

Army launches privatization initiative

Contractor will manage Fort Carson family housing

By Kevin Quinn
Omaha District

Through one of the most innovative concepts ever used by the Army, Omaha District awarded a 50-year, billion-plus dollar contract to privatize the military family housing program at Fort Carson, Colo. The contract was awarded on Sept. 30, and was signed at Fort Carson on Dec. 3.

The Fort Carson project is the first contract of this type to privatize management and maintenance for all of the on-post housing. Similar contracts are expected to be developed at other U.S. military installations. Authorized under the Military Housing Privatization Initiative enacted under the Defense Appropriations Act of 1996, this first contract is cause for celebration.

"It's a dream that became reality," said Col. Mark Tillotson, Omaha District commander. Fort Carson (the first Army base to attempt this type of project) and Army officials signed one of the largest contracts in Army history with the Fort Carson Family Housing Limited Liability Corp. (FCFH-LLC) of Charlotte, N.C., for privatization of on-post family housing.

The contract will provide Fort Carson military personnel and their families improved housing facilities in a community setting, with amenities equal to the private sector. The contract is for 50 years, with one 25-year extension option, to provide housing accommodations for 2,663 families.

The contract calls for renovating 1,823 housing units on post, and building 840 new two- three- and four-bedroom units. Construction will be completed during a four-year period; renovations will be phased in during a five-year period. The estimated cost of this initial construction is about \$220 million.

As families move into privatized housing units on post (and those already living in quarters), they sign a lease and begin to receive a Basic Allowance for Housing. The soldiers will pay this amount to the housing contractor as rent. No housing expenses will come from the soldiers' pockets.

As the Fort Carson Affordable Housing Initiative is implemented, other military installations around the nation are monitoring the procedures closely. "The military must continue to find ways to stretch budget dollars," said Tillotson. "The privatization of military housing does that while ensuring that military members have good, quality housing."



The family housing at Fort Carson, Colo., is the first to be managed by a private contractor. (Photo courtesy of Omaha District)

Pilot program

The push for privatization began several years ago when Congressional representatives and Department of Defense officials analyzed the housing situation and determined that conditions on bases were deplorable. They also determined there was not enough military construction money to remedy the problem.

The pilot national military housing project began in February 1996, when President Clinton signed the Defense Authorization Act, which contained the new military housing privatization initiative.

"The idea behind privatization is to leverage the value of existing housing and land on post to enable a contractor to provide new units and renovate the existing units at a cost the soldiers can afford," said Steven Hill, Omaha District's project manager.

The road to awarding the first contract wasn't without bumps. The Army originally selected a firm for the privatization contract in March 1998, but two companies filed suit. The Army agreed to restart the selection process, taking advantage of lessons learned in the first attempt.

Renovations

The housing on Fort Carson averages 35 to 40 years old, said Fort

Carson spokesman Ron Joy. "The wear and tear is higher than normal housing because families move in and out every two to three years."

Renovations of the current houses will include new kitchen and bath plumbing fixtures, new cabinets, new paint and floor coverings, new interior trim, doors, hardware, new light fixtures and wiring to current code, environmental hazard abatement, new appliances, individual metering for utilities, landscaping, and ground drainage repairs. These renovations must be done in the first five years of the contract.

The contractor

FCFH-LLC is a wholly owned subsidiary of J.A. Jones, Inc. (North Carolina), which is a subsidiary of the international construction firm Phillip Holzmann AG in Frankfurt, Germany. The contractor beat out five other bidders for the privatization contract.

Hill, Omaha District's manager for the privatization project, says about 400 requests for proposals were sent to potential bidders, including subcontractors and team members. Proposals were received in late January and have been in the evaluation process ever since. The winner was chosen through a rigorous best-value evaluation.

The value includes the renovation of the existing units, building 840 new

units, maintenance and management of the units for the life of the contract, and proposed amenities such as green spaces, recreation facilities and community centers. For this, the contractor receives rent from the soldiers living in the units, which will total about \$2.3 million per month once the 840 units are built and rented.

The request for proposal required proposers to provide technical plans (floor plans of houses, elevations, and site plans); a financial plan; a management plan including structure and relationship of subcontractors; a past-performance resume; and a small-business plan detailing how small businesses will be used as subcontractors. These documents formed the basis of the contractor's proposal and were evaluated by the Army to determine which firm offered the best value to the soldiers at Fort Carson.

The contractor:

- Assumes all economic risk to the project.
- Is required to invest a large amount of its own equity into the project at time of award. All income from the project in excess of operating expenses and debt coverage must be placed in construction and improvement escrow accounts until all construction and renovation is completed.

- Accepts that the source of revenue will be the housing allowance given military personnel living in his units.

In the Fort Carson agreement, utility meters will be placed on all military housing, but the government will continue to pay utilities. The government also gives the contractor title to the existing housing units and a lease to the ground under them, land to build 840 new homes, and a limited loan guarantee against base closure, downsizing, and extended deployment.

Joy said that while almost all posts have housing shortages, Fort Carson's is particularly high. About 17 percent of all soldiers assigned to Fort Carson live in military housing, with almost 1,500 military families on the post's housing waiting list. The Colorado Springs area has experienced vast growth in recent years. The vacancy rate is less than six percent, and rent has increased more than 20 percent since 1993. This rent increase has placed many homes, condos, and apartments out of the reach of many soldiers and their families. The new housing will improve the percentage of assigned soldiers that live on post from 17 to 27 percent, a figure still below the Army average.

Chief looks forward to new year, millennium

During the holidays, people look back and reflect on the lessons of the previous year. But this should be a time to look forward as well! Although the next century and next millennium don't really start until 2001, we will all celebrate the turning point when 1999 rolls over to 2000. So this is a good time to look to the future.

The Corps is changing and growing, and we're more ready than ever to meet the challenges of a new millennium. Response 2000 received its first real-world tests this year and came through with flying colors. During Hurricane Georges the Corps provided ice, water, roofing, debris removal, and emergency power throughout Puerto Rico. During Hurricane Floyd, we assisted in damage surveys, controlled floodwaters with our reservoirs, supplied emergency ice and water and temporary housing, and managed sandbagging operations. The Corps also provided vital damage survey and clean-up work in Oklahoma after the tornado in May.

New concepts like Divisions as Business Centers and One Door to the Corps ensure that outside agencies will continue to consider us the "Engineer Team of Choice." This past year, other agencies have sought our expertise in growing numbers. To name just a few, Jacksonville District was an important part of the effort to write the Central and South Florida Comprehensive Review Study which will restore the Florida Everglades. The U.S. Agency for International Development requested Transatlantic Programs Center's help to repair damage after the terrorist bombing of the American embassy in Nairobi. After a gas pipeline explosion in St. Cloud, Minn., the Minnesota Department of Safety turned to St.

Paul District for technical expertise. When a ski-equipped C-130 fell into a crevasse in the Antarctic, the National Science Foundation called on the Cold Regions Research and Engineering Laboratory to find crevasse-free taxiways and work areas to free the aircraft.

Our first and most important mission of supporting the Army also continues to flourish. From replacing flood-damaged buildings in Korea, to building SEAhuts in Kosovo, to managing a quarter-billion dollars in projects at Fort Benning, Ga., the Corps is making a difference in the Army. At bases throughout the world, soldiers and airmen and their families have brand-new or renovated homes, barracks, schools, and other quality-of-life facilities. And innovations like the Installation Support Forward program, re-engineering Military Programs, the Theater Construction Management System, and tele-engineering will ensure that the Corps is firmly embedded in the Army and that we will continue to carry out our most important mission.

But what gives me the most faith in our future is our people. There has been no shortage of Corps volunteers to serve in austere conditions in Kosovo and Albania. I'm never prouder than when I hear people like Clint Anuszewski from Baltimore District say, "We at USACE believe in a totally integrated Army, with soldiers and civilians working side-by-side. As civilians, we're looking to fit in and be in the trenches with the Army. I'll move out of the tent when the soldiers are out of tents." After the tornado in Oklahoma, Corps workers collected personal items they found and took steps to return them to their owners. Corps people like Mike Rosales and Matt Burg in



Little Rock District unhesitatingly risked their lives to rescue a mother and her baby from a flaming wreck. John Lindermann of the Transatlantic Programs Center is helping build a fissile storage facility in Russia. He and other folks from TAC have joined with people from Bechtel National Inc. to support a Russian orphanage near the project site. With people like these in the Corps of Engineers, I know our future is in good hands.

I am proud of the Corps of Engineers and how far we have come during my time as Chief of Engineers. I look forward with anticipation (and no fear at all) to the challenges of the New Year, and the new century, and the new millennium.

The Corps family wishes you a safe and joyous holiday season, and a happy, exciting New Year.

JOE N. BALLARD
Lieutenant General, USA
Commanding

Insights

Season's greetings take many forms

By Lt. Col. Tim Carlson
Chaplain, U.S. Army Corps of Engineers

This time of year holds a lot of memories for me.

Not every member of the U.S. Army Corps of Engineers has had the privilege of spending five winters in the interior of Alaska that our family has had. There are dancing northern lights. The air is so cold and dry that a hot cup of coffee, thrown into the air, instantaneously crystallizes and joins with the frigid vapor. In Alaska, it is a season so incredibly brisk that life seems frozen in time.

In contrast, 29 years ago I spent December in Zaire, Africa. What an adjustment to have a season of 'winter' with *no* snow, *no* shorter days, and *no* seasonal hint of the ending of the year!

So what pops into *your* mind at this time of the year? Does the sound of sleigh bells, the pealing of beautiful music, the nearness of a new millennium, the laughter of children, the thoughts of a new calendar, or a trip to a near relative fill your mind?

Certainly there is a special "feel" to this time of year. Maybe it stems from the anticipation of a year ending and another beginning, or the relative quiet

that winter brings, or the feeling of life waiting and resting. Whatever it is, an aura of cosmic celebration, a sense of wonder about the universe, and an invitation to peace for the world always seem to be part of this special season.

It's almost as if this entire period of the moon's revolution was intended to be a silent, holy period. There is a sort of artesian force compelling us to participate in something much bigger than all of us combined. You can hear echoes of it in our greetings to one another during this season as we extend "Happy Holidays" to strangers and friends.

The Corps of Engineers is eclectic, cosmopolitan, and inclusive. Perhaps, for you, the greeting "Happy Kwanzaa," with its seven-day celebration of family and culture, is preferred. Perhaps for another "Happy Chanukah," with its eight-day remembrance of an ancient miracle in the Second Temple in Jerusalem, is the phrase of choice. Indeed, a convergence of holiday remembrances, from many cultures, pinpoints this time of the year as unique and special.

From my own tradition and journey of faith, I like to recall the words of the prophet Isaiah. In 700 BC he prophesied, "For unto us a child is born, unto us a

Son is given, and the government shall be upon His shoulders and His name shall be called Wonderful Counselor, the Mighty God, the Everlasting Father, the Prince of Peace!"

Yes, we are a diverse, varied nation. When someone asked President Lincoln what he thought of the many denominations of Protestantism in America he replied, "I think it is good. It shows the breadth of God and the span of His love and grace to all of us." I suspect Lincoln would say something equally magnanimous about the many traditions stemming from the various religions our nation now contains.

As for me, I *do* notice the various greetings of the season. I appreciate the cultures and the heritages from which they derived. But, the address that still welcomes me into the spirit of this season and invites me to revel in its wonder is the familiar and poignant extension of goodwill contained in the words of "Merry Christmas!"

(The views expressed in this article are those of the author and do not reflect the official policy or position of the U.S. Army Corps of Engineers, the Department of the Army, the Department of Defense, or the U.S. government.)

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Corps builds commissary in Italy

Article and Photo
By Torrie McAllister
Europe District

The Army's newest supermarket opened on the Caserme Ederle Army post in Vicenza, Italy, for Veterans Day. It offers soldiers and their families the best in American-style grocery shopping, with an added Italian flair.

The Defense Commissary Agency (DeCA) Europe hired Europe District to manage design and construction of the new \$6.4 million store. It replaced a Quonset hut that had been the Army's food store since 1959.

"It feels like America. It's amazing," said Staff Sgt. Kevin Anderson, surveying the wide, bright aisles stocked with more than 600 more items than the old store.

DeCA's new commissaries in Europe are built to mirror state-of-the-art supermarkets in the U.S. with a large deli, a bakery, and home-style carry-out meals.

The new store has more than 26,777 square feet of sales space, more than double the space of the old store. It also has 10 cash registers and check-out lanes.

Besides tacos, Corn Flakes, and other American favorite brands, the new Vicenza store includes a gourmet Italian specialty deli. Soldiers can buy their favorite Italian food right on post.

"We helped DeCA make changes almost up to the grand opening to incorporate all of the latest customer conveniences into the store," said project engineer Dan Brueggenjohann. "The Vicenza Commissary is the first to feature DeCA's new interior décor package and the new DeCA logo and signage."

"The original plans called for a specialty meat-cutting shop," Brueggenjohann added. "But when DeCA switched to mostly pre-packaged meats, they saw an opportunity to create an Italian Specialty shop. We modified the contract, and now the Italian gourmet features the best in local fresh seafood, olives, meats, and cheese. It's already a favorite for my family."

The store also features a bistro that sells quick ready-to-eat meals for soldiers on the run and for families who want dinner at home without having to cook. Shoppers can choose from roast beef, Swedish meatballs, rotisserie chicken, fresh pizza, and more.

The old store was a converted Quonset hut with tight aisles that made shopping like a bumper car derby. It was cold in winter and hot in summer. The warehouse was detached, which made it difficult to keep up with restocking.

Although the new commissary is a major quality-of-life boost, it wasn't easy to find room for it on a base where land use is so intense that ballfields and playgrounds and scarce parking lots are nearly the last open space.

When DeCA decided to build a new commissary from its five percent surcharge, the only site that seemed avail-



Dan Brueggenjohann, his wife Marcia, and their daughter Taylor were among the first customers when the new commissary opened at Caserme Ederle in Vicenza, Italy. Brueggenjohann was Europe District's project engineer.

able was on the only recreation area on Caserme Ederle at the back of the post, far from the community services area.

Europe District's planners Karen Nickel and Mike Kelly worked intensively with the 22nd Area Support Group's (ASG) Directorate of Public

Works (DPW) and DeCA to find a more suitable location while initial design was already underway.

"The 22nd ASG wanted to create a commercial services hub for Caserme Ederle," said Europe District Planning Chief Ned Reynolds. "By demolishing

an old building and moving a utility line, they were able to build the new commissary and parking lot next to the PX, bank, and shoppette."

"Once everyone agreed they had a superior site, Europe District helped justify the cost of additional site prep to U.S. Army Europe," Reynolds said. "With the old commissary site now available for development, the 22nd ASG now has a commercial zone at the heart of the Vicenza military community."

"The new commissary is a great example of what teamwork and a never-say-die attitude can accomplish," said Dave Murr, Europe District's Regional Program Manager for Italy. "From the 22nd ASG DPW to DeCA's European Region, everyone pulled together."

"Construction began in February 1998 and finished on time and well within budget," Murr said. "DeCA is always demanding in pursuit of customer service and retail excellence, and our project execution team led by project manager Nuri Ergenekon and project engineer Dan Brueggenjohann enjoyed the challenge."

Europe District is also supporting DeCA with commissary construction in Germany. The new Heidelberg Commissary is scheduled to open in January. The new Mannheim Commissary was completed last year.

Swan rescued in Alaska

By Ron Broyles
Fairbanks Resident Office

As welder Lee Keel and painter Red Johnson walked from the welding shop to the dining hall at Indian Mountain on the evening of Oct. 4, they spotted something large and white in the ditch beside the road. Johnson thought it looked like a swan. Keel didn't believe it was, but as they approached, a swan tried to fly, only to land a few feet away.

The Indian Mountain Long-Range Radar Site is about 190 miles northwest of Fairbanks, Alaska. Keel and Johnson were contractors working there on a petroleum-oil-lubrication system upgrade project for Alaska District. The temperature that evening was five degrees above zero, and the wind had been blowing consistently at 15 to 25 knots for three days.

The radar site is normally staffed year-round by four workers, and Alaska District built the two domes there. Keel picked up the swan and carried it to the living dome just as the crew from the radar site and the Dames & Moore contractors were sitting down to dinner. "Hey, what are we going to do with this," he asked.

They could see the bird was suffering from hypothermia. Ice covered much of its body and its tail feathers were iced over. They took it into the heated maintenance shop and made a bed of unused oil absorbent pads. They covered the swan with a blanket and let it rest.



Lee Keel brings in the injured swan. (Photo courtesy of Alaska District)

The site chief called the Alaska Department of Fish and Game for advice. The ADF&G directed him to the Mt. McKinley Animal Hospital, which serves as Fairbanks' official bird recovery center. Debbie McQueen, a veterinary technician and certified wildlife rehabilitator at Mt. McKinley, said to place the swan in an enclosed area.

The crew moved the swan to an unused bathroom where they made her a more comfortable bed. By this time, they were calling her "Swannie."

They identified her as a tundra swan, the more common of the two swan species in Alaska. Rod King, a migratory bird biologist with the U.S. Fish and Wildlife Service, said Indian Mountain is on the migration route for swans on the Seward Peninsula that summer.

The crew found the swan had a

sprained left leg and could not stand by herself, which explained her precarious situation. Ron Broyles, a mechanical engineer with the Fairbanks Resident Office, assisted in nursing the swan back to health. He made sure the swan had fresh water twice a day, kept the food dish filled, and cleaned up the messes for the five days the crew kept her at the site.

After her second day, the swan started recovering. When Broyles entered the bathroom to change her food or water, she gave him a dirty look and hissed at him. But the swan still did not eat until the fourth day when she ate a mixture of oatmeal and cornmeal.

By Oct. 8 the crew found a local air carrier, Warbelows Air Ventures, who volunteered to fly the swan to Fairbanks. Personnel from Mt. McKinley Animal Hospital picked her up and took her to the animal hospital.

The veterinarians weighed her at 12 pounds. "She should weigh around 18 or 20 pounds, if not more," McQueen said. Technicians hooked her up to fluids to rehydrate her and they fed her with a tube. They took x-rays and found no broken bones.

At the end of October, the swan was still in Fairbanks recovering. When she becomes strong enough to fly, Alaska Airlines will fly her to a bird sanctuary in Oregon where she will be introduced to a flock of migrating tundra swans. Everyone at Indian Mountain hopes she has better luck migrating next fall.

Critical Project Program

Nine Jacksonville projects use fast-track approach

By Christina Plunkett
Jacksonville District

Jacksonville District is a trailblazer in the U.S. Army Corps of Engineers' Critical Projects Program. In a little more than two years, the district has made their nine critical projects a sterling example of how the fast-track approach works.

In mid-August, the South Florida Water Management District (SFWMD) Governing Board approved an unprecedented \$115 million in civil works projects, which paved the way for Jacksonville District to implement seven of the nine critical projects. This unparalleled approval also meant that these critical projects, chosen to enhance Everglades restoration, will be put into motion.

These projects, plus the Florida Keys Carrying Capacity study (already underway) and the Seminole Big Cypress Project (also ready to implement) are expected to fully use the funding authority granted by Congress — \$75 million in federal funding and \$75 million in local sponsor share.

"This signing speaks volumes about the cooperative relationship between our sponsors and Corps Headquarters, who we're working with in the overall restoration of South Florida's ecosystem," said Richard Bonner, Deputy District Engineer for Project Management. "These agreements represent Jacksonville District's ability to meet the intent of Congress in moving forward with the restoration effort."

First of its kind

The Critical Projects Program became the first of its kind for the Corps when it was authorized by Congress through the Water Resources Development Act (WRDA) of 1996. The nine projects in Florida were chosen by the South Florida Ecosystem Working Group with significant public input. They are not only quick-turn-around projects, but will also result in substantial restoration, preservation, and protection benefits consistent with the (Florida) Governor's Commission Plan for the entire state.

Through WRDA 96, Congress is allowing the Corps to take a fresh look at the environmental impacts of its projects in South Florida and to bring fast restorative measures to projects identified as critical. The fast-track approach has cut four years off the implementation of these projects and has radically shortened each critical project's time-line.

"Congress, in essence, has allowed the Corps to reduce the reconnaissance phase from one year to two months, and nearly eliminate the feasibility phase," explained Melissa Dollar, Critical Projects Program Manager. The Corps' commitment to making these crucially needed restorations a quick reality is also shown through Headquarters' self-imposed 10-day deadline to review the initial project report letter and either approve, reject, or ask for additional data.

All seven projects, recently approved by the SFWMD Governing Board, focus on several critical goals — restoring or preserving water flows to their surrounding areas, enhancing water quality of those flows or (in the case of Lake Trafford) improving the overall health of that important ecosystem.

Restoration

According to Dollar, each construction project will allow the Corps to restore the land to a more natural state in several ways. The projects will modify the features of existing Corps flood control structures to reestablish more natural flows, like the East



Hikers enjoy a walk around Lake Okeechobee. The Lake Okeechobee Water Retention and Phosphorous Removal project will ensure and increase the lake's future beauty and survival. (Photo from the Digital Visual Library)

Coast Canal Structures project; add features to collect and store water for later release, like the Lake Okeechobee project and the Ten Mile Creek project; or adjust systems that weren't designed as water-control structures (like roads) that impede natural water flows.

The Tamiami Trail Culverts project is an example of the latter. It includes a cooperative agreement with the Florida Department of Transportation to build 60 additional culverts under the Tamiami Trail, and 29 blocking plugs in the existing borrow canal to balance runoff.

Projects

The other six agreements are:

- The East Coast C-4 Canals Project in Miami-Dade County will build a water control structure in the C-4 Canal to prevent drainage of the Everglades.

- The Western C-11 Basin (Structure 9) Project in Broward County will provide water quality treatment to reduce pollutant loads to the Everglades. It will separate clean seepage flows from polluted stormwater flows and, when possible, discharge only the clean flows into the Everglades.

- Lake Okeechobee Water Retention and Phosphorus Removal in Okeechobee County will reestablish wetlands that currently serve agricultural purposes and create Stormwater Treatment Areas to provide natural means for purifying water.

- The Ten Mile Creek Water Preserve Area in St. Lucie County creates a reservoir to capture stormwater and treat it before it is re-released into Ten-Mile Creek.

- The Lake Trafford Restoration in Collier County will dredge 8.5 million cubic yards of decaying muck from the bottom of the reservoir.

- The Southern Corkscrew Regional Ecosystem Watershed Addition and Imperial River Flowway in Lee County will remove miles of berms, roadways, and houses which currently impede flows southward.

- The Seminole Big Cypress project will provide enhancements including removing pollutants from water discharged from the Seminole Reservation, and restoring native vegetation to the area and more natural flows to the Big Cypress National Preserve.

These eight agreements are reviewed by Corps Headquarters and are ready for approval pending completion of the Congressional notification process. At an upcoming South Florida Ecosystem Restoration Task Force meeting the SFWMD representative, the Seminole Big Cypress Tribe representative, and Michael Davis, Assistant Secretary of the Army (Civil Works), will sign all eight agreements, making them official. The next stage is to devise the plans and specs, then the projects can be advertised for construction.

Move dirt

Two of the projects are close to the move-dirt stage. The East Coast Canal Structures project involves building a gated control structure in the C-4 basin to raise surface and ground water levels to prevent drainage of the Everglades. The design is 90 percent complete with a construction contract expected to be awarded early next spring.

The plans and specifications of the Western C-11 project are more than 50 percent complete with contract award expected next summer.

The ninth project is the Florida Keys Carrying Capacity, which created a data base and interactive model to provide a comprehensive look at conditions in the Florida Keys. It was executed late last year. This information is helping local, state, and federal planners evaluate the effects of their decisions on the ecosystem before they are recommended.

"The program is at an exciting stage," said Dollar. "Soon, the Corps will be able to implement significant environmental improvements for South Florida at a pace unseen anywhere else in the federal government."

Districts unite to clean Superfund site

By Frank Bales
Kansas City District

The Environmental Protection Agency (EPA) Region IV wants the Coleman-Evans Superfund site cleaned up. The assignment is straightforward — remedy the site and return it to productive use by 2000 for less than \$30 million. To fulfill such high expectations from a demanding customer, several districts in the U.S. Army Corps of Engineers have combined resources.

The Coleman-Evans Wood Preserving Superfund Site is an 11-acre former wood preserving facility in Whitehouse, Fla., about 10 miles west of Jacksonville. The facility operated from the mid-1960s to 1994, and treated wood products with a mixture of pentachlorophenol (PCP) and No. 2 fuel oil. Subsequent investigation revealed that dioxins also contaminate the site. To complicate the problem, the property is bounded by residences, and there's an elementary school down the street.

The site has been in a remedial investigation or design phase since 1983. There have been several actions to address site contamination, and two remedies were proposed and rejected due to cost or technical impracticalities. So EPA came to the Corps to design a practical remedy that will clean up all contamination on the property.

EPA requested that the project be designed by Kansas City District due to its technical expertise in thermal treatment of hazardous wastes. Once the remedial design began, the district organized a virtual team. Partnering during the design and construction phases of the project has ensured smooth transitions. A design charette was convened in Jacksonville District



The Coleman-Evans Wood Preserving Superfund Site is contaminated with dioxins. (Photo courtesy of Kansas City District)

to hammer out the project needs and a 35 percent design. Jacksonville's Project Management, Real Estate, and Engineering and Construction offices, along with Kansas City District's design team of engineers and scientists, developed the project with input from all customers (EPA, Florida Department of Environmental Protection, and the city of Jacksonville).

The design charette identified the need for further site investigation and delineation. Savannah District's geoprobe crew did this with help from Kansas City District. Jacksonville acquired all access agreements with local property owners and arranged the site survey and trailers for onsite activities. Samples went to the Waterways Experiment Station (WES) laboratory for groundwater treatability studies, and analytical samples requiring expedited results went to the Corps' analytical lab in Omaha District.

The project design was completed last December. People from Jacksonville District's Construction Office visited the Southern Maryland Wood Treating Superfund Site remediation administered by Baltimore District to gather lessons learned.

During initial phases of site remediation, Omaha District's Rapid Response Team helped set up the on-site team.

Nashville District's Preplaced Remedial Action Contract awarded the contract to GTI, Inc. Nashville District is retaining contracting officer authority for the contract. Contracting officer representative authority has passed to Jacksonville District's Construction Office.

The mix of Corps districts cooperating in this assignment has not been painless. Roles and responsibilities shifted as work moved from investigations/studies through design to con-

struction. The project manager for design is Kansas City District, but during construction the responsibility passed to Jacksonville District, with technical plan reviews done by designers in both districts.

The various methods of accomplishing work, diverse expertise at different offices, and differing customers and expectations have made this a learning process. Communication is paramount. All communication needs to be direct and specific to ensure that team members understand objectives and expectations.

The team has worked through many project issues regarding finances, lines of communication, comment resolution, and public meetings without losing the goals of accomplishing the project. Although each team member saw their own way of accomplishment, they listened to and tried to understand the others.

The project is a difficult remedial action requiring extensive expertise, and the presence of dioxins increased its visibility. This required a concerted effort by all involved to educate and listen to the public.

The soils remedial action mobilized on May 24, and the clean up is still underway. Members of the Coleman-Evans virtual team and their roles are:

Jacksonville -- Construction oversight, engineering, project management (construction), real estate.

Kansas City -- Engineering design, project management (design).

Nashville -- Contracting officer.

Savannah -- Site investigations and sampling.

WES -- Treatability studies.

WES Analytical Laboratory (Omaha, Neb.) -- Analytical data.

Environmental camp challenges students

By Jamie Kordack
Buffumville Lake

Twenty-three students and teachers from three high schools endured rainy nights in tents, meals cooked over campfires, and encounters with salamanders to learn more about their environment. The second annual Hodges Village Dam Environmental Education Camp was held near the French River at the Hodges Village Dam project.

Three Massachusetts high schools sent students and teachers to the camp. They were Shepard Hill Regional, Oxford High School, and Burncoat High School. The U.S. Army Corps of Engineers at Buffumville Lake and Hodges Village Dam, and the Hodges Village Environmental Education Association (HVEEA) sponsored the camp.

Each school selected students based on their science/natural resource aspirations.

"It was a good group of kids, providing a balance of minority and inner city students from Worcester along with ones from our local towns," said Dave Stiddem, project manager. "One of my underlying goals was to spark an interest in minority and inner city kids to think about the park ranger or environmental profession as a possible career choices."

Members of HVEEA, a non-profit group that works closely with the Corps, spent a lot of time planning, setting-up, and taking down the camp.

The Environmental Education Camp's curriculum



Dave Stiddem (center) and Keith Beecher teach students during the camping trip.

included workshops taught by volunteers from HVEEA, the Corps, Buffumville Lake/Hodges Village expert volunteer corps, Massachusetts Department of Environmental Management, University of Massachusetts forestry class, local environmental consulting firms, and the local Audubon Society.

The program operated out of a primitive camp at the French River. The students arrived Friday night, settled their belongings, then prepared their own meals and took part in an "owl prow" program.

They spent Saturday canoeing the French River, stopping for environmental sessions. The halfway

point was camp for lunch. The landing at the end of the day put them just upstream of Hodges Village Dam, which gave the camp leaders the opportunity to fit flood control into the environmental experience.

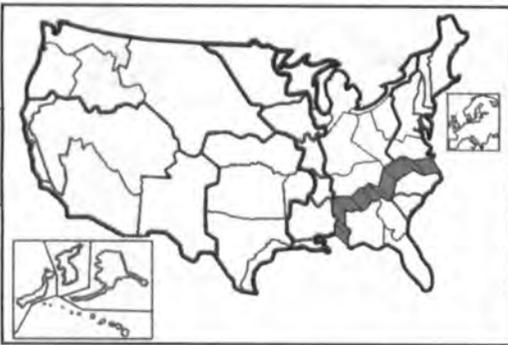
Sunday, the students hiked from one workshop to the next on the trails.

One or more adult chaperones accompanied the students at all times. The Corps owns the tents, including the big tent used to house the dining area. Area supermarkets, donut shops, and pizza restaurants donated most of the food.

A state grant awarded to HVEEA helped pay for some supplies not donated, like canoe rental and rent-a-toilets. The grant is also paying for a part-time intern/administrative coordinator for HVEEA to assist the Corps with other programs like the Environmental Camp, and to help expand the organization.

All workshops had the same message -- the environment is fragile and needs sound management to protect it. Whether it was learning about birds on a bird hike, the importance on protecting vernal pools, forestry management for sustainable growth, or water resources, the message remained that we are responsible for the survival of our environment.

Co-coordinator of the Environmental Education Camp, park ranger Jamie Kordack, says she is "very pleased to have a part in worthwhile programs such as this. I give a lot of credit to great environmentally conscious groups like HVEEA and the talent in our Corps friends and volunteers."



Focus on South Atlantic Division

Jacksonville, Charleston, Wilmington, Savannah, Mobile

Division meets vital missions in southern U.S., south Atlantic

By Rob Holland
South Atlantic Division

Headquartered in Atlanta, Ga., South Atlantic Division (SAD) oversees military design and construction and water resources development in an eight-state region covering 250,000 square miles. SAD's territory extends outside the continental U.S. to territories and countries throughout the Caribbean, Central and South America.

Work is executed through five districts in Wilmington, N.C., Charleston, S.C., Savannah, Ga., Jacksonville, Fla., and Mobile, Ala. Brig. Gen. J. Richard Capka commands SAD and leads about 4,000 civilian employees and 35 military personnel.

Formally organized in 1929, SAD and its predecessors in the Southeast developed coastal fortifications such as Fort Pulaski near Savannah, Fort Sumter, S.C., and Fort DeSoto, Fla. Lighthouses built by early Army engineers at Cape Hatteras and Cape Lookout protected shipping from some of the most treacherous coast on the eastern seaboard. SAD developed early waterways in the region and numerous major harbors such as Wilmington, Charleston, Savannah, and Jacksonville on the East Coast, and Tampa and Mobile on the Gulf.

In more recent times, SAD built all the major space program facilities for the National Aeronautics and Space Administration, including the launch complex at Cape Canaveral and the space center in Mississippi. It continues to support the space shuttle program with new facilities and upgrades.

Through its two military districts in Savannah and Mobile, the division provides design, construction, and real estate management services for 16 Army and 17 Air Force bases. Thirty-two percent of

the stateside Army population resides in the southeast, and 18 percent of the Air Force. SAD supports such major power projection bases as Fort Bragg, N.C., and Fort Stewart, Ga. Five major Army or joint commands make their homes in SAD's territory, including Forces Command, Central Command, Southern Command, Special Operations Command, and Reserve Command.

In its civil works program, SAD built and maintains more than 6,000 miles of federal channels. Inland waterways include intracoastal channels on both coasts and a number of busy river systems that serve such cities as Columbus, Ga., and Birmingham and Montgomery, Ala. The Tennessee-Tombigbee Waterway, completed in 1984, connects the Tennessee River with the port of Mobile, providing an alternate route for traffic bound for the Gulf Coast. The waterway is a shortcut of nearly 800 miles from some destinations. On the waterways in SAD there are 32 navigation locks.

After World War II, SAD began building a number of multiple purpose dams to provide flood control, hydroelectric power, water supply, recreation, and navigation to the region. These dams, such as Buford Dam at Lake Lanier north of Atlanta, and Hartwell Dam on the Savannah River upstream of Augusta, Ga., have provided vital services to the people of the Southeast for the last 50 years. Together, these 33 projects have prevented more than a billion dollars in flood damages. In Puerto Rico, SAD's Jacksonville District is building the newest multiple purpose dam, Portugues, to provide flood protection and water supply to the southern part of the island. This dam is the first double-curvature thin arch dam ever built by the Corps.

Fourteen of these projects have hydropower tur-

bines which provide about four billion kilowatt hours of electricity annually. In addition, the lakes are enormously popular with boaters, campers, and other recreationists. Together these lakes host visitors for 500 million hours annually, which is 20 percent of the national recreation visitation. Three of SAD's lakes are among the top 10 most visited in the nation. Lake Lanier was the site of the rowing and flatwater canoeing competition for the 1996 Olympic Games, and also hosted the sailing competition for the Paralympic Games.

SAD also has about 3,600 miles of coastline, much of it susceptible to beach erosion. SAD has nourished eroded beaches from Miami to Wilmington, effectively preventing millions of dollars in damages to coastal development from hurricanes.

Since the Southeastern U.S. is the heart of "hurricane alley," SAD is called on almost annually to respond to storms in the Gulf of Mexico, Caribbean, and Atlantic. Under the authorities of the Federal Emergency Management Agency and our own flood-fighting program, SAD provides immediate necessities such as water and ice to storm victims, fights floods, and provides temporary roofing and power. Other disaster response and recovery responsibilities include cleaning up debris caused by hurricanes, and providing temporary housing for storm victims.

SAD has a large wetlands regulatory program, with responsibility for safeguarding about 27 million acres of swamps and marshes from the encroachment of development. The 20,000 permit actions which SAD processes each year help strike a balance between economic development and the protection of vital wetlands resources in the region.

Continued on next page



The new Womack Army Hospital at Fort Bragg, N.C., and a barge moving through a lock on the Tenn-Tom Waterway show the scope of the missions which South Atlantic Division performs every day. (Photos by Jonas Jordan)

Military, civil missions challenge Mobile

Article by Tim Dugan
Photo by Adrien Lamarre
Mobile District

Formally established in 1888, Mobile District plans, designs, engineers, builds, and operates diverse civil works and military projects. The staff of 1,300 employees includes nine military officers, many as resident and project engineers at remote locations in Central and South America. The district's fiscal year 1999 budget was \$539.8 million.

Military mission The military mission covers 252,200 square miles and supports the Army, Air Force, National Aeronautics and Space Administration (NASA), and other federal agencies in Tennessee, Alabama, Mississippi, and Florida. The mission also includes supporting U.S. Southern Command, U.S. drug interdiction, and nation assistance in Central and South America.

The district designs and supervises construction of diverse facilities. Additionally, it provides engineering studies and designs for family housing, installation master planning, and environmental enhancement and restoration. It acquires, disposes of and manages real estate, including the sale of timber and pulpwood and surplus buildings and facilities for the Army and Air Force.

Mobile District has nationwide responsibility for environmental documents for military planning, and for project management of base closures and realignments.

Major construction projects include a half-billion dollar aerospace test facility at the Arnold Engineering Development Center in Tennessee, and space shuttle facilities at Cape Canaveral. Another major project is the \$63.5 million Climatic Test Chamber renovation at Eglin Air Force Base, Fla., to improve the Air Force's ability to test aircraft and equipment at extreme temperatures.

Unique missions include worldwide support for the Medical Command; facilities design for the Environmental Protection Agency; real estate, construction, and environmental/cultural resources support for Department of Defense; and supporting military operations in Latin America.

Division

Continued from previous page

SAD also leads the nation and the Corps in new directions in environmental protection. Jacksonville District recently completed a restudy of the Everglades ecosystem to devise a comprehensive plan for restoring the threatened "river of grass" to conditions closer to those of 100 years ago. But changes to the hydrological regime of South Florida must also accommodate the interests of agriculture, urban development, and many other stakeholders. A \$7 billion, 20-year project is proposed to change the basic flow of water in hopes of restoring the rich wildlife resources that once inhabited the Everglades. This effort is being watched by governments and environmental groups around the world as a model for restoration on a large scale.

In the international arena, SAD provides engineering services, disaster relief, and construction to many countries in the western hemisphere. Under the auspices of the U.S. Agency for International Development, Department of Defense, and other agencies, Mobile District is assisting Honduras and other countries in recovering from Hurricane Mitch. The district also assisted in relocating the headquarters of the U.S. Southern Command from Panama to facilitate the turnover of the canal to the Panamanians.

SAD's large, diverse mission spans two continents, where the division brings its expertise and experience to bear on problems large and small.



Mobile District's Scanning Hydrographic Operational Airborne Lidar Survey unit poses in front of the battleship USS Alabama.

Civil mission The civil mission covers 96,330 square miles in Mississippi, Alabama, Florida, and Georgia. It includes all river, harbor, and flood control works in the watersheds of the Pascagoula, Black Warrior-Tombigbee, Tennessee-Tombigbee, Alabama-Coosa, Apalachicola-Chattahoochee-Flint, and St. Marks rivers, and the Gulf Intercoastal Waterway between Rigolets, La., and St. Marks, Fla.

The district provides designs and supervises construction of locks and dams, hydroelectric power plants, channels, harbors, floodwalls, and recreational facilities. It maintains, operates, and manages completed projects, including wildlife management. It is responsible for permitting all work done in navigable waters and adjacent wetlands in the district's boundaries, and provides floodplain management to both the government and private sector.

The mission also includes environmental studies and projects, beach erosion control, reimbursable work for others, and drilling and subsurface explorations for the Army. Recent projects include the \$2 billion, 234-mile long Tennessee-Tombigbee Waterway project; and comprehensive studies of the Apalachicola-Chattahoochee-Flint River System and the Alabama-Coosa-Tallahpoosa River System.

Operations functions The district has an enormous operations and maintenance program. It maintains 2,000 miles of navigation channels, seven deep water ports, four major inland river systems, 22 shallow-draft harbors, 27 dams, and 22 locks. The district manages eight powerhouses which generate about two billion kilowatt hours of electricity a year.

Mobile District operates 27 lakes and 464 recreation areas which had 35.1 million visitors and earned \$4 million in recreation user fees in FY98. It had three of the 10 most heavily visited projects.

The district has a strong environmental program — supporting an eagle hacking effort in the early 1990s to bring the threatened bird back to the Southeast; establishing Gaillard Island, a manmade disposal site now home to 16,000 birds; and a marsh establishment project on Dauphin Island, Ala., in conjunction with the Dauphin Island Sea Lab. The district is partnering with Alabama, Mississippi, U.S. Fish and Wildlife, and the Nature Conservancy to buy and manage 88,000 acres in Alabama and Mississippi to mitigate losses for building and operating

the Tenn-Tom Waterway.

Flood control operations and construction include 79 projects which have prevented more than \$200 million in flood damage in the last 10 years.

Disaster response Mobile District has a lead role in hurricane and disaster response. Corps Headquarters recently established a nationwide emergency response center at Mobile.

The National Deployable Tactical Operations System (DTOS) is a vehicle-based tactical system with an 18-vehicle fleet spread throughout the Corps. DTOS provides command and control for disaster operations. Nationally, there are three Deployable Tactical Operations Center (DTOC) sets, two in Mobile District and one in Sacramento District. Each is composed of two Emergency Tactical Operations Center (ETOC) trailers which are towed into position. These trailers have workspace, computer capabilities, communication systems, and can be manned by up to 38 personnel.

In recent years, emergency team members from Mobile District have deployed to Kuwait, Haiti and Surinam, throughout the Southeast, and assisted other district emergency response needs including Hurricane Georges recovery in Puerto Rico. The district is also working on a \$600 million recovery effort for Hurricane Mitch recovery in Nicaragua, Guatemala, El Salvador, Honduras, and Colombia.

SHOALS Center of Expertise The Joint Airborne Lidar Bathymetry Technical Center of Expertise is a major mission. (Lidar refers to laser radar.) It combines district operational capabilities with the research and development of the Waterways Experiment Station, plus the military mission and nautical charting of the Naval Meteorology and Oceanography Command.

The missions are to perform surveys using the SHOALS (Scanning Hydrographic Operational Airborne Lidar Survey) airborne laser system, expand SHOALS capabilities and applications, and conduct research and development in airborne lidar technology. More than 255 projects have been completed. These include navigation, nautical charting, coastal resource management, emergency response, and topographic surveys.



Focus on South Atlantic Division

Emergency ops, harbor keep district in action

Article by Penny Schmitt
Photos by Bud Davis
Wilmington District

Wilmington District, seated in the teeth of Hurricane Alley on the Cape Fear River, is making its name in North Carolina these days with Emergency Operations Management and the biggest infrastructure project ever undertaken in the Tar Heel State.

Harbor project

In an effort that will be underway until 2005 and will cost about \$329 million, the district is deepening and widening the channel into the state's largest port. The project is a complex, multiphase operation

that involves blasting rock out of the channel in downtown Wilmington.

Workers will also dredge the ocean bar to add four feet of depth to the Cape Fear channel from the river's mouth to the Cape Fear Memorial Bridge.

Environmental aspects of the project involve working with nearby beach and island

communities to ensure the beneficial use of six million cubic yards of beach-quality sand that will be dredged during the project.

This year, the district aims to award two major dredging contracts, and to advertise two others, as well as completing the dredged material disposal planning for the project.

Completion of the project is eagerly awaited by the State Ports Authority, shipping companies, and all whose work depends on the state's international trade. The deepening project will allow fully loaded PANAMAX container ships to cross the harbor bar at any tide level, increasing the value of cargo that can be shipped in and out of the port by millions of dollars each year.

The Harbor Project, though huge, is matched in scope by Wilmington District's operations in support of navigation. The district is home port to a significant fleet of dredges and survey vessels that ply the East Coast and the Atlantic Intracoastal Waterway, ensuring open channels for shipping, fishermen, Navy and Coast Guard vessels, and recreational sailors.

Coastal engineering

"We've been told that each mile of beach is worth \$9 million per year to North Carolina," said Col. Jim DeLony, Wilmington District commander. "Not only



A deeper channel in the Cape Fear River will allow hundreds more containers to be stacked on each PANAMAX container ship.

that, but for every property owner on the beaches of this state, there are 142 beach users." The value of Corps shore protection and beach preservation and renourishment capabilities is growing right along with the tourist industry, which is about to become the state's number one money-maker.

"We already have significant responsibilities for projects at North Carolina beaches," DeLony said. "We're delighted that those projects held up well and helped many of our communities come through a tough hurricane season relatively unscathed. Our coastal engineers are among the best the Corps has to offer."

"We're proud of their ability to help communities hold onto the qualities that make them so attractive, and we're also proud of their work in such areas as habitat protection for endangered sea turtles. We want a good environment for all of North Carolina's beach users — those with flippers, four feet, or wings, as well as human users."

Rivers and mountains

With a long inland reach, North Carolina and Virginia are states with extremely diverse geographies and ecosystems. So Wilmington District, which serves parts of both states, fields expertise in many areas besides the coastal and navigation areas, for which it is well known.

Even before the 500-year floods associated with Hurricane Floyd, the district studied the Neuse River Basin to look at comprehensive flood control, water quality, environmental restoration, fisheries, and other issues. Another major study is assessing the water quality in an area called Lockwoods Folly that is important to the state's fisheries.

Wilmington also operates five major projects that provide flood control, water quality, and recreation



Loggerhead turtle hatchlings have a better chance of survival as Wilmington District improves their habitat on Oak Island, N.C.

resources that benefit millions in North Carolina and Virginia. Two of these projects, John H. Kerr and Philpott dam and reservoir, also provide hydropower to Virginia.

The district's four regulatory offices work closely with North Carolina's departments of transportation and environment and natural resources to ensure that the rapid development taking place in the Tar Heel State continues to preserve wetlands while allowing reasonable growth.

"Wilmington District has had many storm-driven chances to excel in service to the people of North Carolina in the past few years," DeLony said. "We're well on our way to becoming one of the best resources for sustainable, wise development any state ever had."

District has large military program

Article By Alicia Gregory
Photos by Jonas Jordan
Savannah District

Headquartered in Savannah, Ga., with 26 field offices in three states, the 1,000 team members of Savannah District are committed to providing their customers with the best products and services. The district commander is Col. Joseph K. Schmitt.

The district's roots can be traced to 1829 when Army engineers, assigned to the Corps' Savannah Station, were involved in building Fort Pulaski and surveying the Savannah River. Officially designated the Savannah District in 1888, the district continues the dual mission of military construction and civil works development begun by those early Army engineers.

Military mission

Savannah District manages one of the largest military design and construction programs in the Corps with a total value of more than \$2 billion. The district's primary mission is installation and base engineering support to the Army and Air Force at 14 major installations in Georgia and South and North Carolina. Projects include airfields, barracks and dormitory complexes, hospitals, schools, family housing, commissaries, clinics, hangars, and the most sophisticated training facilities in the world.

Savannah District is literally rebuilding Fort Bragg, N.C. With 71 construction projects underway valued at more than \$630 million, and 23 projects under design worth almost \$400 million, the Army's premier military installation is changing rapidly.

Today 80 percent of the district's annual workload supports military installations. Some of that includes work we do for others in all parts of the world including England, Germany, Saudi Arabia, Oman, Qatar, Turkey, Guam, Japan, and Korea.

Civil works

The district has played a major role in developing water resources in Georgia, particularly in the Savannah River Basin and coastal Georgia.

A leading producer of hydroelectric power, Savannah operates three major multi-purpose dams, levees, floodwalls, floodways and channels in the Savannah River Basin. These projects have prevented more than \$44 million dollars in flood damages, enhance water supply to cities and industry, provide extensive recreational opportunities, and produce 2.4 million megawatt-hours of electric power each year. The district's power plants provide 47 percent of the power produced by the 10 plants feeding the Georgia-Alabama-South Carolina electrical system.

The district's navigation team maintains both Savannah and Brunswick harbors. These two ports generate more than \$1.3 billion annually for the regional economy. Savannah Harbor is one of the major ports on the East Coast, and is a critical military operations deployment point for the 3rd Infantry Division. The district also maintains the Atlantic Intracoastal Waterway along Georgia's coast and the Savannah River, plus managing dredging activities for the Naval Submarine Base, Kings Bay.

Savannah is one of only three districts that operates a Site Characterization and Analysis Penetrator System vehicle. The vehicle performs quick,



Savannah District's military construction projects in North Carolina include rebuilding Green Ramp at Pope Air Force Base (left) where paratroopers board aircraft, and the new Womack Army Hospital at Fort Bragg.

cost-effective on-site surveys for contaminated soil and groundwater. This specialized vehicle supports most of the Hazardous, Toxic, and Radioactive Waste (HTRW) field investigations east of the Mississippi River. The district also operates the only self-propelled, self-elevating drill barge in the Corps, supporting waterborne drilling from New York to Florida.

Savannah District is the real estate agent for 19 military installations in three states and overseas, and provides real estate support to Wilmington and Charleston districts. The district executes the Homeowners Assistance Program (HAP) in the eastern U.S. and overseas, including the Transatlantic Program Center. The district also leases recruiting facilities for all branches of the military. The district's timber harvesting program is the largest in the Corps with an average yearly income of \$6.5 million.

The Office of the Chief of Engineers Value Engineering Study Team (OVEST) calls Savannah home. This team of multi-disciplined professionals performs value engineering studies on projects all over the country and internationally, including work for the Environmental Protection Agency and the Department of Energy. OVEST completes about 450 studies and reviews about \$2 billion in construction each year.

The district's emergency management team has mobilized personnel to respond to disasters worldwide. Team members regularly deployed during Desert Shield/Desert Storm, to Bosnia, and recently to Albania. Team members assisted in response and recovery operations for nine hurricanes in the last two decades as part of the federal response managed by the Federal Emergency Management Agency.

The district also administers the regulatory program for Georgia.

Focused on the future

The district is a leader in using web-based tech-



Richard B. Russell Dam shows that Savannah District also has a thriving civil works mission.

nology and the Internet. Like other districts, Savannah promotes electronic bid solicitations. They have also created a variety of other web-based products including a virtual tour of the Richard B. Russell Powerplant, an on-line shoreline management program, and electronic versions of our endangered species manual and the district's publications. The district's Congressional Fact Book is available both on-line and on compact disk.

Savannah District is:

- The Corps' technical center of expertise for heating, ventilation, and air conditioning controls.
- The Corps Center of Standardization for unaccompanied enlisted personnel housing (barracks), company operation facilities, tactical equipment shops, and military entrance processing stations.
- A "Design District" for HTRW projects for South Atlantic Division.
- The Corps' Eastern Region HAP Center.
- Developers of "the 95 Percent Solution," an interface for retrieving Geographic Information System data and customizing it to meet any customer's needs.



Water projects

Jacksonville District tames, restores water resources

By Barry Vorse
Jacksonville District

Jacksonville District's territory is Florida, Puerto Rico, and the U.S. Virgin Islands. The types of projects and their settings are diverse, but the common goal is to provide first-class engineering products and services to customers at the least cost and in the shortest time.

The district has the second largest civil works program in the nation and faces unique, varied construction and engineering challenges. At the same time, the district must provide traditional civil works services including flood control, water management, navigation, shore protection, and environmental restoration.

Puerto Rico flood control project

One major project are the Portugues and Bucana Flood Control.

When complete, the Portugues Dam will be a double curvature, thin-arched structure 1,500 feet along the crest and 272 feet high, 8.3 miles above the mouth of the Portugues River. The project involves building 9.1 miles of channel and two multi-purpose dams with uncontrolled emergency spillways. It will provide flood protection, a dependable water supply for the Ponce area, and recreation facilities on the lakes and channels. Construction will be in two phases. Phase one will be flood control only; phase two will be shoal removal. When complete, the reservoir will provide 24,200 acre-feet of flood control and water storage.

The Cerrillos Dam, now complete, is 9.5 miles above the mouth of the Upper Bucana River. The dam is 323 feet high and provides 47,900 acre-feet of flood control and water storage.

Rio Puerto Nuevo Project

The Rio Puerto Nuevo Project in San Juan is another major flood control initiative. Ongoing improvements will provide 100-year flood protection to the San Juan area by enlarging 11.2 miles of channel along the Rio Puerto Nuevo river at a cost of about \$450 million.

This project encountered engineering challenges which were addressed with wick drains, soil anchors, grouted concrete panels to line sections of the river channel, and a bridge retrofit with 48-inch steel piles for earthquake protection.

Kissimmee River restoration

The terrain of central Florida has changed. Historically, the low-lying land spent much of the year under water from seasonal rain. The gradual slope allowed the water to drain slowly south to Lake Okeechobee, providing a rich habitat for fish, birds, and other wildlife.

But the habitat was not suitable for man. Flooding in the Kissimmee River basin killed livestock, ruined businesses, and destroyed crops and homes. In the 1960s, Congress directed the Corps to dredge the Kissimmee River to prevent seasonal inundation. The 100-plus-mile river became a 53-mile canal. Although the project solved flooding in the area, it was detrimental to the environment. The Corps and its sponsor, the South Florida Water Management District (SFWMD), is working to reverse those effects.

Last May major construction began to restore part of the Kissimmee River. Restoration calls for filling



Jacksonville District is gradually restoring the Kissimmee River to a more natural state. (Photo courtesy of Jacksonville District)

about 22 miles of artificial channel, excavating nearly 12 miles of new river channel, and removing water control structures in the backfilled canal.

Water management during construction includes providing reduced flow while filling in the initial plug between Structures S-65C and S-65B, and preventing fish kills by limiting the rate of water level recession. Management of water levels has required close coordination between the district and the SFWMD staff.



Technology

The district seeks to be innovative with technology. In 1992 they used the Geographical Information System (GIS) during the Hurricane Andrew recovery, which was particularly useful when coupled with the Global Positioning Satellite system to locate sunken vessels. In 1993, computer animation depicted the construction of Portugues Dam to show the sponsor and local residents what will be built. In 1998, the district did the same for the Puerto Nuevo project.

Waterways

The district operates and maintains about 60 navigation projects, including 16 deepwater ports, 30 navigation locks, and more than 2,100 miles of inland waterways.

The district is designing a high-rise precast segmental concrete girder bridge to replace an 80-foot span double-leaf bascule bridge over the Atlantic Intracoastal Waterway about 30 miles south of Jacksonville. The original bridge, built in 1937, poses a bottleneck to evacuation during a hurricane. The new bridge will be 2,138 feet long and four lanes wide. It will have a 65-foot clearance for navigation and a 290-foot clear span over the waterway. This bridge will be the second longest clear span built in Florida using segmental precast girders.

Everglades restoration

The \$7.8 billion Central and Southern Florida Re-

study Project, popularly called the Everglades restoration, will challenge the district's personnel and facilities. The plan will improve the health of more than 2.4 million acres of the South Florida ecosystem including Everglades National Park and Lake Okeechobee, virtually eliminate damaging freshwater releases to the estuaries, improve water deliveries to Florida and Biscayne bays, improve water quality, enhance water supply, and maintain flood protection.

The district has technical capabilities needed for this work. Water modeling is critical; Construction-Operations (Con-Ops) Division will help build critical projects; and computer-aided design, GIS, and digital terrain models have been developed for canal and levee networks.

Con-Ops programs

Con-Ops also has many works for others projects. These include the Environmental Protection Agency, Drug Enforcement Agency, Immigration and Naturalization Service, Navy, Coast Guard, and more.

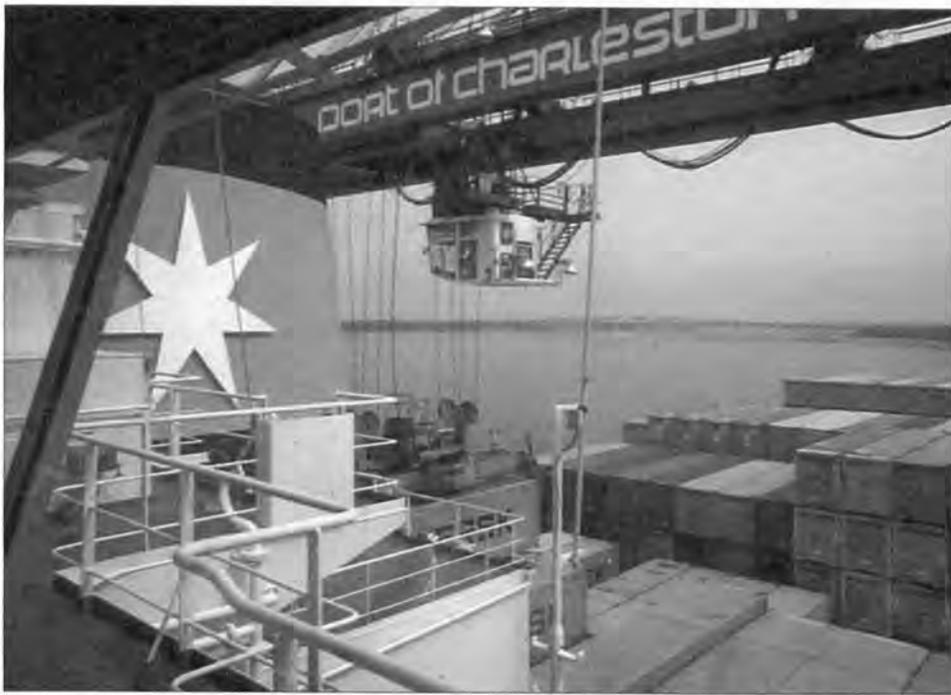
By partnering with sponsors and other stakeholders during projects, the district ensures that all concerns are identified and resolved. Participants develop action plans and, during quarterly meetings, review the plans, check the status of action items, and tour the construction site. The Office of Counsel, Engineering Division, Project Management, Construction and Contracting representatives also take part in these sessions.

The district leads the Corps in quality management training.

Training is conducted in Florida, Puerto Rico, and the U.S. Virgin Islands. Participants include contractors, local governments, local sponsors and other interested organizations.

Construction-Operations also instituted the "Safety Pays Program" to award government and contracted partners for proactive safety programs. The program's goal is to raise the safety awareness of government and contract workers.

By employing programs like these before and during the construction of projects, the district identifies and corrects situations that could lead to personal injury or equipment damage.



The Port of Charleston is one of Charleston District's major responsibilities. (Photos courtesy of Charleston District)

Charleston manages many civil programs

By David Rich
Charleston District

In 1869, Col. Quincy Gillmore, regarded as the first Charleston District Engineer, took charge of Corps activities from Cape Fear, N.C. to St. Augustine, Fla. He was also the supervising engineer for surveys of rivers and harbors in the same area. Although a permanent Corps office was established in Charleston in 1871, Gillmore commanded from the New York City Engineer Office.

His first responsibilities were to clear Charleston Harbor of all of the ships sunk during the Civil War and to make the harbor more stable. His solution was a pair of jetties at the harbor's mouth that would harness the scouring power of the ebb tide by funneling its flow. Work on the jetties began in 1882 and they were completed in 1895.

Other navigation projects of that period included building jetties at the mouth of Winyah Bay and a number of canals to aid coastal navigation. In the 1930s, the system of protected coastal channels was linked to form the Atlantic Intracoastal Waterway.

With the outbreak of hostilities in 1917, the district assisted the construction of three new training posts — Camp Sevier at Greenville, Camp Wadsworth at Spartanburg, and Camp Jackson at Columbia. In addition, the district supported construction of the Army Depot in North Charleston.

As World War II neared, the Corps launched a mammoth construction program. The most ambitious segment was airfield construction to accommodate the large pilot training mission planned for South Carolina. By the war's end, more pilots were trained in South Carolina than any other state. The district built or expanded airfields at Charleston, Columbia, Anderson, Spartanburg, Sumter, Florence, Georgetown, and Charlotte. Today, nearly all of these fields are in service as public airports.

Projects to shore up harbor defenses, plan for air defenses, and construction of training areas and ranges also went forward. To sustain this effort, the

district facilities expanded across Charleston and the work force grew from 100 to 1,000.

Since the war, Charleston District has tailored its specific missions and adjusted to suit changing times. In 1961 the district was relieved of its military mission. In 1980 the district's boundaries changed when it lost portions of Virginia and North Carolina.

Today, Charleston District undertakes a well-rounded variety of activities. These include a multi-disciplined engineering design program; construction placement and contract administration; a planning program which addresses such varied projects as flood control and beach protection; and a regulatory program to protect waterways and wetlands.

This year, the district's budget is \$87 million. The main missions are:

Navigation — The district is responsible for maintaining 210 miles of the Atlantic Intracoastal Waterway and seven minor harbors, as well as the ports at Charleston, Georgetown, and Port Royal. This fiscal year, more than \$19 million will be required for operation and maintenance of district projects. Besides normal maintenance, the district is widening and deepening Charleston Harbor from 40 to 45 feet. The project was included in the Water Resources Development Act of 1996. The final project cost is estimated to be \$138 million when it is completed in 2003.

Flood control — The district fights flood problems in the state not only by building and maintaining flood control structures, but also by providing detailed technical information on flood hazards. Under the Flood Plain Management Services Program, the district provides flood hazard information, technical assistance and planning guidance to other federal agencies, state and local governments, and private individuals.

Storm damage reduction — The district recently completed the Myrtle Beach Shore Protection Project which protects 25.4 miles of beach along the Grand Strand. The project, which involved placing some 6.3 million cubic yards of sand from off-shore borrow sites, cost a total of \$54 million.

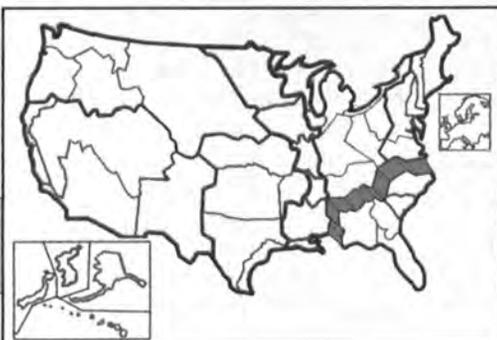
Regulatory program — About 25 percent of South Carolina is jurisdictional wetland. Under the district's regulatory program, biologists, engineers,

and environmental protection specialists review requests from throughout the state for permits for activities such as the filling wetlands to facilitate residential and industrial development, transporting dredged material to the ocean for disposal, building wharves, piers, and docks, and dredging in U.S. waters. The district evaluates almost 500 individual permit requests, more than 1,000 regional permit requests, and 300-400 nationwide permit requests. Last year about 1,200 wetland jurisdictional determinations were made, involving about 100,000 acres, and more than 250 reported violations were investigated. About \$3 million is budgeted for this program each year.

Environment — Solving environmental problems is increasingly important. The district has had a successful aquatic weed control program for a number of years. More recently, other areas are being emphasized, such as aquatic ecosystem restoration and the beneficial use of maintenance dredging material for ecosystem restoration. The district is also involved in several Defense Environmental Restoration Program/Formerly Used Defense Site projects. They range from removing underground storage tanks and pipes in various locations to a multi-year removal of unexploded ordnance from a 19,000-acre World War II training site.

Support for others — The district provides engineering design and construction expertise to many other government agencies. Recent activities include supporting the Federal Emergency Management Agency, Department of Energy, the National Park Service, the Federal Aviation Administration, the Marine Corps and the Navy, and other Corps districts.

Emergency operations — The district maintains a high state of readiness to ensure prompt and efficient response to natural or man-made disasters and national emergencies. Response and recovery plans are constantly updated and exercised. Charleston District Emergency Operations Center was activated several times this year in response to hurricanes. The district has also provided personnel support this year for disaster response efforts in North Carolina and Puerto Rico.



Focus on South Atlantic Division

Jacksonville, Charleston, Wilmington, Savannah, Mobile

Water safety program reduces drownings

Article by Patricia Simoes
Photo by Judy Marsicano
Fort Worth District

Drownings in Fort Worth District have dropped significantly since reaching a record high in the 1970s. In the past two decades, the district joined with other national and regional groups and expanded its efforts to promote water safety. Today, visitors know more about how to enjoy the lakes safely.

While providing recreation for an increasing number of visitors (24 million last year) the district has half the drownings it had in the early 1970s. The yearly drownings in that period averaged around 58 and, in one particularly difficult year, the district lost 72 visitors, according to Tim Gibson, coordinator of the district's water safety program. This average dropped significantly as the district focused on water safety. During the past five years, the yearly average was 32 drownings.

"That's still too many, and we keep looking for ways to improve our program, both locally and nationally," said Gibson. He says the district's water safety mission is particularly challenging because of Texas' long water recreation season and the heavy concentration of visitors from several metropolitan areas near six of the district's 25 lakes. "Many of our visitors are younger and play more aggressively."

The district's rangers dedicate a lot of their time to water safety education. They talk to visitors at the lakes, students in schools, and people at public events such as fairs and boat shows.

"You talk to kids at the lakes who have been at a school program, and they remember you," said Murray McCarley, a park ranger at Belton/Stillhouse Hollow Lakes. "They're glad to show you the nice new life jacket they got their folks to buy."

McCarley said he measures success by the number of people who have and use safety equipment. When he approaches a boat, people know what he is

looking for. "Things are a lot better," he said. "Visitors often show their life jackets before I have a chance to say anything."

Fort Worth District rangers often work with other districts and agencies to promote water safety. Districts in the Southwestern Division have worked on cooperative projects, and Gibson said the issue will receive increased regional attention in the future.

During the 1999 Texas State Fair, rangers from Tulsa, Galveston, and Fort Worth districts staffed the U.S. Army Corps of Engineers' exhibit to promote water safety and recreational opportunities at their lakes in Texas.

"Our visitors may not know or care which Corps district operates their favorite lake," Gibson said. "They just expect us to provide them a safe and enjoyable recreational experience."

Fort Worth District also works with other institutions interested in promoting water safety. This summer, the district worked with the Tarrant County Safe Kids Coalition and Cook Children's Hospital to conduct two life jacket exchange programs at three Fort Worth area lakes. Kids exchanged non-Coast Guard approved flotation devices, worn-out jackets, and improperly sized jackets for new, appropriate ones. A \$2,000 grant from BOAT/U.S. made these events possible.

Although children seem to respond well to water safety programs, other groups represent a challenge to the district's safety mission. Somerville park ranger Emmitt Attaway said most of the drownings at his lake were males aged 15 to 44. "This may be in relation to the male macho attitude," he said.

Attaway also said several drownings were alcohol related. "When we talk to people we've seen drinking, most of them think that they can do anything and handle any problem they encounter," he said. "We can give people all the information in the world about water safety, but if they don't use common sense or take responsibility for themselves when they are



Scott Tackett, a park ranger at Benbrook Lake, fits a young visitor with a new life jacket in a community exchange program.

around the water, something bad can happen."

Another concern at the district is the increase in Hispanic drownings. Because about half of last year's victims were Hispanics, water safety committees in the division have identified the need to increase the efforts to reach that community, Gibson said. "While this has always been a need in Texas, the recent growth in Hispanic populations in Oklahoma and Arkansas is presenting new challenges to Tulsa and Little Rock districts."

Managers and rangers agree there is a need for promotional material in Spanish. "For the state fair, we were able to scan and manipulate a poster from the Corps' water safety products catalog," Gibson said. "With the help of Spanish-speaking team members, we translated the text and produced a companion poster to the English version."

Judy Scott, a Little River Project recreation specialist, is Fort Worth District's representative on the National Water Safety Committee. She said she was pleased with the poster and hopes districts in the division will produce other materials in Spanish.

Course teaches students about Mississippi

By Michael Logue
Vicksburg District

The Mississippi River is the mother of society, arts, and the economy in the mid-South. But in Vicksburg, Miss., most high school students have never been on the river, never studied its history and benefits, and don't understand the job opportunities the river offers.

To counter this, Vicksburg District partners with the Vicksburg-Warren School District to sponsor the Mississippi River Course, a state-accredited, semester-long course teaching high school seniors about the river and its role in their lives. It is taught one semester each year at Warren Central High School, and both semesters at Vicksburg High School. This year marks the course's 25th anniversary.

The course features about 30 speakers from the professional community who teach topics like river commerce, river environment, floodplain management, river history, and tourism. The course also covers technical topics such as potamology (study of rivers), archaeology, and channel stabilization.

Vicksburg District helped create the course, and continues to play a vital role in the course and its curriculum. The district's history, *Of Men and Rivers*, is the course textbook, and 16 district people teach various topics. The district Public Affairs Office co-designed the course with local educators, and manages the Corps speaker schedule.

Although most of the course is taught in the classroom, at the end of the semester the students take a field trip on the *M/V Benyard*, the district's tow-boat. The students receive a Corps briefing, tour the vessel, and take a trip from the harbor project to LeTourneau's Landing and back. The day includes lunch and a chance to steer the vessel.

The course has won numerous national awards. Other school districts have investigated doing similar courses about their local industries.

"This course pattern can be used in school districts to prepare youth for adult life in their communities," said Michael Logue, Chief of Public Affairs for Vicksburg District. "The course is an opportunity to highlight our kids, their potential, and our communities."



Tommy Vickers, master of the motor vessel Lipscomb, guides a student through the delicate maneuvers required on the Mississippi River near Vicksburg. A day-long field trip is the highlight of a semester-long course about the river taught in local high schools. Vicksburg District created the course. (Photo courtesy of Vicksburg District)

CERL studies endangered plant

By Ann-Marie Shapiro
Construction Engineering
Research Laboratory

The sandhills pyxie moss is endangered throughout most of North Carolina, but appears to be thriving at Fort Bragg, and the Construction Engineering Research Laboratory is studying the plant to ensure its continued vitality.

Sandhills pyxie moss is a flowering plant, but it looks a lot like moss, especially where it nearly blankets the ground. At Fort Bragg, the plant has been recorded in more than 370 locations. On a busy military installation, such abundance implies getting trod on by soldiers, trucks, and even tanks. But the little plant has maintained a sizable presence on Fort Bragg.

Despite the plant's persistence, land managers have little scientific data related to population dynamics, breeding ecology, or resilience to trampling. This year, a study funded by the Legacy Program and executed by the Construction Engineering Research Laboratory focused on the sandhills pyxie moss to learn more about the species in support of military land uses on Fort Bragg. Research examined if the plant successfully reproduces, how it is affected by trampling, and the preferred level of canopy cover.

Some scientists are concerned that the individual plants found on Fort Bragg today are relics from an earlier era, surviving as individuals but not reproducing. So research focused on two aspects of reproduction — pollination biology and seed establishment.

Experiments demonstrated that sandhills pyxie moss requires pollen transfer between different plants for successful breeding, indicating that a lack of pollinators could prevent reproduction. The moss blooms in February and March, producing a showy white floral display close to the ground. The flowers produce a moderately scented odor that attracts many insects.

Eleven species of insects were confirmed as pollinators through observations and collection of pollen from their bodies. Ants may be the most important since they were recorded throughout the entire flowering period, both during the day and at night. Flies, bees and wasps also served as pollinators. And the research found that pollinators are successfully fertilizing sandhills pyxie moss flowers at Fort Bragg.

Despite this positive indication, few seedlings have ever been seen in a natural setting, so further experiments were conducted to determine whether seeds are fertile and if they require special conditions to germinate. Soil samples were collected near individual plants to see if seeds would germinate from a seed bank. Seeds were also collected directly from seed capsules on the wild plants and treated to different conditions in greenhouses to induce germination. No seedlings have emerged from either effort, and germination studies continue at University of Illinois greenhouses.

Although it is very small above ground, the plant has a large, deep root



Sandhill pyxie moss is a flowering moss-like plant. (Photo courtesy of CERL)

system that allows it to regrow if leaves and above-ground stems are lost in a fire. This root system may protect the plant against long-term damage from trampling by people or vehicles. Experiments in 1999 subjected pyxie moss to trampling by a HMMWV and foot traffic, each at three levels of intensity.

Foot traffic on a single study site did not significantly affect ground cover, and response to vehicle traffic differed be-

tween two study sites. At one study site, where a summer burn followed the trampling, moderate and high levels of vehicular trampling reduced pyxie moss cover. These reductions appear temporary, based on repeated measurement.

In a second study site that burned during the previous dormant season, there was no significant change in pyxie moss cover following vehicular trampling. It is likely the root system that

allows sandhills pyxie moss to survive ground fires also allows the plant to co-exist with some levels of trampling.

Too much shade may threaten the sandhills pyxie moss more than fire or trampling. Endangered species biologists suspect it requires a lot of sunlight to thrive. Field data from high-quality sites confirmed that the plant prefers open woodlands. Several sites had overstory canopy cover from 32 percent to 66 percent. Since all canopies were quite high and without an understory (a second level of trees), a lot of sunlight reached the ground for the pyxie moss. Frequent fires and human activities that reduce understory maintain such an environment.

As stewards for large tracts of undeveloped lands at training installations, the Department of Defense must balance military training requirements and environmental concerns. Military land managers at Fort Bragg can manage forestry programs, military activities, and conservation of the sandhills pyxie moss by applying ecological information about the species. The research provides the information needed by managers to maximize training opportunities at Fort Bragg while protecting the sandhills pyxie moss.

For re-enactor, history is alive

By Tara Colangelo
Buffalo District

For Joseph Krawczyk, a biologist in Buffalo District's Regulatory Branch, history isn't a series of dry facts mummified between the pages of a thick dusty book. For him, history is *alive*, and meant to be experienced hands-on.

Krawczyk is a Civil War re-enactor, a member of the 49th New York Volunteer Infantry Regiment, a unit based on an actual regiment that fought in the Civil War. He and his group, along with other regiments from Niagara and Erie Counties, re-enact major Civil War battles all over the eastern U.S.

"We train during the winter and engage in 'combat' during the summer, pretty much the same way the original regiment operated," said Krawczyk. The regiment trains in the same way, using the same military manuals and tactics the regiment did 138 years ago.

His group also travels to local festivals and area schools for living history presentations. "We're trying to educate the public about why we do what we do," he says. "It's important to make people aware of their heritage. Plus, kids love seeing us in our uniforms."

The regiment participates in 10 to 12 re-enactments a year.

"We re-enact battles here against local Confederate groups," Krawczyk said. "National events are larger, with units from across the country. At national events, we will fight against Southern-based Confederate re-enactment units."

The 49th traveled to Gettysburg last year to celebrate the 135th anniversary by participating in a three-day re-en-

actment, the largest Civil War re-enactment event to date. In October, they attended a re-enactment of the Battle of Cedar Creek in Virginia.

"The battles, which can last from half an hour to 40 minutes, are pre-scripted in that history tells the sequence of events and outcomes, but everything else is ad-libbed," said Krawczyk. "Our commanders meet with the Confederate commanders before a battle to discuss the scenario, then the Union and Confederate commanders take charge of their troops as they see fit. During a re-enacted battle, our movements aren't strictly historically accurate; the scenarios are too complex and dynamic."

The regiment strives for authenticity by using accurate reproductions of Civil War equipment. "For example, our uniforms are made of wool, just like the originals," Krawczyk said. "Now I know how the soldiers felt, wearing those hot uniforms, when they had to fight battles in the middle of summer."

Re-enacting soldiers also pitch camp the night before a battle to get a sense of what the actual soldiers experienced.

"Being out in the field we encounter problems similar to those faced by Civil War soldiers, and we use some of the same methods to solve them," Krawczyk said. "If a lantern is not accessible, we drive our bayonets into the ground and place a candle into the fastening end. It's interesting to discover how they improvised with what they had."

Krawczyk gives two reasons for his unusual hobby -- his father is interested in the Civil War and Krawczyk is a self-proclaimed history buff.

"I've always been curious about the human element of history," he said. "For me, it's one thing to read facts and figures in books. It's something totally different to get a glimpse of the human story behind the history, to get a sense of what a soldier was feeling while fighting a battle. I'm lucky to get a unique perspective into a major part of history."



Realism is the goal of all re-enactors. (Photo courtesy of Buffalo District)

Safety officer carves way to fame in Army-wide arts competition

Article and Photos
By Doyal Dunn
Japan Engineer District

From the tool-covered table at his Sagamihara Housing Area home, Karl Anderson, the Japan Engineer District's Safety Officer, carves his way to fame and fortune. Anderson recently took first place in the multi-media, novice category, in a world-wide arts and crafts competition sponsored by Department of the Army and Morale, Welfare, and Recreation Arts and Crafts.

Although adept at painting and drawing, Anderson prefers woodcarving and sculpture as his media. He explains he is self-taught and has honed his skills through reading books, looking at finished works, and practicing.

"I like woodcarving and sculpture the most because the piece can be viewed from many angles, allowing the viewer to get more than one impression," Anderson said.

While in high school, Anderson created his first real carving as a birthday present for his mother.

"It was the caricature head of a 'kitchen witch,' a Scandinavian good luck piece hung in the kitchen," he said. "I carved it with a pocket knife. She thought it was really good, so she bought me my first carving chisel set that Christmas." Since then, almost every wood sculpture he has carved was presented as a gift for friends or family.

"Another reason I create these pieces is that most of my ancestors were early 20th century immigrants to America, and a number of them were artisans or craftsmen," Anderson said. "To me, this is a strong connection between me and my heritage. This is probably why I like to stay close to traditional European ideas in selecting what type of object to make, although in the decoration I will use a variety of design ideas from different cultures."

Anderson also creates Santa figures, which he sells to collectors. Considering the time involved and the cost of the finished product, most of these have been on commission, but in the past year he



Karl Anderson works on an carved elephant.

has discovered a new method that achieves a similar result.

"I've learned how to make high-detail resin castings of the Santas which look and feel just like an original, but cost considerably less," said Anderson. "This is the method modern woodcarvers use to make artist's copies of their works, similar to a pen-and-ink artist's numbered prints made of his work. I sold some of my reproductions at the Camp Zama Arts and Crafts show last December."

The Santa figures he makes are similar to ones produced in America and Europe during the 19th and early 20th centuries. They were primarily used as table decorations or for things like candy containers. The original ones were normally crude folk-art pieces simply carved or molded of plaster or papier-mâché. Anderson's are more detailed than the originals and are made with wooden heads and bodies adorned with real clothes. The toys are miniature representations of those popular in the last century.

"I make two versions of Santa — a sitting version where he's dressed for indoors and is working on a large toy such as a doll or rocking horse; and a standing version that has outdoor clothes and a bag full of toys," said Anderson. "For the pieces I've made on commission, I find out what interests the person has or what kind of toys they want and custom-fashion them."

"One memorable Santa I carved for a doll collector held a miniature 3-story dollhouse that had all the furnishings inside, including two 2mm (.07 inch) diameter plates in the cupboard and hand-painted oriental carpets."

Anderson credits his wife, Dina, as having the most influence on his work. Whenever he begins a new design or has a partially finished piece he asks her opinion. In fact, Dina brought the winning piece, a carving of Santa putting the finishing touches on a doll, to the attention of Liz Reed, the Arts and Crafts Director at Camp Zama, Japan. Reed invited Anderson to enter the Army-wide arts and crafts competition.

"I was delighted," Reed said. "The craftsmanship combined with the unique design caused me to study carefully what Karl was doing with these pieces. I get strong feelings of history from them. I'm so glad he decided to enter the contest."

Anderson said he's willing to share his knowledge with others. Anyone interested in traditional woodcarving can e-mail him for tips on how to start woodcarving and sculpting, what tools to get, and what books are best to read.



Pat Riordan poses as a model for a carving of Santa Claus while Karl Anderson works in his home in Sagamihara Housing area at Camp Zama, Japan. In the background are some of Anderson's finished carvings. At right is the carving of Santa which won Anderson first place in the multi-media, novice category in the world-wide arts and crafts competition sponsored by the Department of the Army and Morale, Welfare, and Recreation.

Around the Corps

Director reassigned

Dr. Michael O'Connor, Director of the Construction Engineering Research Laboratory (CERL) was reassigned to direct the Geotechnical Laboratory in Vicksburg, Miss. There he will manage a staff of 135 and an annual research program of more than \$20 million. The Geotechnical Laboratory conducts research in soil mechanics, engineering geology and rock mechanics, military pavements, earthquake engineering, geophysics, and vehicle mobility. O'Connor will oversee research in three divisions and various special facilities, including the Centrifuge Research Center with the world's most powerful centrifuge.

Corps workshop

The 14th annual Black Engineer of the Year Awards Conference will be held Feb. 18-19 in Baltimore. For the past four years, Corps Headquarters has hosted a USACE Workshop for Corps employees as a pre-conference activity. The workshop is a forum to address issues facing Corps employees, and an opportunity for attendees to talk with the Corps' senior leadership.

William Brown, Principal Assistant for Military Programs, will chair the USACE Workshop and luncheon on Feb. 17. It is scheduled from 8 a.m. to 2 p.m. at the Baltimore Convention Center. The theme is "Preparing for the Next Millennium," and the keynote speaker is Lt. Gen. Joe Ballard, Chief of Engineers.

The registration fee for the workshop and luncheon is \$45, which can be paid by money order or cashiers' check made out to the USACE Black Engineer of the Year Conference Workshop. (Do not include this fee with your registration for the Black Engineer of the Year Awards Conference.) Deadline for workshop registration is Jan. 10.

For more information about the workshop and registration, visit the intranet website at <http://corpsinfo.usace.army.mil>.

Prime Power training

From Oct. 13 to Nov. 13, A Company of the 249th Engineer Battalion (Prime Power) conducted generator and circuit breaker maintenance, ground grid installation, infrared surveys, and overhead distribution system installation in Korea. They were supporting the Foal Eagle Exercise, and training for their peacetime mission of supporting natural disaster recovery.

A Company has two platoons at Fort Lewis, Wash.; a third platoon at Scholfield Barracks, Hawaii; and a fourth at Camp Humpherys, Korea. This is the first time three of the four have all come to Korea for training. The cost of a contractor doing this work is four to six times more than bringing Prime Power soldiers to Korea for the same job.

"FED provided resources they needed to get set up," said Ken Pickler of the Logistics Management Office. LMO provided office space, vehicles, and transportation needs; the Information Management Office provided computer log-on capability.

Special Missions Office

The Special Missions Office (SMO) officially opened its doors at Fort Belvoir, Va., on Nov. 10. The SMO combines two Corps operations, the Power Reliability Enhancement Program (PREP) and the Technology Review and Modernization Team (TRAMO) into one operation.

Before the move into renovated offices, PREP had been co-located with the Corps' Center for Public Works at Fort Belvoir, while TRAMO had been in Corps' Headquarters.

During the ribbon-cutting, Maj. Gen. Milton Hunter, Deputy Commanding General for Military Programs, said the reorganization joined "two great organizations into one greater organization."

The SMO is small, with only 20 employees, but its mission impacts a lot of people in the Army. The PREP arm studies organizations and buildings to check their survivability and reliability of electric power and utility infrastructure within a total threat context. TRAMO manages the Corps' classified construction. PREP has been providing electrical support since 1981. TRAMO also has existed within the Military Programs Directorate for a number of years.

Army Engineer Memorial Award

The Army Engineer Officers Wives Club (AEOWC) of Washington, D.C., announces the availability of Army Engineer Memorial Awards (AEMA) for qualifying high school seniors. To qualify for an award, an applicant's parent must be a U.S. Army Corps of Engineers officer presently on active duty, or a Corps officer who died on active duty, or a deceased retired Corps officer. The awards, established in 1973 as a memorial to engineer officers killed in Vietnam, are given annually to honor all engineer officers who died in the line of duty.

The award is based on academic and extracurricular achievement in high school, and it must be applied toward tuition or scholastic expenses at a college, university, technical or vocational school. Deadline for application is March 1.

For further information, contact the AEMA Treasurer of the AEOWC, Marge Williams, 20931 Lock Court, Sterling, Va. 20165-2531. The fax number is (703) 430-2896.

Scientists honored

Louis Fatale and Dr. Paul Krause of the Topographic Engineering Center (TEC), and Danny Champion of the Training and Doctrine Command Analysis Center-White Sands Missile Range (TRAC/WSMR) received the 1999 Department of the Army Dr. Wilbur B. Payne Memorial Award for Excellence in Analysis by a group. This award, presented annually by the Deputy Under Secretary of the Army (Operations Research), recognizes technical achievement for Department of the Army Operations Research/Systems Analysis work.

The TEC/TRAC-WSMR study team received the award Oct. 19 at the 38th Army Operations Research Symposium at Fort Lee, Va. They were honored for "The Effects of Vegetation on LOS for Dismounted Infantry."

Line of sight (LOS) is an essential part of understanding the battlefield. In August 1997, the Army Modeling and Simulation Office funded TEC/TRAC-WSMR to conduct the study to provide a better understanding of LOS in vegetated areas and enable a more accurate depiction of dismounted infantry engagement in combat simulations.

Alabama Conservationist of Year

Alabama Governor Don Siegelman recently gave biologist Glen Coffee the 1999 Wildlife Conservationist of the Year award for his environmental efforts. Coffee, lead biologist on Mobile District's Environmental Quality and Habitat Restoration Team, received the award July 23 in Montgomery, Ala., for his contributions to the Tennessee-Tombigbee Wildlife Mitigation Project.

Coffee has been involved in all aspects of the mitigation, including public meetings, identifying willing landowners, evaluating wildlife habitat suitability, purchase negotiations, area development, and funding for development, operations, and maintenance.

"I consider the award recognition of the good work

we've all done," Coffee said. "I think this honor is particularly significant since no such recognition has been bestowed on our district before. The fact that the nomination was made by our friends and partners in the Alabama Department of Conservation and Natural Resources shows how far our agency has progressed in the environmental arena."

Antarctic expedition

Two Corps researchers are part of the 11-person team that will traverse the South Pole during the International Trans-Antarctic Scientific Expedition (ITASE). The four-year research program, funded by the National Science Foundation, encompasses seven research projects. Two projects are from the Cold Regions Research and Engineering Laboratory (CRREL) — Snow and Firn Microstructure, and Radar Profiling. (Firn is snow compacted to ice.)

During the Antarctic summer, from October to January, the ITASE team will collect ice cores to study Man's effect on climate during the industrial era.

Dr. Steve Arcone, a geophysicist, and Dr. Norbert Yankielun, an electronic engineer, both with CRREL, will provide technical expertise and high-resolution radar that allows the group to detect and avoid dangerous crevasses.

Safe Performance Award

Daeho Corp. received the Chief of Engineers' 1998 Contractor Safe Performance Award for excellent safety performance on a cold storage project at Pusan, Korea. The project required the contractor to build a 20,000-square-foot addition to the existing cold storage plant, and replace the outdated ammonia cooling system with a new refrigerant system. A supplemental agreement was awarded to repair the elevated water storage tank. Besides outstanding safety compliance in all phases of construction, the award commended Daeho in the high-risk areas of ammonia removal, fall protection, and confined space operation.

Technology Leadership Award

A team from the Engineering and Support Center, Huntsville, has earned the Government Technology Leadership Award for developing a cost-efficient method for investigating unexploded ordnance (UXO). Thirteen government and contractor support employees joined to develop "Meandering Path Geophysical Investigations" which cuts costs, increases efficiency, and improves public safety during UXO cleanup on public and private lands.

The team used recent advances in global positioning system technology to let investigative crews meander randomly through a site instead of mapping grids at pre-determined locations. The Huntsville Center team documented cost savings of about \$256,000 at four field demonstration sites, and savings of \$3.5 million annually.

Air Force awards

Far East District (FED) was elated when the Pacific Air Force Command announced its Design and Design & Construction Agent Awards in October. Thomas J. Davis/Jung-II (TJD), one of FED's architect-engineer firms, received the Design Excellence Award. Fred Davis, Assistant Chief of Construction Division and Acting Resident Engineer for the Central Resident Office (CRO) received the award for Civilian Project Manager of the Year in Construction.

TJD has done design work for FED for 25 years. They were recognized for designing a visiting quarters project at Osan Air Base.

"The team is what makes it happen," said Davis, crediting the CRO team for his receiving the award. "I lead like the coach of a team."

'It was a banner year' for civil works

By Carol Sanders
Headquarters

Something new, something old...

St. Paul District completed rehabilitation of a lock and dam built in 1936. Jacksonville District completed plans for the Everglades ecosystem restoration. Los Angeles District was a month away from completing the \$280 million Seven Oaks Dam, probably one of the last large dams the U.S. Army Corps of Engineers will build.

Corps projects this year spanned the nation and the spectrum of service to the public — from navigation to ecosystem restoration to flood control.

"It was a banner year," said Maj. Gen. Hans Van Winkle, Deputy Commanding General for Civil Works. "This year's execution of the civil works program was the best yet in terms of absolute dollars. Districts were able to expend \$4.49 billion dollars this year on a variety of studies and projects that directly benefit the quality of life of the American people and the environment."

"This was \$390 million more than expended last year, and it reduced our carryover (the money we were appropriated but weren't able to spend) by about \$200 million," said Fred Caver, Chief of Programs Management Division. "This execution sets the stage for our push to provide more and better service to the American people in the coming years."

"The importance of water resources to the country is going up," said John D'Aniello, Principal Assistant to the Deputy Commanding General of Civil Works. He is the Corps' senior civilian over civil works activities. "Everywhere you look the Corps is positively affecting quality of life and the economy, from the local and regional level to the national and global level. We're returning 26 percent on the investment the country has made in this infrastructure. That's why the increase in execution is so significant. Every time we increase our execution by another 10 percent, that's more investment we're making in the country's infrastructure, and the more services we provide the American public."

Studies completed The general investigations account provides money to accomplish studies and develop the preliminary plans and specifications for coming projects. About 95 percent of the dollars scheduled were expended. Some of the more significant projects included Philadelphia District completing the feasibility report on the shore protection for the Delaware coastline, and an expedited reconnaissance study by Savannah District on the Savannah Harbor ecosystem.

Construction underway In the construction general account, the districts expended more than \$1.4 billion on a wide variety of projects. One of the largest harbor dredging projects in Corps history is now underway in the ports of New York and New Jersey. New York District is executing the \$733 million Kill van Kull dredging project to deepen the channel from New York Harbor to Ports Elizabeth and Newark from 40 to 45 feet.

The half-billion dollar project in the Houston Ship Channel also got underway this year, deepening the channel to 45 feet and widening it from 400 to 530 feet. The channel is some 55 miles long from the Gulf of Mexico to Houston. An added benefit is the dredged material will be used for habitat development across the entire length of Galveston Bay.

The bypass portion of the \$62 million project at Bonneville Dam on the Columbia River was completed in last March. Migrating juvenile salmon are now transported around the second Bonneville powerhouse and deposited into deeper, faster water where predators are less likely to congregate.

In Fort Wayne, Ind., Detroit District completed the third phase of a flood control project, probably



The Corps' civil works program strives to strike a balance between development and conservation. This is Lock and Dam 14 near LeClaire, Iowa. (Photo courtesy of Rock Island District)

one of the first resulting from a cost-shared study under the Water Resources Development Act of 1986. The final phase is scheduled for completion in 2001, but the contractor is significantly ahead of schedule, so the project could be finished almost a year early. It will provide flood control protection to more than 3,000 residences and 169 commercial structures.

In Wisconsin, as part of the Upper Mississippi Environmental Management Program, St. Paul District completed the second phase of island construction in pool 8. The islands are built with dredged material and will help maintain existing valuable habitat for migrating birds.

Recreation got a boost in North Texas when Fort Worth District completed the Greenbelt Corridor, a 10-mile multi-use trail system. The trail provides picnic and restroom facilities, canoe launching sites, and equestrian, walking, and biking trails along the heavily wooded banks of the Elm Fork of the Trinity River. The Greenbelt is one segment of the Trinity Trails System which, when finished, will be a 250-mile trail from the Dallas-Fort Worth area to the Oklahoma border.

Mississippi River Along the Mississippi River, 99.5 percent of the money available was spent. A significant item was raising the height of levees. A repeat of the devastating 1927 flood would upset the national economic equilibrium with billions of dollars in damage felt across the nation. But that's something people along the Mississippi won't worry so much about after this year's work.

Operations and maintenance "We had a record year executing the operations and maintenance (O&M) program — we expended 98.2 percent of the \$2 billion available to us," said Charlie Hess, Chief of Operations Division. Hess said there is a better understanding of the complexities and benefits of the nation's water resources infrastructure since the major subordinate commands' review of the O&M program that took place with the Chief of Engineers this year. "We have a tremendous stewardship responsibility and our people in the field are doing a great job in providing services to our customers efficiently and effectively," Hess said.

One of the most significant O&M accomplishments was implementing the National Recreation Reservation System. More than 380,000 reservations for recreation sites and facilities at Corps-operated parks were made this year, and interest in on-line reservations is quickly moving the Corps into e-business.

"Certainly, a significant step forward was the assessment of the U.S. Marine Transportation System

that was completed this year," said Hess. "Our waterways and ports are going to be the key to how effectively the U.S. competes in the global market, so this assessment was important. We've also been working hard on the regional approach to dredging management — planning and scheduling dredging in a more coordinated way to work with industry, ports, and the maritime community.

"We're also making strides with dredged material disposal management," Hess said. "With our beneficial use program we're continually looking for better ways to use this material and to educate the public about its uses."

The Corps is also in the second year of implementing Readiness 2000, an emergency management program that truly integrates our response to disasters.

"We have districts from all over responding when the need arises," Hess said. "If we need a structural team in an area, then the Seattle team comes on board. Ice might be provided by another district, water by another. This is the precursor to a cultural change throughout the Corps. There are a lot of applications for this model."

Under the Regulatory Program, appeals officers in most divisions have implemented the appeals process for permit denials and unacceptable conditions. Upon request by an applicant, these appeals officers will review the permit application and determination, and provide a second opinion on the decision. The appeals process for jurisdiction delimitations will be in place in early 2000.

The program is also undergoing an extensive re-vamping of the nationwide permit program. There will be new nationwide permits and conditions in the coming year.

FUSRAP clean-up The Corps expended 101 percent of its scheduled funds under the Formerly Utilized Sites Remedial Action Program. This extraordinary performance comes from effective, efficient program execution, and from receiving additional funds through potential responsible party contributions.

The Corps completed clean-up activities at two sites, reducing the number to clean up to 19. In the two years since the Corps began the program, more than 320,000 cubic yards of contaminated material have been remediated.

The Corps also awarded three significant contracts in fiscal year 1999. Two were site-specific environmental restoration contracts for the Maywood (\$300 million) and Wayne (\$50 million) sites in New Jersey, plus a \$400 million multiple award national disposal contract.