramento District Public Affairs Officer at (916) 557-5104.

Embry Dam project wins environmental award

By JOAN BURNS
Huntsville Center

Most of the time Michelle Crull designs mitigation for explosions that she hopes never happen or that are necessary to get rid of an explosive hazard.

However, she is a part of a team that won the Coastal America Partnership Award doing the opposite. The explosives were used to produce a positive end result.

Coastal America, a partnership of federal agencies, state and local governments, and private organizations presents the Coastal America Partnership Award each year to recognize significant contributions in the area of environmental protection.

Crull, a systems engineer at the Engineering and Support Center, Huntsville, worked with a team of Army and Air Force engineers on a project to breach the Embry Dam on the Rappahannock River in Fredericksburg, Va.

The demolition of the dam served as a training exercise for Armed Services personnel, and allowed fish to again get upstream to spawn.

"While more traditional demolition techniques could have been used, none of them would have been as quick or economical and this had the added benefit of providing some training for Armed Services personnel," Crull explained.

The Embry Dam project involved the combined effort between active Army and Air Force, National Guard, and civilian personnel from U.S. Army Corps of Engineers' Norfolk District, St. Louis District, and Huntsville Center, along with the U.S. Army Technical Center for Explosives Safety.

The team designed and implemented the breaching of Embry Dam using explosives.

Once sediments were dredged from above the dam, the Army and Air Force used explosives to notch out a 100-foot section of the dam.

"It's always exciting to me to see the culmination of a team's efforts. If I were designing a building, it would be great to see the final structure. In this case, it was a wonderful feeling to see the water rushing through the holes we made in the dam and to hear that no one and no other structures were hurt," said Crull.

The Coastal America Partnership organizations work together to protect, preserve, and restore the nation's coasts.

The partnership includes the departments of Agriculture, Air Force, Army, Commerce, Defense, Energy, Department of Housing and Urban Development, Interior, Navy, State, Transportation, the Environmental Protection Agency, and the Executive Office of the President.

Ala Wai

Continued from Page 1

School brought their students to the event "to learn more about ecosystem restoration, flood reduction, and water quality monitoring that includes data collection and problem-solving."

Scientific experts from the City and County of Honolulu Department of Environmental Services, Hawaii Nature Center, Natural Resources Conservation Service, State of Hawaii Department of Land and Natural Resource Division of Aquatic Resources, State of Hawaii Department of Health, University of Hawaii Department of Oceanography , U.S. Geological Survey and the U.S. Army Corps of Engineers provided the technical and scientific information at the four monitoring sites in the Ala Wai Watershed - the Ala Wai Canal, Manoa Stream, Makiki Stream and Palolo Stream. The three streams flow directly into the canal. Field investigations and sampling began at Manoa Valley District Park.

Preceding the water sampling, participating Federal, State and University of Hawaii representatives told the students why the Ala Wai Watershed and World Water Monitoring Day are important.

Derek Chow, Ala Wai Canal Project Manager for U.S. Army Corps of Engineers, told students their interest and participation in the event provides planners and decision makers with important data used in determining decisions and actions to improve watershed health.

"All of us working together today to monitor water in the Ala Wai Watershed clearly demonstrate our deep concern for the place we live in. As you test the water today, take notice of your surroundings and imagine how our actions result in the items found in the water," said Chow at the Manoa site.

Students participating in the hands-on field investigation collected and measured water samples using both field instruments and educational monitoring kits provided by the Corps of Engineers to determine how the parameters of pH, dissolved oxygen, temperature, turbidity and conductivity relate to each other. At the Manoa Valley District Park, students rotated through various sampling stations manned by the scientific experts on hand who provided information on ecosystem restoration, flood reduction, stream flow measurements, fish identification and ecology, resources assessment, storm water management, landscaping and conservation using native and drought proof plants and the ahupua'a concept.

"During the water sampling and evaluation process my students began to realize that water monitoring was indicative of the overall health of the watershed," said Karen Langdon, a science teacher at Jarrett Middle School. "There was a keen awareness by my students that this monitoring impacts the quality of the watershed and what they do in their backyard affects everyone down to the ocean and beyond."

For the problem-solving component, students and teachers teamed up to devise actions to improve and restore the Ala Wai Watershed. This component links what they study in school to how they live. Data collected by the students will eventually be uploaded into usable global databases on the World Water Monitoring Day website at www.worldwatermonitoringday.org.

Michael Wong, Hydrologic Engineer for the U.S. Army Corps of Engineers, said the students were seriously interested in the hands-on event.

"From the moment the students started doing the water sampling, they were totally involved," Wong said. "They were asking the experts questions and carefully analyzing their water samples. Most of the environmentalists were amazed at the sophistication of their questions and interest in the event."

"There is no better way for students to learn about the environment they live in than by letting them analyze it first-hand," said Minshew. "Today these students were learning and evaluating cutting-edge data that will be used by state and federal environmentalists to evaluate the area where they live. Today, they were the environmentalists."

For more information contact the Honolulu District Public Affairs Office at (808) 438-9862.

District, partners receive Build America Award

By ANN MARIE HARVIE
New England District

The Association of General Contractors honored the New England District, its contractor, Weston Solutions, and the Environmental Protection Agency for their commitment to a cleaner environment when it presented the partners with its "Build America Award" for the Eastland Woolen Mill project in Corinna, Maine.

The award was presented during the Environmental Protection Agency's Redevelopment Conference held at Gillette Stadium in Foxboro, Mass., Aug. 4.

Col. Thomas Koning, District Engineer, accepted the award on behalf of the District team.

"We'd like to thank the Association of General Contractors for recognizing the work done by Weston Solutions as part of the Eastland Woolen Mill cleanup for its unique partnership of federal, state, local and private entities to both remediate a contaminated site and present some viable redevelopment opportunities to the community," he said.

The Eastland Woolen Mill Site is in the center of Corinna Village. It is a 25-acre abandoned wool manufacturing facility that operated from 1912 to 1996.

The East Branch of the Sebasticook River flowed directly under a portion of the former 175,000-square-foot mill complex. Soil, river sediments, and groundwater in the area were contaminated with chlorobenzenes, which is a class of compounds historically used in the wool dyeing process.

"In September 1998, the Corps was approached by the EPA to provide technical assistance in the characterization of the site," said Koning. "By developing stakeholder relationships early in the process of documenting contamination at this site, the project team was able to move into remediation of the contaminated soils by November of 1999."

Since then the project team has completed investigations of soil, sediment, and groundwater as a part of a remedial investigation and feasibility study that was completed in 2004. In addition, the project team excavated 75,000 cubic yards of contaminated soil, relocated and restored a mile reach of the river, relocated a half mile stretch of state Route 7, and removed several residential and commercial structures to facilitate remediation.

"The Corps and Weston Solutions used this forward-looking approach to layout and sequence the project to result in completion of the work about a year ahead of schedule," said Koning.

According to the District Engineer, as a result EPA is now able to turn over a remediated site to a ready developer.

"This development is hopefully the first step toward revitalization of the community," he said.

Robert Varney, EPA Region I, and Buzz Grogan, Weston Solutions also received the award on behalf of their respective agencies.

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

Group authors series of technical documents

The Army Biological Technical Assistance Group (BTAG) is authoring a series of technical documents to be used as guidance for those involved in scoping, planning and conducting ecological risk assessments at Installation Restoration Program, Base Realignment and Closure and Formerly Used Defense Sites, where work is performed to comply with the Comprehensive Environmental Response, Compensation, and Liability Act or the Resource Conservation & Recovery Act.

The BTAG is a technical work group that provides the Department of the Army environmental restoration program managers with technical information, guidance, and recommendations pertaining to ecological risk assessment issues at Army sites. The Army BTAG is sponsored and coordinated by the U.S. Army Environmental Center in its role as the Army's Installation Restoration Program Manager, and staffed with experts in the biological sciences, ecological risk assessment, natural resources, and toxicology with proficiency in field sampling, site evaluation and risk analysis techniques.

Five Army organizations comprise the BTAG: USAEC, Army Center for Health Promotion and Preventive Medicine, U.S. Army Corps of Engineers Hazardous, Toxic and Radioactive Waste Center of Expertise, USACE Engineer Research and Development Center, and Army Edgewood Chemical Biological Center.

Two technical documents have been published to date, and are available on the AEC web site at http://aec.army.mil/usaec/cleanup/btag00.html.

Selection of Assessment and Measurement Endpoints for Ecological Risk Assessments provides general recommendations and logic for selecting appropriate assessment and measurement endpoints for ERAs at military installations.

Technical Document for Ecological Risk Assessment: Planning for Data Collection is a condensed version of the USACE Technical Project Planning process (EM 200-1-2), focusing on its application to ERAs conducted in accordance with EPA Superfund Guidance. The TPP Process will ensure that appropriate data for screening-level and baseline risk assessment is collected, and that the ERA will be useful as a site decision-making tool.

The following documents are under development and final technical review, and will be available soon:

"A Guide to Screening-Level Ecological Risk Assessment" presents an overview as to how to prepare a SLERA in a manner that is both understandable to the Army RPM and useful for facilitating risk communication between the Army, the regulatory community, and the public.

"Technical Document for Ecological Risk Assessment: Management Goals" provides guidance to RPMs and risk assessors for developing management goals for ERAs based on social and political considerations as well as site information. These management goals are the cornerstone of subsequent phases of the risk assessment.

"Technical Document for Ecological Risk Assessments: Installation-Wide Ecological Risk Assessments" addresses criteria for deciding when and why an installation-wide ecological risk assessment (IWERA) may be appropriate and how it may be conducted.

Other BTAG technical documents are in the development stage addressing such topics as evaluation of spatial issues, dealing with background, and selection of reference areas in ecological risk assessments.

For more information contact the HTRW CX at (402) 697.2583.

Missouri

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cies for funding and implementation.

This ecosystem restoration program provides an exciting opportunity to not only protect, but also recover three endangered and threatened species as well as many native fish and birds not listed for protection.

The anticipated outcomes are:

- Accelerated construction of critical habitat for the listed species,
- Recovery efforts aided by the acquisition of state-of-the-art scientific information,
- Continued service to congressionally authorized purposes, and
- Providing a voice for basin stakeholders in future decisions through the recovery implementation committee.

To date, the Corps has implemented a number of projects that have restored more than 2,000 acres of shallow water habitat below the dams.

The ultimate goal is 20,000 acres along the full length of the river.

These efforts include reconnecting side chutes, increasing top width, notching control dikes and dredging backwater areas.

In addition, the Corps has restored flood plain wetlands, conserved and restored flood plain forests, and re-established native prairies on more than 40,000 acres of public land.

U.S. Army photo

Notching control dikes along the Missouri River is one of the ways the Northwestern Division is working to develop new shallow water habitat for the endangered pallid sturgeon as well as other native river fish. More than 500 dikes were notched in May and June 2004 to help create more than 1,200 acres of fish habitat. In addition, old chutes and oxbows were dredged to reintroduce flows which were cutoff when the river was channelized.

In coordination with the National Park Service last fall, the corps also built more than 110 acres of nesting habitat along the Missouri National Recreational River from Gavins Point Dam, near Yankton, S.D., to Ponca State Park in northeast Nebraska.

Sand was dredged from the river bed at two locations to build islands, which was then contoured to provide the type of barren sand the birds prefer for nesting.

For more information contact the Northwest Division Public Affairs Office at (402) 697-2552.

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