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# Public Works

*Digest*

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April 1996

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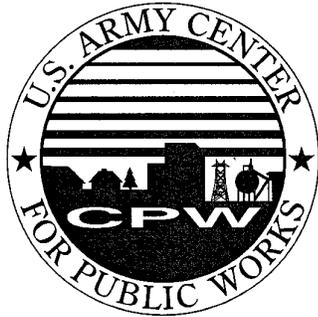
*In This Issue...*

## **The Environment**



# Public Works *Digest*

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## Environment.....



- 1 Benefits of teamwork highlighted at ADPA Conference *by Mike Buckley*
- 2 1995 Army Environmental awards
- 3 Manual helps installations manage endangered species *by Susan Phelps*
- 4 Fort Huachuca takes leaps to save frog *by Susan Phelps*
- 5 Fort Huachuca develops proactive management plan to preserve canyon *by Susan Phelps*
- 6 The Army's environmental policy travels to the South Seas *by Shari McClellan*
- 6 Master planning vacancy at Kwajalein Island
- 7 Vegetation aids in training land management *by Helene Merkel and Van Noab*
- 7 Center offers historic preservation services
- 8-9 Fort Sill recycling program energizes neighbors
- 9 Small birds help answer big questions at Fort Gordon
- 10-11 Fort Belvoir saves more than environment by recycling *by SPC Colette A. Stanton*
- 11 Team effort finds rare plant species at Fort Stewart *by Dr. Alison Hill*
- 12-13 Fort Knox runs regional recycling facility *by Susan Phelps*
- 13 Environmental success stories for the Army National Guard

## Facilities Engineering.....



- 14 CPW can help reduce, recycle, reuse—the three Rs of integrated solid waste management *by Laura Seabeneck*
- 14 CPW Profile: Nicole Lussier *by Alexandra K. Stakhiv*
- 15 New technologies save water and money *by Nicole Lussier*
- 15 CPW offers help with water conservation *by Nicole Lussier*
- 16 CPW provides corrosion control assistance
- 16 CPW Profile: Alexis Wathen *by Alexandra K. Stakhiv*
- 17 Did you know that ...? *by Bill Eng*
- 17 Read the *Boiler Water Line*
- 17 AIPE changes to AFE
- 18 Let CPW pave the way at your installation
- 18 CPW Profile: Tuan Duong *by Alexandra K. Stakhiv*
- 19 Electrical peak shaving takes the load off the top *by Harold D. Hollis*
- 20 Prepare boilers for layup now, avoid startup problems later *by Nelson Labbé*
- 20 CPW Profile: Tom Dolen *by Alexandra K. Stakhiv*

## Automation.....



- 21 DENIX offers variety of environmental information
- 21 ROOFER for Windows *by Dana Finney*
- 22 Use IFS-M for short-range annual planning *by James W. Medbourn*
- 23 CATS environmental survey pinpoints training needs

## Installation Management.....

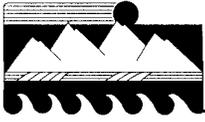


- 24 Army first to issue policy on water rights *by Greg Brewer*
- 25 Reduce waster and reduce worry *by Laura Seabeneck*
- 25 Take the worry out of waste disposal—privatize *by Laura Seabeneck*
- 26-27 Where to turn for recycling/affirmative procurement information *by Bill Eng*
- 26 Recent developments in the Army Recycling Program *by Bill Eng*

## Professional Development.....



- 28 Register now for the DPW Corrosion Control Course
- 28 CPW offers workshop on electrical issues for non-engineers *by Jane Anderson*
- 29 1996 DoD Joint Services Recycling Workshop *by Bill Eng*



## Benefits of teamwork highlighted at ADPA Conference

by Mike Buckley

In a time of shrinking resources and expanding mission demands, military environmental programs work best when the services team up with industry and other government agencies.

Such was the message from the 22nd American Defense Preparedness Association (ADPA) Environmental Symposium and Exhibition, held March 18-21 in Orlando, Florida. At the annual conference, Defense Department environmental professionals discussed issues and ideas with "partners" from the public and private sectors. Top military environmental decisionmakers participated in technical sessions and discussions covering topics like conservation of natural and cultural resources, pollution prevention, environmental technology development and transfer, and military environmental training.

In an opening-day address, Robert "Mike" Walker, Assistant Secretary of the Army for Installations, Logistics and Environment, said congressional budget cuts continue to affect Pentagon environmental programs. He said that private industry will have to help the military find solutions to these resource challenges.

"Environmental priorities are being placed lower and lower on the resource queue," Mr. Walker said. "Resource constraints will either result in innovative solutions or reduced environmental protection." He expressed confidence that the military, industry and regulatory agencies can work together to face these challenges.

One example is the ENVVEST program, which allows the Department of Defense (DoD), the Environmental Protection Agency (EPA) and state and local regulatory agencies to jointly test new approaches to pollution prevention. The new strategies will be tested at military installations.

Successful partnerships also aid DoD's wildlife protection efforts, said Sherri W. Goodman, Deputy Undersecretary of Defense for Environmental Security.

As the country's third-largest landowner, DoD is responsible for

about 25 million acres, harboring about 300 endangered species. Ms. Goodman said alliances with private groups like the Nature Conservancy and agencies like the Department of Interior have helped to preserve biodiversity on military lands. Eglin Air Force Base, Florida, and Fort Bragg, North Carolina, were among the installations she highlighted for their efforts to protect threatened or endangered species.

In a March 19 speech, Interior Secretary Bruce Babbitt lauded the military's wildlife-protection progress. More than 400 military bases and reservations work with the Department of Interior to protect the environment, he said.

"The most urgent issue when I came to this office was, 'How do we apply the Endangered Species Act to [military installations]?' " Mr. Babbitt said. "What I've seen in the past three years is not only has the military picked up that challenge, but done it in advance of the private sector."

Mr. Babbitt said the Mojave Desert Ecosystem Initiative shows how federal and state agencies can resolve bureaucratic differences and combine resources to accomplish environmental goals. Under the Army's lead, the initiative has teamed that region's military installations with the Interior Department and other partners to compile a comprehensive Mojave Desert data base. The information — to be available on the Internet's World Wide Web — will help the military protect its desert training areas and aid planning for local land managers.

During one panel discussion, Ms. Goodman and other leaders explained how DoD's environmental initiatives are expanding beyond the nation's borders. The International Standards Organization (ISO) is developing voluntary standards for international environmental protection, covering such areas as man-

agement, performance evaluations and pollution-prevention goals. "ISO 14000," as this standards program is called, is expected to cut red tape and boost international environmental protection efforts.

"We're not just working within the United States anymore," Ms. Goodman said. "We're working in partnership with many nations. We're looking at environmental management systems to be shared with NATO."

Closer to home, Restoration Advisory Boards (RABs) have brought private citizens, the military and regulatory agencies together to discuss military environmental cleanup programs. More than 200 RABs operate at installations nationwide, Ms. Goodman said. RABs are an important part of public involvement in government decision-making.

She also applauded the work of DoD Regional Environmental Coordinators, who work closely with state and federal regulators on a variety of environmental issues. Cooperative efforts with regulatory agencies lead to better collective use of resources.

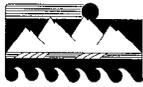
The military services have also addressed resource limitations by cutting costs and spending more effectively. In another panel discussion at the conference, Rear Admiral Luther R. Sriefer, Navy Director of Environmental Protection, Safety and Occupational Health, said the services are spending less money on studies and more on actual cleanup.

All the military services are reducing the use of chemicals and materials that could harm the environment. They also procure equipment and maintenance processes that produce fewer environmental hazards.

Various pollution prevention initiatives figure into DoD's force modernization plans, said Dr. Paul Kaminsky, Under Secretary of Defense for Acquisition and Technology.

"We're putting greater emphasis on bringing advanced technology to bear on meeting environmental challenges,"





# 1995 Army Environmental Awards

Congratulations to this year's Army Environmental Award winners! The award ceremony will take place on Earth Day, April 22, 1996, in room 5A1070 at the Pentagon. All first place winners will go on to represent the Army in the DoD competition.

## Natural Resources Conservation Award for Installation (10,000 acres or less)

1st place: Missouri Army National Guard, Macon Training Site

## Natural Resources Conservation Award for Installation (over 10,000 acres)

1st place: U.S. Army Reserve Command (USARC), Fort McCoy, WI  
2nd place: U.S. Army Forces Command (FORSCOM), Fort Lewis, WA  
3rd place: U.S. Army Materiel Command (AMC), Yuma Proving Ground, AZ

## Natural Resources Conservation Award for Individual

Mr. Thomas Warren – FORSCOM, Fort Carson, CO

## Environmental Quality Award for Industrial Installation

1st place: AMC, Iowa Army Ammunition Plant  
2nd place: California Army National Guard

## Environmental Quality Award for Non-industrial Installation

1st place: US Army Training and Doctrine Command, (TRADOC), Fort Sill, OK  
2nd place: US Army Military District of Washington, Fort Meade, MD  
3rd place: USARC, Fort McCoy, WI

## Environmental Quality Award for Individual

Dr. Jim Hartman – TRADOC, Fort Bliss, TX

## Pollution Prevention Award for Non-industrial Installation

1st place: TRADOC, Fort Jackson, SC  
2nd place: FORSCOM, Fort Lewis, WA  
3rd place: Montana Army National Guard

## Pollution Prevention Award for Industrial Installation

1st place: AMC, Red River Army Depot, TX  
2nd place: Montana Army National Guard

## Pollution Prevention Award — Weapon System Acquisition Team

1st place: AMC, Bradley Fighting Vehicle System, Acquisition Team, Warren, MI  
2nd place: AMC, Picatinny Arsenal, NJ

## Recycling Award for Industrial Installation

1st place: AMC, Tobyhanna Army Depot, PA

## Recycling Award for Non-industrial Installation

1st place: TRADOC, Fort Sill, OK  
2nd place: FORSCOM, Fort Carson, CO  
3rd place: USARC, Birmingham Armed Forces Center, AL

## Recycling Award for Individual

Mr. Keith Nishioka – US Army Pacific, US Army Garrison, HI

## Environmental Cleanup Award for Installation

1st place: FORSCOM, Fort Lewis, WA  
2nd place: AMC, Aberdeen Proving Ground, MD  
3rd place: TRADOC, Fort Sill, OK

## Cultural Resources Award for Installation

1st place: TRADOC, Fort Sill, OK  
2nd place: FORSCOM, Fort Carson, CO  
3rd place: US Army Medical Command, Fort Sam Houston, TX

## Cultural Resources Award for Individual

Mr. Dell Greek – USARC, Fort McCoy, WI

☎ POC is Sue Thomas, (410) 671-1685. **PWD**

(from page 1)

said Dr. Kaminsky, who is responsible for implementing environmental management into DoD's modernization plans. An example, he said, is the use of plastic-bead blasting to remove paint from weapons systems, instead of using solvents that leave hazardous waste.

To comply with a range of laws and regulations, the military conducts several programs to manage and reduce risks to safety, human health and the environment. In at least one case, the DoD may draft and issue a rule that ad-

dress risks posed by munitions and their constituents at closed, transferred or transferring military ranges.

Mr. Raymond Fatz, Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health, told conference attendees that DoD has developed a draft Range Rule for managing munitions on ranges. DoD has directed the Army to lead this program, in close coordination with the other services. A team of safety, environmental, technical and legal specialists has developed an initial draft of the rule with input from the EPA and other affected organizations.

Mr. Fatz said the initial draft is available to the public and state regulatory agencies. DoD will publish a proposed Range Rule in the *Federal Register* this spring, opening an official 60-day public comment period. After gathering and analyzing comments from the states, citizens, and environmental groups, DoD plans to issue a final rule by the end of October.

☎ POC is Mike Cast, USAEC Public Affairs, (410) 671-2556 DSN 584. **PWD**

Mike Buckley is a contributing writer with the USAEC Public Affairs office.



## Manual helps installations manage endangered species

by Susan Phelps

The red-cockaded woodpecker, desert tortoise, Atlantic white cedar... These are just some of the endangered species of plants and animals that make their home on Army installations.

Having such species on Army lands means special responsibilities, considerations, and requirements for installation commanders, trainers, and environmental staff. One such requirement is the Endangered Species Management Plan. To help installations meet this requirement, the US Army Environmental Center (USAEC) is distributing a manual titled *Preparation of Installation Endangered Species Management Plans*.

Protection of endangered species is mandated by the 1973 Endangered Species Act. According to Bob Decker, team leader for natural resources conservation at USAEC, a recent survey identified about 130 threatened and endangered species on over 60 Army installations. Army Regulation (AR) 200-3 requires all Army installations with endangered animals, plants, or habitat to develop an Endangered Species Management Plan that protects and supports the recovery of these species and their habitats.

While AR 200-3 tells the Army what requirements it must meet in its management plans, it does not give directions on how to develop the plan. As a consequence, many installations have started the time-consuming, labor-intensive process of developing their plans from scratch. To help installations streamline the process, USAEC worked with the major Army commands, selected installation environmental staff, and the Office of the Director of Environmental Programs to develop the guidance manual.

The manual is a template for installations to follow to ensure that they are developing their Endangered Species Management Plans consistent with AR 200-3 and in compliance with the Endangered Species Act. The guidelines are broken down into 11 steps that include:

- Developing a complete inventory of the installation's lands and species populations.

- Assessing the requirements of the military and considering them with the needs of the threatened and endangered species.
- Establishing monitoring programs.
- Developing conservation goals, wherever possible.
- Coordinating with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service.
- Fulfilling the National Environmental Policy Act (NEPA) requirements. (NEPA requires federal agencies to evaluate the potential environmental impacts of their major actions or projects.)

According to Decker, the manual provides enough structure to guide the installations, but leaves plenty of room for flexibility and individual installation creativity. "We didn't want to stifle people in the field, because if you try to set too strict a standard, people may not do as good a job," he said.

The manual also helps installations protect and conserve threatened and endangered species while meeting the military's training requirements. To meet this goal, the manual stresses how important it is for installation commanders, trainers, and environmental staff to work together to establish and implement a plan. The installation must also work with the US Fish and Wildlife Service and/or National Marine Fisheries Service to develop its plan.

Working with the US Fish and Wildlife Service and/or National Marine Fisheries Service will contribute to the completeness and conciseness of the plan, which benefits the installation and the endangered species. Good planning protects the mission and the endangered species.

"If you don't have a well thought out plan that makes you think through the installation's military mission," said Decker, "it is very likely that endan-

gered species are going to have a greater impact on that mission."

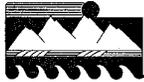
Once an Endangered Species Management Plan is prepared, it has to be approved by the installation commander, the US Fish and Wildlife Service and/or National Marine Fisheries Service, and the installation's major Army command. The installation and major Army command will be responsible for maintaining and assuring the quality of the plan. Installation environmental managers will report on the plan's progress. Assessments and annual reviews will be used to check the plan's effectiveness. Any minor changes to the plan will be made by the installation environmental manager. Major changes to the plan will be coordinated through the installation commander and major Army command and will require formal consultations with the US Fish and Wildlife Service and/or National Marine Fisheries Service.

An Endangered Species Management Plan establishes a road map, stated Decker. But, a road map is only valuable if you actually use it to get to your destination.

*Preparation of Installation Endangered Species Management Plans* manuals were distributed at the Military Fish and Wildlife Managers Association meeting in March 1995. USAEC is also distributing copies of the manuals to a list of installations that were recommended by the major Army commands. To let the other service branches know what the Army is doing, USAEC is sending copies to the Navy, Air Force, and Marine Corps, as well as to US Fish and Wildlife representatives. In the future, USAEC will play an advisory role, providing endangered species experts and contract support advice to those installations that request it.

☎ For more information on the manuals or plans, please contact Bob Decker at (410) 671-1586 DSN 584, or Scott Belfit, wildlife biologists, at (410) 671-1590 DSN 584. **PWD**

*Susan Phelps is a contributing writer at the Army Environmental Center.*



## Fort Huachuca takes leaps to save frog

by Susan Phelps



In the late 1980s, people noticed an unusually large leopard frog in a man-made pond at the Nature Conservancy's Ramsey Canyon Preserve in Arizona, which has tracts of land adjoining Fort Huachuca. Not long after, similar frogs were seen in Brown Canyon, just a few hundred yards from the post.

Distinct species traits were detected, and in 1993, the frog was listed as a new species. It was dubbed the Ramsey Canyon leopard frog or *Rana subaquavocalis*. The Latin name, translates to frog with underwater calls, and refers to this frog's unique habit of singing its love songs to potential mates underwater.

Sheridan Stone, biologist at Fort Huachuca's wildlife office, watched all of these proceedings with interest. In September 1994, feeling that it was just a matter of time before one of the frogs hopped on to Fort Huachuca, Stone participated in the formulation of a US Fish & Wildlife Service (USF&WS) conservation agreement.

The conservation agreement is USF & WS's new tool to encourage proactive management of a sensitive species. The ultimate goal of the conservation agreement is to prevent a species from ever having to be listed as endangered,

which would require USF&WS to become regulators and law enforcers.

Since as few as 20 adult Ramsey Canyon leopard frogs were known to exist, USF&WS determined that a conservation agreement would be needed to boost the frog's population and distribution of habitat. To get the agreement process underway, USF&WS set out to make the process a team effort. The agency asked the land owners affected by the frog and environmental experts who could provide knowledgeable input to meet and develop a team that would manage the frog together.

Once the team was established, its members worked together to learn more about the frog and its habitat, determine the likelihood of its survival, identify and counter any threats the species might face, and establish and implement a conservation management plan. According to Stone, the agreement gave everyone involved an opportunity to become partners and develop management plans that they all have a say and stake in.

In January 1994, Stone's predictions came true. A report was made of an unusually large frog at the installation's Tinker Pond. In September 1994, the finding was confirmed. Fort Huachuca

had its own pond of Ramsey Canyon leopard frogs.

Alarms, however, did not go off in Stone's head. Already, the conservation team was well under way in its development of a conservation management plan. With his involvement in the conservation team, Stone has a positive outlook for the frog and the installation.

The Conservation Agreement has prompted various agencies to share expertise, save money, and establish a good working relationship. According to Stone, "Even if the species has to be listed, we'll already be ahead of the game. We'll already have information, established partnerships, and be headed in the direction of restoring the species."

Once the management plan is up and running, the partners will continue to monitor the frog's progress. After five years, the plan will be reevaluated. The hope is that the frog successfully recovers and eventually manages itself. Stone foresees similar conservation agreements becoming an integral part of the management and restoration of sensitive species.

☎ POC is POC is Sheridan Stone, Fort Huachuca Wildlife Office, (520) 533-7083 DSN 821. **PWD**



# Fort Huachuca develops proactive management plan to preserve canyon

by Susan Phelps

Fort Huachuca has been a successful environmental steward of Garden Canyon—one of the most biologically diverse areas in North America. To ensure that this success continues, Sheridan Stone, biologist at Fort Huachuca's wildlife office, is working with other organizations and agencies to develop a Natural Resources Management Plan that will protect and preserve this southeast Arizona oasis.

Garden Canyon is like a Garden of Eden. There are forests, meadows, and flowing water here that are not found in the parched desert grasslands that make up most of southeastern Arizona. The cool mountain stream that winds its way down the canyon passes through a diversity of vegetation that supports a variety of wildlife. Over 200 species of butterflies inhabit the canyon, and one fourth of the bird species known to breed in North America nest in the canyon and surrounding Huachuca Mountains.

The canyon is also home to a number of sensitive species—such as the Mexican spotted owl, Huachuca water umbel, and long-nose bat—that are thriving in Garden Canyon while declining in other areas.

It was this diversity and the sheltering terrain of Garden Canyon and the surrounding Huachuca Mountains that prompted the Army to establish Camp Huachuca in the foothills of the mountains in 1877.

Today, Fort Huachuca is headquarters for the US Army Intelligence Center and Information Systems Command. Partners include the Electronic Proving Ground, Joint Interoperability Test Center, and the 11th Signal Brigade. Soldiers continue to use Garden Canyon for such light training activities as testing and monitoring their communications and remote sensing equipment. The canyon is also a popu-

lar place for hiking, picnicking, bird watching, and butterfly collecting.

To learn more about the canyon and ensure its continued viability, Stone began developing a Natural Resources Management Plan in 1992 with funds from the Legacy Resource Management Program. (Legacy is a Department of Defense program that provides natural and cultural resource managers with the funding for designated projects that preserve and maintain the natural and cultural resources on military lands.)

Currently, the plan is in the data collection phase. Stone intends to integrate data about the canyon's ecology—such as the geology, topography, soil, meteorology, water cycles, plants, and fire history—to develop plans from which to support the canyon's environmental diversity.

"We are focusing on the key systems to find out what's working and what's not," said Stone. "This will help us determine what to monitor, which will help keep us on track and develop a baseline of information to show us where we've been, where we are, and where we are going."

Being the only wildlife manager on the installation, Stone took the initiative to obtain added expertise and data resources for the project by establishing partnerships with the U.S. Forest Service, the Nature Conservancy, University of Arizona, Arizona State University, U.S. Geological Survey, and the Arizona Geological Survey. He has also obtained information from already established installation projects, including

meteorological data from the post's meteorology lab and geographic information systems (GIS) maps developed by the Soil Conservation Service for the installation's Integrated Training Area Management (ITAM) program.

Besides developing methods to protect the canyon's ecology, the management plan will provide a framework for

conserving the canyon's sensitive species. Stone will use the data collected to determine what management techniques are most successful. The plan will also help Fort Huachuca meet its environmental reporting re-

quirements, improve the installation's land management and land use planning programs, manage the cultural resources of the canyon, and formalize parking areas and trails in the canyon to prevent negative impacts. Stone will also use the management plan to protect Huachuca Canyon, which is a smaller canyon on post.

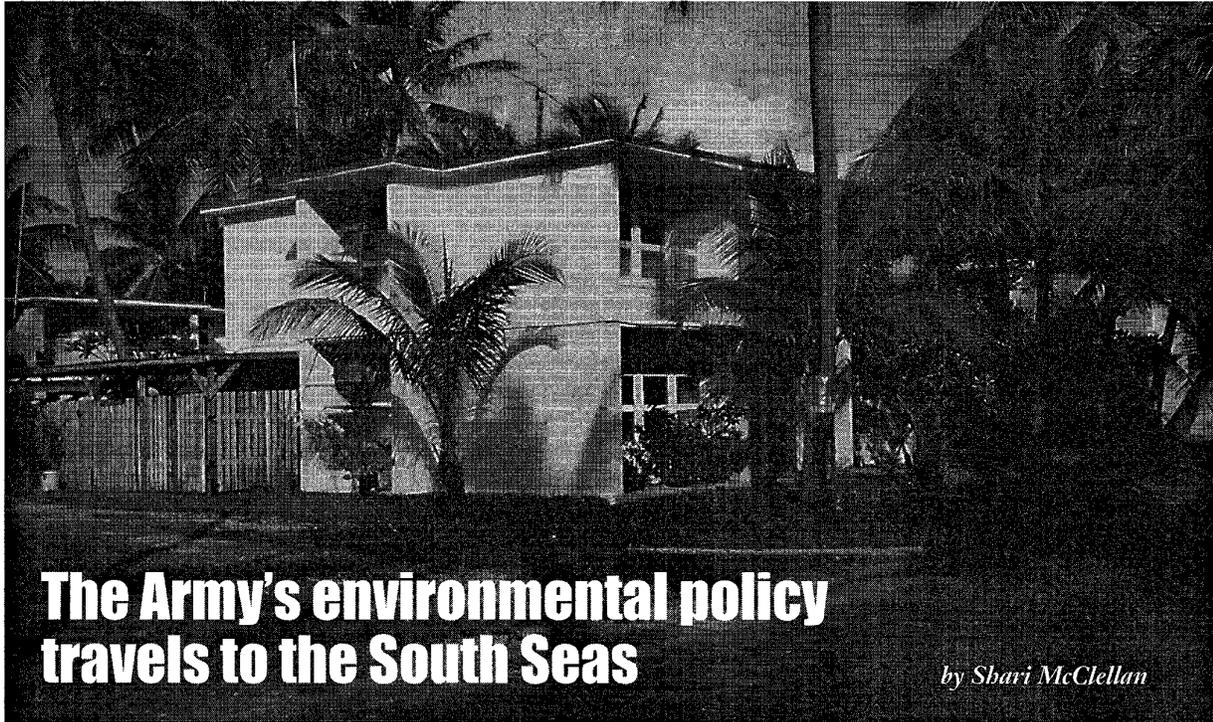
Once the plan is completed, Stone will continue to monitor the various ecological processes of the canyon to update the established data base. Eventually, he hopes to see the plan incorporated into Fort Huachuca's ITAM program.

In many ways, the Army has had a beneficial presence here at Fort Huachuca. "We want to find out what we've been doing by default for a long period of time, so we can do it by design," said Stone.

☎ POC is Sheridan Stone, Fort Huachuca Wildlife Office, (520) 533-7083 DSN 821. **PWD**

*"We are focusing on the key systems to find out what's working and what's not."*

—Sheridan Stone,  
Fort Huachuca biologist



*Kwajalein Atoll—one of the more unique and beautiful environments inhabited by the Department of the Army.*

## The Army's environmental policy travels to the South Seas

by Shari McClellan

Imagine you are living and working on a tropical Pacific island approximately 3000 miles southwest of Hawaii. The weather is great, crime is virtually non-existent, and you travel everywhere by bicycle. Where is this place? Kwajalein Atoll of the Republic of the Marshall Islands.

The US Army Space and Strategic Command has a subordinate command located in the Marshall Islands. The US Army Kwajalein Atoll (USAKA) consists of all or portions of 11 of the 100 islands that enclose an 1100-square-mile lagoon, the largest in the world. Since the late 1950s, USAKA has served as a primary site for the testing of antiballistic missiles. It also plays an important role in sensing and tracking objects in space.

In addition to having a rich history, Kwajalein Atoll is home to several rare, threatened, or endangered species. Commonly sighted in the area are the green sea turtles and the hawksbill turtles. There are five species of giant clams that aren't currently listed as threatened or endangered but are being examined for possible protection to prevent over-harvesting by foreign fisherman.

What about the other parts of the environment of Kwajalein Atoll? The air is very clean due to few sources of air

emissions and strong tropical breezes. The primary source of drinking water on the islands is rainwater. On the island of Kwajalein, the rainwater is collected in catchment basins on the runway. This water is then treated prior to distribution. Drinking water quality is very good for the residents of USAKA.

Challenges for the residents and environmental staff of USAKA are in the area of waste disposal. The small size and remote location of the islands magnify the need for adopting aggressive pollution prevention practices. There just aren't many places to store or dispose of waste. The USAKA environmental office has worked to educate the residents on the importance of reducing

the amount of waste generated through the principles of the three Rs - Reduce, Reuse, Recycle.

Since impact of one's actions can be seen more quickly on a small island, the residents of USAKA have a great deal of motivation to do their part in keeping the environment clean. Community action projects are frequently organized by the environmental office.

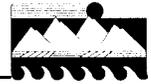
Kwajalein Atoll provides a fantastic opportunity to experience one of the more unique and beautiful environments inhabited by the Department of the Army. **PWD**

*Shari McClellan is a contributing writer at the Army Environmental Center.*

## Master planning vacancy at Kwajalein Island

Looking for a break from cold temperatures? There's a great one-year opportunity for a master planner working with Ratheon Corporation on Kwajalein Island. If you're interested, please fax your resume to Bob Chrivia at (805) 238-4973 or call him at (805) 238-7994. (There is a seven-hour time difference between Kwajalein time and EST.)

☎ POC is Rik Wiant, CECPW-FP; 703-428-6086 DSN 328. **PWD**



# Vegetation aids in training land management

by Helene Merkel and Van Noab

The Integrated Training Area Management (ITAM) program is a management and decision-making tool for installation natural resource managers, environmental managers, and trainers. It's used to enhance the Army's use of its training lands within the natural capabilities of the land to repair and sustain itself. While other ITAM program components focus on inventorying and monitoring the conditions of natural and cultural resources, as well as integrating training and environmental requirements, Land Rehabilitation and Maintenance (LRAM) focuses on the

actual techniques used to repair, rehabilitate, and maintain training lands.

Last year's LRAM conference, hosted by Fort Rucker, concentrated on the latest methods and technologies employed by installation natural resources managers. Conference participants represented Department of the Army Headquarters, the Air Force, and every major Army command. The uses of native and non-native plants were the highlight of the technical sessions.

Fort Rucker personnel explained and demonstrated the techniques employed at their installation. An on-

going problem they encounter is the downdraft generated by helicopter rotor blades during hovering and landing exercises, which blows away soil and vegetation. To combat this problem, the Natural Resources staff plant grass seed, apply fertilizer and lime, and cover the area with dolomite rock to prevent the grass seed from blowing away. Eventually, the grass grows through the dolomite.

Panelists at the conference agreed that there are many benefits to using native plants in land rehabilitation and maintenance. Native plants have adaptability and extensive root systems with excellent soil holding capabilities. They are cheaper to manage and provide aesthetic and cultural value as well as benefits to wildlife.

Native plants, however, can be expensive—up to \$40.00 per acre. They also require special equipment, are slow in showing results, and often need special knowledge for care and maintenance. Solutions to these problems range from cost sharing to tapping the expertise of appropriate organizations such as the Natural Resources Conservation Service, plant material centers, and native plant societies.

Conference participants also discussed installations that have successfully introduced non-native or "exotic" species on their training lands to control soil erosion. Fort Bragg, North Carolina, for example, has found that non-native vetiver grass prevents soil erosion and can withstand intensive training exercises and fires.

As the concepts, technologies, and methods identified at last year's conference are implemented, there will be even more information to share at next year's conference, which will again be hosted by Fort Rucker.

For more information on innovative erosion control techniques, please contact Fort Rucker's Natural Resources Branch at (205) 255-9363 DSN 558. **PWD**

*Helene Merkel and Van Noab are contributing writers at the Army Environmental Center.*

## Center offers historic preservation services

Need assistance with historic preservation? Help is just a phone call away at the Technical Center for Expertise for Preservation of Historic Structures (TCX) in the Seattle District.

Established as a resource for military installations and other federal, state and local agencies, the Center studies, rehabilitates, repairs and maintains historic sites, districts, landscapes, buildings, and structures. The Center consolidates administrative, technological, and research skills in the field of architecture, landscape architecture, geology, engineering and cultural resources. It also serves as a source for interdisciplinary technical expertise and an information clearinghouse, providing direct technical assistance to anyone seeking answers to treatment, protection and preservation issues.

Here are some of the historic preservation services this Corps of Engineers office can provide:

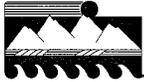
- Prepare architectural plans and specifications.
- Identify, evaluate, plan and design historic landscapes.
- Examine and evaluate historic materials.

- Perform structural analyses.
- Develop maintenance and repair manuals.
- Perform comprehensive inventories of historic structures.
- Assist with understanding of requirements of preservation laws and regulations.
- Conduct training and historic materials workshops.
- Assist with nomination package for National Register of Historic Places.
- Prepare photographic, graphic and written records of existing conditions, including endangered species.

You can visit the Center's Home Page on the Internet to learn about training opportunities and download guide specifications for historic structures. Internet: [http://www.cadd.nps.usace.army.mil/tcx\\_psb/histpres.htm](http://www.cadd.nps.usace.army.mil/tcx_psb/histpres.htm)

For more information or assistance, please call (206) 764-4482 or 1-800-256-9309, FAX (206) 764-6956 or write:

District Engineer  
U.S. Army Engineer District, Seattle  
Attn: CENPS-EN-DB-AC(TCX)  
P.O. Box 3755  
Seattle, Washington 98124-2255 **PWD**



## Fort Sill recycling program energizes neighbors

Fort Sill has an excellent arrangement with neighboring public school systems, city and federal government agencies and commercial businesses — the southwest Oklahoma post provides them with recycling containers, and in return, gets to keep all the money it makes for selling the cardboard, glass, plastic and aluminum to recycling mills.

In fact, the Fort Sill Partnership Recycling Program has been such a success that it was recognized by the 1994 White House Closing the Circle Awards in September, according to Bill Barwick, Chief of Support Services, Community and Family Activities. Barwick received the five individual awards on behalf of Fort Sill from Energy Secretary Hazel O'Leary, during a ceremony at the Old Executive Office Building.

Individual Closing the Circle Awards for recycling went to Barwick, Fort Sill Recycle Center Manager Thomas Tompson, and Recycle Center employees Richard Null, James Murphy and James Mallow.

Competition was stiff. In all, 233 nominations from 15 federal agencies competed for awards in only five categories:

- Waste prevention.
- Recycling.
- Affirmative procurement.
- Environmental innovation.
- Model facility demonstration.

The White House Closing the Circle Awards are part of Environmental Excellence in Government: Meeting the President's Challenge. Executive Order 12878 directed these awards for the best, most innovative program implementing the objectives of this order. The idea is to give greater visibility to these efforts so that they can be incorporated throughout the federal government.

"The partnership program for which we received our recognition involves the community public school systems, federal and municipal government agencies and community commercial businesses," Barwick said. "We provide a pick-up service for their recyclables, thereby reducing their waste hauling

recognizes the program's achievements from October 1992 to September 1994. During this two-year period, Fort Sill removed 2,661 tons of refuse from the waste stream — refuse that would otherwise have been landfilled.

Based on actual receipts for sales, the retail value of recycled waste commodities sold to mills during this two-year period was \$232,166, Barwick said. And the cost avoidance of not putting all that refuse into the post's landfill was \$50,559.

Refuse collected through the Fort Sill Partnership Recycling Program accounted for about 20 percent of sales. All money earned from sales goes into the Fort Sill Single Fund for MWR activities on post.

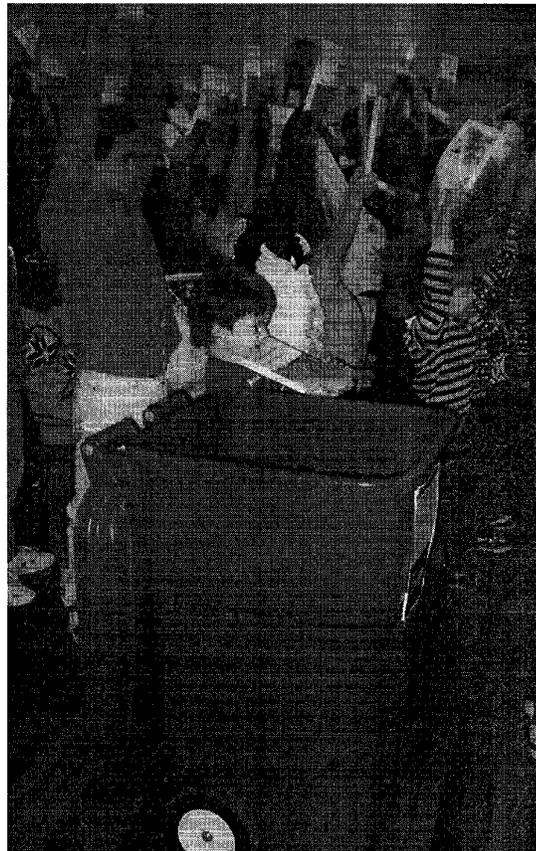
Most of the refuse that goes into the installation Recycle Center comes from the eight recycling drop-off points on post, Barwick said. Since Fort Sill is an open post, anyone is welcome to bring recyclables onto the installation for depositing at the drop-off points.

Barwick said the center asks patrons to separate recyclable waste into categories before bringing it to the center. The categories are newspapers, magazines, glass, cardboard, plastic and aluminum. Acceptable paper includes white computer paper without carbon, typing paper, copy paper and colored ledger paper (only in pastel colors).

"We can accept any paper except bright colors, such as neons, red, blue or orange colors," Barwick said. "We are now able to take the first two grades of plastic. This includes soda bottles, milk bottles and colored detergent bottles."

All three colors of glass — clear, green and brown — are acceptable for recycling. They even recycle Christmas trees.

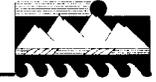
The Recycle Center uses a high-speed, high-volume waste commodity processing center, complete with autotic horizontal baler and pit conveyor/bunker sort system. The high speed/volume concept was developed



*Students at Lawton's Lincoln Elementary School proudly display the old Lawton phone books they brought to school for recycling. The old phone book drive was part of the Lawton-Fort Sill community's competition for the Oklahoma Governor's Cup through the "Project Redirectory" program. The Southwestern Bell Yellow Pages initiated the competition to remove old telephone directories from the landfill waste stream. The community collected more than 40,000 pounds of used directories during November 1994. (Photo courtesy of Fort Sill MWR)*

cost and saving space at the landfills. It's a win-win situation for the community and Fort Sill."

Fort Sill has had a recycling program for the past 15 years, but has made great strides since the program was reorganized under Morale, Welfare and Recreation management and turned into a business operation in October 1992. The Closing the Circle Award



in late 1993, when it became apparent that the center's ability to collect recyclables was fast outstripping its capacity to process, bale, store and sell the waste.

Fort Sill's MWR uses brokers and on-line services to locate buyers for recyclables and sell directly to mills. By selling direct and maintaining baled-commodity purity, the post achieves higher returns on its processed recyclable materials. Fort Sill sells corrugated cardboard directly to a Weyerhaeuser mill in southeast Oklahoma, and sells other paper commodities to mills as far away as Minnesota. A processor in the Tulsa area buys the post's glass products, and Golden Aluminum in Colorado buys Fort Sill's aluminum beverage cans.

Fort Sill's unique "Cash for Trash" incentive program transferred \$32,508 directly to unit MWR funds in fiscal year 1994 for unit use in troop morale and recreation activities. This one-of-a-kind program in the Army "pays" battalion-size units with unit fund rebates for their recyclable turn-ins. The top three 1994 recycling units were honored by the post's commanding general at a November 1994 awards ceremony. The top recycling unit earned more than \$4,300.

This post is serious about community outreach. From October 1992 to September 1994, the Recycle Center hosted 20 tours for students from neighboring public school systems. The post newspaper publishes "how-to" recycling articles twice a month. And electronic marquees on two of the post's major traffic corridors provide the community with the latest information on Fort Sill's recycling efforts.

"We're implementing a more aggressive recycle program now because today's landfills need many costly improvements to meet EPA standards," Barwick said. "Aggressive recycling can extend the life of existing landfills for several years."

☎ POC is Bill Barwick, Chief of Support Services, Community and Family Activities, Fort Sill, OK, (405) 442-5202, DSN 639. **PWD**

## Small birds help answer big questions at Fort Gordon

Standing just 10 inches high, the American kestrel is the smallest member of the falcon family. But this small gray and tan bird is big news to the state of Georgia. Kestrels and the areas where they live are afforded the same protection as birds on the federal threatened and endangered list because of concern over their ability to coexist with their human neighbors.

Ken Boyd, wildlife biologist with the Environmental and Natural Resources Management Office at Fort Gordon, Georgia, knew the birds were nesting on the installation. Two years ago, when the state of Georgia and Georgia Southern University (GSU) began studying the birds, Boyd let them know about Fort Gordon's kestrels.

The birds seem to prefer the well-maintained, grassy, open areas of Fort Gordon. "This speaks highly of the way the Army has managed these areas," Boyd observes. "It appears to me this has been a drawing point for these birds."

Wooden nest boxes are mounted on trees and poles all over Fort Gordon. The birds are often observed perched on power lines, their sharp eyes scanning the ground for insects and small birds or rodents. As "cavity nesters," kestrels select their nesting sites where food is available.

According to Tim Breen, a GSU graduate student working on the kestrel project, more kestrels are using nest boxes on Fort Gordon than in all of southeastern Georgia.



*Male fledgling which had fallen from nest site was rehabilitated by a local veterinarian and returned to nest structure.*

Last year, Fort Gordon's first complete nesting season in the study, mating kestrel pairs used about half a dozen of the nearly 30 nest boxes on the installation. Boyd expects the use rate will be even higher this year.

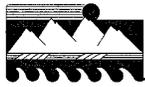
Funds for the construction of nest boxes come from GSU and the Arcadia Wildlife Preserve. The latter also provides funds for Breen's assistance in the study. The Georgia Department of Natural Resources provides technical guidance for the research, and Fort Gordon provides administrative support and access to the areas where kestrels are located.

Through the cooperation of these organizations, and the nest box program in Georgia, Breen will be busier than ever banding and monitoring a growing American kestrel population and preventing a species from ever having to be listed as endangered.

☎ For more information on Fort Gordon natural resource and environmental programs, please contact the post's environmental division at (706) 791-2511. **PWD**



*Female Southeastern American kestrel is banded and set for release. This kestrel was trapped near a nest structure from which she later fledged 5 young.*



# Fort Belvoir saves more than environment by recycling

by SPC Colette A. Stanton

Recycling saved Fort Belvoir more than \$173,000 in solid waste disposal fees last year.

Said another way, more than 3,100 tons of waste headed for the landfill were recycled. Had that waste been processed as garbage, it would have cost the post about \$56 per ton. In addition, 4,000 tons of yard waste were diverted from the solid waste stream.

According to the post's recycling officials, this total tonnage represents 38 percent of the solid waste generated by the post's population.

"Our goal is to reach the point where Fort Belvoir recycles at least 50 percent of its solid waste," said Tish Tyson, program director for the Fort Belvoir recycling program. Tyson and Terri Mead, junior environmental specialist, head up ongoing expansion of the post's program toward that goal.

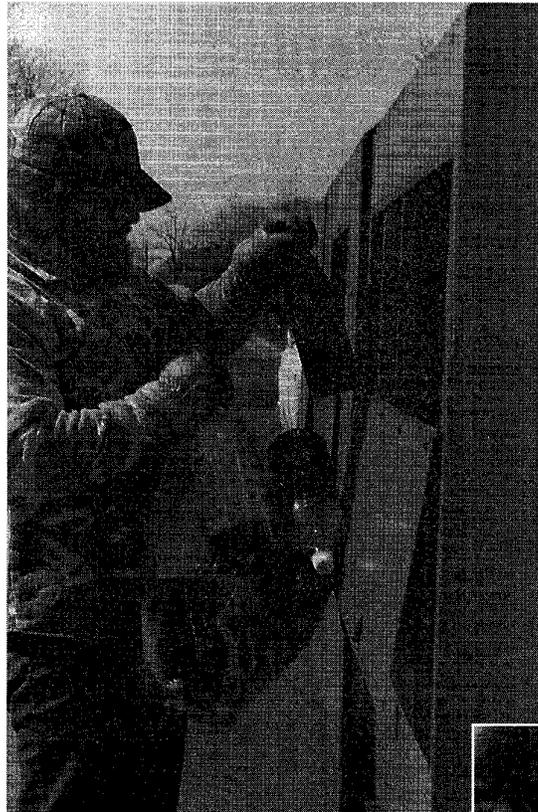
Fort Belvoir began recycling in 1978 by collecting corrugated cardboard and added curbside collection of newspapers to the program in 1982. That same year, the post opened its 8,700-square-foot recycling center and established a volunteer drop-off location for recyclables.

Today the program provides recycling services comparable to or even more extensive than recycling programs in surrounding communities, said Tyson.

"Belvoir's service is equal or superior," Tyson said. "For example, Belvoir conducted a household hazardous-waste drop-off for residents in mid-October 1995. Tyson said the counties don't provide that kind of convenient service.

"The DPW has an integrated solid waste management plan," she said. "The recycling center and the recycling program in family housing and the offices are a portion of our management plan."

"We look at all waste as being generated in a comprehensive way and then we figure out the best thing to do with it to minimize the disposal expense and the cost to the environment."



*Above: A contractor deposits bottles into the vehicle used for curbside recycling pickup at Fort Belvoir.*

*Right: Following a truck drop-off, an employee at the recycling center pushes unloaded cardboard boxes to be recycled into a cardboard baler, which crushes and bundles the boxes for pick-up.*

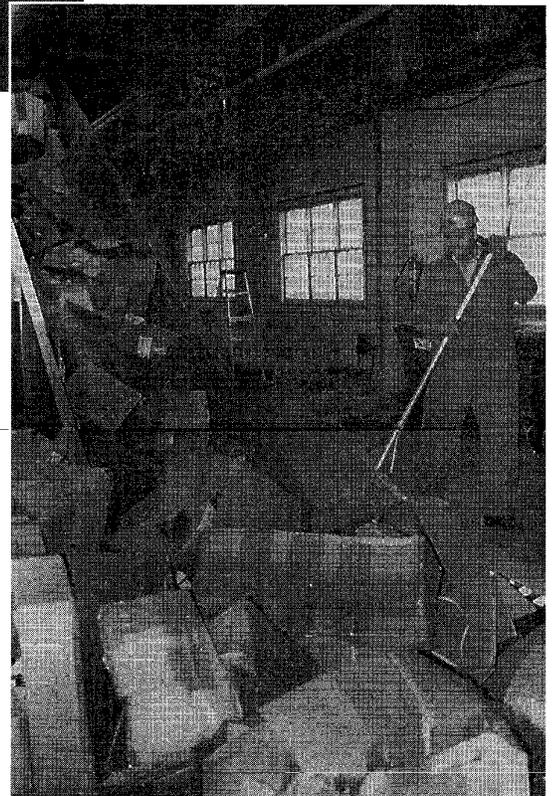
*(photos by SPC Colette A. Stanton)*

In fact, Fort Belvoir offers a variety of recycling services, Tyson said, not only because the program is concerned with the financial advantages, but also as a way of being responsible environmental stewards.

"Environmental stewardship is a combination of lots of different things that combine to make us better citizens of the planet," said Mead. "Things like conserving energy, respecting nature and thinking about the consequences of our purchasing decisions are all part of that — and recycling is an important aspect of it as well."

A key part of the post's recycling program is what Tyson calls "cost avoidance." When the post can avoid paying \$56 to process a ton of garbage, that is money saved.

The post still bears the expense of collecting and transporting recyclable material, but profit from selling that material offsets the cost.





Cardboard and aluminum cans, for example, provide the most payback and help make up for the cost of collecting not-so-profitable materials like plastics.

Concern for the environment, Tyson said, is one reason why the post continues to collect materials that don't readily pay for themselves, either because their market value fluctuates or because the proceeds just cover shipping the materials to be processed. Recycling

reduces the demand for virgin materials and helps preserve natural resources and energy.

The more recycled products people buy, the higher the demand for recyclable materials, Tyson said.

"Recycling is defined as the use of products from recycled materials. If you don't purchase and use products after they have been recycled, then they are not really recycled," she added.

"This is called closing the loop, and it is just as important as the other steps in the process."

☎ For more information, please call the Fort Belvoir DPW, Environmental and Natural Resource Division recycling program coordinator at (703) 806-4007. **PWD**

*SPC Colette A. Stanton is a contributing writer to the **Belvoir Eagle**.*

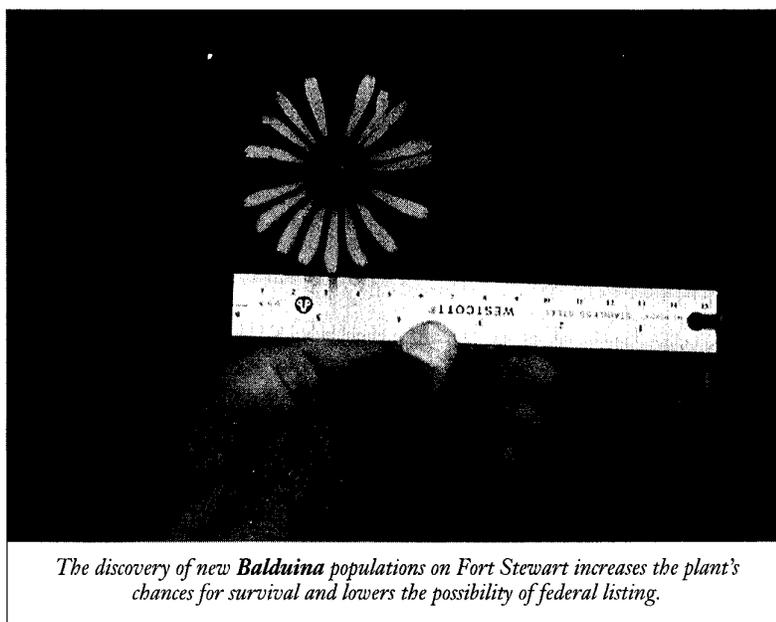
## Team effort finds rare plant species at Fort Stewart

*by Dr. Alison Hill*

A research crew found 14 new populations of a rare Aster at Fort Stewart, Georgia, which almost doubles the known occurrences of this plant in Georgia. This discovery lowers the possibility of federal listing and is a credit to Fort Stewart's natural resources management program.

The Aster's scientific name is *Balduina atropurpurea* and it is commonly called purple honey comb-head. A perennial herb, it prefers moist, sandy, peaty clearings in the long-leaf pine regions of north-eastern Florida and southern Georgia. The Nature Conservancy has ranked *Balduina* as "globally rare or imperiled" (only 6-100 known populations).

Fort Stewart had asked the research team to search for the plant as part of FORSCOM's efforts to understand the species. The cooperative effort involved CERL, Fort Stewart personnel, HQ FORSCOM, the Atlantic Botanical Garden, Georgia Southern University, Colorado State University, and the National Seed Laboratory. It is part of a larger initiative under the Strategic Environmental Research and Development (SERDP) program to develop and test valid methods to ensure survival and recovery of sensitive plants.



*The discovery of new **Balduina** populations on Fort Stewart increases the plant's chances for survival and lowers the possibility of federal listing.*

In the first phase of the work, the team made intensive searches for *Balduina* on 22 training areas during the peak flowering period, which is September through November. The discovery of 14 new populations was significant because only six were known at Fort Stewart before 1994 and only 11 of 39 existing populations have been verified in Georgia in the past 15 years. The additional populations mean the species has a better chance for survival and makes it less likely that it will become a compliance issue under the Endangered Species Act.

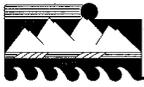
The second phase of the project is

still in progress. It involves among- and within-population sampling and will indicate if the new populations vary in any way from the ones already known. It will also help researchers identify healthy populations with high variation and show whether on- and off-post populations are similar. This information will give Fort Stewart an understanding of the relationship between genetic, morphological, and habitat diversity among the populations. This information could be useful in judging if the species will have any training impact.

Fort Stewart has an aggressive natural resources management program under Integrated Training Area Management (ITAM). CERL, ITAM's developer, continues to do research that provides current technology to ITAM, which now has as its proponent the Deputy Chief of Staff for Operations (DCSOPS). The work at Fort Stewart is part of CERL's research on threatened and endangered species.

☎ For more information, please contact Dr. Alison Hill at CERL, (217) 373-4420. **PWD**

*Dr. Alison Hill is a researcher in CERL's Land Management Laboratory.*



## Fort Knox runs regional recycling facility

by Susan Phelps

Fort Knox, Kentucky, has implemented one of the Army's model programs for recycling and solid waste management. The program has earned Fort Knox a variety of national awards, including a 1992 Department of Defense recycling award.

Although Fort Knox has had a recycling program for a while, the installation has become much more aggressive with its recycling program in the past five years. This happened for a variety of reasons.

In 1992, the state of Kentucky closed 50 percent of its landfills and began enforcing stricter regulations. Because its local landfill was closed, Fort Knox had to start the costly process of hauling its trash 22 miles to the nearest landfill in Louisville.

In 1993, Executive Order 12872 urged military installations to develop regional recycling programs and work with the local community. Fort Knox responded to these changes by developing a Recycle and Total Solid Waste Management Program that includes joint efforts with the local county and other federal agencies within the area.

Fort Knox's program is comprised of three management areas that are in varying stages of development—recycling, composting and construction/demolition debris. The recycling program, which is the only one in the local county, is the farthest along. Fort Knox

has established a cooperative agreement with the nearby city of Radcliff and local federal agencies to accept their recyclables.

In return, they pay Fort Knox a fee to cover the installation's processing expenses.

The post collects just about anything that can be recycled, including all types of paper, aluminum, glass, plastics, toner cartridges, wood pallets, tires, batteries, food scraps, cooking grease and scrap metals.

Recycling has helped Fort Knox save a substantial sum of money that would otherwise be spent hauling materials to the landfill. In calendar year 1994, the installation realized \$213,500 worth of savings in waste disposal costs.

Fort Knox plans to continue its role as the regional recycling facility in the area because it pays to do so. Now that Executive Order 12872 requires all federal agencies to phase in the purchase of products that contain specified amounts of recycled material, there has been a tremendous increase in the demand for recycled products. Some grades of paper are selling for amounts four to 10 times higher than those they sold for a little over a year ago.

The composting portion of Fort Knox's program currently involves a pilot program to create mulch from wood chips or a soil additive comprised of grass clippings and ground up, decaying leaves. This program helps keep reusable materials out of the landfill, reduces the installation's hauling costs, and produces useable garden products.

The installation is composting about 20,000 cubic yards of grass, trees and leaves per year. Fort Knox plans to expand the compost facility in the future to include different items and larger quantities.

The construction/demolition debris part of the program has not been implemented yet, but the installation plans to recycle as much material from demolition debris as possible. About 80 percent of these materials, such as wood, asphalt, concrete and metals, can be recycled. Because construction/demoli-

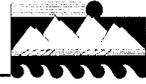


Above: The main paper baler.

Right: A Bobcat operator loads up with papers for the baler.

(Photos courtesy of Fort Knox.)





tion debris can include materials designated as hazardous waste, the installation has no plans to accept materials from outside the installation.

Besides establishing a recycling partnership with the local community, Fort Knox is using its program to develop environmental awareness. Local schools make field trips to the installation so children can learn more about recycling. Parents often call the installation to say that because of the field trips, their children have had them start recycling programs at home. County schools have also turned to the installation for advice and guidance on phasing recycling programs into their school system.

Fort Knox also worked with a local company to develop a Ricky Recycle Fun Book for distribution at the post



*The prize-winning float in the "Golden Armor Festival" earned the People's Choice Award and the Best Mascot Award.*

exchange. The book is written in a variety of formats to reach everyone from elementary school students to adults.

☎ For more information on the Fort Knox recycling program, please

contact Mike Carnes of the Fort Knox Environmental Management Division, (502) 624-5026 DSN 464. **PWD**

## Environmental success stories for the Army National Guard

From managing a section of the historic Oregon Trail to a 60-percent reduction in underground storage tanks, the US Army National Guard can point to some impressive success stories in the environmental protection arena.

### Wyoming Army National Guard.

For the past six years, the Wyoming Army National Guard has been conducting Class III Cultural Resource Inventories on its properties, in cooperation with the State Historic Preservation Office and the State Archaeologist's Office. A total of 600 sites have been identified, and 75 are eligible for nomination to the National Register of Historic Places. The Wisconsin Army National Guard's Engineering Branch conducts historic tours of its properties. The Guard manages 12 miles of the historic Oregon Trail, where American soldiers of the last century played a important role in protecting westward-bound settlers.

### New Jersey Army National Guard.

New Jersey Army National Guard facilities have reduced the number of underground storage tanks (USTs) by more than 60 percent. The state has been involved in an aggressive campaign that has reduced the number of existing USTs from 212 to 83 over a five-year period. The use of military personnel for the removal, transportation and delivery of 16,000 gallons of heating oil and 5,000 gallons of fuel for redistribution to other armories resulted in a savings of \$51,200.

### New York Army National Guard.

Three years ago, the New York Army National Guard and the State Historical Preservation Office conducted a comprehensive survey of the state's pre-World War II armories. In addition,

25 historic armories no longer owned by the state were inventoried and evaluated. Later, another 10 armories were nominated for the National Register of Historic Places. Today, New York has 32 armories on the National Register, and one (the 7th Regiment Armory in New York City) is listed as a National Historic Landmark, the only armory in the United States to achieve that distinction.

### Virginia Army National Guard.

A vigorous pollution prevention program by the Virginia Army National Guard meant dramatic savings in 1995. Filtering waste diesel fuel and reusing it saved approximately \$15,000; turning in batteries for recycling without having to drain them saved \$2,097; and crushing waste fuel filters to reduce the volume and lower the number of off-site transfers saved approximately \$7,000. Such efforts have resulted in overall reduction of hazardous waste generation of more than 37,000 pounds, with a resulting cost savings of more than \$27,000. **PWD**



# Facilities Engineering

## CPW can help reduce, recycle, reuse—the three Rs of integrated solid waste management

by Laura Seabeneck

The Environmental Protection Agency (EPA) estimates that the municipal waste generated in the U.S. for calendar year 1993 was 207 million tons. That's roughly 4.4 pounds of waste per person, per day.

The Sanitary and Chemical Division of the US Army Center for Public Works (CECPW-ES) can help with the three Rs of solid waste management—recycle, reuse and reduce. We have in-house specialists and an indefinite delivery contract with A/E firms to assist instal-

lations worldwide with integrated solid waste management activities such as:

- Audits and inventories.
- Source separation, reduction, recycling, and recovery planning.
- Solid waste management planning.
- Landfill design, operations guidelines, and closure planning
- Working with national, state, regional, and local authorities.
- Materials recovery installation design.

- Transfer station design.
- Permitting application preparation assistance.
- Pollution prevention studies.
- Monitoring and recordkeeping support.
- Training workshops.
- Materials collection management planning.

☎ POC is Laura Seabeneck, CECPW-ES, (703) 806-5212 DSN 656.

PWD

## CPW PROFILE *by Alexandra K. Stakhiv*

Last year, Nicole Lussier graduated from West Virginia University with a degree in civil engineering. During the summer of 1995, she worked in the Directorate of Engineering as a summer hire and was later accepted as a three-year intern with CPW. Based with the Sanitary and Chemical Division, Nicole will be rotating into other segments of our organization as well as doing stints with an installation Directorate of Public Works and other Army organizations.

Presently, Nicole is working on water conservation and water treatment and wastewater issues.

"There is a renewed emphasis on water conservation, now that it's being mandated by executive order," says Nicole. "Conserving water also means a reduction in operations and maintenance costs as well as energy costs."

She recently participated in an on-site water audit for Fort Stewart. As a member of the CPW team, she helped to assess facilities, plumbing fixtures and irrigation techniques.

"Water audits are very important to installations, particularly for those in states where there is a diminishing supply of water," says Nicole. "When I got back to the office, I calculated the amount of water used and how much the instal-

### Nicole Lussier Sanitary and Chemical Division



(Photo by Richard Brown.)

lation could save by switching to low-flow fixtures and scheduled irrigation. The calculations are based on the number of people in the buildings and the cost of the water/wastewater."

Nicole is also working on a project to help Fort Detrick with its laboratory sewer system and steam sterilization plant. She is interfacing with a CPW contractor and the installation to find alternate solutions for replacing an old steam sterilization plant that deals with high levels of contamination.

In between, Nicole still finds time to do stormwater and Operator Assistance Program work for various installations. For example, she's already helped the US Army Reserve Command with an equip-

ment evaluation survey and Bolling Air Force Base do a stormwater management plan.

"I'm also procuring a plumbing fixture retrofit contract for Armywide use to help all installations change to more cost-effective fixtures," says Nicole.

Nicole likes to lead a double life—by day, she's a full-time engineer, by night, she's a gymnastics instructor. This year, she hopes to take her team to the national competition in Florida. You may reach at (703) 806-5211 DSN 656. PWD



## New technologies save water and money

by Nicole Lussier

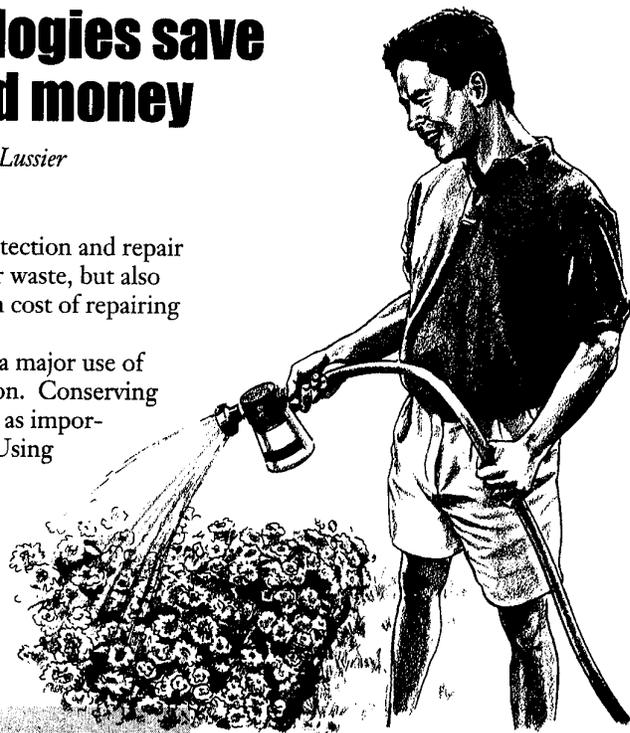
**R**eplacement or retrofit of plumbing fixtures is one of the most common ways to save water and wastewater costs. Ultra-low flush toilets use less than half the water of older models. If replacement is not cost effective, toilet dams can be used in tank-type toilets. Also available are low-flush (and no flush) urinals. Low-flow showerheads usually have a quick payback, because they provide energy savings, in addition to water and wastewater savings.

A simple faucet aerator can also save water and energy. Although faucets are not a major water-user, the low cost of aerators makes this a cost-effective measure.

New technologies are making it easier to detect water leaks and save money

as well. Early leak detection and repair not only reduce water waste, but also help to avoid the high cost of repairing major breaks.

Irrigation is often a major use of water on an installation. Conserving water outdoors is just as important as it is indoors. Using the principles of xeriscape landscaping, which is matching the landscape with local climatic conditions, can significantly reduce the



## CPW offers help with water conservation

by Nicole Lussier

**I**n the past, most water conservation efforts were limited to times of drought. With the increasing cost of water and wastewater treatment and the growing strain on our water resources, conservation has received greater emphasis.

Recent legislation has brought water conservation to the Department of Defense. The Energy Policy Act of 1992 and Executive Order 12902 require the Army to identify and implement all water conservation measures which pay back in ten years or less. Many such water-saving opportunities exist on Army installations. They range from simple showerhead replacement to computer-controlled irrigation systems.

CPW's Sanitary and Chemical Division can assist installations in identifying water conservation projects meeting the ten-year payback criterion. In some cases, such as the replacement or retrofit of plumbing fixtures,

estimates of water and cost savings can be provided over the phone. Other measures require on-site assistance to provide reasonable estimates of savings.

Sanitary and Chemical Division personnel can also provide assistance in all aspects of a water conservation program, including:

- Water audits.
- Water conservation methods.
  - Irrigation
  - Landscaping
  - Domestic water use
  - Distribution system leak detection
- Public education programs.

For further assistance, please call Nicole Lussier or Jane Anderson, CECPW-ES, (703) 806-5211/5214 DSN 656. **PWD**

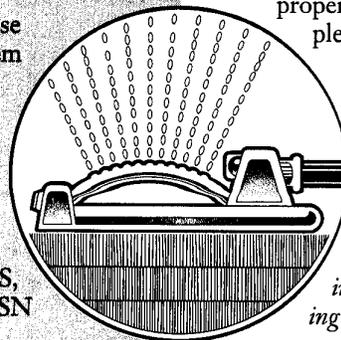
amount of water needed to irrigate a particular area.

Follow these principles to ensure water conservation in landscaping and irrigations:

- Choose a design that incorporates climatic conditions and plant water needs.
- Use efficient irrigation to promote deep root growth and eliminate runoff.
- Analyze soil to determine water holding capacity and drainage.
- Select appropriate plants based on aesthetics and adaptability.
- Use mulch to reduce evaporation and weed growth.
- Select placement of turf areas and proper grass mixture to limit supplemental irrigation.

For further assistance, please call Nicole Lussier or Jane Anderson, CECPW-ES, (703) 806-5211/5214 DSN 656. **PWD**

Nicole Lussier is an engineering intern in CPW's Engineering Directorate.





## CPW provides corrosion control assistance

Corrosion control is one of the most cost-effective methods available to a public works organization for maintaining buried metallic utility lines, underground storage tanks, and elevated water storage tanks. The National Association of Corrosion Engineers estimates that the return on investment for corrosion control measures exceeds 10 to 1.

The Sanitary and Chemical Division of CPW can assist your installation in establishing and maintaining an effective corrosion control program. We

can tailor our services to meet the particular needs of your installation.

In addition to in-house expertise, we maintain an indefinite delivery contract for corrosion control A-E services. Through this combination of resources, we can provide:

- Cathodic protection evaluations for underground storage tanks, underground pipelines, and water storage tanks.
- Soil analysis.
- Structure-to-soil potentials.

- Rectifier testing.
- Industrial water testing.

Corrosion control is required on underground storage tanks by EPA regulations (40 CFR Part 280), and on natural gas lines by DOT regulations (49 CFR Part 192).

☎ If your installation requires corrosion control support, please call Jane Anderson, CECPW-ES, (703) 806-5214 DSN 656 or e-mail: jane.l.anderson@cpw01.usace.army.mil **PWD**

## CPW PROFILE *by Alexandra K. Stakbis*

Alexis Wathen began her government career in 1980 as a GS-2 in the DEH at Fort Knox, Kentucky. Since then, she has worked in every division of the DEH/DPW at Fort Knox, spending the last 7 years in Real Property and Master Planning. She has been with CPW since September 1995 and has already established herself as an indispensable asset to CPW's Master Planning and Real Property Division and the field at large.

Her duties at CPW are on a broader scale than at Fort Knox, and she now looks at Army real property from a different perspective. However, Alexis strongly feels that it is because of her installation experience that she understands installation problems, and this gives installations the confidence to call on her for advice.

As a realty specialist at CPW, Alexis has a wide variety of duties, all related to installation support. She spends the bulk of her time providing basic technical and functional support in the worldwide real property management arena to all Army installations. This includes real property assistance, inventory database management, reporting, automated tools, training and on-site installation support.

It is important to maintain an accurate real property inventory to make informed decisions, says Alexis. Installations send CPW electronic tapes of their inventories which she assists in validating. This means double-checking data on square footage, cost to government, and number of acres or calling the MACOM for verification. Alexis also per-

### Alexis Wathen Master Planning and Real Property Division



(Photo by Richard Brown.)

forms functional oversight on the automated system IFS-M. For example, in the new stand-alone module, she's providing instruction on the mandatory fields.

Handling the US Army Reserves transfer of property holdings takes up a large portion of Alexis' time. The Army Reserves will soon start performing their own accounting of real property, which is presently done by the Active Army support installations. Alexis is partnering with the ACSIM, CPW's Professional Development and Training Division and two other realty specialists from Fort McCoy and the 90th Regional Support Command to develop a course on transfer, real property management and systems for the Reserves. "Later, I also hope to partner with the MACOMs and

installations to expand this course for Armywide instruction," says Alexis.

Currently the course manager for the Real Property PROSPECT course at Huntsville, Alexis would like to improve the training. "Due to the ongoing RIF actions within the Army, there are many new people in real property," says Alexis. "I want to make this a basic skills course to bring the newcomers up to speed, teaching them how to assign category codes, identify structures, assign facilities, lease facilities and even dispose of properties."

Alexis calls herself "a sports nut," and while at Fort Knox, she coached a girls softball team for 15 years. She also enjoys more domestic sports like crafts, sewing and crocheting. You may reach her at (703) 428-7465 DSN 328. **PWD**



## Did you know that...?

by Bill Eng

### ... You can have security lighting even when you don't have a source of electricity nearby?

At least, that's what a *BETTER idea*<sup>1</sup>, Naval Facilities Engineering Command (NAVFAC's) Productivity Improvement Bulletin, reported in the Summer 1995 edition.

The article entitled: "SOLAR TO THE RESCUE" tells how the Naval Weapons Station Earle in Colts Neck, New Jersey, solved that very problem. The wastewater treatment plant, a railroad storage yard, a ship's pier, and a remote pistol range all needed security lighting but were a long, long way from a power source.

What the Public Works Department engineers did was a little research, and they came up with an inexpensive off-the-shelf commercial product. It's called SolarPal Safety Street Light and it uses a solar-powered microprocessor to control the on-off cycle and charging/monitoring the battery.

When fully charged, the battery can provide lighting for five days without the sun. The microprocessor controller protects the battery from any damage due to over-charging or from draining too deeply to recover.

The system is virtually maintenance-free and the components will last a long time. The expected life of the light bulb is 12,000 hours; the solar panels, 30 years; the controller, 10 years; and the gel cell batteries, 7 years. Three

models of SolarPal are available through the GSA catalog, priced from \$2,020 to \$2,994.

The engineers found another use for the SolarPal— emergency lighting. When the underground cables for the street lights in a housing area failed, they were faced with a choice between an expensive emergency repair project or leaving the housing residents in the dark and at risk. Instead, the folks at Earle temporarily installed some SolarPal Safety Lights just below the existing fixtures.

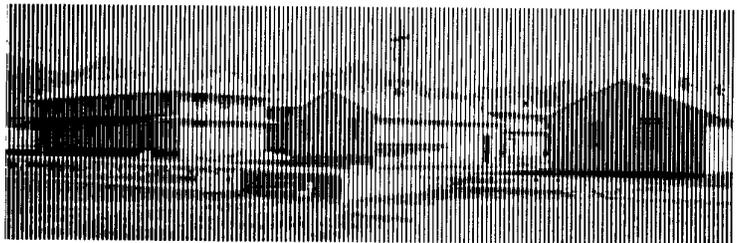
This solution provided the necessary nighttime street lighting and let the PWD handle the permanent repair as a routine job order. There were no expensive overtime and no safety/security problems for the residents.

### ... There's a gold mine in WWII buildings?

Scott Lantz, the engineer at The Twin Cities Ammunition Plant, who oversaw the dismantling of two huge wooden warehouses, totaling almost 1,000,000 square feet, probably thought so.

According to "Fine Homebuilding" magazine<sup>2</sup>, the Army and the other Services traditionally paid contractors to demolish out-of-date buildings and haul away the debris to a landfill. The ones at Twin Cities would have cost about \$300,000 to tear down and landfill the old way.

Having learned that the heavy timber, girders, beams and planking are worth a lot more to timber framers and



fine cabinetmakers, Army recyclers are going to great lengths to salvage the old lumber. This not only saves landfill space and dumping costs, but reduces the amount of hazardous wastes such as asbestos and lead-based paint that are more costly to dispose of and remove.

☎ POC is Bill Eng, DAIM-FDF-U, (703) 428-7078 DSN 328. **PWD**

<sup>1</sup> "a BETTER idea" is published by the NAVFAC Industrial Engineering Center, Code 165, 1510 Gilbert Street, Norfolk, VA 23511-2699, TEL: (804) 322-4701, DSN 262-4701, FAX (804) 322-4727.

<sup>2</sup> "Fine Homebuilding," No. 100, March 1996, p. 36.

## Read the *Boiler Water Line*

Do you read the *Boiler Water Line*? If you don't, you're missing out on one of the most informative one-page flyers produced by the US Army Center for Public Works (CPW).

The *Boiler Water Line* is a newsletter produced several times a year informing Army installations about the pitfalls in boiler/cooling water treatment technology along with workshop and training dates. You owe it to your installation and yourself to be on our mailing list and keep abreast with industrial water treatment technology. Our February edition covered magnetic water treatment, safety aspects boiler water treatment and information on CPW's Boiler Water QA contract.

☎ For additional information or to receive the latest copy of our newsletter, call Cris Sawyer at (703) 806-5206 DSN 656 or Nelson Labbe at (703) 806-5202 DSN 656. **PWD**

## AIPE changes to AFE

The American Institute of Plant Engineers (AIPE) has changed its name to the Association for Facilities Engineering (AFE). For more information, please call the Headquarters at (513) 489-2473 or write to: Association for Facilities Engineering, 8180 Corporate Park Drive, Suite 305, Cincinnati, Ohio 45242. **PWD**



## Let CPW pave the way at your installation

Does your installation need a pavement evaluation and Micro PAVER database update? If the answer is yes, consider using the US Army Center for Public Works' (CPW) Indefinite Delivery Type (IDT) contract. Early detection of structural problems is critical, since for every dollar spent maintaining good pavements, four to five dollars are required to repair pavements which have deteriorated to a poor condition.

Installations should assess the condition of their pavement network on a regular basis, not to exceed three years on any one section. This will ensure:

- Proper scheduling and accomplishment of preventive maintenance (crack sealing and seal coats).
- Performance of emergency work (repair of pot holes and shoulder drop offs) in a timely manner.

- Repairing pavements exhibiting early stages of structural deterioration before more serious deterioration sets in.

Micro PAVER users can accomplish condition assessments by utilizing CPW indefinite delivery type contracts. CPW has developed standard scope of work specifications that can easily be modified for specific installation needs. CPW will help finalize the specifications and assist in developing cost estimates, negotiating with the contractor to keep costs within budget, and in contract administration.

The two firms under contract with CPW are very experienced in

this type of work and can accomplish the work in a short time-frame. In addition, CPW can assist in:

- Development of defensible short- and long-range work plans.
- Prioritizing maintenance and repair requirements.
- Identifying preventive, safety, and major repair.

Taking advantage of CPW's contract will optimize use of available funds and assist in defining annual recurring requirements and unconstrained requirements for programming purposes.

For more information, please write USACPW, ATTN: CECPW-ER, Alexandria, VA 22315-3862, or contact Ali Achmar at (703) 806-6058 DSN 656, FAX: (703) 806-5219. **PWD**

## CPW PROFILE *by Alexandra K. Stakhr*

Raised in Vietnam, Tuan Duong came to the United States as a teenager in 1985. Six years later, he received a BS in electrical engineering from the University of Missouri and moved to Washington, D.C., for graduate studies. While earning his MBA at George Washington University, he spent three summers in CPW's Engineering Directorate, where he landed an intern position last September.

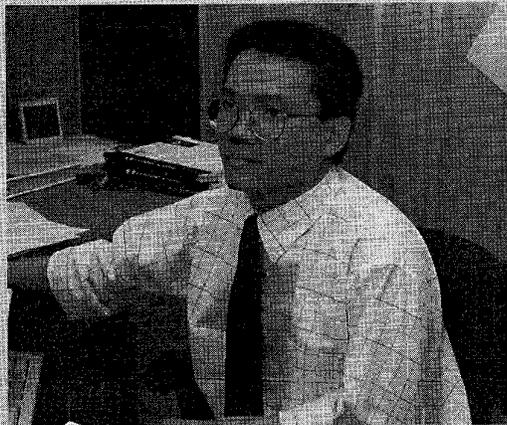
Tuan's current rotation is with the Electrical Division, where he works as part of a team to provide installations with electrical engineering support in electrical system testing and troubleshooting.

Tuan enjoys his work and often spends 9-10 hours in the office. He's currently setting up a database for 90 Army installations that will

tie together their water, gas, sewer and electrical lines. Tuan is also performing an impact analysis on the Army J Account on privatization, both before and after, and reviewing privatization studies on several electrical systems.

Last year, Tuan and two co-workers spent two weeks at the Hawthorne Army Ammunition Depot in Nevada collecting data for a short circuit and protection coordination study requested by the installation. After he got back, he

### Tuan Duong Electrical Division



(Photo by Richard Brown.)

used a Computer-Aided Design and Drafting (CADD) system to construct the installation's electrical system one-line diagram.

"I gained valuable experience by interacting with installation personnel and observing the other members of my team," says Tuan. "You can't learn everything from a textbook. I found that the single most important thing to follow in dealing with electrical equipment is safety. Even simple things like how you open a panel can make a difference in avoiding electrical shock and explosions."

An ongoing project of Tuan's involves research on battery maintenance and testing to find the best way to test and maintain stationary batteries. "I'm really excited about this project," says Tuan. "I think

that the recent explosion in Bayonne, New Jersey, could have been avoided the proper battery maintenance. Maybe my research can help other installations."

Tuan is getting married this year on the Fourth of July to a former elementary school classmate from Vietnam. Work and wedding plans leave Tuan little time for tennis and water skiing, his favorite sports. You may reach him at (703) 806-5161 DSN 656. **PWD**



# Electrical peak shaving takes the load off the top

by Harold D. Hollis

Electrical peak shaving is the production of electricity to reduce the demand charge. The electrical peak of demand on an installation usually occurs between 10am and 3pm. The chart below depicts typical electrical consumption and demand for a typical installation on a daily basis.

If in this simple case, the installation produces electricity from 10am to 3pm and eliminates the peak, the kW demand charge for the month or the year (depending on the contract and rate) is reduced. The electrical consumption of the base is only reduced slightly.

The savings can be optimized by selecting installations where three criteria are simultaneously satisfied. They are a tall peak compared to the 24-hour average, a narrow peak to minimize kWhr production, and a high demand charge. Production, administrative, non-residence troop and logistic installations

are likely candidates for meeting these criteria.

A combination of load shedding and peak shaving is very cost effective. Loads and consumption that can be shifted in time or turned off during peak time translate to direct savings in consumption cost and peak demand charge. Combining the two will reduce the total electric bill and assist in negotiating rates. Peak demand charges (\$8-\$10 per kW) are based on the highest kW demand even for a second of time and are assessed for the highest demand of a month or even for the year.

How can installations shave that peak? One good answer is to maintain standby generating capacity to take the load off the top.

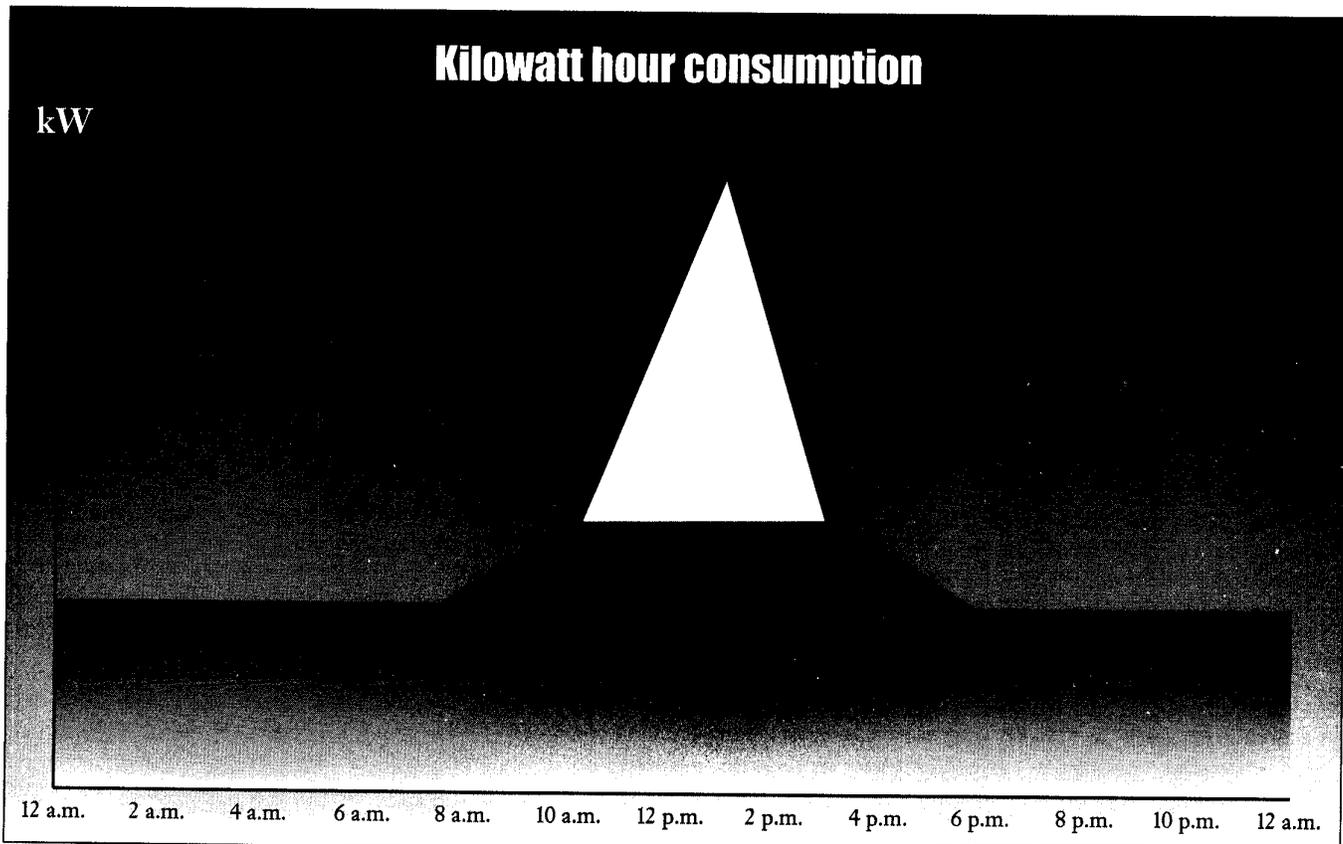
Production methods and equipment are usually high-speed, light-weight engine generator sets operated automatically. They start and pick up load when

a preset kW demand is reached and shut off when the corresponding dropping kW demand is passed. The units parallel into the electric grid and can be used for emergencies. Normally, operators are not present and maintenance is performed during off hours.

An installation can use the daily demand chart to determine the anticipated reduced demand. Multiplying the demand charge times the number of billings gives the yearly savings. Estimating the construction costs (building, generators, transformer controls and switchgear) and dividing by the yearly savings will yield the payback time in years.

☎ POC is Angie Stoyas, CEPW-EE, (703) 806-6113 DSN 656. PWD

*Harold D. Hollis is the program manager for CPW's Power Reliability Enhancement Program.*





## Prepare boilers for layup now, avoid startup problems later

by Nelson Labbé

The end of the heating season is here for many of us. As a result, many of our boilers will be idle until next heating season. To keep them in good condition until then, we must prepare them properly for storage (layup).

This is important because corrosion damage within boilers is more likely to occur during layup than during operation. The good efforts put into preventing corrosion and deposition during operation can be totally ruined by a few weeks of improper storage or improper shutdown. Proper storage is also required for short periods, even several days. If the proper techniques for storage are followed, startup will also be more efficient.

The major factors that can cause corrosion during layup include water pH

and dissolved oxygen. Any layup method used must address these two factors. Oxygen especially can cause rapid and severe pitting.

Boiler layup can be either wet or dry. Wet layup is more common, especially for periods less than one month. Short-term wet layup involves increasing sodium sulfite and caustic soda. Wet layup for more than one month involves draining and cleaning the boiler before filling and dosing with sodium sulfite and caustic soda. Dry layup involves draining the

boilers, cleaning and removing any humidity from the boilers.

The fireside of the boiler must also be prepared properly for storage. All fireside deposits must be removed to prevent absorption of moisture that will cause corrosion. Many fireside deposits are acidic in nature and will form corrosive acids when moisture or humidity is present. Corrosive acids can quickly cause serious damage to the fireside.

Detailed guidelines for boiler layup appear in TM 5-650 and ASME's Recommended Rules for Care of Power Boilers.

For more information on proper water treatment for heating or cooling systems, please call Nelson Labbé at (703) 806-5202 or DSN 656-5202. **PWD**

## CPW PROFILE *by Alexandra K. Stakbr*

Tom Dolen is no stranger to fire fighting. A 21-year veteran of the Washington, D.C., Fire Department, he joined CPW in October 1994 after a 3-year stint as Fort Meyer's fire chief.

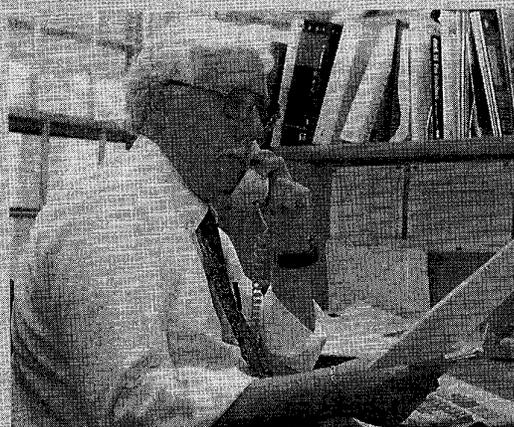
One of only two fire protection specialists in the Directorate of Engineering, Tom helps Army installations and MACOMs follow the fire code and Army regulations. If requested, he can check alarm systems requirements and drawings, suppression systems and building plans as well as interpret various regulations and fire standards for individual installations.

Under a memorandum of understanding with FORSCOM, which provides for a fire protection position, Tom covers all aspects of fire protection for FORSCOM installations. For non-FORSCOM installations without a fire protection specialist on their staffs, he provides fire protection support on a reimbursable basis.

"The best way to protect your installation from fire is to promote your Fire Prevention Program by assigning a fire marshal to each unit/activity to help your fire department," advises Tom. "With all the current cutbacks, the Unit Fire Marshal Program can be a life saver. It trains selected people who work in the building to be fire inspectors. You can be sure your installation is being checked properly since they're there all the time."

A big part of Tom's job is performing on-site fire protection operational readiness inspections (FPORIs). An FPORI in-

### Tom Dolen Buildings and Structures Division



(Photo by Richard Brown.)

volves all phases of the fire protection program, including an evaluation of fire fighting exercises and fire department personnel records as a check on the annual physical training program requirements. During in- and out-briefings, Tom discusses any immediate problems and later writes a detailed report of his findings and recommendations. Last year, Tom performed fire protection surveys for installations in Panama, Hawaii, USARC and MEDCOM.

"Basically, I take care of the technical side of fire protection, while ACSIM takes care of the policy side. However, I coordinate and work with ACSIM on surveys, revising Army regulations, and assisting with the annual fire chief conference," says Tom.

Tom is also involved with child development services for the Department of Army. A member of the Army

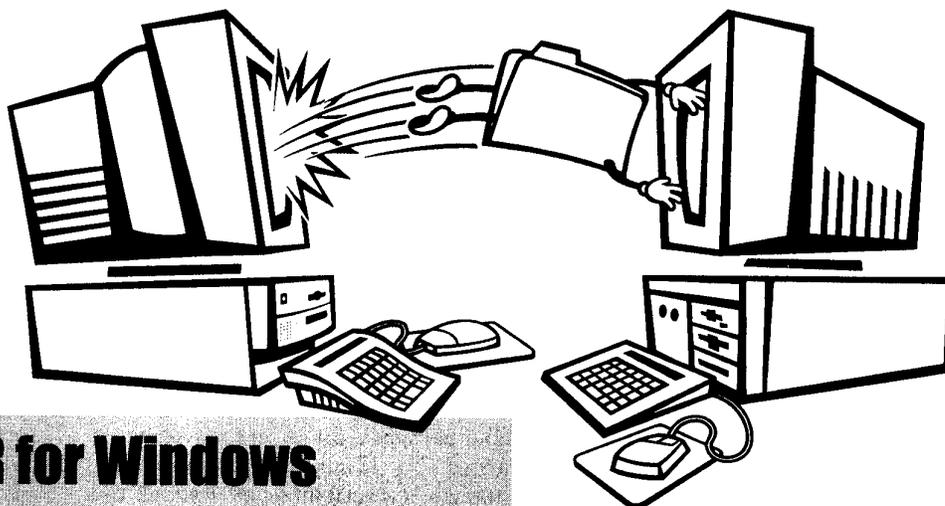
Child Care Evaluation Team, he inspects child care centers to ensure they meet the fire protection requirements of regulations governing child care services and the Child Care Act by checking building capacity, construction, smoke resistance, fire rating, doors, fuel storage, fire and smoke alarms, exits and fire extinguishers. He can also assist with project design.

Tom loves to fly and has been a licensed pilot since 1961. As a member of the Civilian Air Patrol, an auxiliary of the Air Force made up of cadets and civilians, he helps to search for and rescue people in downed aircraft. You may reach him at (703) 806-5982 DSN 656. **PWD**



## DENIX offers variety of environmental information

The Defense Environmental Network and Information Exchange, or DENIX, an electronic bulletin board developed for the Department of Defense, is a useful tool for environmental managers to receive and communicate information on a wide range of environmental issues.



## ROOFER for Windows

by Dana Finney

Good news for ROOFER users—a Windows version is now available! The new release from the U.S. Army Construction Engineering Research Laboratories (CERL) allows you to take advantage of the Windows graphical environment and print engine.

ROOFER is a computer-based Engineered Management System that offers facility managers a cost-effective decision support tool for maintaining, repairing, and replacing their low slope roofs. It is available from the ROOFER Support Center located at the University of Illinois in Urbana-Champaign, with which CERL is affiliated.

In addition to running in Windows, the new ROOFER software includes several enhancements over previous versions. Examples include:

- A 10-year budget plan report that helps managers identify and program the inspection maintenance repair and replacement of their roofs. It is flexible enough to test different cost and scheduling options to show which one best fits the manager's constraints.
- Work history reporting to allow for input of completed repair projects into the database inventory. When storing these records, the

program automatically updates the right roof condition indexes to reflect their improved condition.

- The ability to load and modify roof section drawings as bitmap files.
- Unlimited roof sections, eliminating the previous maximum limit of 26.
- Optional mobile edition of ROOFER — a pen-based inspection program that allows users to input survey information into a hand-held computer while they are out in the field.

The ROOFER Support Center provides full user support to private and public sector users. Army facility managers can request help from the U.S. Army Center for Public Works (CPW).

For more information on ROOFER, please contact Dave Bailey at CERL, 217-352-0341, ext. 7220. To purchase ROOFER from the support center, call the University of Illinois at 217-333-2882. CPW POCs are Al Knehans or Jim Ledford, 703-806-5990 or -5991. Additional information is available on the World Wide Web at [http://www.conted.ceps.uiuc.edu/support\\_center/](http://www.conted.ceps.uiuc.edu/support_center/). **PWD**

Dana Finney is the chief of the Public Affairs Office at CERL.

DENIX enables the user to:

- Electronically review environmental publications.
- Send and receive electronic mail to other DENIX subscribers.
- Enter into interactive discussions about various subject areas, upload and download data files.
- Access listings of environmental programs.

Sponsored by DoD and developed by the Army, DENIX provides DoD environmental personnel with a central communications platform allowing timely access to environmental legislative, compliance, restoration, cleanup and DoD guidance information.

DoD personnel who are interested in using this service can call (217) 373-6790 to obtain a log-in and password. Army personnel interested in DENIX training can also call the US Army Environmental Center's DENIX support group at (410) 679-2571. DENIX can be accessed through standard computer communications software such as PRO-COMM or PC PLUS and can be reached by dialing (217) 333-5067.

The DENIX access address on the World Wide Web is <http://denix.cecer.army.mil/denix/denix.html>.

POC is Janet Beavers, Installation Restoration Division of AEC, (410) 671-1515 DSN 584. **PWD**



# Use IFS-M for short-range annual planning

by James W. Medbourn

Using IFS-M to retrieve data for managing the projects in the short-range master planning process has been a boon for the Directorate of Engineering and Housing (DEH) in Wiesbaden, Germany. It has enabled us to discard separate database programs, and reports can now come directly from IFS-M.

Here's how we do it: We enter the codes to identify the category of work in the "SPEC INT CD" field. We then enter the fiscal year for accomplishment in the "PROGRAM FY" field, and a priority, within the fiscal year, in the "WORK REQ PRI" field. All fields are in the Customer Service Module.

The following process is used at the Wiesbaden DEH to format the data and to initiate the retrieval process, which results in a complete five-year plan projects portion of the Annual Work Plan. Upon receipt, a work request is entered into the IFS-M database by work reception personnel, and then staffed, estimated, and approved. After it's approved, we determine how the work will be accomplished.

We have established codes and entered them in the field "SPEC INT CD" (of the Customer Service Module) for the following categories:

- AFH = Army Family Housing
- CON = Contracts
- JOC = Job Order Contracting
- PRP = Proprietary Approval Only
- SFC = Small Purchase Contracts
- SVC = Service contracts (Small Purchase Contracts)
- IHS = In House Work
- TRL = Troop Labor

As the project progresses, we enter codes in the "WORK REQ PRI" (again in the Customer Service Module) used to pinpoint the status:

- 777 = New, not prioritized
- 887 = Disapproved
- 888 = Canceled
- 999 = Completed

We've also developed sequels to retrieve the data in reports based on the category of the project. You can easily modify these sequels to produce a variety of reports, averaging about one hour per sequel for an inexperienced writer. The 22 current sequels are stored in a special directory available to authorized personnel only. We use a separate directory rather than store queries because personnel managing the plans can change the sequels easily without referring to data processing personnel.

Typical reports include:

DESCRIPTION OF REPORT	CODE
Five-Year Plan AAFES No Remarks	fypaafesnr.sql
Five-Year Plan AFH Sorted by Building	fypafhb.sql
Five-Year Plan AFH No Remarks	fypafhnr.sql
Five-Year Plan AFH With Remarks	fypafhrem.sql
Five-Year Plan CDC No Remarks	fypdcnr.sql
Five-Year Plan DLA No Remarks	fypdlanr.sql
Five-Year Plan Environmental No Remarks	fypenvr.sql
Five-Year Plan In House Work No Remarks	fypihsnr.sql
Five-Year Plan Job Order Contract No Remarks	fypjocnr.sql
Five-Year Plan NAF No Remarks	fypnafnr.sql
Five-Year Plan OMA All Contracts	fypomaallcon.sql
Five-Year Plan OMA Sorted by Building	fypomab.sql
Five-Year Plan OMA No Remarks	fypomanr.sql
Five-Year Plan OMA Remarks	fypomarem.sql
Five-Year Plan Proprietary Approval No Remarks	fypprprnr.sql
Five-Year Plan SFC No Remarks	fypsfcn.sql
Five-Year Plan SFC With Remarks	fypsfcrem.sql
In-House Work 1996	ihs96.sql
In-House Work 1997	ihs97.sql
In-House Work 1998	ihs98.sql
Job Order Contracting 1996	joc96.sql

The processes I've described have greatly enhanced the DEH's ability to manage the master planning process. Since the IFS-M database is used, we don't "lose" projects due to input errors, as happens sometimes when a separate database is generated. We can retrieve reports much faster and easier. An added advantage is that a manager can call up a current plan and print it using the desktop computer. No more walks to data processing to pick up reports!

IFS-M will work for you if you analyze your needs and format your data properly to retrieve reports which are meaningful. This approach is not programming as such, it is using applications of existing programs.

For more information, please call the Directorate of Engineering and Housing at Wiesbaden, Germany. **PWD**

*James W. Medbourn is the former Deputy Director of Engineering and Housing in Wiesbaden, Germany.*

*Author's Note: To relieve ADP personnel from the task of entering L&E card data, we made the individual shops responsible for entering this data by their shop personnel. The advantage is that shop personnel learn the correct methodology for recording time, costs and vehicle utilization. There also is the added advantage of placing the responsibility for missing data on the shop personnel who generate and input the data. This simple change in procedure has greatly reduced the Engineering Work Management Division's backlog of data to be keyed into IFS-M.*



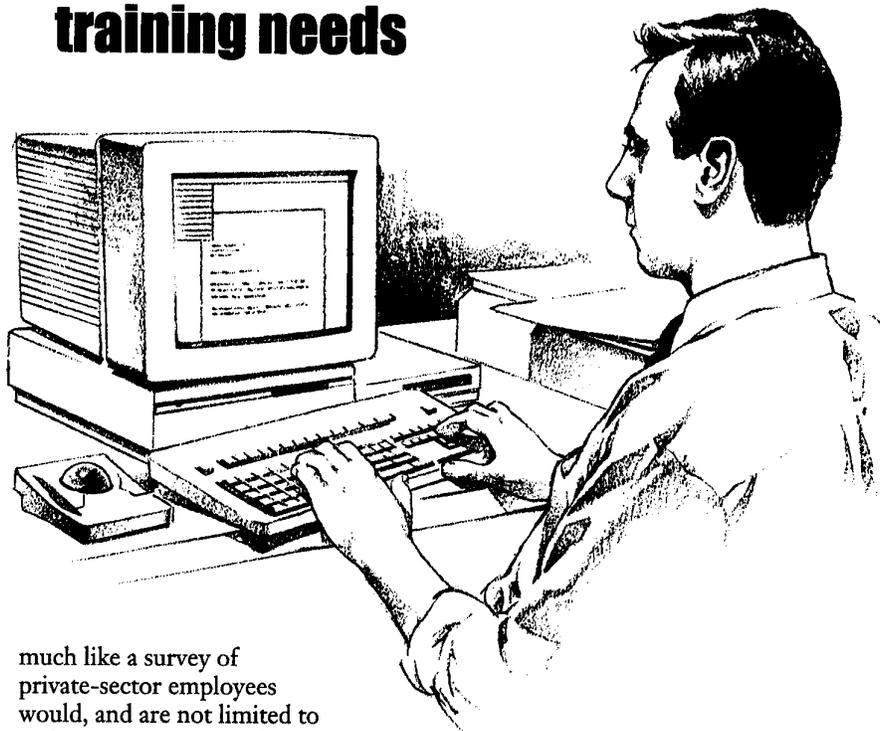
## CATS environmental survey pinpoints training needs

Getting your people the right training so they can do a better job of protecting the environment in the workplace—that's the reason for a new user-friendly computerized survey program, designed to provide commanders and supervisors with a means of assessing their work force's environmental training requirements.

The Compliance and Awareness Training Stalker (CATS) survey gives management a tool to analyze environmental training requirements and training deficits of individual Army personnel, and identify specific training courses that will remedy workplace deficiencies. The goal—a work force that is more environmentally aware, and thus can more effectively comply with environmental laws and regulations.

Army installations or activities can use the survey results to develop environmental training needs assessments that are unique to their organizations. When compiled at the MACOM and Army level, the surveys can form the basis for environmental training needs throughout the Army. The information will also be helpful to those who must decide about where the Army spends its training dollars.

The survey targets both officers and enlisted soldiers, GS and Wage Grade civilian personnel and contractor employees. The yes-no questions address what soldiers and civilians actually do,



much like a survey of private-sector employees would, and are not limited to Military Occupational Specialty (MOS) and job descriptions.

CATS will identify three training categories:

- Must-have training you need to be in compliance with federal law, or else face penalties.
- Training consistent with good or best management practices that enhance environmental compliance at the installation or activity.
- Desired training that would benefit the installation, the activity or the individual.

CATS survey results offer several advantages, including:

- Provides a standardized means to document environmental training requirements.
- Gives commanders and supervisors a tangible document recording training requirements for soldiers and employees.
- Gives soldiers and civilian employees a tangible document that records their training requirements.

For those who work with chemicals, substances or materials that could adversely affect the environment, their performance will improve. This will have a positive effect on field exercises, warehouse and motor pool operations, as well as vehicle, equipment, aircraft maintenance and metal shops.

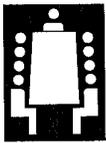
The survey program may also be modified at the installation level to incorporate local requirements.

☎ Copies of CATS survey software are available upon request. To receive the software or if you have any questions or comments, please contact Rick Montgomery, (205) 722-5902/5905, FAX: (205) 722-5896, or write to:

Environmental Training Support Center  
ATTN: CEHND-TD-ET  
P.O. Box 1600  
Huntsville, AL 35807-4301 **PWD**

### Submit your articles and photographs to the *Public Works Digest*

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Alexandria, VA 22315-3862  
Phone: (703) 428-6404 DSN 328  
FAX: (703) 428-6805  
e-mail: alex.k.stakhiv@cpw01.usace.army.mil



# Installation Management

Throughout the Western United States, water is a scarce resource, and its availability is becoming a growing concern in parts of the Eastern United States. Without water, the Army couldn't operate its installations. Protecting water rights has become a must, and now installations have the policy guidance necessary to do so.

In a first for the Department of Defense, the Army has issued a policy that makes clear its position on water rights. It also provides guidance for installations on maintaining records and other information necessary to establish and preserve their existence.

The concept that a water right is a property which must be protected is not new. The need for a policy on water rights was officially recognized in 1988 by the Army Science Board in a report analyzing **Water Supply and Management on Army Installations in the Western United States**. The ad hoc subgroup concluded there was an... "immediate need to adopt and implement a consistent policy towards water rights, with well-defined lines of organizational legal responsibility."

Today, there is an even greater demand for water because of growing populations and expanding economic development. This places Army installations in ever greater competition for water. Several installations have become involved in litigation over water rights, and as the competition increases, it is likely that more will. The new water rights policy will be a big help to installations in establishing their legal rights to water.

Water rights issues are often complex, and the laws govern-

*A new Army policy on water rights was issued in a memorandum on 24 November 1995 prepared by the Assistant Chief of Staff for Installation Management and the Judge Advocate General. It was signed by Mr. Paul Johnson, Deputy Assistant Secretary of the Army for Installations and Housing, and Mr. Earl Stockdale, Deputy General Counsel, Civil Works and Environment.*

## Army first to issue policy on water rights

by Greg Brewer

ing water rights vary widely across the United States. However, there are three basic legal principles that apply to water rights issues which the states use—riparian, prior appropriation, and hybrid.

**Riparian** rights generally apply in the eastern states. These rights permit landowners to make "reasonable" use of water adjoining their property.

In the arid and semi-arid west, where it is often necessary to divert water from its source, the **prior appropriation** doctrine applies. This doctrine is based on the "first in time, first in right" principle but requires the water to be put to a beneficial use. This means that in some states, like Colorado, seniority of water use and geographic proximity to the water source determine water rights.

The **hybrid** doctrine applies to states such as California, which originally recognized riparian rights but later converted to a system of appropriation while preserving existing riparian rights.

To further complicate matters, state water rights often distinguish between surface water and groundwater.

Installation commanders, Directors of Public Works, and Staff Judge Advocates will use the new policy as a guide in establishing and preserving their water rights. However, the Army still reserves the option to assert federal preemption of state water law on a case-by-case basis.

The policy on water rights applies to water in streams, lakes, springs, reservoirs, aquifers, or other bodies of surface or groundwater on, under, or touching land owned by the Army. It also applies to water being diverted from sources off the installation and conveyed onto the installation for use on the installation. It does not apply to Civil Works facilities.

Implementing this new policy will take time and resources. Recognizing that manpower shortages are increasing, the Assistant Secretary of the Army (Installations, Logistics and Environment) recommends using Judge Advocate General and Corps of Engineers reserve components to support installation efforts in this area.

☎ POC is Greg Brewer, DAIM-FDP-P, (703) 693-4583, DSN 223. **PWD**

*Greg Brewer is a planner in the Facilities and Planning Division of the OACSIM.*





# Reduce waste and reduce worry

by Laura Seabeneck

In the past, DoD has placed a great deal of emphasis on recycling. Facilities have responded by instituting recycling programs for readily recyclable items such as white paper, colored glass, newspaper, and recyclable plastics. Many are beginning to expand their recycling efforts to include toner cartridges, computer parts, wood and other construction materials.



All these efforts are admirable — but recycling alone does not satisfy installation needs for solid waste reduction.

What are the alternatives?

Long overlooked is the basic concept of source reduction—the most basic and preferable means of waste reduction. We must encourage the environmental managers on our installations to take the time to review processes and materials being acquired for Army missions. They need to find alternate means and materials to support waste reduction efforts.

The Sanitary and Chemical Division of CPW can provide a simple checklist to help review industrial processes that can substitute less environmentally-detrimental materials than those currently being used. A capital investment in technological improvements now may significantly reduce waste generation. It can even pay for itself through reduction in solid waste disposal.

Composting is an easy option for waste reduction. It straddles the fence between recycling and source reduction. Unfortunately, there is very little guidance available on composting at DoD facilities. Recognizing this, USACERL is evaluating composting at Army installations for a lessons learned to be issued in the 4th quarter of calendar year

1996. In addition, the revised version of the *Installation Recycling Guide* will address composting and reference guidance documents from many sources.

Other options include procuring supplies that have minimized packaging and/or whose packaging may be reused or recycled. DoD has issued new guidelines for materials acquisitions that are either derived from recycled materials or may readily be recycled, themselves.

For assistance with solid waste management issues, please call the US Army Center for Public Works at 1-800 RING-CPW.

☎ POC is Laura Seabeneck, CECPW-ES, (703) 806-5212 DSN 656. **PWD**

*Laura Seabeneck works on solid waste management issues in the Sanitary and Chemical Division of CPW.*

## Take the worry out of waste disposal—privatize

by Laura Seabeneck

It's not a pretty picture... Landfills are closing and those that remain active are becoming more discriminating about the characteristics of the solid waste they accept. Laboratory fees and other means of acquiring data necessary for waste disposal are taking out a significant chunk of the environmental budgets of many DPWs. DRMO disposal prices are increasing across all contract line items each time the solid/hazardous waste contracts are renegotiated. Mounting air emissions restrictions are driving the price of incineration of solid waste up as well.

EPA estimates that only 42 states will continue to landfill waste by the year 2000.

Despite the implementation of recycling programs, DoD facilities are facing fewer and fewer solid waste disposal options. So what are installations to do?

Another way to handle disposal is to privatize. DoD is encouraging installations to "get out of the landfill business." Current privatization trends are pushing solid waste disposal offsite and into privately owned and managed regional landfills.

Privatization is considered a good option because it can:

- Eliminate down-line installation site remediation costs.
- Reduce installation liability for potential mismanagement of landfills and transfer station operations.
- Reduce the potential for expensive fines associated with statutory and regulatory violations.

☎ For more information on how to privatize the solid waste management program at your installation, please contact Ed Irish, CECPW-E, (703) 806-6003 DSN 656. **PWD**



## Where to turn for recycling/affirmative procurement information

Here are some recycling and affirmative procurement information resources that may be of interest to DPW Digest readers:

**1** California Department of Conservation, Division of Recycling, Resource Center, 801 K Street, MS 18-55, Sacramento, CA 95814-3533— provides local government, industry, and the general public with access to information on all facets of recycling. There are five parts to the Resource Center (some accessible only from within California):

- The recycling library has books, reports, manuals, surveys, studies, encyclopedias, and videotapes that can be borrowed in person and by mail. The library database has 14,000 entries and can help with computer searches by title, subject areas and authors. Hours: 0900-

1600, Monday through Friday; TEL: (916) 445-1490.

- The publications unit distributes copies of the Division of Recycling publications as well as reprints of magazine articles and other documents

from a variety of sources. A list of available publications can be requested by calling 1-800 RECYCLE (in California only) and ordering the *Resource Center Guide*. It can also be ordered through the *InfoCycle* electronic bulletin board (see below).

- *InfoCycle*, an electronic bulletin board system dedicated to recycling, is a forum for information exchange among public and private groups and individuals, such as recyclers, processors, retailers, manufacturers, educators, government, and non-profit organizations. It also contains databases and technical information, and is a communication link to the department staff. TEL: (916) 445-1490.

- *California Recycling Review*, a technical bulletin published every other month, contains abstracts of articles and other materials from the Resource Center library, analysis of timely subjects related to recycling, trends in the industry, showcase of exemplary programs, and other features. Write for a free subscription.

- Toll-free telephone information. 1-800-RECYCLE (in California only), a toll-free automated information line to answer questions about California beverage container program, recycling grants, school programs, and other topics.

**2** BioCycle, 419 State Avenue, Emmaus, PA 18049; TEL: (610) 967-4135; FAX: (610) 967-1345; e-mail: [biocycle@aol.com](mailto:biocycle@aol.com)— publishes *BioCycle*, *Journal of Composting & Recycling*, (\$63 a year), a monthly magazine reporting on technological, legislative and program developments in composting yard wastes, organics, and bio-solids from

## Recent developments in the Army Recycling Program

by Bill Eng

The Department of Defense recently circulated a draft DoD Instruction (DoDI) on Pollution Prevention. In the DoDI, the Deputy Under Secretary of Defense for Environmental Security proposes making changes in the recycling program policy, including Service procedures for blanket authority for installation direct sales of recyclable materials.

While comments on the draft were due back to DoD in late March, the implementation date for the DoDI is not known. Also during March, the DoD Inspector General (IG) began an evaluation of DoD installations now having direct sales authority, which was granted on a case-by-case basis for 6-month periods.

The DoD IG's evaluation will determine whether:

- ✓ Accountability and reporting procedures are in compliance with DoD policy.
- ✓ Items not permitted for direct sales are being included in recycling programs.

- ✓ Requirements on the distribution of proceeds are being met.
- ✓ The direct sales program results in anticipated benefits at installations.

Finally, The U.S. Army Audit Agency (AAA) will be auditing Army's Recycling Program beginning in May. AAA will be looking to see whether the guidance followed by installation recycling programs is in line with Department of Defense policy.

The audit is also to see if any unauthorized materials are being included in installation qualified recycling programs and if there are adequate internal management controls in place.

AAA asked for and received MACOM and ACSIM comments on the audit and suggested locations to visit. AAA was asked to coordinate their sites visits with the DoD IG to ensure that any one installation was not visited by both agencies during their investigations. When more information is learned, it will be disseminated through the MACOM recycling program managers.

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water and wastewater treatment specifically and recycling in general.

**3** Defense Logistics Agency, Defense Logistics Services Center, Battle Creek, MI; TEL: (616) 961-4958/5729; DSN: 932-4958/5729; FAX: (616) 961-5305— publishes an *Environmental Products* catalog of hundreds of products that can help reduce hazardous wastes, eliminate use of ozone-depleting chemicals, protect workers, and save money. DLA also operates five specialized supply centers:

**4** General Services Administration (GSA), Federal Supply Service, Washington, D.C. 20406-0001, Centralized Mailing List Service; TEL: (817)

334-5215— publishes *The GSA Supply Catalog*, *MARKETIPS*, *Customer Assistance Guide*, and all *Federal Supply Schedules*. The *GSA Supply Catalog* and *MARKETIPS*, a bi-monthly supplement to the *GSA Supply Catalog*, both contain supply information on recycled-content and environmental products.

**5** Waste Watch Center, 16 Haverhill Street, Andover, MA 10810; TEL: (508) 470-3044— publishes the *Household Hazardous Waste Management News*, (Agency voluntary contribution: \$35) a quarterly newsletter reporting on legislation, programs, and trends at the federal, state, and community levels dealing with handling and disposal of household hazardous wastes. It also spotlights the role of various businesses and industries in controlling and eliminating HHWs contained in consumer products.

**6** McEntee Media Corp, 13727 Holland Road, Cleveland, OH 44142-3920; TEL: (216) 362-7979; FAX: (216) 362-6553— publishes *The Paper Stock*

*Report*, (\$108 a year), a bi-weekly newsletter showing current prices for various grades of waste paper (office, old newspaper and corrugated), news from dealers, mills, municipalities, generators, and overseas markets. They will send a free sample for your review.

trends, new technologies and markets, successful and failed strategies.

**8** Recycling Times, 4301 Connecticut Ave., NW, Suite 300, Washington, D.C. 20008; TEL: (800) 424-2869, ext 3711; FAX: (202) 966-4868— publishes *Waste Age's Recycling Times*, (\$99 a year,

special discount for NRC members—\$69), a bi-weekly journal reporting on legislative developments in the recycling industry; regional prices, trends and analysis on 30-plus recyclable commodities, including waste paper, scrap metals, glass, aluminum, and plastics; and new programs in state recycling, latest end uses and technologies.

DEFENSE SUPPLY CENTER	COMMODITIES	TELEPHONES
Electronics, Dayton, OH	Misc energy-savings devices for ADP equipment	1-800-643-8825 DSN: 986-6425
Fuel, Ft Belvoir, VA	Bulk petroleum, oils and lubricants	(703) 767-8377 DSN: 427-8377
Industrial, Phil., PA	Gaskets, fasteners, packing	(215) 697-0930 DSN: 442-0930
Columbus, OH	Construction equipment, heavy machinery, construction materials, building equipment	(614) 922-2015 DSN: 810-1508
Richmond, VA	Chemicals, defoliant, aircraft, military and defense, electronic products, equipment	1-800-352-2952 DSN: 693-0054

**7** Resource Recycling, P.O. Box 10540, Portland, OR 97210-0540; TEL: (503) 227-1319; FAX: (503) 227-6135— publishes the *1996 Directory of U.S. & Canadian Scrap Plastics Processors, Buyers, including Plastics Recycling Equipment Manufacturers*,

(\$40.00) a listing of nearly 375 firms that purchase plastics scrap, including buyers of plastic containers, film, sheet and mixed thermoplastics; *Plastic Recycling Update*, (\$49.00 a year) a monthly newsletter that describes the current markets, politics and economics of plastics recovery; and *Bottle/Can Recycling Update*, (\$55 a year) a monthly newsletter on recycling aluminum and steel cans, plastic and glass bottles, covering market assessments, recycling price



(Disclaimer: This is a listing of various sources of information on recycling that may be useful to recycling program managers and others. It is not an endorsement and it is not solicited by anyone.)

☎ POC is Bill Eng, DAIM-FDF-U, (703) 428-7078 DSN 328. **PWD**



# Professional Development

## Register now for the DPW Corrosion Control Course

by Jane Anderson

The Army's DPW Corrosion Control Course is designed for personnel concerned with the operations, maintenance and management of utilities systems for corrosion control (such as cathodic protection, water

treatment, materials selection and protective coatings). It is also highly recommended for engineering personnel involved with pipelines, tanks, and other metallic structures. The US Army Center for Public Works is spon-

soring the course, which will be held at the US Army Construction Engineering Research Laboratories in Champaign, Illinois, 20-24 May 1996. There is no tuition charge.

The course provides comprehensive corrosion control training in the area of RPMA equipment management and focuses on methods and technologies that increase equipment life, lower operation costs, reduce manpower, save energy, and ensure environmental compliance. These are important goals for installations faced with today's diminishing resources.

Specifically, the course addresses:

- Maintenance, operation and design of corrosion control programs for underground fuel storage tanks and piping.
- Gas, steam, and potable water distribution systems.
- Water storage tanks.

Course presenters will emphasize cathodic protection of these systems and discuss water treatment for controlling corrosion and scale formation in boilers, cooling systems, and potable water systems. The goal is to make all material presented practical in nature by providing hands-on training in field testing and operation of cathodic protection systems and off-potential measurement devices.

This year's course will also provide special emphasis on current environmental hot topics. The latest information on the impact of EPA regulations on corrosion management of underground fuel storage tanks will be covered, to include installation site monitoring, record keeping and cathodic protection design and operation.

To register, please contact Jane Anderson of USACPW at (703) 806-5214 or Vincent Hock of USACERL at (217) 373-6753. **PWD**

*Jane Anderson works on water conservation issues in CPW's Sanitary and Chemical Division.*

### CPW offers workshop on electrical issues for non-engineers

Under the present downsizing conditions, many Army installations have non-engineers performing tasks that were originally done by electrical personnel (engineers/technicians). In addition, non-electrical supervisors, staff personnel, and managers, who do not have the proper background or training, commonly make decisions involving electrical issues. This can lead to inefficient and costly electrical projects.

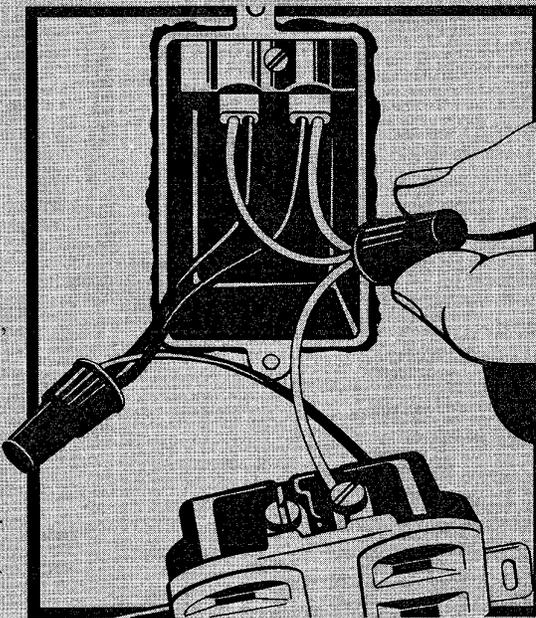
CPW can help. The Electrical Division has prepared a workshop, titled **US Army Electrical Systems and Issues for Managers and Non-Power Engineers**, to increase awareness of electrical issues and technical skills for managers and non-power engineers.

The proposed three-day workshop is an overall review of areas of electrical engineering that are of interest to all Army installations. Topics include:

- Army electrical system studies.
- Current issues.
- Maintenance and operations.
- Electrical theory.
- ADP installations.
- Privatization.
- Emergency power systems.
- Harmonics
- Grounding.

The proposed location is the Fort Belvoir/Springfield, Virginia area and the proposed dates are 9-11 July 1996. The cost will be \$75.00 per student, to cover cost of meeting room, handout materials, and administrative expenses. If you plan to attend, please let us know as soon as possible since the workshop will be limited to 30 spaces.

For more information or to register, please contact Ron Mundt at (703) 806-5181 DSN 656 or e-mail: [rpn.k.mundt@cpw01.usace.army.mil](mailto:rpn.k.mundt@cpw01.usace.army.mil). **PWD**





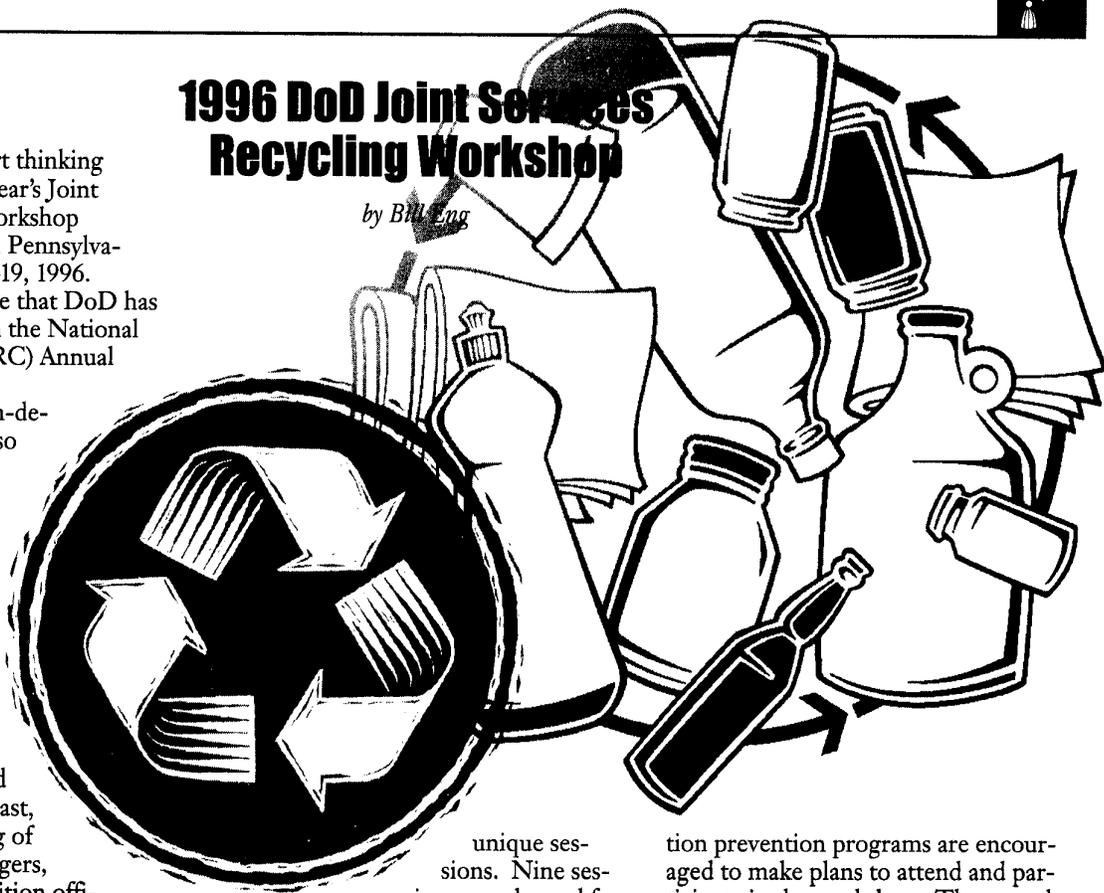
## 1996 DoD Joint Services Recycling Workshop

by Bill Eng

It's not too soon to start thinking about attending this year's Joint Services Recycling Workshop (JSRW) in Pittsburgh, Pennsylvania, from September 16-19, 1996. This will be the sixth one that DoD has held in conjunction with the National Recycling Coalition (NRC) Annual Congress.

Like the military, non-defense federal agencies also had to recycle. Unlike DoD, they did not have authority to retain the proceeds from the sales of their recyclables until just recently. Hoping to learn from DoD and the NRC, the Federal Environmental Executive (FEE), Fran McPoland, who attended the DoD/JSRW in the past, has called for a gathering of recycling program managers, coordinators, and acquisition officials from all the other federal agencies to coincide with the DoD/JSRW-NRC.

The 1996 DoD Joint Services Recycling Workshop will be joining with the First Annual "FEE/NRC Confluence Program" to provide a forum for discussion, interchange of ideas, and networking. As in the past, DoD and the Services will still have some military-



unique sessions. Nine sessions are planned for the DoD-FEE/NRC program. The agenda is being firmed up and a call for papers, presentations, and displays has gone out.

Installation recycling managers, environmental officers, solid waste managers, procurement officials, and personnel involved in installation/MACOM solid waste/recycling/pollu-

tion prevention programs are encouraged to make plans to attend and participate in the workshop. They are also urged to sign up as panel members or briefers for breakout/discussion sessions in one of the following tracks:

- Recycling/Waste Prevention.
- Affirmative Procurement.
- DoD Specific Issues.

Due to the expanded program, workshop organizers can offer DoD/federal employees a special registration rate of \$119, rooms at the government per diem rate of \$69 a night, and complete NRC administrative support. Invitational mailings will be made directly to attendees of last year's JSRW. More information will be provided to the MACOMs as soon as it becomes available.

☎ POC is Bill Eng, DAIM-FDF-U, (703) 428-7078 DSN 328. **PWD**

**PUBLIC WORKS PROBLEM?**

**U.S. ARMY CENTER FOR PUBLIC WORKS**

**CPW**

**1-800-RING-CPW**