



US Army Corps  
of Engineers®

# The Corps Environment

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## Alaska District team wins Army environmental award

Edited by PATRICIA RICHARDSON  
*Alaska District*

A project team from the U.S. Army Corps of Engineers Alaska District has been awarded the Army's highest honor for environmental stewardship for the cleanup and restoration of an abandoned World War II defense outpost on a remote Alaskan island.

On Jan. 22, the Department of the Army announced the team's selection of the Secretary of the Army Environmental Award for Cultural Resources Management for 2002.

Fort Tidball, a remote outpost on Long Island (about six miles east of Kodiak Island) that is accessible only by helicopter or private boat, is a pristine and historical landscape. Decommissioned in 1945, the fort is now eligible for listing on the National Register of Historic Places.

To maintain the beauty and integrity of this valuable site, a team of cultural resource and environmental restoration experts from the Alaska District and contractor Jacobs Engineering took on the job of mitigating safety hazards in buildings and cleaning up hazardous waste left behind by military operations. The project also preserves the ecological and historical significance of the island, which has a Steller sea lion haul-out and eagle nesting habitat, as well as archeological sites from Russian settlements and the prehistoric period.

The cleanup and restoration project will result in closure of 42 contaminated sites on the island, including removal of dangerous wood frame structures containing asbestos; soil contaminated with fuel and Polychlorinated Biphenyls (PCBs), mixtures of synthetic organic chemicals once used in many industrial and commercial applications such as electrical transformers and rubber products; and physical safety hazards from bunkers, open underground utilidors (underground vaults that contain steam, phone, and electric lines, etc.), vaults and screw pickets strung with barbed wire.

Structures at the site included mess halls, generator buildings, a headquarters complex, concealed planning and plotting buildings, Quonset huts, wooden and steel observation towers and concrete searchlight maintenance bunkers (concrete bunkers for storage and maintenance of searchlights). A key element of the work at Fort Tidball was close cooperation between the Army and Leisnoi and Koniag Alaska Native corporations (landowners), the local community, Alaska Department of Environmental Conservation, Alaska Department of Natural Resources and the Alaska State Historic Preservation Officer.

Fort Tidball is one of 130 sites in Alaska being restored under the Formerly Used Defense Sites program. The program is expected to continue through 2032 with \$670 million worth of cleanup work yet to be completed in Alaska.

A panel of non-military and Army experts, including representatives from the Office of the Deputy Assistant Secretary of the Army and the National Advisory Council on Historic Preservation judged competitors for the Cultural Resources Management award.

"The project team has clearly demonstrated that they have an award-winning cultural resources program," said judging panel member Toni Patton-Williams, program manager for Natural and Cultural Resources, Office of the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health. "The fact that this team works closely with stakeholders and continues to build strong community relations is a win-win situation that will have far-reaching advantages."

The Alaska District project team is one of eight 2002 Secretary of the Army Environmental Award winners. The winners will go on to the Department of Defense's Environmental Awards competition.

*For more information, contact the Alaska District Public Affairs office at 907-753-2522.*

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*The Corps*  
**Environment**

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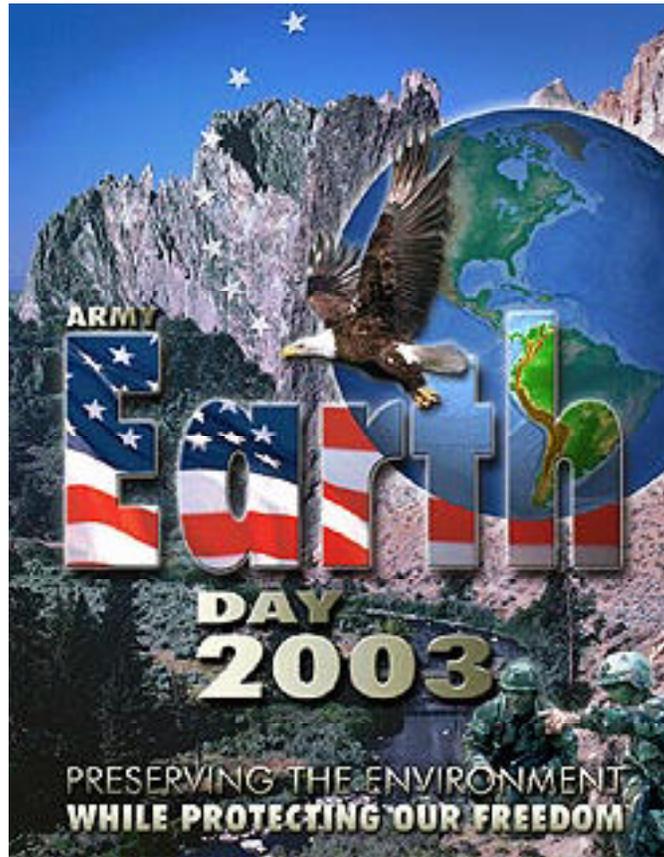
**Submissions**

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# Earth Day

April 22, 2003

Earth Day is an international event demonstrating concern and mobilizing support for the environment. Although Earth Day is April 22, and many celebrations are scheduled on or near that date, it is important to remember that environmental responsibility is more than a one-day event. Army Earth Day exemplifies a daily commitment to the stewardship of the public resources entrusted to military care.

*For more information about Earth Day see the Army Environmental Center's web site at [www.aec.army.mil/usaec/publicaffairs/earthday00.html](http://www.aec.army.mil/usaec/publicaffairs/earthday00.html).*

## Corps issues guidance for cleaning indoor firing ranges

By **ROD DOLTON**  
*Omaha District*

The U.S. Army Corps of Engineers has prepared interim guidance for cleaning lead hazards at indoor firing ranges (IFRs). The guidance meets a need that has existed for years, as Installation Commanders have converted indoor firing ranges to other uses. Corps Headquarters, Directorate of Military Programs, Environmental Division, issued the guidance on April 10, 2002, in the form of a memorandum for Corps Commanders titled "Interim Guidance for Lead Cleanups at Indoor Firing Ranges." The memorandum contains IFR lead hazard cleanup criteria and related procedures. It reflects the clearance criteria of 200 micrograms of lead/square foot of surface area for all surfaces, which was determined by consensus of DoD firing range experts and industrial hygienists.

The Corps interim guidance supplements a U.S. Army National Guard publication addressing the operation of indoor firing ranges: NGB-AVS-SG, All States (Log Number P01-0075) Army National Guard Safety and Occupational Health Program – Policy and Responsibilities for inspections, evaluations, and operation of Army National Guard indoor firing ranges; Addendum – Guidelines for IFR Rehabilitation, Conversion and Cleaning, December 5, 2001. The guidance is intended to remain in effect until the U.S. Army's Center for Health Promotion and Preventive Medicine completes Technical Guide (TG) 206, "Indoor Firing Ranges."

*Technical assistance regarding Corps Indoor Firing Range cleanup guidance is available from the Corps Headquarters Safety and Occupational Health Office at 202-761-8566, or the Corps HTRW Center of Expertise at 402-697-2586.*

# Multi-agency effort ensures safety of endangered birds

By JOANNE CASTAGNA  
New York District

Several species of endangered shore birds are receiving a new habitat on the Long Island Intracoastal Waterway, thanks to New York District's Long Island Intracoastal Waterway Dredging Project.

The multi-agency project, begun in September, brings together a team of people from the Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Coast Guard, New York State Department of Environmental Conservation (Region 1), New York State Department of State, National Park Service (Fire Island National Seashore), and the town of Brookhaven, N.Y.

The goal is to find opportunities to enhance the environment by beneficially using dredged material the Corps is removing from the Long Island Intracoastal Waterway. Built in the 1930's and 1940's, maintenance dredging is done every eight years to keep the 33.6-mile waterway open for boats traveling along the Atlantic Intracoastal Waterway. The dredged material normally is placed on the mainland and on ocean barrier islands.

"We used to wait until there was a lot of shoaling, or sand buildup, in the channel before we dredged," said John Tavolaro, Chief of Operations Support Branch, New York District. In the last few years, however, this was no longer an option because of a growing Long Island population and homes being built on these upland sites.

"Homes and marinas are built on many of the areas where we use to deposit sand," said Tavolaro. "We looked at what other districts along the Atlantic Intracoastal Waterway were doing with their dredged sand." Baltimore District and Mobile District are successfully using their dredged material for beneficial uses including creating "artificial islands," wildlife habitats, marshes and oyster beds. Other districts, including Norfolk and Galveston, are dredging "bite size pieces" of their Intracoastal Waterway every year instead of dredging larger areas every few years. The New York District's plan was to combine both concepts.

"By doing what these other districts are doing - dredging more frequently in smaller areas — we will only need a few smaller places to dispose the material each time," said Tavolaro. "Instead of dredging 200,000 cubic yards and 25 miles of channel, we will dredge only 80,000 cubic yards in one segment of the bay."

The multi-agency team decided to place the sand being dredged on East Inlet Island, a 30-acre island one-half mile off the mainland near the town of Moriches, to enhance habitat for several endangered shore bird species, including Least Terns, common terns, piping plovers, and roseate terns.

In recent years, these bird populations have dropped due in part to increasing human development and recreation on or near the coast where they migrate in the springtime to colonize, nest and breed.

"Placing the dredged sand on an island is better for the birds than dumping the sand on the mainland," said Tavolaro. "Placing the sand on an island that is relatively untouched by people and predators gives the new habitat a chance to survive and thrive. An island is more protected than a mainland area. Just a few feet of water is a deterrent to many predators."

Innerspace Services, a Maine contractor, conducted all of the dredging from mid-October 2002 to mid-January 2003, when the birds fly south for the winter, a period outside the region's winter flounder spawning season, and a time of low public recreational activity.

Innerspace Services dredged approximately 5 miles of the Moriches Bay - 1300 cubic yards of sand a day - to an authorized depth of 6 feet below mean low water. "The sand was pumped into a diked disposal area and then regraded to achieve the proper slope and texture preferred by nesting birds," said Jodi McDonald, project manager.

"To help encourage the birds to nest on the island, we made the habitat more friendly by de-vegetating the island and building nest boxes to replicate the habitat needs of these threatened and endangered shorebirds," said Steve Mars, supervisor of the Long Island Field Office of the U.S. Fish and Wildlife Service. "In addition, we placed string fencing and interpretive signage reminding the public that the area is restricted from human use. To ensure project success we also developed a predator control program, in the event land predators, such as foxes, feral cats or

raccoons, are identified on the site. The area will be maintained and monitored by biologists from the U.S. Fish and Wildlife Service, the Town of Brookhaven (the island's owner) and the New York State Department of Environmental Conservation."

"The agencies combined their goals and desires and came up with something innovative where everyone won," said Tavolaro. "The U.S. Coast Guard received a cleared bay channel so they could more effectively perform their search and rescue operations; the State of New York received environmental enhancement of a degraded upland area and preserved an island, many of which are disappearing in the region; the U.S. Fish and Wildlife Service got a net environmental benefit for endangered species they are responsible to manage, and the Corps fulfilled its navigation mission while making an effort to benefit the environment, at no additional cost to the taxpayers."

The \$1 million project was funded entirely by the federal government. Tavolaro said he expects that the success of this project will be a catalyst for future similar work on the Long Island Intracoastal Waterway. "The stakeholders are very much in favor of this type of work. The town of Brookhaven and the U.S. Fish and Wildlife Service are even suggesting other islands to us," he said.

For more information, contact the New York District Public Affairs Office at 212-264-1230.

Photo by U.S. Fish and Wildlife Service.



The Least Tern (*S.a. antillarum*), looks like a small gull with long, pointed wings and forked tail.

# Corps honors Districts for sustainability work

By CANDICE WALTERS  
HQ USACE

Jacksonville, Buffalo, Detroit and Chicago Districts are the first U.S. Army Corps of Engineers district recipients of the Lt. Gen. Frederick J. Clarke Award for Leadership in Environmental Sustainability.

Chief of Engineers Lt. Gen. Robert B. Flowers presented Col. James G. May, Jacksonville District Engineer, with the first district award Jan. 24, as part of the Corps District Commanders' Workshop. The district engineers from Buffalo, Detroit and Chicago received their awards later.

The award, created in August, recognizes those districts that are integrating the Corps' Environmental Operating Principles into all their projects and making them part of their daily business plans. The submissions required each field office to prepare a program management plan describing how the principles were to be integrated into the district's activities. The principles, unveiled in March 2002, identified seven specific items that are to be considered by Corps employees as they strive to achieve environmental sustainability — the first principle — in all their projects and activities.

The three Great Lakes and Ohio River Division districts combined their efforts to develop a regional approach to implementing the Environmental Operating Principles. Their unique submission earned them recognition for demonstrating an innovative approach in terms of partnership and synergy at work.

Little Rock District earned honorable mention honors. Jacksonville's submission earned top honors for "clearly stating its vision, and submitting an action plan that contained clear goals and objectives in how to implement the seven Environmental Operating Principles."

Colonel May said he is gratified to see his district's hard work during the past 10 years formally recognized, noting that Jacksonville District "has been living the principles before they

were principles. Our [environmental] restoration budget is 40 percent of our district's total budget.

"Our challenge now is to ensure that the principles are incorporated into our more traditional missions of navigation and flood control," he said.

The three Great Lakes and Ohio River districts agreed that in the environmental sustainability arena the resources of the Great Lakes present them with their biggest opportunities and challenges. The program management plan the districts developed identifies specific tasks to be accomplished throughout the Great Lakes Basin using existing authorities such as the Great Lakes Fishery and Ecosystem Restoration

Program, the John Glenn Great Lakes Basin Program, the Strategic Great Lakes Navigation Systems Study and the Western Lake Erie Basin Study. Since all three districts deal with the same stakeholders, similar resources and similar projects including ones that cover the entire basin, joining forces offers them the opportunity to take a synergistic approach.

The annual award is named for the 42<sup>nd</sup> Chief of Engineers, Lieuten-

ant General Clarke, who passed away in 2002. Lieutenant General Flowers noted that Clarke led the Corps during a difficult time when the agency was under severe criticism for lacking any conservation or ecological standards. It was also the era of the passage of the National Environmental Policy Act and numerous other environmental statutes. During this era, Lieutenant General Clarke established the Corps' Environmental Advisory Board as a way to "contribute to an enhanced mutual understanding and confidence between the Corps and both the general public and the conservation community." In presenting the award, Lieutenant General Flowers noted that Lieutenant General Clarke's leadership helped bring the Corps into the forefront of environmental stewardship.

A similar division sustainability award will be presented at a future division commanders' meeting.



Jacksonville District members receive the Lt. Gen. Frederick J. Clarke Award. (From Left) Team members include: Joseph Tavares, Loren Mason, Liz Manners, COL. Greg May, Brooks Moore, Elmar Kurzbach, Marie Burns, Ken Dugger, Cindy Foley, (not pictured): John Hess David Tipple, Jon Lane and Cem Goral.

# Corps-wide project restores abandoned mine sites

By MIKE KLOSTERMAN  
CECW-E

When the President's Council on Environmental Quality requested the U.S. Army Corps of Engineers join its Task Force on mine restoration for Tar Creek, Okla., it signaled that the Corps had arrived as a major player. The Tar Creek Plan is a watershed-wide, multipurpose project to restore the environment of mine-scarred Northeastern Oklahoma. This proposal by Governor Frank Keating of Oklahoma envisions the Corps playing a lead role. The Task Force reported that the Tar Creek Plan "presents a visionary approach to a final solution for this incredibly large and complex site."

The application of abandoned mine remediation to achieve environmental restoration has been growing throughout the Corps of Engineers. There are now 95 ongoing projects in 20 districts and one lab for abandoned mine land restoration. The Mineral Policy Center in Washington, D.C. estimates that there are approximately one half million abandoned mine sites in the U.S. The General Accounting Office estimates the cost of restoring these sites at \$70 billion.

Three Western Divisions - Northwest, South Pacific, and Pacific Ocean - have formed a regional team to focus on this significant national environmental problem. This team is committed to stakeholder needs and has strong stakeholder support. Numerous other districts throughout the Corps are also actively pursuing this type of environmental work. These projects draw on traditional Corps expertise in hazardous waste remediation and ecosystem restoration.

Federal and state agencies, including the Bureau of Land Management, U.S. Forest Service, Environmental Protection Agency, U.S. Geological Survey, and Office of Surface Mining, have asked the Corps of Engineers to provide planning,

engineering, and construction expertise in abandoned mine restoration. These agencies want to leverage their limited budgets and engineering expertise with the Corps because of the broad scope of this work.

The Corps can partner with non-government organizations (NGOs) to restore abandoned mines on non-federal land. Mine-related problems don't



**Restored mine waste pile in Colorado.**

respect institutional boundaries, but Federal Land Managers are limited in the use of their funds. They can't clean up major sources of pollution that are on adjacent private land even if it impacts their properties. Federal and State agencies also favor a watershed approach that plays to the Corps' strength in water resource development. The success of Corps efforts in restoring the environment of abandoned mines has led to praise and recognition from stakeholders and environmental organizations.

The tools available to the Corps include the General Investigations Program, the Continuing Authorities Program (Section 206, and 1135), Planning Assistance to States (Section 22), Support for Others (reimbursable work), as well as the Abandoned and Inactive Noncoal Mine Restoration Program (Sec 560). The Corps, in

partnership with academia and the private sector, is also developing technical design guidance on mine restoration techniques and processes, as well as a Corps-wide data base of effectively applied mine restoration technologies.

The types of problems encountered in mine restoration include re-establishment of ground and surface water quality, hazardous material remediation, erosion/stream sediment control, ecosystem restoration, flood control, safety hazard remediation and beneficial use of dredged material.

In Pennsylvania, the Pittsburgh District's \$9 million Dent's Run project will use a series of interconnected, vertical-flow wetlands to remove metals and reduce acidity to restore 4.5 miles of stream severely impacted by mine drainage.

At Clear Creek, Colo., the Omaha District will perform a variety of activities to assist in the remediation of 40 mine waste

piles containing highly acid forming materials and high levels of leachable zinc, copper, manganese, and iron.

In the Animas Watershed of Colorado, the Sacramento and Albuquerque districts are assisting the U.S. Geological Survey in the collection of surface water quality samples, development and monitoring of groundwater wells, tracer and geophysical investigations, and remedial feasibility analysis.

The Huntington District has inventoried hundreds of abandoned mine sites for the Forest Service in the Wayne and Monongahela National Forests. The Corps' involvement in abandoned mine restoration problems is a tremendous opportunity and a great challenge for the Corps' technical and management capabilities.

*For more information about abandoned mine restoration, contact CECW-E at 202-761-5887.*

# Electricity used to remove contaminants

By VERDELLE LAMBERT  
*Savannah District*

Ten years ago it would have been impossible to remove contaminants from an area between an active runway and a taxiway without significantly impacting the use of both. Last April, the Savannah District of the Corps of Engineers and a team from Fort Stewart, Ga., used an innovative technology called Six-Phase Heating™ (SPH) to remove petroleum contaminants from the soil and groundwater on a project site that lay between the runway and one of the taxiways at Hunter Army Airfield without interrupting the use of either.

From about 1953 to the early 1970's, the project site was an aviation gas fuel island that consisted of ten 25,000-gallon underground storage tanks (USTs). Prior to the Savannah District removing eight of the USTs in 1995, the pump house had been inactive for almost 20 years. It's not known how long the site has been contaminated and whether the contamination came from spills, pipeline leaks, or both.

"Under the state's underground storage-tank program, installations are obligated to clean up these sites," said Ana Vergara, Savannah District project manager. "But remediation projects are not like construction projects, with a construction start date and a completion date one or two years later. This type of project takes years, and you go through several phases: from investigation to planning, to recommendation (where the methodology is decided), to remedial action, which is the final phase. The length of remediation projects also depends on whether funding is available or not."

The investigation phase identified benzene and indeno (1,2,3-cd) pyrene in the soil and BTEX (benzene, toluene, ethylbenzene, and xylenes) as well as PAH (polyaromatic hydrocarbons) in the groundwater. The findings indicated nearly 1,236 gallons of free product were floating on the groundwater table at the project site, which covers about four acres. The Corrective Action Plan, developed under the recommendation phase, evaluated several clean-up methods and recommended SPH. The state regulators, Georgia Environmental Protection Division, concurred with the recommendation.

"This particular technology was recommended because of the site," said Vergara. "Removing the soil would have been difficult, with trucks having to go back and forth across the taxiway and runway.

"What is unique about this system," she continued, "is that it addresses dissolved as well as free product contamination, and

soil as well as groundwater contamination all at the same time. Most of the other technologies out there cannot do this." While more costly initially, there is significant payback with SPH, according to Vergara, because cleanup can be accomplished in a much shorter period compared to passive methods like oxygen injection, bacterial injection, or natural attenuation, which can take years.

SPH uses low-frequency electricity "in situ" to heat soil and groundwater. Six electrodes are arranged in a circle, with a seventh electrode (which is also a soil vapor extraction well) in the center.

Electricity is applied to the six electrodes, heating the groundwater and soil up to the boiling point of water. The steam strips volatile and semi-volatile contaminants from soil particles.

"The steam is drawn out of the center electrode," explained Wes Smith, Savannah District geologist and technical manager for the project. "The steam condenses, is passed through an oil-water separator to remove any free product, and then goes into a holding tank; from there it is pumped through an air stripper to remove any volatile contaminants. Finally, the cleaned water is re-injected into the ground."

"We did a chemical analysis of the vapors coming out," said Smith. "We also collected groundwater samples from a series of groundwater wells and analyzed them. After two months of operation, it appeared that all free product was removed and the groundwater on the site was clean, but we continued the remedial action another couple of months just to be sure."

The power control unit, which was housed in a fenced off trailer on-site, was in operation 24 hours a day for four months starting April 5, 2002, sending 13,800 volts into the ground. "We ended up with about 400 gallons of free product (liquid gasoline), which we disposed of as a waste material at a permitted facility," said Smith. "Any remaining contamination in the groundwater was volatilized out in the air stripper." Vergara said the team was going back in February to take more samples and see how the system worked.

The new technology was developed by the Department of Energy, who owns the power unit and lent it to the district for this project. The prime contractor, Science Applications International Corporation, Oakridge, Tenn., subcontracted with Current Environmental Solutions (CES) to design and operate the system.

"It's my understanding," said Vergara, "that only two contractors in the nation know how to implement this technology, and CES is one of them." Installing the wells, getting the electrical supply in place, putting up the system and running it for four months cost about \$900,000, according to Vergara.

For more information contact the Savannah District Public Affairs Office at 912-652-5758.



Wes Smith, technical manager for the remediation project at Hunter AAF, views the Six-Phase Heating system.

# *New England District and five area cities study Merrimack River flow patterns using dye tracers*

By **TIMOTHY DUGAN**  
*New England District*

The U.S. Army Corps of Engineers and five communities along the Merrimack River are conducting a comprehensive watershed study of the Merrimack River.

The community coalition includes the cities of Manchester, N.H., Nashua, N.H., Lowell, Mass., Haverhill, Mass., and the Greater Lawrence Sanitary District, Mass. The Merrimack River Watershed Council has joined the effort to provide outreach support. The study is being undertaken in



**Normandeau Associates performs a line injection across the middle of the river under the Hunt Bridge (below the Concord River) in Lowell, Mass.**

consultation with regional, state and federal agencies, and interested citizen groups.

Phase I of the comprehensive study has three major objectives: (1) characterize the relative contributions of pollutants into the river from urban and non-urban sources; (2) quantify the impact of these pollutants in the river with respect to water supply, recreation, aquatic habitat, and hydropower production; (3) identify a management plan for the watershed aimed at attaining and improving all of the designated uses.

“The study will focus primarily on bacteria in the water, nutrients that can cause undesirable biological growth that depletes the water of its oxygen supply, and metals that can enter the food chain,” said Study Manager Barbara Blumeris, of the U.S. Army Corps of Engineers, New England District. In addition to measuring the pollutant loads into the river, one of the most important aspects of the study is the measurement of transport times of pollutants in the river.

“Once pollution enters the river, it is important to understand how far its impairing effects will reach downstream before the pollutant decays naturally, is adequately dispersed or assimilated,

or settles into the sediment,” Blumeris said. “Since these phenomena are time-dependent, it is useful to know how long it takes water to flow from upstream locations to downstream locations.”

To understand and be able to predict how far certain pollutants will travel downstream, two time-of-travel studies will be performed. The two studies will include scientific measurements of the time it takes for water to flow from an upstream location to a designated downstream location at a selected flow.

“The method used most often for this type of study involves the introduction of non-toxic dye tracers into the river at the upstream location, and the measurements of subsequent dye concentrations downstream,” Blumeris said. An additional benefit of this method is that the dispersive characteristics of the river will become apparent, since the downstream measurements will identify how widely dispersed the dye has become over the distance of the study area.

The first of the two study areas will be from the Massachusetts – New Hampshire state line to Tewksbury (about 13 miles). The second study area will be from Lowell to Lawrence (about 9 miles). These areas correspond with areas selected for study by the United States Geological Survey, which is planning to repeat at least one of the two tests in 2003 at a different flow rate to help expand the database of information on the Merrimack River.

The dye concentrations used for these tests are very low and harmless and at these very low concentrations, the dye (Rhodamine WT dye) cannot be seen with the naked eye downstream of the discharge

point.

The Corps is working to analyze the data from the fall 2002 dye tests on the Merrimack River. Preliminary results of the time-of-travel estimates are similar to results from a 1966 study done by the Department of Interior. More testing will be done in the spring. The data will be used to set up a hydraulic computer model of the river in the fall.

The Corps has hired CDM, a Cambridge-based environmental consulting firm, as its prime contractor for the Merrimack Study. Normandeau Associates, a subconsultant based in Bedford, N.H., will conduct the tests with cooperative assistance from the USGS and several of the communities within the study areas.

The study is being conducted under the authority of the General Investigations Program, Section 729 of the Water Resources and Development Act (WRDA) of 1986 “Study of Water Resources Needs of River Basins and Regions” (and as amended by WRDA 2000).

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

# Local students get practical exercise in science and engineering technology at landfill site

By **TIMOTHY DUGAN**  
*New England District*

Students from Francis W. Parker Charter Essential School in Ayer, Mass., received some practical experience in recycling and managing waste when their science teacher, Timothy “Mit” Wanzer, contacted local engineers working on the Fort Devens Consolidation Landfill Project less than two miles from the school.

Work was nearing completion on the landfill cap of the project. Project engineers provided two presentations with slides at the school in November

followed by tours of the landfill site for the 75 junior high school students.

The \$25 million Fort Devens Landfill project is part of the Base Realignment and Closure (BRAC) environmental restoration activities being performed by the U.S. Army. The U.S. Army Corps of Engineers executed the project with the construction contractor, Stone & Webster Construction, Inc. The U.S. Environmental Protection Agency, the Massachusetts Department of Environmental Protection and the Mass. Development Finance Authority all provided oversight and project input.

Nonhazardous material was taken from six landfill sites on the former base and consolidated at a newly constructed landfill. The project

design included restoration of the excavation areas. David Margolis, New England District Engineering/Planning Division, explained to students how the landfill had an impermeable base layer of clay and then a layer of welded



District employees explain landfill aspects to Francis W. Parker Charter Essential School students.

plastic material to prevent leachate from the waste from entering groundwater. Leachate is collected and then pumped to a treatment plant. There is also an impermeable cap, which prevents precipitation from running through the waste. The runoff collects at a retention pond.

Construction Superintendent Jim Henebury of the construction contractor Stone & Webster Construction, A Shaw Group Company, of Boston, Mass., discussed the day-to-day construction of the project. He explained how the landfill was built like a swimming pool — first dug to a certain depth to provide more room for the material. Then material was placed in the hole and compacted and more material was placed on that until it

ended up being a mound almost to the treetops. It has a protective material covering to prevent erosion and is then seeded. “We trucked in the material from different parts of the base. We brought in about 380,000 cubic yards of material,” Henebury said.

Material was compacted to about 320,000 cubic yards. Another 100,000 cubic yards of material — wood, concrete, metal — was recycled. The 15-acre landfill project was started in September 2000 and is scheduled to be completed in April 2003. The landfill cap was completed in November 2002. Students were shown samples of materials used in the landfill to prevent water from leaching into the groundwater system and photos of the lined landfill construction and equipment.

Wanzer assigned designing a landfill for the community or compost bin for home or school to the students to complete the assignment.

Students took a tour of the landfill site for a first-hand look. On site, students had a chance to see front-end loaders placing boulders as part of the drainage system. Engineers showed the students the sediment retention pond and the pumping station that prevents the water from leaching into the groundwater and sends it to be treated.

“The students had fun and it was educational,” said James Morocco, Resident Engineer, U.S. Army Corps of Engineers, North Central Resident Office at Fort Devens. “We believe we are planting seeds to perhaps inspire some students to become future scientists and engineers.”

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

# Levee Rehabilitation Program meets flood control and fish habitat needs

By ANNA DAGGETT  
*Seattle District*

As levees are damaged in flood events, they are repaired under Public Law 84-99, an emergency authority that allows the U.S. Army Corp of Engineers to take measures to prevent loss of life and property resulting from floods and coastal storms.

Seattle District's PL 84-99 levee rehabilitation team faces the same challenge almost every year: Can you repair flood damaged levees in an environmentally sound manner? While just about any environmental or cultural issue can come into play in this program, it's usually about fish and fish habitat.

Levees are not fish friendly structures, because they confine rivers and restrict the natural processes that fish rely on through their life cycle, but they are vitally important to the local communities they protect from damaging floods. Almost all the river basins within Seattle District civil boundaries are home to one or more endangered salmonid species, and many other fish.

Levees are traditionally trapezoidal in cross-section, straight, smooth on the face and free of most vegetation. This lack of irregularity prevents meandering of the river and formation of complex features in the water. The lack of vegetation allows the water to warm. Salmon species need a variety of complex features, such as quiet pools to rest in while migrating upstream; clean, cool, flowing water and gravel beds to spawn in; and overhanging vegetation or other features for protection from predators. But levees are straight, smooth and vegetation free for a reason - to provide flood control benefits, levees must be accessible for maintenance, inspection and emergency repair. Allowing trees and other large growth on levees introduces a threat to their structural integrity. The competing needs of habitat features and flood control require a delicate balancing act. Seattle District's levee rehabilitation team, led by Program Manager Doug Weber, has repeatedly proven they are up to the challenge.

When a levee is damaged and a request for assistance from a local sponsor is received, Seattle District's levee

rehabilitation team, consisting of members from Emergency Management Branch, Environmental Resources Section, Planning Branch, Design Branch, and Hydraulics and



**Doug Weber, Project Manager, inspects a Dungeness River project log jam.**

Hydrology Section, leaps into action. The team starts immediate, intensive coordination with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS), as well as tribes and state and local agencies. The team conducts on-site meetings, provides draft plans to interested agencies, and solicits suggestions for fish friendly project features

and construction processes.

Several recent projects have provided spectacular improvements for fish while maintaining necessary flood control. The Larson project, located on the left bank of the Puyallup River about 40 miles southeast of Seattle, replaced many hundreds of feet of constricting levee with a single, 160-foot long revetment. The revetment incorporates large woody debris, placed to provide complexity, and plantings designed to provide both shade and overhanging roots. Because the revetment is set back several hundred feet from where the old levee was located, building the revetment instead of replacing the levee in kind added acres to the natural flood plain and allows the river to wander freely.

The Dungeness River project, located in Sequim, Wash., about 60 miles northwest of Seattle on the Olympic Peninsula, consists of repairing erosion damage to the levee face, and adding three large log jams. The log jams are designed to mimic natural debris jams, and will allow natural hydraulic processes to take place. Eventually, pools will form and the jams will attract additional woody debris, providing more complexity and habitat benefits.

*For more information, please contact Seattle District Emergency Management Branch at 206-764-3406.*

# District's dredging management program reflect use of environmental principles

By STEVE JOHNSON and MARK CORNISH  
*Rock Island District*

The Environmental Operating Principles emphasize concepts long embraced by the Rock Island District dredging program. Since the 1970's the District has worked through interagency partnerships with state and federal agencies to minimize adverse impacts of channel maintenance activity on natural resources. The District maintains more than 550 miles of the Mississippi River and the Illinois Waterway navigation channels through five states and the Mid-Continent Flyway. This includes 300 miles of the Mississippi River, and 250 miles of the Illinois waterway. Nearly 70 percent of U.S. corn exports are transported down river to Gulf ports. Other bulk commodities include coal, petroleum, fertilizer, and chemicals.

The District listened when natural resource agencies said burying bank lines and wetlands with dredged material hurt river health. They collaborated on innovative solutions for navigation while creating healthy, diverse and sustainable conditions to support life along both rivers. An example of this innovative thinking is mound and swale placement at Johnson Island to create habitat for mast producing trees on small ridges and temporary pools in the swales for amphibians and other species. Michael Griffin, a wildlife biologist with the Iowa Department of Natural Resources, described this project as "a great collaborative effort to solve some of the problems with dredged material placement on the Mississippi River."

Debate among commercial users and environmental organizations is part of the dredge material management process that sometimes leads to conflict between agencies. Thoughtful river interests agree that impacts of dredged material on river environments aren't well understood. Hence, science-based studies examine the impact of dredged material on fish, mussels, aquatic insects, vegetation and sediment transport. The District joined with its critics to seek answers, and better understand difficult issues. An interagency expert panel proactively considers environmental consequences of channel maintenance dredging to better understand the interdependence of life and the physical environment. Dredging operations balance navigation needs with existing and future land use and sustainable biological ecosystems. Interdisciplinary dredging team members accept corporate responsibility and accountability for their work and take pride in environmental assessments, plans and specifications and operations and maintenance manuals for each project.

A Programmatic Environmental Assessment lays out cumulative impacts for past, present, and future dredging needs and potential placement areas for the next 40 years. Teams digitized past and potential future dredged material placement areas as GIS layers for planning other program efforts, too.

The District avoids placing dredged material on culturally or environmentally sensitive areas, such as wetlands. When that is unavoidable, placement sites are aligned away from that area as

much as possible, or as a last result, mitigated for lost functions and values of the resource. Near Burlington, Iowa, where several acres of floodplain forest wetland will be destroyed by dredged material placement, regional conservation agencies found a suitable mitigation site that a non-federal agency will maintain.

Successful channel maintenance requires efficient District operations for each season and for the long term, working on the right priorities, and working for the environment.

Program and Project Delivery Teams work with property owners, governmental authorities, technical specialists, and the public to develop dredge material management projects with public approval. Specifically, resource agency specialists serve as members of On-Site Inspection Teams, and the Regional Dredging Team and (Mississippi) River Resource Coordinating Teams.

On-Site Inspection Teams typify the communication among stakeholder interests. These teams schedule collaborative visits to potential, proposed and actual dredge material placement sites to evaluate site conditions, land use, and impacts.

District dredging teams communicate among federal agencies and the departments of agriculture, conservation, environment, historic preservation, natural resources and transportation from Illinois, Iowa, Minnesota, Missouri and Wisconsin. Important collaboration groups include the River Resources Coordinating Team, the Fish and Wildlife Interagency Committee, and the Upper Mississippi River Conservation Committee. Among others, local entities include counties, municipalities and drainage and levee districts. Individuals and interest groups also include corporations, partnerships, and towing industry contacts.

## Challenges

Dredging program challenges include safety, compliance, long-term planning, funding, equipment, and real estate issues. Navigation safety is vital for towing industry commodities. Dredging projects must comply with federal floodplain and environmental policies and state clean water certifications. Long-term planning and beneficial use extends placement site life. Within limited operation and maintenance budgets, dredging teams partner with Continuing Authority and Environmental Management Programs. Despite the best efforts to upgrade equipment, staff and methods, operation and maintenance costs continue to escalate on equipment like the 65-year-old *Dredge Thompson*. Private and public landowners remain reluctant to sell real estate rights to either the world's most productive floodplain soils or some of the most productive fish, wildlife and waterfowl areas in North America.

The Dredged Material Management Program puts the Environmental Operating Principles into practice every day by finding environmentally acceptable places for dredged material, and securing their use by the District for at least 20 years.

*For more information, contact the Rock Island District Public Affairs Office at 309-794-5204.*

# Partnership celebrates restoration success

By ANN MARIE HARVIE  
New England District

The Little River Saltmarsh in New Hampshire reaped the benefits of a unique partnership committed to restoring the environment.

In a Nov. 18 ceremony held in Manchester, N.H., the New England District and its Coastal America partners, including the Corporate Wetlands Restoration Partnership, presented awards to agencies and individuals to recognize those who participated in the restoration project that transformed an ailing saltmarsh into a thriving environmental paradise for wildlife.

The event also marked the initiation of the New Hampshire chapter of the Corporate Wetlands Restoration Partnership (CWRP). "This partnership of corporation and public funding programs owes its success to great leadership and vision from many agencies," said Col. Thomas L. Koning, District Engineer.

"CWRP holds the promise of much success in New Hampshire because of our business community's commitment to environmental quality," wrote New Hampshire Senator Bob Smith of the event.

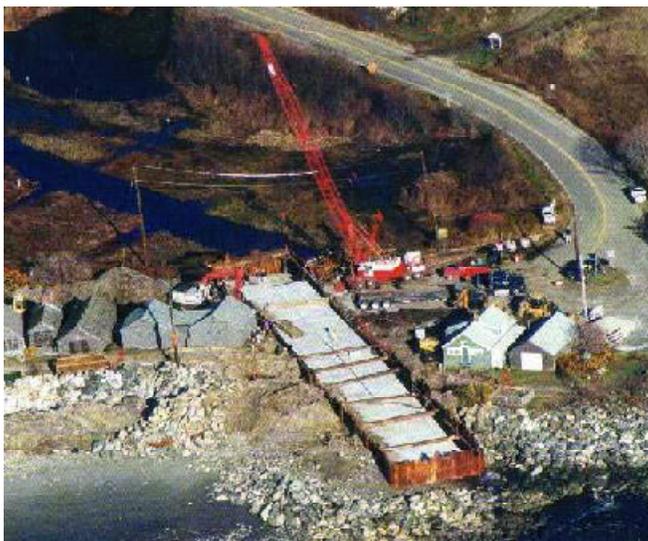
During the awards portion of the ceremony, Col. Koning, who hosted the event, and Tim Keeney, Deputy Assistant Secretary for Oceans and Atmosphere of NOAA, presented Coastal America plaques and letters from President George Bush to the Little River Salt Marsh project team. The New England District was a recipient of one of the plaques, and Barbara Blumeris, Engineering/Planning Division, accepted a letter from the President on behalf of the District.

The New England District initiated the planning study for the \$1.2 million project in September 1997 at the request of the towns of North Hampton, Hampton, and the state of New Hampshire's Office of State Planning-New Hampshire Coastal Program. The New England District investigated flooding and salt marsh restoration issues at the Little River marsh and completed its investigations in April 1999. The findings of the study were used as the basis for restoration efforts implemented by Natural Resources Conservation Service and many other federal, state and local partners. As a result, a cooperative effort was undertaken by all parties to conduct a study to determine optimum culvert and channel configurations to allow large rainfall events to drain out of the marsh without flooding Route 1A, and to improve saline tidal flow to restore the health of the marsh.

The saltmarsh is located west of Route 1A in North Hampton, N.H. The 48-inch culvert at Route 1A

restricted tidal flow into and out of the marsh providing conditions favorable for invasive plant species, such as Phragmites, to dominate and crowd out desirable marsh species in the area.

The project restored the 170 remaining acres of degraded saltmarsh. Project work included installing twin 6-foot by 12-foot box culverts at the main outlet and under road crossings; dredging sediments out of the tidal creeks; employing a new protocol for pre-restoration monitoring; and improving water flow and quality, i.e., reduction in bacterial source con-



Little River Saltmarsh Restoration Project

tamination. Monitoring, land protection and public outreach will continue, mainly through the efforts to be conducted by the University of New Hampshire.

"I commend Coastal America and all of the public, corporate and nonprofit organizations that have joined together to form this innovative partnership to restore coastal resources in New Hampshire," wrote New Hampshire Senator Judd Gregg in a statement praising the project. Other speakers at the event included Congressman (Senator-elect) John Sununu; John MacDonald, Public Service Company of New Hampshire; Bill Hubbard, New England District; Tim Keeney, Deputy Assistant Secretary for Oceans and Atmosphere; Linda Murphy, Environmental Protection Agency; George Olson, The Gillette Company; and Paul Ladd, Jacques Whitford Company.

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

# Greenup Dam navigation project balances economics and environmental concerns

By ELIZABETH SLAGEL

*Huntington District*

At first glance the mitigation plan for the Greenup Lock extension can easily be mistaken for a large-scale environmental restoration project. “The beauty of it is - it’s not,” said Pete Dodgion, ecologist for Huntington District Planning Branch. “It’s very much a navigation project; yet it has a lot of environmental benefits of an ecosystem project.”

By multiple statutes, the Corps has the responsibility to mitigate for the environmental damages caused by its activities. This project shows the Corps willingness to go the extra mile in restoring disturbed environments from its water resource projects. The river habitat near the Greenup Lock could actually be better after the project is complete than it was before the lock expansion.

When considering how to best expand an overused lock on the Ohio River, the district is looking at using \$3.8 million of its projected \$211 million total project cost to mitigate lost habitat caused by extending the 600-foot auxiliary chamber to a second 1200-foot chamber.

By using a cheaper method of constructing the extension, using “lift/in float/in” technology, the Corps indirectly discovered it was reducing the environmental impacts in a big way. Floating in the concrete walls and setting them into place eliminates the need to reroute the river with cofferdams as is traditionally done when building or extending lock walls. This alone will save two miles of shoreline and hundreds of acres of aquatic and terrestrial habitat.

The team is also looking at recycling rock dug from the river bottom that will be tested for the proposed state-of-the-art “float/in” wall placement method. Rather than just disposing of this material, the Corps is looking at putting it back into the river to help build a new mussel habitat adjacent to an existing bed.

In fact, the mitigation team is looking for tangible uses for all typically disposed material. Another example is portions of the existing lock wall that will be knocked out and will likely be used to build underwater t-dikes which could provide winter habitat structures for fish. “T-dikes” are placed in deep water and their objective is to create scour features where fish could potentially congregate during the winter.

This busy waterway transit sees some 25 barges lock through a day. But that fact isn’t stopping the Corps from trying to artificially create a traditional riffle-type environment—even though it is relatively nonexistent in today’s Ohio River.

A riffle-type environment is an oxygenated, relatively shallow, rocky, turbulent and unchanneled stream found in most natural undisturbed rivers. The only place one would be possible on the Ohio River is 1,000 feet below the Greenup Lock. It has most of the desired riffle conditions including a no traffic zone, but lacks the combined rocky/sediment bottom.

Of course that is where the Corps’ mitigation plan takes shape. To create a riffle-type environment, the Corps is proposing two 1,000-foot parallel dikes in the tailwater zone below Greenup Lock

that would mimic this stream habitat and offer opportunities to many threatened Ohio River species. “State resource agencies in Ohio and West Virginia have sought such structures at the Ohio River locks and dams for years in recognition of their ability to change the character of the river for certain species of fish and aquatic insects,” Dodgion said. The riffle-type environment was physically modeled at the Waterways Experiment Station and proven a success. Now, it is in the plans and a first for the District.

Greenup Lockmaster Eric Dolly also came up with a mitigation feature for the off-shore disturbance to surrounding project open fields. To reduce the operations and maintenance costs of continually mowing 24 acres of what Dolly calls “bad hay fields”, he decided to experiment with warm season grasses instead of using the typical high maintenance types.

The rest of the mitigation plan includes mooring cells for barges waiting their turn to lock through—a much needed feature during construction hang ups. However, a lot of care is being used in deciding what type of mooring cells to use. Team members are looking closely at trying to detract barges from a popular gravel bar downstream of the dam that is thought to be a developing mussel bed. “Barges just run up on the bank there because it is an opportune place to park while waiting to lock through,” Dolly said. State and other resource agencies worry about what this practice does to a developing mussel bed that holds some real potential.

Construction of the lock extension will also take out many hardwoods along the bank, posing another challenge—bank stabilization. Dodgion said the team is trying to come up with some bioengineering alternatives to rip rap, including trees, shrubs and rocks. Also along the shore, 1.3 acres of protected shallows would be constructed to provide protected habitat for juvenile fish. The shallows would be constructed using woody bundles that protect the shallow water habitat from wave action.

Scott Schell, aquatic biologist with the Ohio Department of Natural Resources, said this plan is a tremendous leap forward for the Corps. He and many of his colleagues from other state resource agencies worked closely with the Corps team to push aspects of the mitigation plan through.

Schell particularly praises the riffle type environment proposal below the dam. “Quite frankly, I think it is one of the most beneficial things we can be doing with the biggest bang for our buck. It just makes sense to replace a lost habitat that a lot of fish like walleye, sager and sturgeon need to thrive.” Those fish are now continually stocked by Schell’s agency and are forced to live on the borders of the river. The riffle habitat would bring them to the tailwaters where the majority of Ohio fishermen harvest their fish adding an environmental and economic benefit to the proposal.

“It’s one of the best concepts the Corps has ever approved and we’re excited about it. I hope this one goes through. It has tremendous potential,” said Schell.

*For more information contact the Huntington District Public Affairs Office at 304-529-5453.*

# ERDC develops GIS to help Dugway Proving Ground Restoration Program

By PAUL CEDFELDT  
ERDC-CRREL

At the request of Dugway Proving Ground's (DPG) Installation Restoration Program, the U.S. Army Engineer Research and Development Center's Cold Regions Research and Engineering Lab (ERDC-CRREL) developed a Geographic Information System (GIS) for management and analysis of environmental remediation efforts. Dugway Proving Ground is the nation's primary chemical and biological defense testing facility.

DPG is located on 798,855 acres in the Great Salt Lake Desert, approximately 85 miles southwest of Salt Lake City, Utah. Surrounded on three sides by mountain ranges, the proving ground's terrain varies from level salt flats to scattered sand dunes and rugged mountains.

DPG was activated on March 1, 1942. Shortly thereafter, military weapons testing commenced under the technical division of the U.S. Chemical Corps. There are 21 test ranges at the proving ground. Numerous chemical munitions and microorganisms were tested during the 1940s and 1950s. Large scale conventional munitions testing was also conducted at the ranges until the late 1970s.

Historical waste disposal practices have generated possible contamination at 205 Solid Waste Management Units (SWMUs) and at an additional 41 Hazardous Waste Management Units (HWMUs) that ceased operation after 1980. From a regulatory perspective, contaminants of concern are agents Sulfur mustard, Lewisite, nerve agent, Sarin, Soman, and Fentanyl Ketamine, agent breakdown products, caustics, solvents, metals, volatiles, pesticides, PCBs, and POLs.

Many sites in the test ranges are currently being investigated by the Installation Restoration Program. The large volume of data being generated for these projects by various engineering consultants and other contractors lends itself to the use of GIS software to manage the data.

GIS provides the means to store, display, and analyze information from multiple, diverse sources in one, two and three dimensions. Effective data management is critical given the scale and complexity of the DPG environmental investigations.

Although large amounts of data have been generated, much of it resided in separate loca-

tions. Making a common database of chemical sampling results was the first step toward creating the GIS.

A common geospatial database was also created, bringing together various vector datalayers and raster imagery. A customized, easy-to-use graphical interface was then written to access and analyze these data. A Windows desktop version is available as well as an Internet accessible version that runs in a web browser.

Project managers can use the GIS software via either platform to compare and analyze datasets of diverse types, e.g. orthophotos, contaminant information stored in a database, and geospatial datalayers such as sample locations, roads and buildings. Powerful chemical query capabilities allow any user to search for analytical results either basewide or at a particular SWMU or HWMU. Project managers can query one or multiple contaminants by a specific detection threshold level, or return all sample results regardless of detection level. A typical query might involve searching for selenium samples taken anywhere on DPG that yielded a result greater than 100 ug/l. Query results may then be mapped to the screen to highlight clusters and/or possible contamination trends, or sent out to a spreadsheet program. Hardcopy maps may also be printed.

The Installation Restoration Program GIS also provides efficiencies in using current and future data. By making these data available to contractors prior to their undertaking new projects, a significant potential exists to reduce redundancy in data acquisition. Scott Reed, Installation Restoration Program Manager at DPG, states emphatically "The GIS developed by ERDC saves me time and makes my operations more efficient. A contaminant sample query that had previously taken several calls to different contractors and several days in execution time now takes, in most cases, under a minute. We are extremely pleased with the Corps' GIS software product."

This state-of-the-art Geographic Information System software for accessing, displaying, and analyzing DPG installation restoration data was developed by the Remote Sensing/GIS Center at ERDC-CRREL using object technologies from commercial GIS and database vendors.

*For more information, contact the ERDC-CRREL Public Affairs Office at 603-646-4292.*

## Deconstruction at Fort Ord

# Portable machine strips leaded paint from siding

By DANA FINNEY  
ERDC-CERL

A new self-contained remilling and recovery system can process lead-based paint (LBP)-covered wood at deconstruction sites, planing off the contaminated surface and leaving a clean, reusable board. In a demonstration at former Fort Ord, Calif., the system salvaged over 56% of the wood siding removed from two barracks. Besides reclaiming the lumber, this process diverted several tons of solid waste from landfills, including LBP, which classifies as a hazardous material in California.

The U.S. Army Research and Development Center (ERDC) is conducting several studies that seek to expand deconstruction and reuse of Army buildings slated for removal. Some 50 million square feet of surplus buildings must be removed from installations by FY05. Given that demolishing an average two-story WWII barracks produces nearly 80 tons of debris, Army-wide, the result would be a staggering volume of solid waste if no efforts are made to reclaim this material.

“With tens of thousands of WWII-era wooden buildings still remaining on Army installations, the potential exists for recovering significant amounts of premium lumber rather than disposing of this natural resource and using up landfill space,” said Richard Lampo, researcher at ERDC’s Construction Engineering Research Laboratory (CERL).

The portable remilling machine demonstrated in California represents a unique adaptation of equipment produced by Wood Waste Diversion, Inc., and Auburn Enterprises. The system mechanically planes off the LBP and a thin layer of wood underneath. This results in a bare piece of lumber. The wood shavings with the waste paint are captured and collected separately. The system is trailer-mounted and can be easily transported to a deconstruction site.

CERL demonstrated this technology in partnership with the U.S. Department of Agriculture’s Forest Products Laboratory (FPL), Pennsylvania State University (PSU), CTC, Inc., and the manufacturers. Fort Ord, the largest Army installation to close under Base Realignment and Closure, has over 1,400 wooden buildings left that will have to be removed before the property can be redeveloped.

“The quality of the wood siding in the Fort Ord buildings is the best I’ve seen,” said Dr. Robert Falk, research engineer at FPL in Madison, Wis. “Most of it is old-growth Douglas fir lumber and is of the highest quality ever produced. It is tight grained, dry, and has few defects. In checking 14,000 linear feet of painted siding – that equates to nearly 3 miles – we found less than 10 knots.”

Short-run demonstration results for the remilling system suggest that it could process the siding from one building every hour, said CERL researcher Tom Napier.

The Wood Waste Diversion-Auburn system represents one of several emerging technologies that could help overcome obstacles to deconstruction. Two critical issues are dealing with the LBP that covers much of the wood and finding viable markets for the reclaimed wood. Falk has also devised methods to strip LBP from the Fort Ord siding and create new building materials using standard woodworking equipment in-house at FPL.

While the portable system removes most of the LBP from the lumber, there is still the residual wood and paint to address. Lampo believes this material could also be largely recycled. “We’re looking at technologies that might be able to condense the waste and recover lead for uses such as batteries. One company, ARI Technologies, Tacoma, Wash., has a thermo-chemical system that might work with some modifications,” said Lampo.

CERL’s Napier said, “A standard tongue-and-groove (T&G) flooring profile can be milled from the siding boards, and the quality of the Fort Ord material suggests T&G flooring would be an excellent use. Furthermore, pieces as short as 16 inches can still be used as flooring, which means fewer boards are wasted. Bevel siding and V-groove paneling are also good uses, but will require the full length siding boards.”

Work by the FPL and PSU indicates that the market for products remilled from Fort Ord siding is very promising. At the Wisconsin laboratory, FPL and PSU evaluated the feasibility of producing clean T&G flooring, V-groove paneling, and lapped bevel siding from the painted siding. Falk agrees that flooring is a very feasible product, as it can use shorter pieces. In addition, antique Douglas fir T&G flooring currently sells for about \$4-\$7 per square foot. “At this selling price, the buildings slated for disposal at Fort Ord alone have the potential to produce millions of dollars in value-added product. However, while we see great potential, we don’t have all the answers on the costs associated with making these products,” he said.

The system manufacturers are continuing to optimize their technology. One goal is to produce a finished product onsite rather than transporting the bare wood to another facility. The FPL-PSU process has an advantage in this respect since both cleaning and remilling occur at the same site. However, LBP-coated wood has to first be transported in that process.

For more information about this project contact ERDC at 217-373-6765 or 217-373-3497.



Portable, self-contained de-leading and recovery system.

# Corps removes lead-contaminated soil at Point Vicente

By GREG FUDERER  
*Los Angeles District*

The Point Vicente Interpretive Center in Rancho Palos Verdes, California, is once again open for business after the Los Angeles District of the U.S. Army Corps of Engineers successfully removed lead from the soil.

Closed to the public in August 1999 after tests conducted during expansion projects showed elevated levels of lead in the soil, the center reopened in a special November 8 ceremony. The public can now once again use this valuable educational and recreational asset.

Located on a scenic bluff at the southwest tip of Los Angeles County, the center hosts tours and serves as a scientific research center for the study of gray whales that migrate through the water between Point Vicente and Santa Catalina Island. It was a blow to the community to have the center closed during

the lead remediation project, noted U.S. Representative Jane Harman.

The Los Angeles District, under the Formerly Used Defense Sites (FUDS) program, worked with its partners to develop and conduct a project to remove the lead. The lead was left from a former small arms target practice area used in the 1950's by military personnel stationed at nearby Fort MacArthur. The project also served to establish and develop close ties with the local community.

This remediation project proceeded to completion ahead of schedule and under budget. The project team briefed the city council prior to the remediation process and interacted with the public at events like "Whale of a Day," an annual event marking the beginning of whale-watching season. That event included a presentation booth, displays, brochures and newspaper and

television interviews.

"A lot of our visitors are kids from the inner city," said Docents of Los Serenos de Point Vicente president Joan Barry, "some of whom have literally never seen the ocean before. Their visit here is their first time." Rancho Palos Verdes Mayor John McTaggart called the educational and recreational resource "the most valuable asset the city owns."

"The major reason for the project's success," said Tawny Tran, the district's project manager for the Point Vicente project, "was the close partnering among the federal, state and local agencies and the close collaboration from designer and remediation contractors during the planning and execution phases of the remediation."

*For more information, contact the Los Angeles District Public Affairs Office at 213-452-3923.*

# Changes made to arsenic standards

By BEVERLY VANCLEEF  
*HTRW CX*

It has been widely publicized that the Safe Drinking Water Act (SDWA) standard for arsenic in drinking water is dropping from 50 parts per billion (ppb) to 10 ppb. It may be a less known fact, that the applicability of the standard is expanding. The existing 50 ppb standard applies only to "community water systems" (CWSs). These are public water systems serving year-round residents. The new 10 ppb standard applies both to CWS's and "non-transient non-community water systems." This means that in addition to applying to residential communities, the new standard must also be met wherever a public water system serves an average of at least 25 persons for six months of the year. By taking this action, the Environmental Protection Agency (EPA) anticipates protection of an additional 13 million individuals.

Though the effective date of the new maximum contaminant level isn't until 2006, much time may be needed to plan for, fund, and implement new treatment systems to meet the new 10 ppb standard.

According to the EPA, ingesting arsenic contaminated water over long periods of time may increase the risk of cancer (bladder, lungs, skin, kidney, nasal passage, liver, and prostate). Other risks may include cardiovascular, pulmonary, immunological, neurological, and endocrine (e.g., diabetes) effects.

The old maximum contaminant level of 50 ppb, applicable to community water systems, applies until the effective date of the new 10 ppb standard. Federally, this is January 23, 2006. States with primacy must be at least as stringent as the Federal requirement, so they must implement the new standard no later than the

Federal effective date.

Consumer Confidence Report (CCR) requirements applicable to CWS's changed on July 1, 2002. Because community water systems have long monitored for arsenic, data exists on levels of arsenic in these water systems. CCRs, used to inform consumers of hazards of contaminants in drinking water, are required to include specific language (or alternative language approved by the implementing agency) when arsenic has been detected above 5 ppb.

Above 5 ppb and up to 10 ppb the standard CCR language is as follows: "While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems."

Above 10 ppb and up to and including 50 ppb, the standard CCR language is as follows: "Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer."

The full text of the final arsenic rule is at [www.access.gpo.gov/su\\_docs/fedreg/a010122c.html](http://www.access.gpo.gov/su_docs/fedreg/a010122c.html) under the heading Environmental Protection Agency, Final Rules. See also [www.access.gpo.gov/su\\_docs/fedreg/a021223c.html](http://www.access.gpo.gov/su_docs/fedreg/a021223c.html).

*For information contact the U.S. Army Corps of Engineers Hazardous, Toxic, and Radioactive Waste Center of Expertise at 402-697-2559.*

## FY2003 PROSPECT COURSES

A wide variety of technical and professional development courses are available through the USACE Proponent Sponsored Engineer Corps Training (PROSPECT) Program. Information about the FY03 program can be found online at: <http://pdsc.usace.army.mil> under Class Schedules.

To register for any of these courses, first discuss this with your supervisor and then contact your local training coordinator. Your training coordinator can guide you through the registration process and inform you of any deadlines applicable in your organization as well as all local procedures that you must follow to register.

If a course is full, you may request to be put on a waiting list and you will be informed when a space becomes available.

PROSPECT courses are open primarily for Corps of Engineers personnel. Government personnel from other agencies (federal, state, or local), however, may take PROSPECT courses on a space available basis.

***For further information, contact John Buckley at 256-895-7431 or email at [John.P.Buckley@HND01.usace.army.mil](mailto:John.P.Buckley@HND01.usace.army.mil).***

## Registration under way for Environmental, Natural Resources Conference

Registration is ongoing for the 2003 U.S. Army Corps of Engineers Environmental and Natural Resources Conference, April 29 through May 1, in Fort Worth, Texas.

The conference, being hosted by the Southwest Division and its districts, is set for the Radisson Plaza Hotel, Fort Worth. Its theme is the "Corps of Engineers Environmental Operating Principles." It is an appropriate theme since Chief of Engineers Lt. Gen. Robert Flowers, who will be the keynote speaker, directed that the environmental principles be established at the last Environmental and Natural Resources Conference in April 2001.

The conference's emphasis will be on the Corps' environmental stewardship mission. There will be a plenary session, and breakout workshops aligned into two tracks — environmental and natural resources. An exhibit area for display booths also will be available. Corps employees attending the conference will receive professional development hours.

To learn more about the conference, visit the Environmental and Natural Resources Conference Web site at <http://hq.environmental.usace.army.mil/enr2003>. The Web site contains all conference information, including agenda, on-line registration procedures, registration fees information, hotel information and current exhibitors. For additional information, you can contact CEMP-RA at 202-761-1128 or CECW-ON at 202-761-4827.

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