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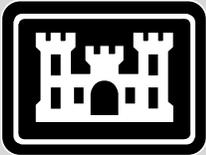
Digest

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In This Issue...

Protecting the Environment



US Army Corps
of Engineers®



Public Works *Digest*

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LETTER FROM THE EDITOR



This issue of the Digest is all about the environment. You will be impressed by the winners of the Secretary of the Army Fiscal 2000 Environmental Awards. Be sure to read all the write-ups on the individual winners—they've done some truly spectacular things through community outreach programs and extended partnerships.

Here's a sample of what's inside-- US Army Alaska reduced sources of erosion for 45 projects, the 409th BSB in Germany developed an automated hazardous waste tracking database, and Fort Bliss' Pollution Prevention Action Team obtained outside funding for new technology for its environmental program. Fort McCoy documented all the buildings on each Reserve Center in the 88th Regional Support Command while Fort Meade not only transferred an airfield to the local county, but also had it deleted from the EPA's National Priorities List in record time. And that's just the first section!

Under Environmental Management, the Arizona National Guard has built the unique Ecobuilding using sustainable design and development principles. It's a first on Army land. Fort Sill has privatized its natural gas distribution system and you can read all about how and why they did it. There's an update on the *Sources of Funds for Army Use Guide*, guidance on building deconstruction alternatives to demolition, impacts of NEPA on the Real Property Master Plan, and so much more.

There's also something for those of you interested in water conservation and water resources planning. The next time you visit Fort Belvoir, make an appointment to stop by the Casey Building at the Humphreys Engineer Center. The Institute for Water Resources, *Think Tank* for the Corps, has created the very impressive Arthur Maass/Gilbert White Reference Room, a collection of personal papers donated by these two water resources management giants. I attended the grand opening where MG Milton Hunter, the Deputy Chief of Engineers, was the keynote speaker and master of ceremonies at the symposium held immediately afterwards. Praising Maass and Gilbert for their many contributions, Hunter recognized the need for more scholarship in the Corps' future. The audience of about 100 held some giants of its own. Look for the photo of the four retired lieutenant generals present: Groves, Graves, Morris and Heiberg, the last two are former Chiefs of Engineers.

The inside back cover (Who's Who at HQ) features Mike Kishiyama and Steve Reynolds, branch chiefs in the Installation Support Division. Both have impressive backgrounds and many years of experience; they work behind the scenes to provide your installations with assistance. The back page of this environmental issue holds the Earth Day message from the Chief of Engineers, LTG Robert Flowers.

Finally, a reminder that ENFORCE 2001 will be taking place at Fort Leonard Wood, Missouri, during the week of May 7-11. This year, it will again combine Engineers from the Active and Reserve Component, Corps Senior Leaders and MACOMs as well as DPWs from Army installations. This is their chance to brag, share, complain, question and vent. It is their opportunity to listen to multiple views on installation management, air their thoughts on the things that have bothered them during the year, and hear about some of the innovative things going on at other installations. The DPW Training Workshop will take place on Monday and Tuesday, and I will be there to take notes on the important issues for the next (June-July) Public Works Digest.

By the way, I haven't heard any complaints, so I guess everyone got the March Digest on Housing issues. In some instances, it might have been a little late because of our switch to media mail from first-class mail for requests of more than one copy. Again, if you did not receive your Digest in a timely fashion, please let me know.

Until next time...

Alexandra K. Stakhiv

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PWD



Outreach, partnerships earn Army environmental honors

By Cynthia Houston

Six installations and two teams received the Secretary of the Army Fiscal 2000 Environmental Award during a May 2 ceremony at the Pentagon.

Winners of this year's awards earned their honors through community outreach programs that shared the Army environmental story and through innovative partnerships built on shared vision.

"Today's Army is a committed steward serving as an environmental leader in America's communities," said Raymond Fatz, Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health. "Winners of these awards, whether an installation or a team, demonstrate that partnering and engaging local interests enhance Army environmental programs and achieve military readiness goals."

Highlights of winners initiatives include environmental experts at U.S. Army Alaska partnering with The Nature Conservancy on regional ecosystem goals, a totally volunteer crew at Fort McCoy excavating a 19th Century grist mill, and the Fort Meade Environmental Partnership Team breaking through barriers hindering the clean-up process on the post.

Chosen as the Army's best for fiscal 2000, Army winners went on to compete with winners from the Navy, Air Force, Marine Corps and Defense Logistic Agency for a Secretary of Defense Environmental Security Award. Three Army installations received top honors here too.

Fort Bliss, Texas, again won the Cultural Resources Management award for an installation for partnering efforts with Native American tribes and for adaptive re-use programs that support the post's mission in a cost-effective manner. The Cultural Resources Management Program Team at Fort McCoy, Wisconsin, won the Cultural Resources Management team award for community partnering projects and for its comprehensive archaeological management program. Fort Eustis, Virginia, won the Pollution Prevention award for a non-industrial installation for its ability to integrate a highly effective environmental management program into mission support of the 7th Transportation Group, one of the most frequently deployed units in the Army.

Following are the Secretary of the Army fiscal year 2000 winners and honorable mentions for each award category. Asterisks in each category denote runners-up.

Congratulations to all the winners and nominees!

Natural Resources Conservation:

Winning installation of more than 10,000 acres:

- U.S. Army Alaska

Large installation honorable mentions:

- Fort Huachuca, AZ*
- Fort Carson, CO
- Fort A.P. Hill, VA
- Arkabutla Lake, U.S. Army Corps of Engineers, MS
- Fort Dix, NJ
- Camp Beaugard, Louisiana Army National Guard, LA
- Combat Maneuver Training Center, 282nd Base Support Battalion, Hohenfels, Germany

Cultural Resources Management:

Winning installation:

- Fort Bliss, TX

Installation honorable mentions:

- Fort Bragg, NC*
- Fort Myer, VA

Winning team:

- Cultural Resources Management Program Team, Fort McCoy, WI

Individual or team honorable mentions:

- MAJ Michael Tarpley, Camp Beaugard, Louisiana Army National Guard, LA*
- Fort Lewis, WA
- Dr. Chris Hamilton, Fort Benning, GA
- Fort Hamilton, NY

Environmental Quality:

Winning industrial installation:

- Lake City Army Ammunition Plant, MO

Winning overseas installation:

- 409th Base Support Battalion, Grafenwoehr, Germany

Honorable mention:

- 10th Area Support Group, Torii Station, Okinawa, Japan

Pollution Prevention:

Winning non-industrial installation:

- Fort Eustis, VA

Non-industrial honorable mentions:

- Fort Riley, KS*
- Minnesota Army National Guard
- Fort A.P. Hill, VA
- 94th Regional Support Command, U.S. Army Reserves, Fort Devens, MA

Winning individual:

- Pollution Prevention Action Team, Fort Bliss, TX

Individual or team honorable mentions:

- Pollution Prevention Team, Radford Army Ammunition Plant, VA*
- Pollution Prevention Team, Fort Carson, CO
- Pollution Prevention and Energy Team, Fort Belvoir, VA
- Pollution Prevention Process Action Team, Maneuver Area Training Equipment Site, Camp Ripley, Army National Guard, MN
- Frank Nolan, U.S. Army Reserves, Fort Dix, NJ

Environmental Restoration:

Winning installation:

- Fort Meade, MD

Installation honorable mentions:

- Schofield Barracks, HI*
- Fort Carson, CO
- Fort Dix, U.S. Army Reserves, NJ
- Fort McClellan, AL

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U.S. Army Alaska partnerships ensure conservation of natural resources

by Cynthia Houston

U.S. Army Alaska, custodian of 1.6 million acres of military training land, recently won the fiscal 2000 Secretary of the Army Environmental Award for Natural Resources Conservation at a large installation.

Wetlands, forest, lakes, mountains and coastline all make up the vast landscapes and diverse training grounds where U.S. Army Alaska soldiers train as "Arctic Warriors." From airborne operations to glacier training, Alaska soldiers receive some of the most demanding and rigorous training available.

Along with its mission to train and equip forces for rapid deployment and conduct cold regions and mountainous terrain operations, U.S. Army Alaska remains committed to maintain the beauty and integrity of its spectacular environment.

A panel of non-military and Army natural resources management experts, including representatives from The Nature Conservancy and the U.S. Fish and Wildlife Service cited U.S. Army Alaska for its demonstrated technical expertise in support of military readiness and effective partnerships with community members and natural resource agencies.

Consisting of Forts Greely, Richardson and Wainwright, U.S. Army Alaska includes more than 5,800 soldiers augmented by more than 2,900 civilians. Among these, 18 workers on the three installations manage natural resources that include 1 million acres of wetlands, 570,000 acres of forest, 13,400 acres of lakes, 3,400 miles of streams and 10 miles of coastline.

Over the judging period, U.S. Army Alaska executed 45 projects to reduce sources of erosion, improve 352 acres of military training sites, protect over 1160 acres of wetlands and enhance 681 acres of wildlife habitat.

U.S. Army Alaska joined hands with the Bureau of Land Management, the Alaska



U.S. Army Alaska soldiers train as "Arctic Warriors."

Department of Fish and Game, the U.S. Fish and Wildlife Service and The Nature Conservancy in natural resource projects to maintain biodiversity, collect cultural resource data, mitigate soil erosion, perform land soil surveys and execute restoration projects. These partnerships ensure conservation practices are in place and military readiness is maintained.

David Banks, Alaska state director for The Nature Conservancy, has worked with many of the U.S. Army Alaska environmental staff on an ecoregional assessment of the Cook Inlet ecoregion, where Fort Richardson is located.

"They have been important team members in this exercise and have provided unique insight, especially in regards to the habitat needs of wide-ranging species," Banks said. "The assessment is reaching the final stages of completion, and would not have been possible without the support of Fort Richardson staff."

Additionally, the Alaska command built partnerships with federal, state and local agencies to pool expertise, use limited resources, increase public involvement and promote public access to U.S. Army Alaska lands.

Ship Creek is a major salmon spawning stream and is a large source of water for the Anchorage community. With a grant from the USFWS and with guidance from other partners, U.S. Army Alaska undertook the Ship Creek restoration project and improved water quality, restored and stabilized the stream bank, and

enhanced salmon habitat. U.S. Army Alaska worked hand-in-hand with the Boy Scouts of America from the local community to complete the project.

U.S. Army Alaska also created new and improved methods for Land Condition-Trend Analysis monitoring, a program which evaluates location, amount and extent of disturbance across a landscape. Applying this monitoring information ensures sensitive and critical wetland habitat is protected while realistic training scenarios are made possible.

Innovative landscape ecology and ecosystem approaches undertaken by the Alaska staff emphasize partnering and decision-making criteria. Applying these practices maintains biodiversity through habitat mosaics and incorporates the soldier as a species within that habitat. Animals benefiting from the Alaska Army's land management projects are moose, ruffed grouse and bison.

U.S. Army Alaska and The Nature Conservancy have taken the lead in implementing a regional ecosystem management project titled, "Prioritizing Conservation Strategies in the Cook Inlet Eco-region." This project helps the Alaska forces accomplish regional ecosystem management goals by looking beyond its borders to manage and protect significant ecosystems.

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PWD



Fort Bliss – tops in historic preservation

by Cynthia Houston



Fort Bliss has a rich history as is evident in the 19th and 20th century ranches such as George Beasley Ranch House in Saledad Canyon, Fort Bliss, Texas.

Fort Bliss, Texas, covering roughly 1.1 million acres in far western Texas and southern New Mexico, won the fiscal year 2000 Secretary of Defense Environmental Security Award for Cultural Resources Management at an installation. Acting Secretary of the Army Joseph W. Westphal had honored Fort Bliss with his own award in January.

More than a million archaeological artifacts and their associated site files, photographs and field records, as well as historical architectural drawings and photographs of post facilities, are housed in the Fort Bliss state-of-the-art curatorial facility.

The rich history of Fort Bliss is evident throughout the post – from buildings that were the earliest mess halls, barracks and quarters in the Main Cantonment area to the prehistoric campsites and pueblos and the remains of nineteenth- and twentieth-century ranches.

A panel of non-military and Army cultural resources management experts, including representatives from the Advisory Council on Historic Preservation, judged competitors for the Cultural Resources Management award. In addition to outstanding program

management, Fort Bliss demonstrated technical expertise in support of military readiness, and community partnerships.

“The dedicated staff at Fort Bliss has done an excellent job of incorporating the historic preservation values of Army Headquarters into an active and successful program at the installation level,” said David Berwick, Army affairs coordinator at the Advisory Council on Historic Preservation. “Too often we see these historic preservation values in direct conflict with critical Army missions when Headquarters’ programs are taken down to the installation level. However, Fort Bliss has done an excellent job of making its historic preservation program an integral and important part of the Army’s mission at Fort Bliss.”

Among Fort Bliss’ eligible sites for the National Register of Historic Properties is Wildy Well, the site of the 1899 gun battle where Sheriff Pat Garrett and a posse attempted to arrest Oliver Lee and Jim Gilliland for the 1896 murder of Albert J. Fountain and his son. Also eligible for placement on the Register is the William Beaumont General Hospital Historic District, a collection of 64 buildings and structures built

between 1921 and 1945. The District is one of seven regional Army general hospitals that operated between World Wars I and II.

Using a “whole neighborhood” revitalization approach, installation architects work with post engineers and tenant organizations to organize rehabilitation of all historic properties on Fort Bliss. In doing so, they restore streamlined costs after years of deferred maintenance.

In one project, roofs were restored on some of the oldest buildings to their original materials. The metal roofs, which are projected to last sixty years, reflect a savings of more than \$17,000 per 3,500-square-foot building.

Perhaps the best examples of adaptation of historical Army facilities on the post are the buildings which house the post’s Directorate of Environment. Built in 1939 as horse stables for the 1st Cavalry Division, the 600-foot-long brick structures were converted into Nike missile training school classrooms and rocket laboratories in the late 1950s. The Environmental Directorate adapted two of these buildings to serve as office space, curatorial and lab facilities.

In another adaptive re-use project, the 32nd Army Air Missile Defense Command consolidated operations into a single historical building. Spending about \$20 per square foot to renovate the approximately 27,000-square-foot interior, the organization obtained a facility costing about \$100 per square foot less than normally spent on new facilities – a savings of approximately \$2.7 million overall.

Fort Bliss regularly consults with the Tigua Indians of Ysleta del Sur Pueblo and the Mescalero Apache tribe about sites of traditional and cultural importance. Agave, traditionally used for subsistence and in ceremonies of the tribe, is not available within the boundaries of their reservation in Mescalero, New Mexico. Mescalero Apache tribal members annually collect agave from natural stands on the mountainous fringes of the installation.

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PWID



Fort McCoy promotes partnerships with historic preservation and local communities

by Cynthia Houston

Fort McCoy occupies roughly 60,000 acres in Monroe County, Wisconsin. The installation supports United States Army Reserve Command warfighting capability training.

A team from Fort McCoy, Wisconsin, an Army training post for combat units in every war of the twentieth century, recently won the fiscal 2000 Secretary of the Army Environmental Award for Cultural Resources Management.

The Fort McCoy cultural team works to ensure compliance with the cultural resources legal requirements necessary to sustain a state of combat readiness on Army lands.

A panel of non-military and Army cultural resources management experts, including a representative from the Advisory Council on Historic Preservation, judged competitors for the Cultural Resources Management award. In addition to outstanding program management, Fort McCoy's team demonstrated technical expertise in support of military readiness, and outstanding accomplishment with community partnerships.

"Fort McCoy's staff of highly qualified professionals has developed a broad historic preservation program with demonstrable results," said David Berwick, Army affairs coordinator for the Advisory Council on Historic Preservation. "The staff has developed strong associations with both the historic preservation community and the local community, and these, no doubt, have contributed to the success of their program."

The Fort McCoy archaeology program consistently sought out new technologies to identify, evaluate and manage archaeological sites. In a recent project, Ground Penetrating Radar was used to determine whether landscape features were Native American burial mounds or natural geologic formations. GPR is a non-invasive survey technique for subsurface study that allows investigators to detect features below the surface without disturbing the land. The investigations concluded that the fea-



Fort McCoy supports United States Army Reserve Command warfighting capability training.

tures were indeed natural.

During the past three years, 13 of 46 prehistoric sites on the post were determined eligible for the National Register of Historic Properties. During the same time, Fort McCoy architectural historians documented every building and structure at each Reserve Center within the 88th Regional Support Command in the states of Michigan, Ohio, Illinois, Indiana and Minnesota.

The evaluation of so many sites has resulted in an intensive collection of new data. A comprehensive analysis of the post led to revision of the prehistoric and historic views of the Army installation to identify it as a distinct interior region of the Upper Mississippi River watershed.

The McCoy cultural team has built other successful partnerships. Through innovative Memorandum of Understanding agreements, the local Ho-Chunk Nation allows access to sacred sites on the fort to carry out traditional religious ceremonies and to collect plants that are important to their traditional religious practices.

In a project to document historic farmsteads, former residents were invited to visit their old homes and share their experiences with the cultural resources staff. Information obtained was used to further clarify the status of Fort McCoy as a cultural resource

to the county and region.

"The Fort McCoy environmental team's commitment to effective consultation and sensitive consideration of the public's concerns, while supporting the mission needs of Fort McCoy, exemplify the Advisory Council's principles for open participation in the historic preservation process," Berwick said. "Their ability to work together as a team in furthering historic preservation at Fort McCoy is admirable."

Fort McCoy is currently negotiating an agreement to provide, on a long-term basis, an important historic collection of artifacts to the local Sparta Historical Museum. The artifacts are the result of a 19th Century grist mill on Fort McCoy once owned by Bruce McCoy, the original owner of the property.

The totally volunteer project crew mapped landforms with global positioning system units, full unit excavations and large-scale area excavations to uncover the mill foundation. Volunteers came to the site from as far away as Arizona, and included students and community members from the local area.

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PWD



Lake City Army Ammunition Plant protects health and environment

by Deborah Elliott

Lake City Army Ammunition Plant, a government-owned, contractor-operated facility located in Jackson County, Missouri, won the fiscal 2000 Secretary of the Army Environmental Quality Award, Industrial Installation, for its efforts to protect human health and the environment at an industrial installation.

Judges for the Environmental Quality award recognized Lake City Army Ammunition Plant for exceeding expectations in compliance efforts and realizing significant cost savings through recycling efforts, while transitioning from one Army contractor to another.

"The transition between contractors at a facility such as LCAAP can be a challenging situation for Army managers who have to continue accomplishing their mission during the changeover process, but the Lake City Army Ammunition Plant folks did this with ease," said LTC Jan Kozlowski, of the Army Office of the Director of Environmental Programs. "I commend LCAAP and its operating contractor, ATK, for their ability to maintain tight environmental controls through this transition."

Highlights of the environmental program at Lake City Army Ammunition Plant include proactive equipment upgrades in anticipation of more stringent requirements and implementation of bioslurry (iron filings and sand) filtration technology. The plant has seen 21 successful regulatory inspections and enjoys large returns on recycling efforts.

A panel of non-military and Army environmental management experts, including representatives from the Environmental Protection Agency and the Maryland Department of the Environment, judged competitors for the Environmental Quality award.

"Maintenance of environmental excellence under the myriad federal laws, regulations and executive orders at Lake City Army Ammunition Plant's is to be applauded," said George Harman of the Maryland Department of the Environment, who served on the judging panel.

One accomplishment found exemplary

by the judges was the plant's scorecard for regulatory agency audits during the period of performance for the award. The Missouri Department of Natural Resources conducted on-site inspections to ascertain compliance with the Resource Conservation and Recovery Act (hazardous waste management) and air, asbestos, drinking water system and on-site landfill regulations; and the National Research Council audited the plant's radiation program. In both cases, no violation citations were issued.

The judges also commended the permeable reactive wall project. Made of iron filings and sand, the wall is one of the deepest bioslurry walls ever constructed. It is designed to break down solvents in the soil into harmless chemicals that pass through the wall and safely enter the groundwater system. The wall does not require any maintenance and will remain effective from 15 to 30 years.

"The bioslurry wall and environmental technologies like it are critical to the safe and cost-effective restoration of industrial sites," one judge remarked.

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Lake City Army Ammunition Plant won the Environmental Quality Award for an industrial installation for proactive equipment upgrades, 21 successful regulatory inspections and large returns on recycling efforts.



409th BSB leads human health and environment protection efforts in Europe

by Deborah Elliott

Judges recognized the 409th Base Support Battalion, stationed in Grafenwoehr, Germany, with the Secretary of the Army Award for Environmental Quality for its efforts in protecting human health and the environment while demonstrating leadership in environmental protection and improvement among its European neighbors.

"We expect our installations to demonstrate compliance with environmental laws, and the 409th Base Support Battalion has done this," said Lt. Col. Jan Kozlowski, from the Army Office of the Director of Environmental Programs. "What raises the group's head above the rest this year are its efforts to work within environmental laws and the community while executing contingency missions in Europe."

Initiatives at the heart of the 409th Base Support Battalion's success include completion of a quality of life project aimed at installation soldiers and their families; development of an automated hazardous waste tracking database; application of U.S., German and international agreements to range modernization efforts; initiation of a pollution prevention program; hosting of environmental conferences for the European community and the introduction of a new method for limiting the environmental impacts of training maneuvers. These initiatives were accomplished despite the 409th Base Support Battalion's funding challenges.

A panel of non-military and Army natural resources management experts, including representatives from the U.S. Environmental Protection Agency and the Maryland Department of the Environment, applauded the 409th for outstanding program management and its technical expertise in support of military readiness and community partnerships.

"The 409th Base Support Battalion demonstrates that comprehensive environmental programs can be implemented and

maintained without sacrificing mission objectives. In fact, many of the implemented programs demonstrate enhancements and cost savings for the facility involved," said George Harman of the Maryland Department of the Environment, who served on the judging panel.

One of the programs cited by the judges as exemplary was the 409th Base Support Battalion's water quality survey of more than 30 lakes and ponds, which is part of a priority water protection program in the area. The Bavarian government, in partnership with the Army to protect local water sources, was pleased with the survey program and provided the funding for conducting fish sampling and analysis. This funding enabled the Army to realize a program savings of \$90,000 in environmental

compliance funds.

The panel also commended the 409th Base Support Battalion for its efforts in working with the European community by hosting environmental conferences to share technology and information, and sending subject matter experts to neighboring nations to advise on environmental issues.

"Overseas installations have to overcome several obstacles that continental United States installations don't, such as international laws and being on foreign soil, and the 409th Base Support Battalion has overcome many of these obstacles with its sensitivity to and support of community environmental issues," one judge remarked.

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The 409th BSB's water quality survey of lakes and ponds is a part of a priority water protection program in the area.



Fort Eustis—a leader in pollution prevention

by Maria Applin

Fort Eustis, Virginia., the home of the U.S. Army Transportation Corps, won the fiscal 2000 Secretary of the Army Environmental Award for Pollution Prevention in the non-industrial installation category.

Judges honored Fort Eustis for its ability to integrate a highly effective environmental management program while supporting the mission readiness of the 7th Transportation Group, one of the most frequently deployed units in the Army.

Fort Eustis, located in southern Virginia, is home to more than 2,000 acres of tidal wetlands. The wetlands serve as a habitat for wildlife and help to filter pollutants from the Chesapeake Bay, the nation's largest estuary and the first to be targeted by Congress for restoration as an integrated watershed and ecosystem.

A judging panel, consisting of federal environmental experts from the Department of Defense and other agencies, nominated Fort Eustis for excellent management, organization and concern over a range of environmental problems.

"Fort Eustis has, and continues to be, a leader in the Army's Pollution Prevention Program," said panel member Tom Guinivan, Pollution Prevention Branch chief at the U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland. "The program is based on excellent personnel and strong command support."

The panel commended Fort Eustis for taking the initiative on several environmental issues. Fort Eustis became one of the first Army installations to prepare a pollution prevention plan even prior to the presidential executive order mandating such plans. Another initiative was the integration of the solid-waste management program that has helped the installation maintain a 37 percent waste diversion rate, exceeding the federal goal of a 35 percent diversion rate by 2004.

It is also the first Defense Department installation in Virginia to develop an Integrated Contingency Plan – contingencies being very efficient emergency responses to unexpected pollution events. By combining seven contingency and prevention plans into one, Fort Eustis was able to integrate and incorpo-

rate federal and state requirements resulting in the easier and faster management of programs.

Increased training and communication avenues, like the development of an internet-based affirmative procurement training course and training videos for soldiers, civilians and their families, have helped to increase recycling at the post by 16 percent, with a cost avoidance of more than \$275,000. Community outreach activities include promoting cooperation and exchange of information through the Virginia-DoD Partnership and participating in Virginia Naturally, the Commonwealth of Virginia's official environmental education initiative.

Fort Eustis and Fort Story, a sub-installation of Fort Eustis, obtained \$85,500 in free issue materials from NFIFC, and in 1999, Fort Eustis saved \$97,100 in waste disposal as a result of this partnership.

"The interaction of the Pollution Prevention Activity with the Navy Fleet and Industrial Supply Center in disposing of excess hazardous materials while obtaining free issue materials is the best of all worlds," said panel member Lewis Felleisen, an environmental engineer from the Environmental Protection Agency Region III.

The panel also commended Fort Eustis for its long-term planning abilities. After a major pollution prevention opportunity assessment was conducted in 1999, Fort



Fort Eustis was one of the first Army installations to prepare a pollution prevention plan.

Eustis found that 32 percent of the hazardous waste generated the year before was the cause of an antiquated paint booth process. A cost analysis evaluated the difference in building a new paint facility or sending the work to a local vendor. A savings of about \$23 million over a 25-year period was identified if Fort Eustis chose to build a new facility.

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Maria Applin is a public affairs specialist on the US Army Environmental Center National Outreach Team. **PWD**

USAEC manages Secretary of Army Awards Program

The U.S. Army Environmental Center (USAEC), in cooperation with the Army's Office of the Directorate of Environmental Programs and the Army's Office of the Assistant Chief of Staff for Installation Management, manages the Secretary of the Army Awards Program for the Secretary of the Army.

The U.S. Army Environmental Center guides the Army's efforts to increase readiness, improve quality of life, and enhance community relationships through sound stewardship of the environment. The Center integrates, coordinates and oversees the implementation of the Army's environmental program for the Army Staff. It also provides technical services and products to the Department of the Army, the Army's major commands, and installation and unit commanders.

For more information on the recipients of the Secretary of the Army Fiscal 2000 Environmental Awards, please contact Cynthia Houston, U.S. Army Environmental Center at (410) 436-1270, or visit USAEC's web site at: <http://aec.army.mil/> **PWD**



Fort Bliss Environmental Action Team reduces pollution

by Maria Applin

An environmental action team from Fort Bliss, the largest Air Defense Center in the world, won the 2000 Secretary of the Army Environmental Award for Pollution Prevention in the individual/team category.

A judging panel honored the six-member team for its aggressive and creative approaches to reducing pollution, saving money and integrating environmentally friendly practices into the daily lives of the soldiers and civilians at Fort Bliss.

Fort Bliss, located in both Texas and New Mexico, supports its primary mission of training soldiers by following the Army's commitment to the environment and working to preserve the million acres it occupies in the Chihuahaun Desert.

A judging panel, consisting of experts from the Department of Defense and federal environmental experts, nominated the Fort Bliss team for an impressive array of programs and initiatives that resulted in four years of outstanding Resource Conservation and Recovery Act (RCRA) inspections and lack of negative findings in 1999 and 2000 in Texas or New Mexico.

"The diversity of the teams environmental skills and the team vitality have enabled them to implement a very broad ranging program," said panel member Lewis Felleisen, an environmental engineer from the Environmental Protection Agency Region III. "They demonstrate what a motivated team can accomplish."

One accomplishment was the replacement of petroleum naphtha, a hazardous solvent used for cleaning vehicle parts, with an environmentally friendly agent. The solvent is non-carcinogenic, uses low vapor pressure to control air emissions and costs nothing for disposal because it is recyclable. Using this product, the post reduced source disposal from cleaning and degreasing operations by 28-tons in 1999.

A proactive recycling program made disposing of household hazardous waste recycling such as paint, batteries and antifreeze easier and more convenient for soldiers and their families. A new hazardous waste pick-up service for military



Fort Bliss' proactive recycling program makes disposal of household hazardous waste easy for soldiers and families.

units reduced the potential for injuries and environmental violations, and freed soldiers to return to their training missions.

The judges commended the team's efforts to obtain grants and other funding for new technology. Funding enabled the purchase of digital battery analyzers and chargers and is expected to save Fort Bliss units about \$155,000 each year, in addition to battery replacements by 30 percent.

A new weedseeking application technology is expected to reduce herbicide application by 50 to 80 percent. This technology uses advanced optics and computer circuitry to sense weeds, and sprays a precise amount of herbicide directly on each plant.

Project funding and Base Operations Opportunity Leveraging and Developing (BOLD) grants enabled Fort Bliss to replace 13 hydraulic armored moving target carriers with electrically actuated targets. Spills from damaged hydraulic targets could cost as much as \$60,000 each to clean up due to the number of people needed and high health risks.

Partnerships with other agencies have helped to combine resources, save money and develop new programs. "The Fort Bliss

team's extensive interaction with other agencies has resulted in effective pollution prevention strategies and is commendable," said panel member Beth Martin, an environmental scientist at the U.S. Army Center for Health Promotion and Preventive Medicine at Aberdeen Proving Ground, Maryland.

Fort Bliss is an active member of the Defense Department and the Texas Pollution Prevention Partnership that initiated the "Green Base of the Future" program. It is designed to provide a model and guidance for installation commanders and regulators throughout the Department of Defense.

Fort Bliss is also represented at the New Mexico Pollution Prevention Partnership that includes DoD, the New Mexico Environment Department, the National Park Service, the New Mexico Recycling Coalition and the Southwest Public Recycling Association. The group is taking a team approach to establishing a successful recycling program.

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Fort Meade recognized for environmental restoration efforts

by Deborah Elliott

Fort George C. Meade won the fiscal 2000 Secretary of the Army Installation Environmental Restoration Award for its efforts to protect human health and the environment.

Judges recognized Fort Meade, located between Baltimore, Maryland, and Washington D.C., for its efforts in bringing to closure, in record time, several environmental clean up projects, while moving forward with several others that will facilitate closing parcels of the base identified for the base realignment and closure (BRAC) program in a timely and cost-effective manner.

“Fort Meade is on the fast track to complete its environmental restoration projects and accomplish its mission to close the BRAC parcels of the installation on time and within budget,” said Judge Karen Wilson, from the Army Office of the Director of Environmental Programs “This achievement requires dedication to excellence, and I applaud the Fort Meade team’s efforts.”

The jewels in Fort Meade’s crown include:

- The success of its environmental partnership team.
- The signing of three Record of Decisions (approved remediation plans) for six sites.
- The transfer of Tipton Airfield to Anne Arundel County.
- The deletion of the Tipton Airfield from the Environmental Protection Agency’s national priorities list in the fastest time – only 16 months – in the history of the Superfund Program

Fort Meade accomplished these goals despite the presence of unexploded ordnance on the base remaining from many years as a critical Army training facility.

A panel of non-military and Army environmental management experts, including representatives from the U.S. Environmental Protection Agency and the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), judged competitors for the Environmental Restoration installation award.

“The Army clean-up program is matur-



An environmental specialist takes soil samples at the post laundry facility, one of Fort Meade’s NPL sites

ing and there is light at the end of the tunnel,” said judge Steven Hirsch of the Environmental Protection Agency. “Fort Meade is making it through the restoration process with good environmental results.”

The judges cited the Fort Meade Environmental Partnership Team for its facilitation of the signing of the first Record of Decision at the installation. The team’s commitment to partnership accelerated the restoration process and broke through barriers that had hindered the clean-up process. It is made up of members from USEPA Region 3, the Maryland Department of the Environment, the Department of the Interior’s Fish and Wildlife Service, the National Security Agency, the U.S. Army Corps of Engineers, the Tipton Airport Authority and Fort Meade leadership, including the BRAC environmental coordinator and the installation restoration program manager.

The panel also commended Fort Meade for its success in recycling Tipton Airfield into a community airport and transferring the 346 acres to Anne Arundel County ownership.

“Fort Meade can be applauded for its efforts in considering and including the local community in its restoration projects,” one judge said.

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Teamwork earns Hammer Awards for two environmental initiatives

Conservation Team

by Neal Snyder

An effort that culminated in the bringing together of six federal agencies to help the Army manage cultural and natural resources on its lands received the Vice President's Hammer Award Oct. 12 for its innovative approach to cutting red tape, saving money and achieving results.

The Conservation Team partnership program of the U.S. Army Environmental Center has saved the federal government an estimated tens of millions of dollars since its establishment in 1994, according to USAEC Conservation Branch Chief Paul Thies. "Coordinating six different agencies, each with its own area of expertise, is an excellent example of reinventing government so it works better and costs less," said Morley Winograd, director of the National Partnership for Reinventing Government. "The Army now has immediate access to team members from other agencies who are experienced in preserving historical and natural resources."

The Hammer Award, established by Vice President Al Gore in 1996, recognizes teams of federal employees and their partners whose work shows results that make government work better and cost less. More than 1,200 \$6 hammers have been awarded.

USAEC integrates, coordinates and oversees implementation of the Army's environmental programs for the Army staff. The Center provides a broad range of environmental products and services to the Army staff, major commands and commanders worldwide.

Through the USAEC Conservation Team program, liaisons from the Forest Service, the Natural Resources Conservation Service, the Fish and Wildlife Service, the Bureau of Land Management, the U.S. Geological Survey and the Advisory Council on Historic Preservation are assigned to work within the Center's Conservation Branch.

"USAEC's direct relationship with these natural and cultural resource conservation agencies reduces overhead and helps provide

our installations with faster, expert support for their conservation activities," Thies said.

The integration of liaisons within the Conservation Team helps the Army more effectively and efficiently manage natural and cultural resources, Thies said. Through the liaisons, other agency employees can be assigned to specific tasks on DoD installations. Interagency agreements and memorandums of understanding help the Conservation Team provide a broad range of services with a minimum of red tape.

The program also allows for the delivery of conservation services to the military that otherwise would be unavailable or prohibitively expensive. For example, soil surveys of 65 Army training areas would have cost \$29 million had the service relied on its own resources. Experts from NRCS were able to do the same work for less than \$2.9 million.

Additional savings resulted when Forest Service and Fish and Wildlife service staff reviewed and developed 20 Integrated Natural Resources Management Plans for installations.

Conservation Team liaisons have a record of this kind of achievement:

- The Forest Service completed planning-level surveys for managing the extensive cultural and natural resources on lands that the Eighth US Army is responsible for in South Korea.
- Natural Resources Conservation Service technicians helped develop a land condition assessment model for the Army's Integrated Training Area Management program.
- On 23 Army installations, the Fish and Wildlife Service provided wetlands inventories, a major step in protecting, restoring and enhancing wetland habitat.
- Bureau of Land Management liaison staff helped develop policy for joint land use as members of the Interagency Military Land Use Coordinating Committee, Joint Stewardship Working Group.
- USGS documented the wellhead protection requirements and wellhead protection status of Army facilities.
- Advisory Council on Historic Preservation liaisons provided technical expertise

to the Army during the development of the key Army regulations and guidance on cultural resources management.

Neal Snyder is the US Army Environmental Center Command Information Program Coordinator and editor of the Environmental Update.

Green Ammo Team

by Deborah Z. Elliott

The Joint Working Group for Non-toxic Ammunition received a Vice President's Hammer Award last November, making it the second U.S. Army Environmental Center program to receive the honor within two months.

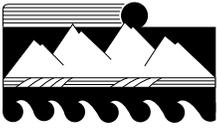
The Hammer Award, conferred by the National Partnership for Reinventing Government, recognizes federal partnerships that have made significant contributions resulting in a more efficient government that costs less to operate.

The group was honored for its contributions in developing non-toxic ammunition, better known as "green ammo." Green ammo bullets consist of a tungsten-nylon or tungsten-tin core that, unlike traditional lead, is benign in the environment.

The introduction of green ammo significantly supports installations by minimizing the environmental impacts of lead contamination on Army ranges; it would save millions of dollars in range cleanup costs if cleaning of Army ranges was required by regulatory agencies.

The partnership includes members from USAEC; the U.S. Army Armament Research, Development & Engineering Center; the U.S. Army Center for Health Promotion and Preventive Medicine; Lake City Army Ammunition Plant; Oak Ridge National Laboratory; the Crane and Indian Head Naval Surface Warfare Centers; the U.S. Army Operational Support Command and the Army Training Support Center. The green ammo effort began in 1996.

Deborah Z. Elliott is a public affairs specialist and Army Earth Day Coordinator with the US Army Environmental Center. **PWD**



Deputy Chief of Engineers addresses future of Water Resources Management at dedication of IWR's Maass/White Reference Room

by Alexandra K. Stakhiv

It's not often we get to see a relationship between scholarship and our national resources. As the keynote speaker at the symposium held at the dedication of the Gilbert White/Arthur Maass Reference Room, MG Milton Hunter, Deputy Chief of the US Army Corps of Engineers, made the connection quite easily.

"Look around this room," he said. "This is an extraordinary gathering of several former Chiefs of Engineers and high-ranking government officials from Army and other departments, renowned scholars, water professionals, historians, and a distinguished panel of speakers. And the only way you can characterize this diverse group is that we are all of us students of these two men."

He was referring to Professors Arthur Maass and Gilbert F. White, two of our nation's most distinguished authorities in the fields of water resources and floodplain management, respectively. These pioneers had generously donated their lifeworks to the Corps' Institute for Water Resources (IWR), where they will be housed for use by future generations. The materials may only be studied onsite in the Reference Room at the Humphreys Engineer Center in Virginia.

Of course, only a very few of those present at the symposium were fortunate enough to have been students in the classrooms of Professors Maass and White. Their influence, however, has reached far beyond their classrooms, even to our installations.

Some of you, said Hunter, were second-generation students, taught by the men and women who attended their lectures. Some learned by reading their works.

"But most of the people in this room, and in the Corps of Engineers," empha-



Professors Arthur Maass and Gilbert White cut the ribbon at the opening of the Reference Room named in their honor.

sized Hunter, "learned from these men just by doing their jobs." The ideas that Maass and White espoused have now been so universally accepted that they are ingrained in government regulations and policies, even in the existence of programs like Federal flood insurance.

"So the first reason I am here today is to honor Professors Maass and White, who more than any other men in the 20th century influenced the way the Corps makes water management decisions, and to thank them on behalf of the Chief of Engineers and the Corps," said Hunter.

Given the opportunity to address the extraordinary assembly of scholars and decision makers, Hunter wanted to ask whether the sort of interaction between scholars and engineers that was being celebrated today will happen again in the future.

"Will scholars have this much influence on the Corps in the 21st century?"

"Is such interaction still needed? After all, everyone says the era of dam building is over.

"Do our universities offer the same opportunity to study water policy? "Does today's Corps of Engineers have the courage, foresight and skill to apply new theories?"

"And finally, even if there are people in the universities and in the Corps who have the potential to exchange ideas, is the bandwidth between agency and academia broad enough for the richness of the dialogue we need to change the course of history, as these two men did?"

After posing these questions to the audience, Hunter remarked that the only part of the answer clear to him is that we need scholarship now more than ever.

"Today, we have to consider more criteria, we have to quantitatively account for uncertainty in our assumptions, and we have to pose our recommendations in risk-



MG Milt Hunter, Deputy Chief of Engineers (right), chats with Professor White and Jim Johnson, Chief of Planning at HQUSACE.

based, rather than absolute, terms,” he explained.

Our decisions are being held to higher and higher standards and regulations are increasingly more stringent. To meet the “test of sustainability,” it is important to make our decision-making processes more sophisticated. Our traditional responsibilities must be successfully balanced with the management of our ecosystem.

“As the people in this room well know,” continued Hunter, “policy making and planning require different skills from those required to most effectively meet regulatory standards. Even though today we have more freedom and more uncertainty, there is still a lot at stake. Government will have to face the question of whether to dismantle dams on the Columbia or build them on the Blue Nile. And regulatory standards will not give us the answers.”

Paraphrasing Professor Maass, Hunter said the Corps is making policy when it makes these design decisions. “On what basis will men like me make our recommendations to Presidents and Prime Ministers?” he asked.

“What have we learned in this century of dam building, and what would we do differently because of what we’ve learned? How sure do we have to be about future consequences before we implement these plans? You can be sure that our children’s children will forget the constraints of time

and budget we worked under. They will judge us on the impacts of our decisions on their lives.”

The ideas and theories of Professors Gilbert Maass and Arthur White, now 84 and 89, are so integrated into our methods and institutions that it’s easy to forget they weren’t always there. We forget that someone had to think of them and fight for them. And just as important, there had to be professionals in the Corps smart enough and courageous enough to lead their agency to this “higher ground.”

Both Maass and White refuse to take all the credit for their many accomplishments in the field of water resources management. Maass stresses that that he did not begin with a tabula rasa (clean slate) and praises the contributions of his many coworkers. White encourages a continuing collaboration between scholars and engineers in trying to find the “wise” solutions for the U.S.

But the true test will be to see if the Corps takes up the challenge to live up to the ideals put forth by Maass and White. A first step has already been taken in setting up a Maass/White Visiting Scholar Fellowship at the Corps’ Institute for Water Resources.

“This is a great day,” concluded Hunter, “a day to ask the big questions, a day of respect for history. The Arthur Maass/Gilbert F. White Reference Room will be more than a great resource for scholars, even more than a tribute to these two men. It will serve as a reminder to us that an agency that is judged by the quality of its recommendations needs scholars.”

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Alexandra K. Stakhiv is the editor of the *Public Works Digest*. **PWID**



(L to R) MG Ernest Graves, former Director of Civil Works, MG Richard Groves, former Deputy Director of Civil Works and LTG John Morris, former Chief of Engineers. LTG Vald Heirberg, another former Chief of Engineers is in the upper left-hand corner.



Arizona National Guard's Ecobuilding Project

by Mark Mahoney

What does a sustainable building look like? In Phoenix, Arizona, it is a 5,200 square earthen-bermed office building built and operated by the Arizona National Guard.

The *Ecobuilding* is a functional and innovative facility incorporating pollution prevention and self-sustaining practices and principles. There would be no connection to any utility infrastructure. A photovoltaic system generates its electricity; the roof harvest rainwater; self-contained systems treat both black and gray water; the structure of the building is used to regulate the interior temperature.

The "Green" nature of the building begins with its construction. The walls are constructed using discarded tires in combination with a centuries-old rammed earth construction technique. Simply put, it uses round adobe "brick" incased in rubber. To maximize reuse and minimize the use, construction materials and equipment were collected from the Defense Reutilization Marketing Office (DRMO). Windows in the Ecobuilding were taken from other structures slated for destruction. Finally, local industry and companies donate services and materials, including the Maricopa County Sheriff's Office which provided inmate labor free-of-charge.



Earth Day break from construction – Arizona National Guard Ecobuilding in Phoenix, AZ.

The *Ecobuilding's* very structure insures it's energy efficient. Hot air is drawn into two 60'X 5' concrete pipes buried during construction. As the air moves through the pipes, the heat is transferred from the air to the lower temperature soil, thus functioning as a heat sink. Other innovative technologies include cooling tubes, heat exchangers integrated with evaporative cooling and nighttime irradiation.

Heat radiant barriers are designed into the building to ensure a comfortable work environment, while remaining focused on sustainability and conservation. Finally, a Will-Cool heat exchanger will be connected to each cistern. The Will-Cool uses cold water as a heat sink and a small pump to circulate the waters and a DC powered fan to transfer the cool air into the room.

A modern office needs substantial amounts of electricity. The 10-kilowatt (kW) photo-

voltaic system provides that electricity at approximately \$10 per watt. The system consists of fifty-four (54) 120-watt Solarex single crystalline solar modules, twenty-eight (28) 128-watt Uni-Solar thin-film amorphous silicon solar modules, two (2) Trace Engineering SW-5548 Inverters, two (2) Trace Engineering 250 Power Control Centers, four (4) Zomework Solar Trackers. Eight deep cycle batteries provide storage for the occasional cloudy Arizona day.

Water systems

The *Ecobuilding* has multiple systems for water management. The physical footprint of the building is in part a result of the need to harvest rainwater. The roof captures and diverts rainwater to four 10,000-gallon cisterns located at both ends of the structure. The water is transferred by gravity to drinking fountains, sinks, and toilets.

Grey and black water, commonly called sewage, will be treated on-site in a completely lined, self-contained outdoor treatment basin/planter. The treatment system is simple and relatively inexpensive. A solar incubated septic tank breaks down solids and drains the liquid into a lined containment area.

The sewage moves slowly through various media, pumice being the most important. The pumice provides a good location for the growth of micro-organisms, which consume the bacteria contained in sewage. The plants provide a critical function in the system by oxygenating the subsurface, up-taking liquid that is rich in nutrients to assist in plant biomass and transpiring. Samples taken from such a system have shown lower levels of con-



About 5,000 tires have been used to construct the walls of the building. The tires are pounded to achieve 90% compaction.



Mobile Zone system lowers cost of controlling air emissions from spray booths

by Dr. K. James Hay

A new type of recirculation system for paint spray booths houses workers in a climate-controlled unit that moves around the equipment to be painted, improving safety and greatly reducing the cost to treat hazardous emissions. The Engineer Research and Development Center (ERDC) will demonstrate a full-scale Mobile Zone Spray Booth Recirculation System for the first time at Fort Hood, Texas, this summer.

Army-wide, installations have numerous spray booths where paints and coatings containing volatile organic hazardous air pollutants (VOHAP) are applied (typically aromatic hydrocarbons and ketones). These compounds evaporate and are released as air emissions. Under the Clean Air Act Amendments of 1990 and strict state regulations, many of these sites will be required to either change the content of VOHAP in these coatings or install air pollution control equipment.

Current control technologies such as activated carbon and incineration are very costly considering the large exhaust rates required in these spray booths for worker safety. DPWs need to reduce the cost of treatment so that paints and coatings containing high concentrations of VOHAP can still be used, especially in the cases where an acceptable substitute is not available.

ERDC's Construction Engineering Research Laboratory (CERL) designed the Mobile Zone Spray Booth Recirculation System to be used in conjunction with pollution control equipment. It can be incorporated

into new construction or retrofitted to existing spray booths.

The Mobile Zone system works by recirculating ventilation air in a spray booth. This concentrates the VOHAP and a much smaller volume fraction is drawn from the booth to be treated by pollution control equipment. Fresh air enters the spray booth through an open "mobile" doorway where the worker is located. The airflow rate across the worker continuously meets occupational safety standards. The doorway can be designed to have one to four degrees of movement. Four degrees would require the worker to operate inside a ventilated cab suspended from tracks above, so the operator would be able to access any location in the booth.

The Mobile Zone system can reduce the capital cost of treating air pollution by reducing the treated volume to 2000 cubic feet per minute (cfm). A typical booth has between 30,000 and 70,000 cfm. A control device for this air flow is estimated at \$170K compared with about \$1.4 million for the typical flow. The Mobile Zone system will cost between \$70K and \$200K depending on the degrees of freedom and extent of retrofitting. There would also be a significant annual cost savings from the reduction in fuel to the control device.

A common misconception of the system is that it is not easily adapted to most spray booths due to the apparent restrictions in worker movement. With proper design, this system will not adversely affect and will per-



Mobile spray booth reduces hazardous emissions and improves worker safety.

haps improve the production rate, production quality, and worker safety. It also provides a climate-controlled environment for the worker, which is especially important in warm regions.

Four design studies at different Army installations have been completed. At Watervliet Arsenal, New York, the one-degree of freedom design would provide a 97% reduction in treated exhaust flow rate (from 70,000 cfm) and an 80% reduction in capital cost. The other three studies were conducted at Fort Hood, Texas, Fort Riley, Kansas, and Corpus Christi Army Depot, Texas, with similar results. CERL will fully demonstrate the technology at Fort Hood using a four-degree design during summer 2001.

For more information, please contact Dr. K. James Hay at CERL, COMM 217-373-3485; toll free 800-USA-CERL, ext. 3485; e-mail: kent.j.hay@erdc.usace.army.

Dr. K. James Hay is a researcher in CERL's Environmental Processes Branch. **PWD**

developing a recipe book for subsequent successes in constructing similar green buildings. For more information on the *Ecobuilding*, please visit www.azecobuilding.com.

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Mark Mahoney is the Army Regional Environmental Coordinator for the Western Regional Environmental Office in Commerce City, Colorado **PWD**

(continued from previous page)

taminates in treated water than in some cities' municipal water supplies.

As part of a grant, the Arizona National Guard is developing exterior building coatings incorporating crumb rubber (finely ground used tires). The use of crumb rubber in exterior coatings will increase elasticity and, therefore, increase the longevity of these applications. Many variations of crumb rubber exterior coatings will be demonstrated and evaluated on the *Ecobuilding*.

The *Ecobuilding* encompasses the goals of the scientifically, environmentally, or economically minded and unites them in purpose. The doors of sustainability in the National Guard have been opened. Every door opened has led us to questions that allowed the discovery process to evolve into a method of sustainable building that will outlive its originators, as it continues to inspire creative and innovative building techniques and the use of alternative materials.

The Arizona Army National Guard is



NEPA and the Real Property Master Plan

by Barton O. Ives

Army Regulation (AR) 210-20, Master Planning for Army Installations (http://www.usapa.army.mil/pdffiles/r210_20.pdf), was revised in the early 1990s, in part, to better clarify the relationship between environmental planning and real property master planning. It ensures that the environmental consequences of planning decisions are addressed by establishing the requirement for complying with environmental documentation procedures.

The Real Property Master Plan (RPMP) and its components (Long-Range Component [LRC], Capital Investment Strategy [CIS], Short-Range Component [SRC], and Mobilization Component [MC]) are decision documents and must be assessed for their environmental effects in accordance with the requirements of AR 200-2, Environmental Effects of Army Actions (http://www.usapa.army.mil/pdffiles/r200_2.pdf).

This assessment may be accomplished either in a programmatic assessment of the effects of the entire RPMP, or individual assessments of the separate components. Chapter 5 of AR 200-2 indicates that development of master planning documents normally requires an environmental assessment.

The long-range component of the RPMP is intended to establish a description of an installation's mission and environmental baseline through two elements: the long-range analysis, and the environmental quality, natural and cultural resources baseline analysis (narrative). A critical part of the long-range component is the supporting graphics, which include the installation (master plan) overlay requirement (IO).

The IOs are topics displayed in a Spatial Data System format (CADD/GIS), giving visibility in electronic media to constraints (and opportunities) to development/operations, and allowing an understanding of installation carrying capacities. IOs are defined, owned, and maintained by

functional users such as environmental, natural/cultural resources, DPT for ranges, aviation, safety, etc. These IOs are linked with existing conditions maps to give a graphic baseline for the installation.

The narrative description of the IOs (the environmental quality, natural and cultural resources baseline analysis element of the long-range component) provides the "affected environment" portion of the National Environmental Policy Act (NEPA) analysis conducted on the RPMP, and any other subsequent NEPA analysis. This baseline analysis element should also serve as the source of information for the environmental "Non-Structural Attributes" (NSA) resident in RPLANS/HQRPLANS. The long-range component, including supporting graphics and contributing plans, articulates the installation mission and real property assets available (land, infrastructure and environmental baseline) to accomplish the mission. The long-range component, therefore, establishes the basic framework for development of a programmatic "on-going" mission environmental analysis.

If the RPMP environmental analysis conducted is intended to address "on-going operations," it should be assessed as the "no-action" alternative in the NEPA document.

The Capital Investment Strategy is the primary decision mechanism (mid-range) in the RPMP. That is, given an installation's mission, land use patterns, and available real property assets, a requirement's analysis is conducted to discover short falls in assets. The process then requires the development of alternative strategies to satisfy requirement shortfalls. This is the primary issue to be addressed by a "programmatic" RPMP environmental analysis. Any additional land use or mission changes would need to be addressed as necessary within this context.

A new mission (such as a BRAC realignment), changes in requirements,

changes in land use or new construction are potential alternative solutions to requirement deficits. The Capital Investment Strategy environmental impact analysis is focused on satisfying new or existing mission requirements and on the various alternative investment strategies developed to satisfy the particular requirement deficits identified (be they related to installation mission, tenant support, or mobilization mission).

The short-range component takes the investment strategy selected in the Capital Investment Strategy process and translates it into specific projects (EPR, 1391, etc.) that are to be inserted into the POM cycle. Programmatic "decisions" should have already been made. Normally, at this point, the installation should be able to use a categorical exclusion or Record of Environmental Consideration tiered off the basic RPMP NEPA document to satisfy the environmental impact assessment requirement for specific projects.

The mobilization component should be addressed as a new mission requirement played across the baseline of conditions (assets) identified in the long-range component.

Consideration may also be given to integrating the RPMP (or individual components) and NEPA documents into a single document that would serve the needs of both installation planning and accompanying environmental analysis (see paragraph 2-6e, AR 200-2). Additional guidance can be obtained by referring to Chapter Four of the Master Planning Instruction (<http://www.hq.usace.army.mil/isd/librarie/RP/MPI.pdf>).

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Barton O. Ives is the Acting Chief of the US Army Environmental Center's Central Regional Environmental Office in Kansas City, MO. **PWD**



Army converting property book system to DPAS

by Larry Black

The DoD is implementing the Defense Property Accountability System (DPAS) to increase financial accountability of property to meet the Chief Financial Officers (CFO) Act of 1990.

The DPAS is a transaction-based integrated logistical and financial system that is compliant with Federal financial and property accountability standards. The Army is fully committed to implementing DPAS for all TDA units and installation property books.

Currently, DPAS is successfully fielded to Army installations worldwide. The DPAS fielding will continue in FY 01, to

include property books within the DPW.

The DPAS Program Manager has created an automated conversion program to convert the DPW's legacy property book system to DPAS. Assisting in this effort, Fort Riley and West Point provided test data for creating the conversion programs.

The demonstration test results are being used to improve the process for conversion of Engineer Property Books to DPAS. Assuming the conversion programs will be fully operational, the DPW DPAS initial site assessments are scheduled for this spring and DPW conversion is scheduled June to August 2001.

If your installation is operating the Engineer Property Book separately from the installation system, please contact the ACSIM Facility Policy Division at (703) 428-6173.

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Larry Black is a Program Manager and General Engineer in OACSIM's Facilities and Housing Directorate, Facilities Policy Division.

PWD

ACSIM issues policy on critical habitat designations

by Malcolm E. McLeod

Critical habitat (CH) refers to the geographic area occupied by a listed species that contains biological and physical features which are essential to conservation of the species and which may require special management considerations or protection. It has become an important consideration to installation natural resource managers because this designation has the potential to severely restrict multiple use of land and water resources. The potential for a loss of Army mission capability is significant.

On 5 March 2001, the Director, Environmental Programs of the Assistant Chief Of Staff For Installation Management, issued a memorandum titled "Army Policy and Guidance on Critical Habitat Designations."

As the title would suggest, critical habitat is defined as that habitat which we believe the species requires to survive as a species. It does not regularly include areas not now occupied by the species, unless it is determined that they are necessary for survival.

The FWS normally has considerable

discretion in naming critical habitat, and has generally avoided its designation on military installations which have an accepted and approved Endangered Species Management Plan as a part of their approved Integrated Natural Resources Management Plan (INRMP). This is still another reason to give priority to the completion and staffing of INRMPs as soon as possible.

We also note that many of the species for which CH is proposed are plant species. Others are poorly known species such as mussels. The level and nature of protection required for these lesser known species is one of the topics now being examined by ERDC as a part of the Army's Threatened and Endangered Species research program. Dr. Hal Balbach, (217) 373-6785 or e-mail:

hal.e.balbach@erdc.usace.army.mil, is the Project Leader for this research.

The memorandum explains the CH designation procedures and directs MACOMs to ensure installations are prepared for upcoming US Fish and Wildlife Service (FWS) critical habitat actions. Enclosure 1 to the memorandum provides

the FWS schedule of court ordered CH actions and settlement agreements to alert installations to expected CH actions. Installations must respond to CH proposals that may effect Army missions. The draft FWS policy for lands that meet the standard of "special management or protection" is also provided with the memorandum.

Army Policy as described in AR 200-3, Natural Resources- Land, Forest, and Wildlife Management, which stresses the importance of installation staff participating with the regulators on proposed CH designations, is further explained in the memorandum.

The Army Staff (DAIM-ED-N) point of contact for this policy memorandum and actions relating to CH designations and other endangered species issues is Bill Woodson, (703) 693-0680.

Mal McLeod is a chemical engineer currently working on environmental concerns at HQUSACE, Environmental Directorate, Environmental Support Branch, (202) 761-0206, DSN 763-0206, malcolm.e.mcleod@usace.army.mil PWD



Army acquires state-of-the-art Firefighting Training Systems

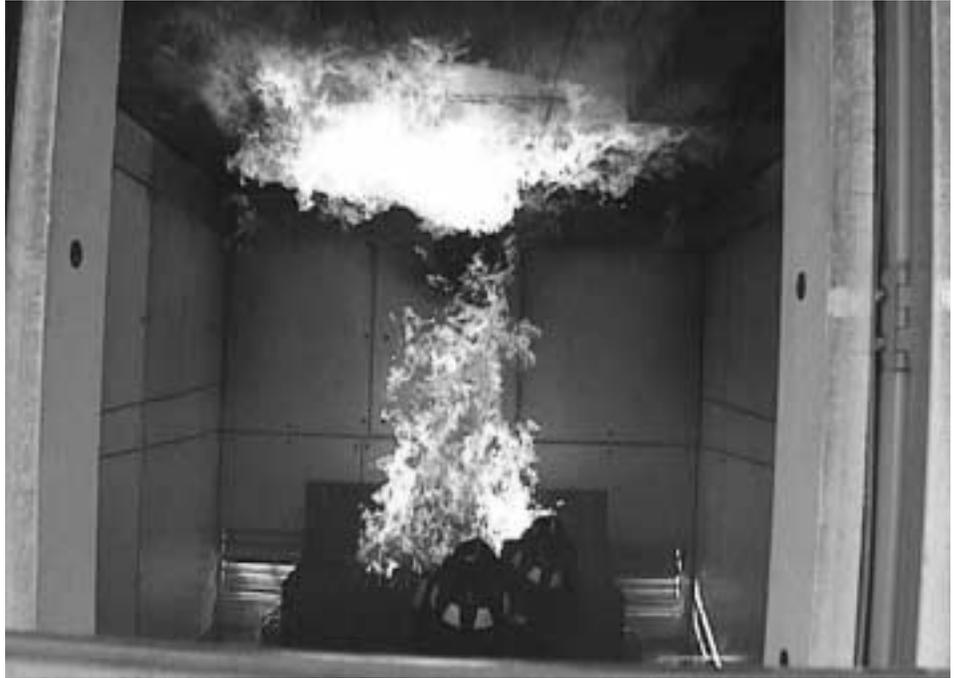
by Raul Ley-Soto

Firefighting Training Systems (FFTS) are state-of-the-art training systems that safely replicate flames, heat, and reduced visibility (using smoke obscuration) during residential or aviation firefighting training scenarios. They integrate proven, commercially available firefighting training technology into structural (mobile and modular/fixed) or aircraft rescue and fire fighting (ARFF) training systems.

In February 1997, the U.S. Army Simulation, Training and Instrumentation Command, Office of the Project Manager Training Devices, awarded its first ever contract for commercially available FFTS, using commercial practices as defined in the Federal Acquisition Regulation.

The Army is currently using three types of FFTS:

- *Modular/fixed structural firefighting training system*— a three-story propane gas fueled trainer with four burn rooms.
- *Mobile structural firefighting training system*— a transportable, self-contained (with built-in propane gas and electrical power sources), two-floor version of the modular/fixed structural firefighting training system.
- *ARFF trainer*— a transportable, self-contained, aircraft mockup (42 feet by 8 feet) with a cockpit fire and exterior, rectangular fuel spill fire simulation.



The mobile FFTS have the added capability of connecting to permanent/fixed propane and electrical supplies. All FFTS configurations incorporate extensive safety features and safeguards to automatically shut down the system in case of unsafe propane and temperature levels in the burn rooms. Manual shut down capabilities are also easily accessible to the instructors in case of personnel emergencies.

Procurement of the FFTS began in October 1997 and will continue through September 2002 with funding provided by Congress in FY 96, 98, 99, and 01. Fielding has been completed at 17 U.S. Army installations worldwide (Fort Monmouth, NJ; Fort Belvoir, VA; Fort Lewis, WA; Fort Rucker, AL; Fort Wainwright, AK; Ansbach, Germany; Fort Bragg, NC; Fort Bliss, TX; White Sands Missile Range, NM; Camp Humphrey, Korea; Hunter AAF, GA; Fort Drum, NY; Fort Leonard Wood, MO; Yuma Proving Ground, NM; Fort Benning, GA; Fort Polk, LA; and Fort Huachuca, AZ). Fielding of the FFTS procured with the FY01 funding will be completed in FY02 (Fort Carson-CO, Fort Gordon-GA, Pohakaloa Training Area-HI, Tooele Army Depot-UT, and Fort Huachuca-AZ).

Priced options are available in the FFTS contract for three other U.S. Army installations (Kwajalein Atoll; Aberdeen Proving Ground, MD; and Fort Dix, NJ), subject to congressional plus up funding in the FY 02-05 time frame.

Prior to procurement of the new systems, the Army trained DOD civilian and military firefighters using fossil-fueled techniques that were hazardous to trainees,





Bullet Traps: Count the cost

by Gene Fabian

The United States military operates over 1,800 outdoor small arms training ranges. These training activities typically consume over 300 million rounds of bullets yearly. Significant efforts are underway in the Army to reduce the amount of lead released to the environment as result of small arms training activities.

One of these efforts focuses on the use of bullet traps. Commercial manufacturers promote bullet traps as an economical technology choice for lead management of small arms ranges. To validate the manufacturers' claims, the US Army Environmental Center (USAEC) tested the ability of bullet traps to reduce the amount of lead deposited on outdoor small arms ranges.

Three popular commercial bullet trap designs (granular rubber, steel decelerator and rubber block type) were field-tested on Army ranges. The Department of Defense Environmental Security Technology Certification Program (ESTCP) also funded testing of shock-absorbing concrete (SACON) as bullet-trapping material on

small arms ranges.

During the testing process, problems were noted with respect to airborne lead dust releases, stormwater transport and flammability of bullet trap materials. While bullet traps capture a significant portion of the lead that would otherwise be released or deposited directly on the ranges, they do not contain all of the lead captured by the trap.

Overall, SACON, a recyclable concrete, performs well as a bullet trapping material. The material's lead stabilization and low water permeability properties also reduce the leaching of lead into the surrounding soil. But bullet traps are not as economical as other potential lead management programs. Vegetative cover, redesigned berms and soil-stabilizing additives to reduce lead leaching are some of the alternatives discussed in the "Prevention of Lead Migration and Erosion from Small Arms". This guide may be viewed on the USAEC web page (<http://aec.army.mil>), under Publications.

Installations considering bullet traps for

an outdoor range should answer these questions:

- How much lead debris is captured by the trap, and will that amount be sufficient?
- Will the metal wash or leach out of the trap over time?
- How will wastes generated by the trap be handled?
- What are the maintenance requirements?
- How will the trap impact the use of the range?
- How will exposure to the outdoor environment affect the trap?

For more information, contact the technology transfer hotline at t2hotline@aec.apgea.army.mil, or Gene Fabian, US Army Aberdeen Test Center (410) 278-7421.

Gene Fabian is an Environmental Engineer who manages technology transfer demonstrations for the US Army Test Center. **PWD**

(continued from previous page)

not easily controlled or repeated, and in some cases, in violation of local environmental regulations. In 1996, Congress mandated that existing fossil-fueled firefighting training be replaced with commercially available, propane gas-fueled firefighting training systems, thus creating the first-ever Fire Fighting Training Systems program.

The Assistant Chief of Staff for Installation Management (ACSIM) signed the initial FFTS Operational Requirements Document and Basis of Issue Plan (BOIP) on 18 November 1996. The initial BOIP identified FFTS for 19 U.S. Army Installations worldwide. However, because of the great success of this FFTS Program, five more U.S. Army installations were added in February 2000.

There were many benefits to this particular acquisition approach:

- The per-unit firefighting training system price was lower than the price quoted during the market research. This facilitated the purchase of more FFTS (with the initial FY 96 funding) than originally envisioned.
 - The life-cycle cost of ownership of the FFTS units was kept low by requiring use of commercially available, industry-proven technology
 - Close coordination with users has assured that facility considerations are common for each firefighting training system site. Sharing site preparation design drawings and information among all users has ensured the lowest possible setup and maintenance costs for each installation.
 - Ninety-five percent of the procured FFTS were delivered on or ahead of schedule because of the close government/contractor partnership.
 - Commercial documentation (operator and maintenance manuals) is updated regularly at no additional cost to the government.
 - Failed electronic/fire-generation controls are replaced with state-of-the-art components at no additional cost to the government.
- Photos and a more detailed system description can be found on the STRICOM Web site at <http://www.stricom.army.mil/PRODUCTS/FFTS/>.

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HSMS helps Army manage hazardous materials efficiently

by William A. Tagalicod and Bob Schroeder

Since the introduction of Executive Order (EO) 12856 in 1993, many environmental management and reporting requirements previously limited to the private sector were applied to Department of Defense (DoD) installations. The Army realized that hazardous material and hazardous waste management had to become more efficient if Army installations were to successfully comply with these requirements and minimize hazardous waste liability.

In 1996, the Army Hazardous Material Management Program was established jointly by the Assistant Chief of Staff for Installation Management and the Deputy Chief of Staff for Logistics to assist MACOMs and installations manage hazardous material procurement and the hazardous waste it generates. Five years, fifty-seven installations, ten MACOMs, and three continents later, the program has helped the Army take control of a growing concern—the management of hazardous materials and hazardous waste.

The goal of the Army program is to reduce hazardous waste and procurement of hazardous material through the introduction of efficient hazardous material management business practices, and the use of an automated tracking system. Eight business practices were identified by the U.S. Army Concepts Analysis Agency in October 1996 as initiatives that could be implemented at all Army sites. The study found that Army installations should benefit from applying these initiatives. These business practices, named in the following table, have been the cornerstone of the Army program.

The Army has selected the Hazardous Substance Management System (HSMS) software as the standard hazardous material tracking system to be used by Army activities. HSMS is the DoD standard hazardous material and hazardous waste

Hazardous Material Management Business Practices

- Organize a Centralized Hazardous Material Management Cell
- Develop Authorized User/Use List (AUL)
- Implement a Hazardous Material Tracking System
- Order and Issue Hazardous Material by Unit of Use
- Re-use partially used and shelf life-extended hazardous material
- Establish Inventory Levels at User/Operator Level
- Centralize Issue and Storage of Hazardous Material
- Implement a Hazardous Material Training and Awareness Program

tracking system developed by the Defense Environmental Security / Corporate Information Management Office.

The table below shows the capabilities of the HSMS software. The data that it processes and stores provides the installation commander and his staff with the data necessary to make informed decisions regarding hazardous material and hazardous waste management, and also supports the reporting requirements under EPCRA and RCRA. Additionally, HSMS supports pollution prevention initiatives, hazardous waste management, health and safety monitoring, as well as emergency response programs on the installation by providing accurate information on hazardous material and hazardous waste.

The hazardous material management business practices and HSMS software have been flexible enough to accommodate operations in the Army Materiel Command, the Army Test and Evaluation Command, 8th Army

(Korea), FORSCOM, MEDCOM, Military District of Washington, the National Guard, TRADOC, USAREUR, and USARPAC. Since 1996, the Army HSMS Program has been fielded at 47 installations and activities.

In FY01, HSMS will be implemented at Camp Humphreys, Korea; West Point; Camp Casey; Tripler Army Medical Center; 9th RSC (Hawaii); Material Support Center-Korea; 10th ASG-Okinawa; Pohakuloa Training Area, Hawaii; and Fort Stewart.

The future of the HSMS Program is also looking bright. The HSMS software package is continually being improved to make it more responsive to meet the user's needs. Version 2.3 of the software is being fielded. HSMS will also provide the centralized tracking capability for USAREUR Hazardous Material Reuse Centers located at each Area Support Group in Europe.

HSMS Software Capabilities

- Maintains product-specific, chemical constituent information
- Maintains the hazardous material AUL
- Maintains information on processes that use HM or generate HW
- Tracks authorized use of HM by processes
- Calculates chemical release information for all processes for use in EPCRA Toxic Release
- Inventory Reports
- Tracks hazardous material ordered, received, stored, issued, used and recycled
- Tracks hazardous waste disposal; and; Prints hazardous waste manifests and turn-in forms



The Army HSMS Program is also exploring implementing HSMS at forward deployed locations, such as Camp Doha, Kuwait, as well as the Reserve Component.

The implementation schedule at the installations has varied across the Army based on installation size, mission and command direction. The program investment of approximately \$36M over 5 years has shown an excellent payback to the Army.

Some installations have shown great initiative. Fort Campbell, for example, established its program through the Environmental Office in 1996 to proactively manage hazardous material and hazardous waste. Through the Pollution Prevention Operations Center (PPOC), Fort Campbell centrally controls and tracks the use and storage of all hazardous material on post. It supports garrison and deployment requirements by maintaining and distributing hazardous material to units participating in the program.

The most dominant feature of the PPOC is the hazardous material contingency support facility. This activity allows the PPOC staff to maintain deployment packages of materials for 119 deployable units of the 101st ABN DIV (AASLT), XVIII Airborne Corps, and SOCOM. Since the facility was established, it has supported more than 500 unit deployments both in CONUS and OCONUS. The program has taken the burden off the soldier, to allow more time for combat readiness activities and to ensure environmental compliance in the United States and abroad. Through PPOC initiatives, Fort Campbell was able to achieve cost avoidances of almost \$2 million in each of the two previous fiscal years. Fort Hood is another excellent example of the Program's potential. The home of the Army's III Corps initiated its program in 1998. Fort Hood's program is headed by their Environmental Office and incorporates BASOPs, maneuver units, and the airfield activities. Three hazardous material issue points, or HAZMARTs, support the

Army HSMS Sites

Fort Knox	Detroit Arsenal	Walter Reed Army Medical Center
Fort Campbell	Fort Lewis	Yuma Proving Ground
Schofield Barracks	Fort Sill	Blue Grass Army Depot
Pine Bluff Arsenal	Fort Jackson	Fort Drum
Fort Bliss	Fort Rucker	Tooele Army Depot
Fort Meade	Fort Irwin	Fort Riley
Fort Carson	Fort Leonard Wood	Yongsan, ROK
Camp Blanding, FLARNG	Rock Island Arsenal	I CTARNG
White Sands Missile Range	Fort Hood	Deseret Chemical Depot
Camp Stanley	Fort Gordon	Fort Richardson
Fort Benning	Fort Lee	Fort Wainwright/Greeley
WAARNG	MOARNG	Fort Belvoir
Camp Zama/17th ASG	AZARNG	Kaiserslautern Industrial Complex, Germany
Dugway Proving Ground	Fort Bragg	Fort Detrick
Camp Carroll, ROK	Fort AP Hill	Fort Huachuca
Fort Sam Houston	Picatinny Arsenal	Hohenfels, Germany

nearly 110,000 soldier, civilian, and family population of "The Army's Premier Installation to train and deploy heavy forces." A HAZMART operates to support aviation maintenance activities at the airfield, and at the DPW Supply to support base operations and real property maintenance.

But the highlight of Fort Hood's program is the HAZMART operated at the 62nd Quartermaster Battalion that supports the hazardous material needs of the 4th ID (M) and the 1st CAV Division, as well as other III Corps units on Fort Hood. This HAZMART is completely soldier operated with soldiers being integrated in the hazardous material tracking and reporting life cycle. Additionally, credit card purchase of hazardous materials through commercial vendors is strictly controlled. The buy-in and support of the III Corps Commander has made Fort Hood's program a success.

So far, the results of the Army's efforts are positive. The Army still has a long road to travel before all hazardous material is efficiently managed. Most installations are still operating in their "Initial Operational Capability" while others are transitioning to "Full

Operational Capability." The new millennium has brought new challenges to the Army. The Army transformation, and real-world contingency missions may have an impact on how HSMS is utilized in the future.

Additionally, the shadow of shrinking resources looms nearby and may affect the intensity at which hazardous material are managed and tracked at the installation. Despite these potential challenges, a solid hazardous material management program foundation has been laid throughout the Army. The Army will continue to reap the benefits of this foundation for many years to come.

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William A. Tagalicod works at the Army Environmental Center and Bob Schroeder is in the ACSIM's Environmental Programs Directorate. PWD



Product guide for heavy metal waste treatment

by Dana Finney

The commercial market offers many products claimed to treat heavy metal (HM)-contaminated waste, but which ones really work and under what conditions? New guidance from the Engineer Research and Development Center (ERDC) can help. Public Works Technical Bulletin 200-10-12 gives results of testing off-the-shelf products for their ability to stabilize HMs in different contaminated media.

Heavy metal (HM) contaminated waste is a major concern at installations due to the total volume and number of sites that generate it. High concentrations of HM can be found in soil, sludge, paint blast media, and ash as well as process waste streams. HMs regulated by the Resource Conservation and Recovery Act (RCRA) are lead, chromium, cadmium, mercury, arsenic, silver, barium, and selenium. Under RCRA, hazardous waste is the producer's responsibility forever, so it's desirable that treatment methods result in material that does not leach HM as tested by the EPA's Toxicity Characteristic Leaching Procedure (TCLP). Wastes that fail the TCLP are deemed hazardous and disposal is very costly.

ERDC's Construction Engineering Research Laboratory (CERL) evaluated 14 HM treatment products to learn how effective they are at stabilizing each RCRA metal as well as their ease of use, weight gain, versatility, pH change, and

form of end product. Though not specifically designed for HM stabilization, Portland (Type II) cement was used as a baseline comparison due to its low cost, frequency of use, and general effectiveness.

The tests showed that a product's ability to stabilize the waste can depend on a number of factors, including the initial amount of free metal available to leach, the form of the solid matrix, the total amount of all metals (co-contaminants), and the pH. A few treatments actually increased the leachability of some metals. This result stresses the need for complete testing of all metals during stabilization of a particular waste to ensure a product's performance.

Using the results in PWTB 200-10-12, an installation with a particular HM contamination problem can determine if a solution already exists for a specific metal in a given matrix. The report also lists product limitations and applicability. Directors of Public Works can consult CERL's experts in the Environmental Chemistry Laboratory for help in evaluating and characterizing a waste, performing stabilization experiments to



CERL tested 14 products for performance in stabilizing wastes containing heavy metals.

find the best vendor product, and recommending solutions to treat the HM contamination problem.

For more information, please contact Bob Fenlason in the Environmental Division, HQ USACE, (202) 761-8810 DSN 783, e-mail: bob.w.fenlason@usace.army.mil; or Dr. Don Cropek at CERL, 800-USA-CERL, e-mail: d-cropek@erdc.usace.army.mil. **PWD**

Beware of asbestos in gypsum board

EPA and product related lawsuits have forced United States manufacturers of gypsum board to eliminate asbestos from gypsum board, but this has not totally eliminated the asbestos problem. Imported gypsum board, which is frequently sold by building materials retailers, is not made to the same standards. Imported gypsum board may contain asbestos.

Corps of Engineers Guide Specifications 09250 and 09510 are being changed by notice in April 2001 to require that gypsum board be asbestos free on Corps-constructed projects.

At present, your best indication that gypsum board is asbestos free is to be sure that it was manufactured in the United States.

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Composting at Army installations

by Malcolm E. McLeod

AR 420-49 contains policy and criteria for the operation, maintenance, repair, and construction of facilities and systems for efficient and economical management of solid waste. Solid waste activities covered in the Regulation include source reduction, reuse, recycling, composting, collection, transport and treatment.

One simple technology that can help an installation meet its solid waste management goals is composting. Composting is considered "diversion" when accounting for installation solid waste disposal. It is treated accordingly in the Solid Waste Annual Report (SWAR) software currently being used by Army installations, MACOMs and the ACSIM to track solid waste production, recycling, diversion and disposal.

Composting can also help an installation in meeting the DOD Measure of Merit (MOM) for solid waste: a 40 % diversion from landfills by 2005.

Several Army installations have investigated and initiated various types of composting programs in recent years.

Although many different types of waste can be composted, the most common on Army installations is generally yard waste—leaves and grass clippings.

There are a number of various types of technologies available, ranging from small backyard "bins" to large centralized systems. Although composting is relatively simple, it is important to understand the principles involved and control several variables.

Funded by HQUSACE, the U.S. Army Corps of Engineers, Construction Engineering Research Laboratory has completed a Public Works Technical Bulletin (PWTB) which discusses the basic principles of composting and the physical and chemical variables involved. In addition to helpful hints for bin construction and small-scale operations, the PWTB describes larger system options such as aerated piles, in-vessel composting and static piles.

The experiences and lessons learned of several Army installations with large centralized composting programs are also documented as well as the heavy

equipment required for large systems such as grinders, shredders, windrow turners and size classification equipment. The information in the PWTB can be valuable to installations operating or considering implementation of solid waste composting programs.

PWTB 420-49-14, as well as a number of other aids and guides in numerous technical areas including solid waste and recycling, is now available on the Corps Engineering and Support Center (Huntsville) Techinfo Website: <http://www.hnd.usace.army.mil/techinfo/CPW/pwtb.htm>.

*The HQUSACE proponent for this PWTB is Malcolm E. McLeod, CEMP-RI, e-mail: malcolm.e.mcleod@usace.army.mil. For further technical information, please contact the CERL POC, Steven D. Cosper, (217) 398-5569, cosper@cecer.army.mil. For policy direction and interpretation, please contact the ACSIM POC, William F. Eng, (703) 428-7078 DSN 328, e-mail: william.eng@hqda.army.mil. **PWD***

Fort Lee privatizes water distribution system

by Richard Dubicki

Fort Lee started the New Year on a positive note by privatizing its water distribution system on January 9, 2001. The Norfolk District Corps of Engineers completed actions to turn Fort Lee's entire potable water distribution system over to the Virginia American Water Company (VAWC) and awarded a contract for utility service for fifty years.

A recent change in federal law allows the military services to enter into contracts for utility services for up to fifty years when done in conjunction with utility privatization. The longer period of time is designed to attract commercial utility providers by allowing them to amortize their investments over many

more years.

The Army expects to achieve life cycle cost avoidance of \$1.4 million over the next 25 years. Gary Cox, TRADOC, and Gene Miller, Fort Lee's O&M Chief, deserve credit for overseeing the successful execution of this contract. Administration of VAWC's performance has been turned over to the Fort Lee Directorate of Contracting.

Fort Lee joins Forts Hamilton, Detrick, Benning, Sam Houston, McCoy, Sill and Pickett; Aberdeen Proving Ground; the US Military Academy at West Point, and Parks Reserve Forces Training Area as installations which have successfully privatized one or more of their utilities.

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*Richard Dubicki is a General Engineer in the Facilities Policy Division, Facilities and Housing Directorate, OACSIM. **PWD***

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Fort Sill privatizes natural gas system

by Tonya L. Riley

Fort Sill has signed a 50-year contract with Oklahoma Natural Gas (ONG), which will maintain and improve the installation's aging natural gas delivery system.

As part of the privatization initiative, a contract was signed on April 3 contingent upon approval of the Oklahoma Corporation Commission.

A military installation can't just sell a piece of its infrastructure and put the check into its own operational funds to be used for other needs, said Sharel McAdoo, of the Directorate of Contracting and chief of the Contract Support Team for the Directorate of Public Works. Cash proceeds from the direct sale of the property must be returned to the Department of Treasury – so the installation would not benefit from an outright sale.

Instead, through the privatization contract, the value of the more than 100 miles of the existing natural gas distribution system was exchanged for maintenance services-in-kind – amortized over 50-years, thereby reducing Fort Sill's "out of pocket" cost of for the maintenance contract, she said.

If that sounds confusing, think about the last time you were car shopping but didn't have a lot of cash.

Bernie Valdez, director of Contracting for Fort Sill explained, "It sounds complicated, but really it is like trading in a used car. The old car still has value, right? We needed to privatize, needed to buy a new service, in this case, maintenance and improvements. So, we traded-in our old gas lines to help us buy the improvements and maintenance. It just like trading in an old car where you get credit for the value, but you still will have payments on the new one."

Now Fort Sill will pay \$543,000 for the services in the first year. And with ever-slimming resources, even that will be a struggle.

"These funds didn't come out of our

budget. We were provided funding to support this effort for this year. Additionally, since the 50-year privatization effort was approved external to Fort Sill, it does help solidify future funding for this effort," said COL Bob Hanson, Director of Resource Management.

Directorate of Contracting officials said they think the long-term agreement, competitively bid, may be the first of its kind for a Training and Doctrine Command Installation.

"Only in utilities in the last few years has it become even possible to do a contract for that length of time. This is 50 years!" McAdoo said.

"The Department of Defense, during the last administration, said all of Defense needs to get out of the business of owning infrastructure and get that infrastructure into the hands of people who do operate and maintain it for a living. If I were explaining it to a 13 year old, I would say it is like having a school bus system where someone owns the buses that distribute the children to schools. The schools pay to maintain the buses. The community provides the students to fill the busses. This is simply the system that delivers the product," McAdoo said.

So, by the year 2003 all utility systems must be privatized or have at least been studied," said McAdoo. She said if the decision not to privatize was made after study, the reasons for such a decision must be forwarded to higher headquarters for review.

"We started studying this in 1996 or 1997. So, we knew this was coming. We went to California to a seminar that discussed getting out of the utility business and some options. At that time, everyone was being encouraged to get studied," she said. "TRADOC had a contract for IDIQ – Indefinite Delivery, Indefinite Quantity for Studies. Fort Sill was on the list. They came out and studied our natural gas system and our electric system. TRADOC contracted Guernsey, Inc. out of Okla-

homa City to come and do the study for TRADOC, then we got a copy of the study. Then, from that study, Public Works had to make a decision about what they were going to do. It was determined not to be economically feasible to privatize the electricity. But for gas, we decided we should look at what was available, so that is what we did," she said.

Contracting specialist Laurie Wheeler and McAdoo put out an inquiry to see if there would even be interest among potential bidders. They got hundreds of inquiries, Wheeler said. Based on that, they put out a solicitation for bids in February 1999. She said the proposal indicated the award would depend on availability of funding. "It stayed 'out on the street,' for a year," said McAdoo. Proposals were received in February 2000. By then, it was a matter of going through the contracting process and finding money.

"Not only did we sell the system, but we were asking for the meters and all the maintenance of the line so we would totally be out of the gas line infrastructure business. So we did sell them the system, but we set it up as an amortized program. We are going to award this first year for \$543,000. Part of that will be a credit for the system. If we had taken a cash payment, it would have been of absolutely no benefit to the installation. Trading the structure for services seemed to be a reasonable thing to do, and it was ONG that came up with that offer."

According to COL Gary Wright, Fort Sill's Director of Public Works, the challenge to maintain the post's infrastructure is funding.

"What we see is that the infrastructure of the installation is aging. We are not able to keep up with repairing and maintaining those facilities. The gas distribution system is really out of sight and out of most people's minds because it is underground. You really never think about it until you smell gas and think you have a leak, or until your heater goes out





(continued from previous page)

and it isn't the boiler," Wright said.

Dennis Hergenrether, deputy director of Public Works, said, "The Department of the Army does not have the technical personnel to remain in the utility system business. As systems become more technologically advanced, as new regulations, laws, and safety and environmental (guidelines) are written, we will no longer have the expertise among our own personnel. We aren't growing them. They just aren't there."

McAdoo said the contract will let the installation sleep easy for a number of reasons.

"We will know exactly how much we will be paying for maintenance and improvements for the next fifty years. Another plus is that we will have an organization probably parked right outside the gate that is dedicated to providing us service. We have emergency service now – we could send a Public Works employee to help stop a leak, but we will get total maintenance. And, according to the contract, as we grow, it is their responsibility to get a line to the new building. They bring the distribution line five feet from the building, plus put in the meter. It is just like downtown," McAdoo said.

"With this contract, we know we will have a safe, good, reliable, operational natural gas distribution system – and they are studying the water and sewage systems, too," Hergenrether said.

Wright agrees. "Most people don't worry about natural gas unless they smell it. Privatization is a way of funding not just the proper and requisite maintenance, but upgrades. There will continue to be a need for state-of-the-art upgrades and now we will get them on an as-required basis," he said.

Wright said the distribution system is safe and "not in bad shape. There was a significant amount of money invested into our gas delivery system five or six years ago to make sure it was up to standard," Wright said.

But since then, cutbacks have left a crew able to respond to emergencies, but not able to maintain the 542,629 linear feet of lines, regulators and more. Because the privatization study was underway, and no one was assigned the full time job of maintaining the lines on a daily basis anyway, the constant maintenance and upgrade of the lines was not even included in a recent A-76 Commercial Activities study for DPW. Wright said no jobs or positions were cut due to the new ONG agreement.

Wright said the contract also calls for meters to be placed at every building. "And now, most houses and buildings here don't have meters. We have a few to give us a consumption indication or to check for what we call line loss – leaks. So this contract is not just for existing lines, it is for new growth, it is for whatever we build. If we ever build new housing, for example, they will provide the distribution lines up to that, too," he said.

Wright said occupants shouldn't anticipate a new expense. "There is no indication that we are going to start charging an individual occupant, either in family housing or individual directorates, for the amount of gas used. But from an energy conservation standpoint, it will let us know where our gas dollars are being spent, or whether a building is or isn't efficient in heating, or even if there is a boiler that isn't very efficient. I think we will see this all in place by the next heating season, but we will let all the occupants know well in advance of any construction," said Wright.

McAdoo said TRADOC's legal and contracting offices provided assistance throughout the process. The company contracted by TRADOC to do the privatization feasibility study provided very important data. "They gave us an estimate of the value of our system, knowing that parts of it are just a few years old and that others are much older," McAdoo said. "Nobody here had ever sold a gas distribution system."

McAdoo said the contract has nothing to do with the gas purchased to flow through the system.

"This has nothing to do with the supply of gas going through the distribution system. Defense Energy, which used to be called Defense Fuels, has a mission, which is to provide energy to all of the Defense installations. Every year, they put Fort Sill's requirement out on the open market for bid and try to see if we can obtain it at a reasonable cost. Defense Energy is responsible of obtaining supply for Fort Sill. ONG will own the distribution system and we have contracted them to maintain it," McAdoo said.

Although ONG will own the pipes, who owns the dirt they are buried beneath? It still belongs to Fort Sill, but an easement is granted ONG, said Hergenrether.

ONG's vehicles will join other contractors' vehicles on Fort Sill streets. Residents will still see trucks on the installation working on gas lines or setting meters – but they will be ONG's, not DPW's little yellow trucks.

The privatization initiative continues. "We have to study wastewater treatment and potable water, also," said McAdoo. "That one is ongoing now."

POC is Nancy Elliott, Chief, Fort Sill Public Affairs Office, (580) 442-2521, FAX: (580) 355-6756.

Tonya L. Riley, Army Journalist of the Year 2000, is a public affairs specialist at Fort Sill.

PWD

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Sources of Funds for Army Use Guide gets updated

by Lisa Jacquet

Stewardship of the Army's resources is a responsibility shared by commanders and managers at every level. Those of us who are resource managers have a special responsibility to lead the way in stretching scarce dollars, actively pursuing efficiency, and ensuring that our limited resources are well spent. This represents the commonly understood meaning of stewardship – taking the best care of resources entrusted to us. But there can be more to stewardship than efficient caretaking, and an expanded concept of stewardship offers the potential for the Army to maintain the full effectiveness of its forces in the face of constrained traditional financing sources.

The extended stewardship concept provides that the Army should capture the most possible value from its assets. Traditionally, Army physical assets were viewed almost exclusively in terms of what it cost to maintain them and not in terms of their ability to generate revenues. We now have begun to explore ways of unlocking the commercial value of Army assets and exploiting the ability of Army assets to enhance mission effectiveness. To be comprehensive, stewardship must include actively managing assets and maximizing the return from them.

The Sources of Funds for Army Use Guide (Other than Typical Army Appropriations) has just been updated and published by the Office of the Assistant Secretary of the Army (Financial Management and Comptroller) in its FY 2001 version. This guide aims to help installation commanders and resource managers carry out their stewardship responsibilities in the more comprehensive sense of the concept. It provides an overview of additional sources of funds that may be available to installations for certain purposes. The guide includes a description of the programs that generate funds, pertinent laws and regulations, the money flow, and the functional proponent for each program.

In the FY 2001 Guide, the Sale and Outlease chapter was updated to reflect the substantial revision to the Army's leas-

ing authority. Public Law 106-398, National Defense Authorization Act for Fiscal Year 2001, Section 2812, provides the Army with greater incentive and flexibility by:

- (1) Allowing the use of cash proceeds from leases without specific authorization, but after Congressional notification and wait for projects greater than \$500,000, for the following:
 - (a) maintenance, protection, alteration, repair, improvement, or restoration (including environmental restoration) of property or facilities
 - (b) construction or acquisition of new facilities
 - (c) lease of facilities
 - (d) facilities operation and support
- (2) Clarifying that in-kind consideration may be applied at any military installation and that it may include the following:
 - (a) maintenance, protection, alteration, repair, improvement, or restoration (including environmental restoration) of any property or facilities
 - (b) construction of new facilities
 - (c) provision of facilities;
 - (d) facilities operation and support
 - (e) provision of such services relating to activities that will occur on the leased property.

Here are brief descriptions of some other programs that may help the installation commander to improve the stewardship of Army assets:

Agricultural and Grazing Leases

The Army is authorized to outlease for agricultural and grazing purposes the land that is required to support the Army military mission. These purposes are in compliance with the multiple land use concept and the requirement for installations to improve, utilize, and maintain all land and water areas for the greatest net public benefit while supporting the military mission.

Agricultural and grazing uses also must be compatible with national conservation

and environmental policies. Money rentals received from leases for agriculture and grazing may be retained and spent in such amounts as the Secretary of the Army considers necessary to cover the administrative expenses of leasing and financing of natural resources management programs at any installation under the jurisdiction of the Secretary.

Some specific examples of appropriate use of the proceeds are to cover administrative expenses of leasing, to finance improvement of lands currently or not currently leased for agricultural and grazing purposes, and to cover expenses associated with natural resources management, e.g., wildlife habitat improvement, erosion control.

Fish and Wildlife Conservation Program

Installations having suitable land and water areas are required to establish Fish and Wildlife Management Programs, with emphasis on the maintenance and restoration of habitats favorable to the production of indigenous fish and wildlife.

In cooperation with appropriate State and Federal fish and wildlife agencies, installations may establish fees for special hunting, fishing, or trapping permits that are in addition to State licenses and Federal stamps. These fees are used on the installation from which collected for the protection, conservation, and management of fish and wildlife, including habitat improvement and related activities, but for no other purpose. Fees collected at installations being closed by Base Realignment and Closure actions may be transferred to specified installations and used for the same required purposes.

Recycling

Installations may sell recyclable materials to generate revenues for specific purposes. The Defense Logistics Agency's (DLA) Defense Reutilization and Marketing Service (DRMS) administers the Resource Recovery and Recycling Pro-





Project guidance for building deconstruction alternatives to demolition

by Malcolm E. McLeod

AR 420-49 establishes policy for efficient and economical solid waste management. Section 3.6.d states "Construction and demolition debris should be recycled when possible." In many cases, construction and demolition (C/D) debris is overlooked by environmental management because construction projects are separate from the environmental staff. Without recycling our C/D debris, it will be very difficult to meet the current DOD Measure of Merit (MOM) for 40% solid waste diversion (from landfills or incineration) by 2005.

The ACSIM, Facilities and Housing Directorate is currently preparing a policy document on C/D debris emphasizing the need for recovery, reuse and recycling of C/D debris which can comprise more than 50% of the total installation solid Waste stream.

Recent U.S. Army Construction Engineering Research Laboratory work with several Army installations indicates that there are a number of alternatives to simple disposal of C/D debris. With appropriate planning, unexpected project delays can be avoided. In addition to

landfill avoidance, the reuse or resale of C/D debris can be cost competitive with other disposal methods or may even be a moneymaker.

Just look at the quality of the timbers even in what we consider ratty, old WW II wood structures. The clear wood components are often exceptional and even have a certain aesthetic quality. Then compare this lumber with the knotty, misshapen, and cracked material at your local home supply super-store. In some cases, you cannot even purchase this type of material any longer, regardless of price. In other words, the structures that we are demolishing have real value. Moreover, the reuse of the structures not only saves scarce landfill capacity and disposal costs, it also saves our forest resources and helps the environment.

PWTB 420-49-30, now available on the Corps Engineering and Support Center (Huntsville) Techinfo Website (<http://www.hnd.usace.army.mil/techinfo/CPW/pwtb.htm>), highlights past deconstruction efforts at several Army installations.

Particular emphasis is given to Fort

McCoy, Wisconsin, which developed a process for dismantling surplus buildings in cooperation with their host community. The process has saved the government millions of dollars and huge quantities of landfill capacity since 1992.

The PWTB describes the procedures and process followed by Fort McCoy, the Fort McCoy contract, and some of the project economics and liability concerns. In addition, the PWTB discusses the property disposal process for compliance with the Stewart B. McKinney Homeless Assistance Act and provides numerous World Wide Web information sources related to facilities deconstruction.

The HQUSACE proponent for this PWTB is Malcolm E. McLeod, CEMPR, malcolm.e.mcleod@usace.army.mil.

*For technical information and assistance, please contact the USACERL POC, Steven D. Cospers, at (217) 398-5569, e-mail: cospers@cecer.army.mil; and for policy direction and interpretation, the ACSIM (DAIM-FDF-EU) POC, William F. Eng at (703) 428-7078 DSN 328, e-mail william.eng@hqda.army.mil. **PWD***

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gram (RRRP). DRMS will return 100 percent of the proceeds from sales of recyclable materials to installations with qualifying recycling programs. However, this program does not apply to Army Working Capital Fund operations.

Latest DoD recycling policies include installation direct marketing of their recyclable materials under delegation from the MACOM, and designation of certain scrap metals as recyclable materials, including firing range scrap (expended brass and mixed metal gleaned from firing range clearance). Proceeds must first be used to reimburse

installation level costs incurred in operation of the recycling program. The installation commander may use up to 50 percent of the remaining sale proceeds for pollution abatement, energy conservation, and occupational safety and health activities. Sale proceeds remaining may be transferred to the nonappropriated morale, welfare and recreation (MWR) account of the installation.

Additional financial benefits of the RRRP, beyond the revenue generated, are reduction of current year solid waste handling and landfill costs, extension of landfill capacity, and avoidance/deferral of

future landfill costs.

The Sources of Funds for Army Use Guide (Other than Typical Army Appropriations) is now available on the World Wide Web on the OASA (FM&C) home page, www.asafm.army.mil.

POC is Lisa Jacquet, OASA (FM&C), (703) 695-5951 DSN 225, e-mail: elizabeth.jacquet@hqda.army.mil

Lisa Jacquet works in the Resource Analysis & Business Practices Division of the OACSIM.

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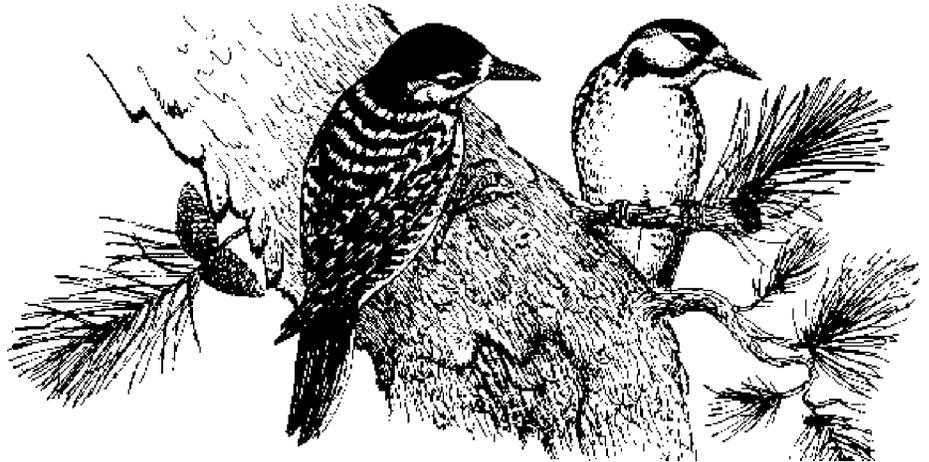


Labs research Red-Cockaded Woodpecker

by Malcolm E. McLeod

The U.S. Army Construction Engineering Research Laboratory of the Corps of Engineers Engineer Research Development Center has recently published Special Report 01-3, Red Cockaded Woodpecker Research at ERDC/CERL. This annotated compendium of products completed at the laboratory from 1994-2001 can be a valuable reference not only to installations that may struggle with issues with the woodpecker but also for installations that may have to address similar issues for other Threatened and Endangered Species (TES).

The Special Report lists the title and brief description of products produced by CERL illustrating the intensive focus that the Army placed on this Threatened and Endangered Species. Specific studies dealt primarily with the effects of noise, maneuvers, and fog oil. (The Red-cockaded woodpecker did not appear to be extremely sensitive to any of these stressors). Publications are listed under Mitigation and Management, Maneuver Training, Noise,



Smokes and Obscurants, and Modeling while several presentations are described in addition to several useful computer models and Environmental Awareness Guides.

The separate reports identified within this compendium may be used by installations as references for preparation or update of their Integrated Natural Resource Management Program and Endangered Species Management Plan documents. Where species other than the RCW are of concern, many of the principles and general methodology contained in these reports are still applicable. In particular, the results of the smoke toxicity studies may be able to be extrapolated to other passerine species of similar body weight.

In accordance with current ERDC publications policy, printed copies of these

reports are not prepared for general distribution. SR-01-3 itself and many of the listed reports are available on the ERDC/CERL website www.cecer.army.mil or through your installation library or information management office, using the DTIC reference number shown. The reports will be of interest and importance to many Natural Resource managers. Non-DOD personnel should contact the National Technical Information Service at www.ntis.org.

For more information, assistance and advice in TES issues, please contact the Project Leader for Threatened and Endangered Species at CERL, Dr. Harold Balbach, (217) 373-6785, e-mail: hal.e.balbach@erdc.usace.army.mil

Volunteers celebrate National Public Lands Day

by Neal Snyder

Volunteers on 14 Army and National Guard installations upgraded trails, built bird boxes and planted native species gardens to celebrate the seventh annual National Public Lands Day Sept. 23.

From a National Guard armory on the island of Oahu to the U.S. Military Academy at West Point, these soldiers and civilians were part of an estimated 30,000 people across the nation who set aside that Saturday to work on conservation and restoration projects in public parks, reservations and preserves.

At the U.S. Army Environmental Center headquarters on Aberdeen Proving

Ground, Maryland, more than 70 soldiers and civilians planted a model "BayScape" of plants native to the Chesapeake Bay watershed, where the proving ground is located.

Public lands are the nation's treasures, said COL Stanley Lillie, USAEC commander, and those lands include Army installations. "We are gathered here to show that the Army is a good steward of the lands that have been entrusted to us by the American people," Lillie said.

At Carlisle Barracks, Pennsylvania, volunteers installed bird boxes and planted wildflowers; in the Accotink Bay Wildlife



Refuge on Fort Belvoir, Virginia, they upgraded trails and built a bridge. National Public Lands Day brought new or upgraded trees and gardens to Fort Story, Virginia, Fort Gordon, Georgia, Fort Lee, Virginia, Camp Ripley, Minnesota, and many other military installations.



Aberdeen Proving Ground counts record number of bald eagles

by Neal Snyder

Flying in the predawn light of a late January morning, a helicopter followed the shoreline of the northern Chesapeake Bay. It traced the broad creeks and inlets slicing the forested ranges of Aberdeen Proving Ground, Maryland.

On board, installation fish and wildlife biologist Jim Pottie counted bald eagles. "Bald eagles feed at sunup, during the first two hours of daylight," Pottie said. "That's when the birds soar out over the water, seeking fish," he continued. "We take advantage of their feeding patterns and fly back to areas we know they have been."

The flight brought back good news about the eagles - They've returned to the Proving Ground in record numbers.

The last quarter-century has been a rapid recovery period for the bald eagle. The bird chosen as the nation's symbol in 1782 had vanished to the point that biologists could count only 800 nesting pairs in the country by 1974. That was the year Congress passed the Endangered Species Act, including the bald eagle on its initial list.

The protection, conservation, and outright ban of a once popular insecticide - DDT - helped bring the national bald eagle population back to 5,700 nesting pairs in 1998.

While Pottie flew over the Proving Ground ranges, the U.S. Fish and Wildlife was making plans to take the bald eagle off the Endangered Species List.

Twenty years ago, on his first flight, Pottie only found five nesting pairs along the shore of the northern Chesapeake Bay. In 2001, he found 239 eagles. He made the latest count as part of the national Mid-Winter Eagle Survey. Aberdeen Proving Ground reported that number to the Maryland Department of Natural Resources. The state sent its information on to the National Wildlife Federation, which monitors the national figures.

Bald eagles are one of more than 200 endangered species on Department of Defense lands. Like Aberdeen Proving Ground, installations across the nation are creating habitats for eagles, building platforms for nests, establishing protection zones and monitoring the birds' movements.

At Aberdeen, Pottie said he was expecting to see some increase from last year's estimated 20 nesting pairs, but that the record number was a surprise. According to Pottie, the birds could have moved from Blackwater National Wildlife Refuge, on the western shore of the Chesapeake Bay, directly across from the Proving Ground.



"Blackwater experienced a slight decline in its eagle population," he said. "Birds are coming here for sure," he added. "The Aberdeen ranges are well suited for eagles, with plenty of fresh water and nesting places where human access is controlled. The best indicator is the number of nests. This number has been constantly increasing," Pottie said.

The Aberdeen Proving Ground population has in fact grown enough that some eagles are moving into neighborhoods around the installation. "There is only so much suitable land here," Pottie indicated. "I think the bald eagles will continue to radiate out from the Proving Ground to other areas."

POC is James Pottie, fish and wildlife biologist, APG, (410) 436-4831.

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Though events were taking place across the country, Aberdeen Proving Ground, Maryland's largest federal land holding, was a fitting place to celebrate the occasion, Sarbanes said. "Its open spaces, forests and wetlands provide crucial natural habitat for many species of birds and mammals that represent an important part of the Chesapeake Bay ecosystem," Sarbanes said. "The Army obviously has an important responsibility to be a good steward of the land for which it is responsible."

More than half of Aberdeen Proving Ground is wetlands, and it is home to many rare and endangered species. said MG John C. Doesburg, installation com-

mander. "Some of the species found on APG have not been observed for more than 100 years," he said.

Installation environmentalists are actively working to protect habitat both on the proving ground and in the waters of the Bay and its tributaries, according to Doesburg.

Many of the research projects at the proving ground focus on technologies that prevent pollution, such as a project to determine the levels of potentially toxic chemicals in common paints.

A number of military, state and local dignitaries joined in the observance.

Since 1993, National Public Lands Day has grown from 200 volunteers in three

states to an estimated 30,000 volunteers across all 50 states for year 2000 activities. Federal agencies participating in this year's program include DoD, the U.S. Fish and Wildlife Service and the National Park Service. It is sponsored by the National Environmental Education and Training Foundation.

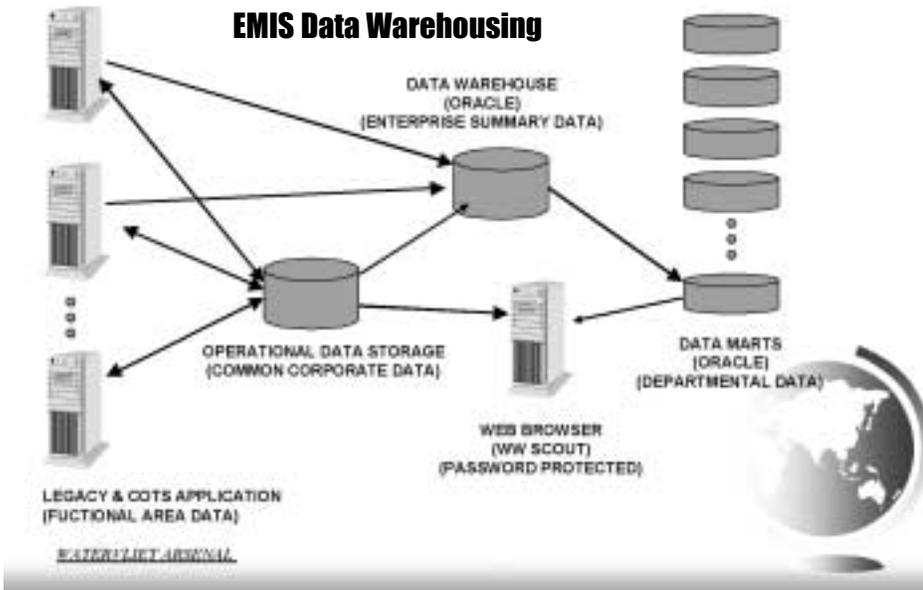
For more information on BayScapes, visit the Center's Internet site at <http://aec.army.mil>

Neal Snyder, is the command information program coordinator for the U.S. Army Environmental Center.



System gives Watervliet instant access to environmental data

by Dana Finney



EMIS data warehousing supports energy and environmental management at Watervliet.



Watervliet's equipment for producing gun barrels and other components feature sophisticated sampling and control systems.

A data warehouse-based system that exploits commercial software allows "sensor to boardroom" retrieval of information about industrial processes at Watervliet Arsenal, New York. The Environmental Management Information System (EMIS) gives plant personnel real-time access to operating data while greatly easing the burden of culling information for mandated environmental reports.

Watervliet is the nation's largest producer of cannon barrels used in military weapons. In 1992 the arsenal completed a 10-year, \$350 million renovation that included state-of-the-art automation and controls for some 30 separate manufacturing processes. However, the automated systems were not networked due to equipment differences, making it time-consuming to retrieve all of the process, discharge, and emission data needed for plant-wide environmental and energy management.

"The legal requirements to submit timely environmental reports had increased greatly during the 1970s and '80s," said Phil Darcy, pollution prevention manager at Watervliet's Environmental Office. "Information generated at multiple locations and processes at the Arsenal required intensive data collection."

Darcy's team asked the Construction Engineering Research Laboratory (CERL) to help design an intranet-based system that would quickly move data to the end users. The EMIS evolved as a system that uses automation already in place while capitalizing on commercial off-the-shelf (COTS) software products. Servers receive and store data directly from measurement instruments or from programmable logic controllers. Users inside the Watervliet firewall can view information using an internet browser.

Bridging programs to translate collection databases for the data warehouse and to interface with COTS were developed by CERL and MSE -TA, Inc. under a Coop-





Environmental Database performs cross-system environmental analysis

by Humberto Galarraga

The U.S. Army Environmental Center is presently fielding the newly developed Army Environmental Database (AEDB) and Program Managers' Toolkit (PMT). AEDB integrates all five of the Army's principal environmental data collection programs into a single data warehouse that is optimized for a wide variety of analysis tools contained in the PMT. AEDB contains environmental program and management data reported through the Environmental Quality Report (EQR), Environmental Program Requirements Report (EPR), Defense Site Environmental Restoration Tracking System (DSERTS), Installation Status Report Part II (ISR II), and Environmental Compliance Assessment System (ECAS).

Before the development of AEDB, environmental managers and decision makers across all levels of the Army would have to devote countless hours to the manual reconciling, checking, and analysis of data from independent "stove-piped" databases. With the advent of AEDB and the analysis tools contained in the PMT, there is finally a way to perform cross-system environmental analysis and metrics.

Once AEDB is fully fielded, MACOM- and HQ-level environmental managers will only need to access the password-protected Web site to perform integrated analysis of their environmental data. AEDB will become a valuable tool in assessing the condition of environmental clean-up, compliance, conservation and pollution prevention programs at all lev-

els. The reports contained within the PMT will also greatly facilitate in the submission of mandatory environmental reports to DoD, Congress and other agencies.

AEDB and PMT are accessible through a knowledge management portal maintained by the Army Environmental Center. The portal is designed to be a single launch point for all Web-based analysis toolkit modules, Army environmental data collection programs and quality assurance and quality control tools. It also includes a calendar of events, news and Web links related to the Army environmental program. AEDB and PMT include four modules: Installation Profile, State of the Media, the Program Environmental Reporting Module (PERM), and the Requirements Review Analysis Tool.

The Installation Profile module is the "one stop shop" for environmental information on a particular installation — including background information, news and status of environmental programs derived from pre-defined reports based on data from EQR, EPR, ISR II and ECAS. The installation's public affairs office can customize this profile and add pertinent documents and links. Installations can use this module to share good news and lessons learned.

The State of the Media module is designed to assist Army environmental managers with integrated analysis of environmental data from EQR, EPR, ISR II and ECAS. It offers a number of pre-

defined reports based on predetermined conditions, and user-defined reports that can be customized by selecting from a predefined set of criteria.

The Program Environmental Reporting Module focuses on analyzing and reporting environmental data by functional area for DoD Measures of Merit (MoM) and non-MoM reporting requirements. As in the State of the Media module, both predefined and user-defined reports are available.

The AEDB Restoration Reports module allows environmental managers to generate and view reports for the analysis of Environmental Restoration Army and Base Realignment and Closure data reported through DSERTS. The AEDB Restoration Reports support the Army Budget process.

Future developments soon to be added to AEDB include an automated Quarterly/Annual Performance Review and Army Environmental Compliance Report; standardized reports and metrics focused on environmental fines and penalties; and reports based on the Toxic Release Inventory report.

For additional information about AEDB, please contact Humberto Galarraga, at (410) 436-1534.

Humberto Galarraga is the AEDB Functional POC at the US Army Environmental Center.

PWD

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erative Research and Development Agreement (CRADA) funded by a Congressional appropriation along with two other CRADAs. The EMIS includes cells for major plant processes and emission systems including the Selas furnace, industrial waste treatment plant, plating

facility, fluid storage tanks, electrical energy and power monitoring system, steam production and distribution, weather station, stack scrubbers, boilers, and so on. Instant access to this information means compliance officers can be alerted when limits are exceeded and take corrective action.

For more information about Waterliet's EMIS, please contact Phil Darcy at (518) 266-4534, or Dr. Joyce Baird at CERL, 800-USA-CERL, e-mail: j-baird@erdc.usace.army.mil

Dana Finney is a public affairs specialist at ERDC-CERL. **PWD**



New software helps reduce building energy use

The U. S. Department of Energy (DoE) has introduced EnergyPlus, a new generation building energy simulation program that allows architects, engineers, building owners and managers to minimize energy use and cost, and optimize building performance by simulating building energy use. The program builds on the best features of DOE-2, an earlier DoE program, and the BLAST system developed by the Construction Engineering Research Laboratory (CERL).

EnergyPlus dramatically improves the simulation of whole-building approaches in design, planning and construction, and opens new doors for energy savings, cost savings, and indoor environmental quality. It allows users to calculate the impacts of different heating, cooling and ventilating equipment, and various types of lighting and windows to maximize building energy efficiency and occupant comfort. Users can simulate the effect of window blinds, electrochromic glazings, and complex daylighting systems, features not seen in earlier DOE software.

EnergyPlus can be downloaded at no cost from:
http://www.eren.doe.gov/buildings/energy_tools/energyplus/

EnergyPlus models the heating, cooling, lighting, ventilating, and other energy flows of buildings. Besides exploiting the most popular features and capabilities of BLAST and DOE-2, it includes many innovative simulation capabilities including time steps of less than an hour, and modular systems simulation modules that are integrated with a heat balance-based zone simulation. Other planned simulation capabilities include solar thermal, multi-zone air-flow, and electric power, including photovoltaic systems and fuel cells.

DoE developed EnergyPlus in cooperation with CERL, the University of Illinois, Oklahoma State University, Lawrence Berkeley National Laboratory, the Florida Solar Energy Center, and

GARD Analytics.

"We've designed the program to meet the needs of more of our users. It's all new code," said Dru Crawley, DoE project manager for EnergyPlus. "Before we began developing EnergyPlus, we asked users what capabilities they need for building energy simulation. These needs are reflected in EnergyPlus. For example, users can calculate the cost/benefit ratios of double pane glass versus other windows. You apply local utility rates, and from there you can calculate the cost/benefits," said Crawley.

The EnergyPlus simulation program reads and writes output as text files. Its input and output data structure is designed to allow easy development of third-party interfaces—such as the 15 already available for DOE-2. Most users will use graphical user interfaces when these tools become available later this year. The program was created primarily for use in Windows; but adaptations for Linux and UNIX are available.

Highlights of the new software are:

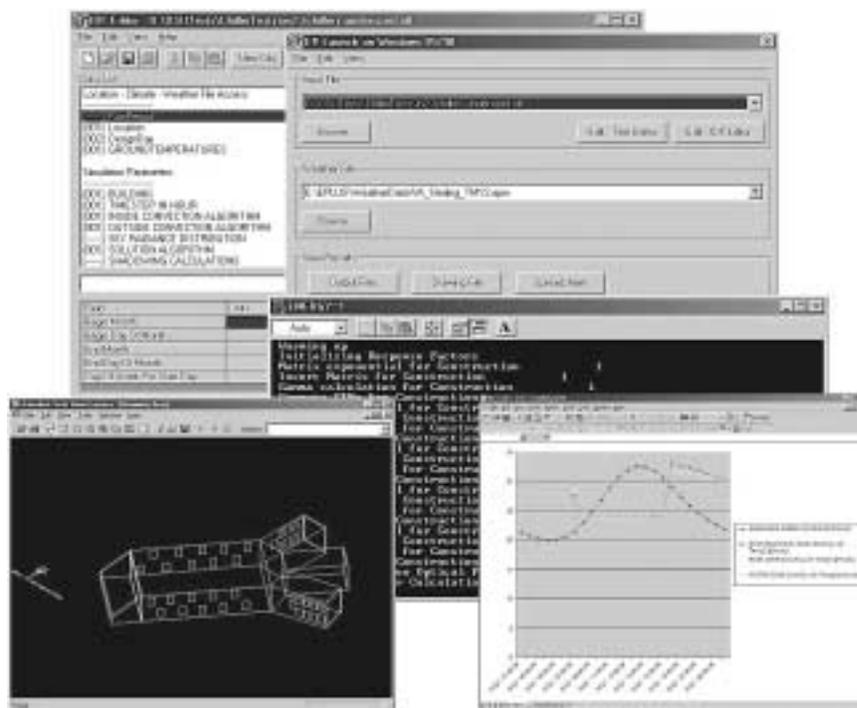
- Realistic system controls.
- Moisture adsorption and desorption

in building elements.

- Interzone air flow.
- Low temp radiant heating/cooling.
- Interior surface convection.
- Thermal comfort modeling options.
- Evaporative cooler models.
- Steam absorption chiller.
- Air flow sizing based on zone requirements.
- Accurate sky illumination model for daylighting calculations.
- Ability to read multiple interval per hour weather data files.
- Plenums.
- Enhanced calculation of return air heat gain from lights.
- Flat plate exhaust air heat recovery.
- Automated creation of EnergyPlus geometry input from CAD files.
- Example heating, ventilating, and air-conditioning system and equipment input templates.
- User-customizable reports.
- Atmospheric pollution calculation.

POC is Linda Lawrie at CERL, (217) 373-7260, e-mail: linda.k.lawrie@erdc.usace.army.mil

PWD





Guide to changing State regulations

A comprehensive, state-by-state guide for how state regulatory agencies make changes to state rules and regulations has recently been posted on the DENIX system. The guide, prepared for the US Army Environmental Center Regional Environmental Offices, outlines the seven general process steps for changing regulations that are common to most states.

These are the steps:

- Departmental discussion and drafting of the new rule within an agency, includ-

ing invited public participation in many states.

- Official publication of the proposal, which may be in a state register, newspapers, mailing lists, or on the Internet.
- Public comments and hearings period for about 30 to 60 days after publication of the proposal.
- Review of comments received and modification of the proposal, if needed.
- Formal approval of the new regulation by the agency.
- Approval by the governor or the legisla-

ture or a regulatory review committee.

- Publication of the final regulation, with the date it takes effect.

The main body of the report summarizes the specific state requirements for each of these steps for all 50 states plus the District of Columbia, Guam and Puerto Rico.

POC is Allison Bruno, USAEC REO Coordinator, (410) 436-1280, e-mail: allison.bruno@aec.apgea.amy.mil **PWD**

Note: To find The Regulatory Process in the States (available only to personnel with DoD DENIX access): Access <https://www.denix.osd.mil/denix> and follow the menu path Subject Areas to REC to Relevant Docs.

USACE offers interim sustainable design and development tool with SPiRiT

by Richard Schneider and Harry Goradia

The U. S. Army Corps of Engineers (USACE), in conjunction with Department of the Army Staff, has developed SPiRiT, an easy-to-use rating tool which allows building delivery teams to score various design features defining how sustainable a facility will be over its life cycle. Announced last November (see Public Works Digest, Volume XII, No. 6) as the Sustainable Project Rating Tool (SPRT), SPiRiT Version 1.4 is now being released in final format for application to military facilities.

SPiRiT v.1.4 is a Word formatted document with point summary sheets in Excel making it both easier for users to print and use while allowing for automated tallying of point scoring results. SPiRiT v.1.4 can be downloaded from the web at <http://www.cecer.army.mil/sustdesign/SPiRiT.cfm>.

In the development of SPiRiT, USACE reviewed a broad representation of rating schema available at the time to score facility design sustainability, including the U. S. Green Building Council (USGBC) LEED Green Building Rating System™ Version 2.0 (Leadership in Energy and Environmental Design). USACE and DA staff decided to use LEED™ 2.0 supplemented

with criteria more germane to military installation planning, design, and construction to achieve Army sustainable design and development goals. SPiRiT supplements LEED™ 2.0, providing guidance to ensure that sustainable design and development are considered in Army installation projects to the fullest extent possible, balanced with funding constraints and customer requirements.

DA and USACE will issue policy requiring all projects be scored by SPiRiT.

SPiRiT is to be an interim sustainable design and development rating tool. The ultimate goal is to partner with the USGBC in development of a standard commercial rating tool equally applicable to military infrastructure. USACE has recently become a member of the USGBC Steering Committee and is actively participating in the development of a suite of LEED™ products addressing Commercial Buildings, Commercial Interiors, Residential, and Operations rating schemes.

Future products will address Community and Development Oriented rating tools. SPiRiT will be used in the interim until LEED™ 3.0 is released, which is anticipated to be in 2003.

The initial rounds of training in Sustainable Design and Development, currently being conducted at Corps of Engineers districts, CONUS and OCONUS, will conclude 30 September 2001. U.S. Army Engineering Research and Development Center (ERDC) researchers will then be available to conduct training on a reimbursable basis. Alternatively, training may be obtained from the USGBC.

For more information concerning SPiRiT and sustainable design, please contact Richard Schneider, (217) 373-5424, e-mail: richard.l.schneider@erdc.usace.army.mil. Extensive information on sustainable design and development is also being made available on the ERDC web site at <http://www.cecer.army.mil/sustdesign/> Corps District personnel should contact Harry Goradia, (703) 428-6460, e-mail: harry.goradia@hq02.usace.army.mil and installation personnel should contact John Scharl at (703) 428-7614 or e-mail: scharja@hqda.army.mil for assistance with the application of sustainable design and development.

*Richard Schneider is a researcher in ERDC and Harry Goradia is a Mechanical Engineer at HQ USACE. **PWD***



Web-based project management helps complete site restoration

by Karen Roberts

“Will property access be ready when sampling is scheduled?”

“Did any of these results fail QC criteria?”

“Does the SOW include any surveying?”

“Can Buildings and Grounds start painting at building 123?”

“Has the Administrative Record been updated?”

These are typical questions that participants in an environmental restoration project must contend with almost continuously. Management answers, technical answers, and facility operations answers are always needed. Getting answers in an environmental project across multiple locations and in multiple phases can be time and cost intensive for everyone involved.

The Army Corps of Engineers, Engineering and Support Center, Huntsville, Alabama, is working on a system to reduce the effort associated with performance of such projects by developing an interactive web-based data management tool for handling the majority of functions needed for successful completion of site restorations. The implementation is already planned for two facilities, the Defense Supply Center at Richmond, Virginia, and the Defense Depot Susquehanna, New Cumberland, Pennsylvania.

The basic concept involves setting up a site for project management that can be accessed by all team members working within the same project. According to Scott Bradley, Project Manager, of the Engineering and Support Center, Huntsville, “A project page will be creat-

ed and powered by a database that is capable of handling mass data, so that all stakeholders can plug into and view identical information.” All relevant data will be maintained according to the Defense Logistic Agency (DLA) data standard to ensure that the data archiving structure will be capable of achieving the desired capabilities.

The plan, according to Bradley, is to use the DLA standard to define formatting of both contractual and technical data elements, then develop a project web page to access the information using a web browser from any location. The project page will provide links to more detailed information with additional links to ample supporting data. The links will be for technical evaluation including comment and response, and contract management information. The intent is to provide a vehicle for stakeholders to access all project data more easily. Access to the management functions will be restricted by password for security.

For each of the project sites, an Internet - Accessible Life Cycle Project Management Plan (LCPMP) will be created that identifies known requirements in significant detail, probable requirements in more general terms, and potential requirements in very broad terms. These details will be provided on separate web pages linked to the appropriate section of the LCPMP, to the extent they can be reasonably defined.

The information compiled in the LCPMP will be utilized to perform work for in-house management and upward reporting. “Known requirements are contracted and implemented and will ultimately end up documented in an electronic Administrative Record. Probable requirements become focused and transition into known requirements as technical conclusions are reached. New potential requirements develop

from stakeholder concerns as elements of the project are completed,” explained Bradley.

An Environmental Investigation uses a Conceptual Site Model to describe site conditions and influences on contaminant behavior and data quality objectives to define technical requirements for field investigations. The web-based LCPMP is essentially a Conceptual Management Model, identifying known contractual conditions and influences on those conditions. The LCPMP will use Contractual Project Objectives to define management actions to achieve the project objective.

Bradley said he perceives the eventual goal of the web-based concept as allowing most everything to be accessed electronically. The desired end product at most environmental clean-up sites is a safe site and an Administrative Record that adequately documents actions to ensure a safe site. An Administrative Record in an electronic format would be easily updated, more comprehensible, and more accessible to stakeholders.

Bradley said, “The potential for headache savings along with cost and time. He went further to say that a web-based project management system could ultimately benefit the overall goal of site closeout. The web-based system would document the logic process and decision trees as they are formed. At this time, continual revisions in performance requirements mandated by developing information can be difficult to track. As projects evolve, the decision trees get more involved, but the final electronic record won’t change, it will just increase in size. Additionally, information maintained in the LCPMP could be used by facility personnel for facility maps or other data and by public affairs personnel for community involvement efforts.

Connection speeds are among the potential drawbacks of moving to a web-



based project. Differences between computers and connection types would prevent access from being 100% equal. He said, "Obviously, someone with a T1 connection would have faster access than someone with a 56k Modem. Nevertheless, when you compare time required due to connection speed and time required to manually access documents, it is more than obvious that finding the desired information in 100 pounds or more of hard-copy requires significant time as well as enough physical effort to discourage almost all stakeholders."

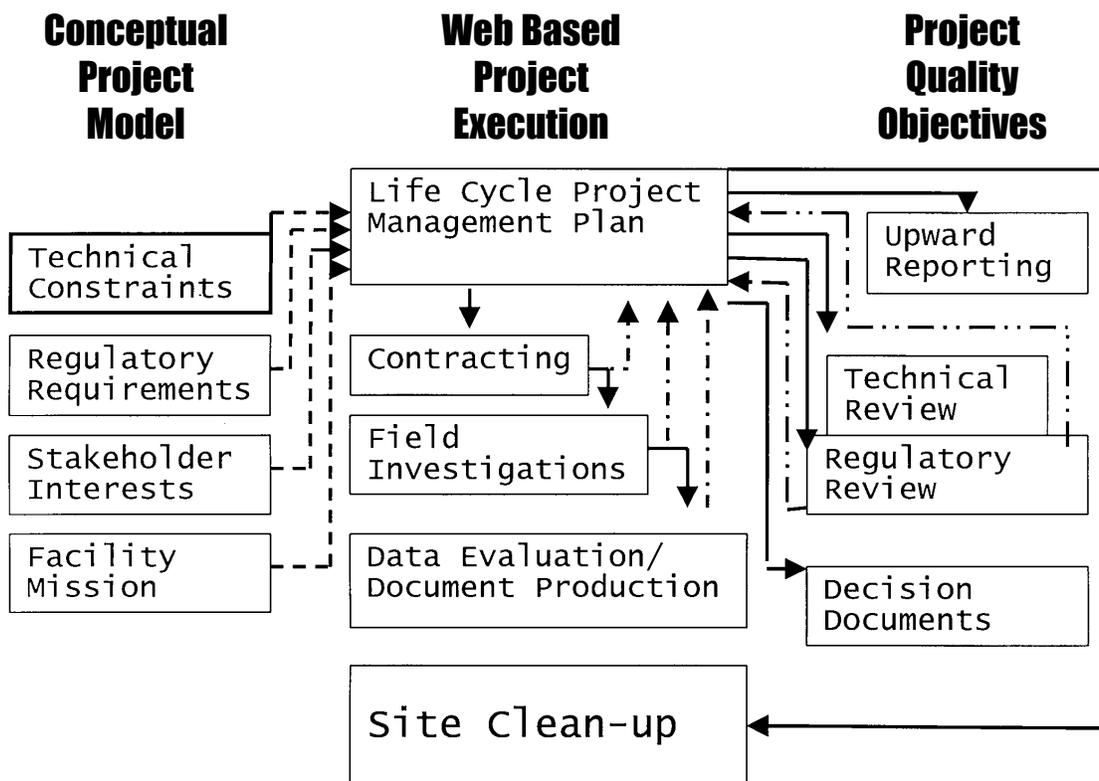
The many advantages include easy access from many locations 24/7, consistency of information, cost savings, time savings, compatibility, as much technical detail as is available will be accessible,

easier scheduling, and cuts down on storage space for hard copies needed. Some of the disadvantages are upfront effort will be time consuming without immediate tangibles because only the vehicle is provided, servers being down could limit access for short periods of time, potential for hackers to destroy

information (overcome because hard-copies will still exist), and connection speeds are not equal.

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The Corps Environment – a new environmental publication

A new U.S. Army Corps of Engineers publication is available for employees and others interested in the Corps' environmental work.

The Corps Environment focuses on the environmental work performed by the Corps as a whole, ranging from Everglades to Formerly Used Defense Sites and everything in between.

The publication, a product of HQUSACE, combines two former publications, The Restoration

Reporter and the Ordnance & Explosives Newsletter. This new publication embraces all elements of the Corps' environmental mission, including Civil Works and work for other agencies. The Corps Environment is published quarterly. The first issue was printed in January and the second issue was released the first week of April.

It is available in print, on the World Wide Web at <http://hq.environmental.usace.army.mil/n>

ewsinfo/current/current.html. It also is available on the Defense Environmental Network and Information eXchange, DENIX.

To contribute material to The Corps Environment, please contact Kimberley Gillespie at kimberley.c.gillespie@HND01.usace.army.mil



Fort Worth District helps Fort Hood achieve environmental goals

by Anita Horky

Fort Hood will be one of the first installations in Forces Command to close out its facility investigation program by the end of this fiscal year, thanks to the teamwork of the installation, the Corps' Fort Worth District and other agencies.

"When you have various entities involved, agreement on situation resolutions is hard to accomplish," said Mary White, an environmental protection specialist at Fort Hood. "But in the case of Fort Hood's RFI, all the parties worked very hard to come to effective and efficient solutions to those situations that arose. The partnering that existed was the main reason for the success of Fort Hood's RFI project."

An RFI is a Resource Conservation and Recovery Act Facility Investigation. It determines if solid waste management units, such as abandoned landfills and underground storage tanks, are contaminating the environment.

In 1994, the Texas Natural Resource Conservation Commission (TNRCC), the state's environmental regulatory agency, identified 40 sites at Fort Hood requiring an RFI. With limited funding available and time constraints imposed by the TNRCC, Fort Hood hired the Corps' Fort Worth District to complete RFIs on two sites.

"We coordinated with the TNRCC during the development of the RFI work plans, so there was minimal review by the TNRCC and few comments," said Debbie Perrin of the Fort Worth District who worked on the RFIs. This saved Fort Hood time and money. The district finished the RFIs and recommended no further action on the two sites.

Working with Fort Hood, state regulators and contractors, the Fort Worth District then prepared RFI work plans for the remainder of the identified sites.



Workers excavate on Fort Hood as part of a facility investigation. (Photo by Mark Valentino)

The district scoped, negotiated and awarded contracts for field investigations, assessments, remediation and closure activities; provided technical assistance; and reviewed reports for submission to TNRCC.

"It was important to make sure the TNRCC submittals were thorough and complete to allow for regulatory concurrence without requiring additional field work and numerous rounds of regulatory reviews," said the Fort Worth District's Henry Kasten, who oversees the Corps' environmental work at Fort Hood. "It was also important to ensure Fort Hood's funding was well spent."

"The Corps was instrumental in handling the technical oversight provided during fieldwork and also in reviewing any changes or modifications to the original work plan to accommodate situations that arose," White said. "As part of the RFI project, I personally felt that the Fort Worth District addressed all of my

concerns in a timely and satisfactory manner. Any challenges that arose were resolved and all parties involved were kept abreast of the situation."

By the end of 2000, the TNRCC had reviewed and approved RFIs with no future action for all but one of the sites.

"Fort Hood reached the FY99 goal of closing out the investigation portion of the RFI," White said. "With continued support, Fort Hood will be one of the first installations in FORSCOM to close out the RFI by the end of FY01. Because none of the sites required remedial action or long-term monitoring, Fort Hood should be able to close out the restoration program."

For more information, please contact Henry Kasten, (817) 978-9923, ext. 1648, e-mail: henry.d.kasten@swf02.usace.army.mil.

Anita Horky is a public affairs specialist in the Fort Worth District Public Affairs Office. **PWD**



Europe District constructs 30 playgrounds

by Alicia Gregory

The U.S. Army Corps of Engineers, Europe District is providing quality and safe places for children to do what they enjoy most – play.

Lalit Wadhwa, chief of the Facilities Engineer Support Branch at the district, managed the construction of the 30 new playgrounds at Child Development Centers throughout U.S. Army Europe.

The new playground design and materials meet the Consumer Products Safety Commissions, the American Society for Testing Materials, and the Americans with Disabilities Act guidelines. In fact, the Consumer Product Safety Commission (CPSC) certified the designs.

“A lot of research was done to find a product which has minimum maintenance, is safe, and meets the CPSC guidance,” said Wadhwa. The final equipment selected is made of reinforced plastic and recycled wood chips with recycled rubber content called TREX. The fall zones are constructed of poured in place rubber surfacing.

“(The new playground) gives the children a lot of opportunity to explore outdoors, and to develop their gross motor skills in a safe and colorful environment,” said Pam Wilson, lead education techni-

cian, infant’s room, at the Wiesbaden Army Airfield CDC.

“This is a wonderful improvement,” said Lyn Essman, director of the Panzer (Stuttgart) CDC in a recent Stars and Stripes article. In that same article, Cindy Nail, chief of the Stuttgart Children and Youth Services stated that the previous equipment was inappropriate, run down, and just wasn’t safe.

“The program was started five years ago by USAREUR and the Deputy Chief of Staff, Personnel (DCSPER) as the result of several playgrounds at USAREUR Child Development Centers being of sub-standard and constantly failing safety inspections,” explained said Wadhwa. He went on to explain that several injuries had occurred due to the poor condition of these playgrounds.

“The playgrounds for the CDC were designed in-house with the help of the firm, Grounds for Play, out of Texas,” said Wadhwa. “They have a highly professional team of planners who have a great deal of experience in early child development programs, which helped us optimize the playgrounds.

The playgrounds were constructed using a requirements-type contract, said

Wadhwa. A requirements-type contract allows customer to complete its small to medium Real Property Maintenance (RPM) project (repairs, maintenance, minor construction and remediation, etc.) in a relatively short period of time. It is a comprehensive contract that allows a variety of jobs to be performed under it by task orders. Working somewhat like modifications to a standard construction contract, task orders are issued as needed.

“This type of contract gave (the customer) more flexibility,” said Calvin Taylor, contract specialist who worked on these projects. “It provided a better opportunity to plan for cost and establish prices.”

The CDC playgrounds were built in several areas including: Livorno, Italy; SHAPE, Belgium; Heidelberg, Stuttgart, Wiesbaden, Butzbach, Garmisch, and Hanau, Germany; and the Azores.

“We have installed approximately 30 playgrounds in the past three years,” said Wadhwa. He explained that the layout was done in such a way that it meets all the required age groups of the children who will be using them.

Family member Amy Connell, whose two-year-old son, Austin, attends the Hainerberg CDC in Wiesbaden, Germany, is pleased with the new playground. “They are small enough that he feels some sense of accomplishment by doing things himself.”

When each playground is completed the contractor gives a class to CDC workers on the proper use of the equipment. “The gentleman who gave the class really knew his stuff,” said Wilson. “It was a great learning experience.” The program is scheduled to continue for five more years.

POC is Lalit Wadhwa, Chief, Facilities Engineer Support Branch, Europe District, 011 49 611 816 2335, e-mail: lalit.wadhwa@usace.army.mil

Alicia Gregory is a public affairs specialist in the Europe District, U.S. Army Corps of Engineers.

PWD



SPC Brenton York admires the new playground at the Panzer Child Development Center.

(Photo by David Josar.)



Record of Decision will ensure redevelopment of Memphis Depot

by Bob DiMichele

Years of planning, environmental investigation, and project teamwork are paying dividends for the Defense Logistics Agency and the community of Memphis, Tennessee.

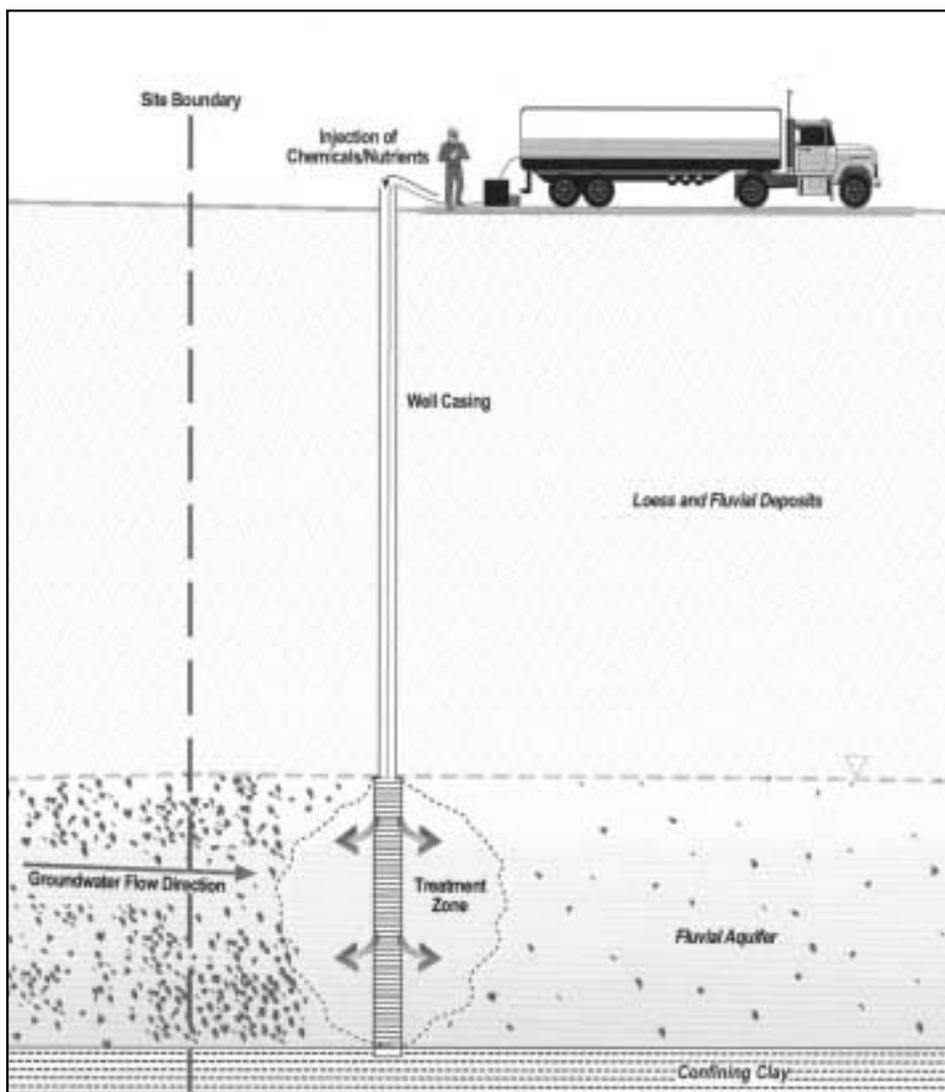
A Record of Decision is being signed that will formally implement the environmental remedies necessary to ensure the economic redevelopment of the Main Installation portion of the former Defense Depot Memphis.

As with any base closure site, the goal is to transfer property in a safe condition so that it is available for community reuse and redevelopment. Now, the joint effort among the Defense Logistics Agency; the U.S. Army Engineering and Support Center, Huntsville, Alabama; the Corps of Engineers' Mobile District, and regulatory agencies has reached a major milestone.

The Defense Logistics Agency signed the record of decision on February 22, 2001, and the Tennessee Department of Environment and Conservation (TDEC) signed the document on March 1, 2001. The third signature by the EPA is expected in March or April.

"It has been a long time coming," said Dorothy Richards, Huntsville Center's Memphis Depot project manager. "We've worked together for years to assure the public's safety and make the Depot's property useful for economic development."

The effort has always focused on that goal, she explained. There are six functional units on the Main Installation property plus one functional unit for the groundwater that are identified for environmental remediation. The areas were broken up into similar functional uses such as warehouses, recreation, housing, and administration so that the parcels could be transferred from Defense Department ownership under similar land use conditions.



Bioremediation process for groundwater cleanup.

The future land use for the Main Installation is industrial except for the recreational and former family housing areas, Richards said. Even so, the Corps conducted individual risk assessments on each of the functional units to assure the potential risk was gauged against the community's needs for the specific piece of Depot property.

CH2M HILL conducted the remedial investigation and feasibility studies,

and prepared the Proposed Plan that led to the Record of Decision. "This is a very important milestone for the Depot," said Steve Offner, CH2M HILL's Memphis Depot project manager. "This Record of Decision is the culmination of a lot of hard work by the entire Memphis Depot project team and we are excited about moving forward with the implementation of the selected remedies."





(continued from previous page)

The selected remedies address the remediation of surface soil and groundwater contamination so the transfer or lease of property can proceed. The remedies are both effective and cost efficient, according to Richards. The selected surface soil remedy consists of excavation and off-site disposal of soil contaminated by lead along with institutional controls. Institutional controls include deed restrictions preventing residential land use, future land use controls and access control.

Groundwater contamination will be addressed through “enhanced bioremediation” of organic contaminants from solvents such as trichloroethene (TCE) and tetrachloroethene (PCE). This remedy uses the injection of nutrients into the contaminated aquifer to enhance the natural attenuation, about a ten-year process. “This is an innovative and cost-effective approach,” Richards explained. “There is no imminent threat to the public from the contaminants in this aquifer. Therefore, it is a perfect solution.” The cost of the bioremediation is about half that of the other two alternative treatment remedies.

Groundwater monitoring will continue but more aggressive measures would be taken if circumstances indicated the need to increase protection for the public health and environment.

Contaminated surface soils would be excavated to a depth of one foot and replaced with compacted, clean backfill. The focus of that effort will be some 7,200 square feet of soil that lies near an old dried paint disposal area.

Because the soil in the housing area was contaminated with the pesticide dieldrin, the Corps of Engineers took on an interim remedial action in 1998 to assure the base closure parcels met risk criteria for residential use. The Mobile District managed the contract that restored the site so it could be used as a community resource.

The soil cleanup has already led to a “public benefits transfer,” Richards said. The Defense Department transferred the land to the Department of Housing and Urban Development. HUD then transferred the property to a private, non-profit service organization. The property will be used to house homeless veterans in order to get them re-established in the local community.

As the cleanup of the former Defense Depot Memphis moves forward, a new future for the site will begin. Just as the Depot served the nation so well during its fifty-five years

of defense operations, it will now serve the Memphis community’s interests and needs. “We’ve always had our sights set on making the Depot a safe and productive property for Memphis,” Richards summarized. “It’s a joint effort that will lead to a common good.”

POC is Dorothy Richards, Huntsville Center’s environmental project manager for the former Memphis Depot, (256) 895-1463, e-mail: dorothea.d.richards@usace.army.mil.

Bob DiMichele is the Chief of the Public Affairs Office at the Huntsville Center. PWD



This drill is used in the groundwater remediation process at the Memphis Depot.



Howze Dining Facility opens to rave reviews

By Alicia Gregory

Talk about an Army of Transformation! The old Ray Barracks Dining Hall as a new look and a new name—The Howze.

The \$2.9 million dollar renovation was completely modernized by the U.S. Army Corps of Engineers' Europe District, the 284th BSB and the German Friedberg-Bad Nauheim construction agency.

The Howze dining hall opened in February to rave reviews. The facility has self-service dessert coolers and self-service lines for drinks and side dishes. Seating is available for up to 160 soldiers at a time in the family-style restaurant looking dining area. As one soldier in the chow line said, "It looks real homey in here."

The badly dilapidated old dining hall stood empty for the better part of 10 years after Berlin Wall fell because the U.S. reduced troops. Already on its last legs and unable to meet modern quality or fire and life safety standards, it was abandoned.

But when US Army Europe began stationing additional troops in Giessen as part of modernization and consolidation of its remaining force, the 284th Base Support Battalion asked the Corps of Engineers to redesign it and renovate it into a modern dining facility.

The BSB decided to name the new facility after General Hamilton H. Howze. Howze, who is best known as the father of U.S. Army Airmobility tactics and doctrine, served as both an Armor and an Infantry officer from 1938 to 1965. He was the Commanding General of the 82nd Airborne Division, XVIII Airborne Corps, and the Eighth U.S. Army. His awards and decorations include the Silver Star Medal, the Legion of Merit, and the Bronze Star Medal.

No general would have wanted his name over the door of the old facility.

"It was old and dilapidated," said Tom Atkinson, Europe District contracting officer's representative at the Giessen



The food service areas at the Howze Dining Facility were designed to get soldiers through the lines efficiently.

Project Office. "The old dining facility was torn down except for two walls and foundations and completely rebuilt." The new building is 30 percent larger with space for 450 people inside. The renovation not only included increasing the building size, but also the construction of a new roof, the installation of communications and fire-alarm systems, and several other improvements which made the Friedberg facility look brand new.

"We had a very short deadline to finish the design and construction," said Dana Luedtke, Europe District's project manager for the dining facility. "So we had to work very closely with the 284th Base Support Battalion and the Friedberg-Bad Nauheim Bauamt, which is the German government's engineering agency."

"The project was plagued with delays, most due to the bankruptcy of the general contractor, but it turned out ok since the troops were deployed (to Bosnia) at the time," said Lourdes Levya-Colon, project manager for the 284th Base Sup-

port Battalion.

Through a lot of close coordination between the German bauamt, the BSB, Project Manager Hermann Keller and Luedtke the facility was completed November of last year. The users couldn't be more pleased with the results.

"Our work hours will not be as long because of the newer equipment," said Sgt. 1st Class Jonathan Nolan, Howze Dining Facility manager. "Also, the way it is set up facilitates people getting through the lines quicker.

"I have 18 years in the Army and this facility makes me feel good," said Nolan. "I am very happy that at the end of my tenure I get to work in this nice of a facility."

POC is Hermann Keller, project engineer, 011 49 931 25406, e-mail: hermann.keller@uscae.army.mil

*Alicia Gregory is a public affairs specialist in the Europe District, U.S. Army Corps of Engineers. **PWD***

Who's Who at HQ



Michael M. Kishiyama is the Chief of the Installation Support Policy Branch, Installation Support Division (ISD), Directorate of Military Programs, HQUSACE. He oversees branch activities in Army power procurement and utilities contracting and the Corps Installation Support Office program.

Raised in California, Mr. Kishiyama graduated from the United States Military Academy at West Point in 1967, and was commissioned in the Air Defense Artillery. His assignments included duty as a

HAWK missile officer in Germany, military advisor in Vietnam, and executive officer with the SAFEGUARD System Command in Alabama.

Resigning from active military duty in 1971, Mr. Kishiyama accepted a commission in the Army Reserves, where his principal assignment was with the Deputy Under Secretary of the Army (Operations Research). He graduated from the Ranger School, Air Defense Officer Basic and Advanced Courses, and Engineer Officer Basic Course as well as the Army Command and General Staff College and the Army War College, and in 1997, retired with the rank of Colonel.

In 1976, Mr. Kishiyama earned a Master of Science degree in Systems Engineering from the University of Alabama in Huntsville. Working for the office of the Comptroller of the Army, he performed independent, life-cycle costing of the Patriot missile, Abrams tank, and Army Scout Helicopter programs and coordinated the Army's civilian cost analyst career program. At the Chief of Engineers, he managed information requirements and coordinated ADP activities for the Resource Management Office.

Joining the Engineer Studies Center (ESC) in 1979, and later the Engineer Strategic Studies Center, Mr. Kishiyama contributed to analyses requiring military engineering, management, cost analysis, or operations research specialties. A few of his many projects include managing the analysis and costing of projected facility requirements for a long-range stationing strategy for U.S. Army, Europe (USAREUR); describing ways for overcoming impediments to Government leasing for Army family housing in USAREUR for the Vice Chief of Staff of the Army; assisting in the development of Public Works Center concept for the Army Engineering and Housing Support Center; and managing an assessment of the future structure of the Corps' readiness missions.

Mr. Kishiyama also served as Program Manager of ESC's Europe Program Office in Germany from 1983-1985. In addition to being the single point of contact for ESC in Europe, he assisted in the completion of 17 ESC studies during this period.

With the Corps headquarters since 1997, Mr. Kishiyama was initially a Project Director in the Strategic Management and Innovations Division of the Office of the Deputy Chief of Staff for Resource Management. There, he assisted the Corps in its Strategic Management Review and was the headquarters executive for the Army's Strategic Management Plan. He was reassigned to ISD in 1999.

Mr. Kishiyama and his wife, Angie, reside in Annandale, Virginia, with their two children, Katharine and Matthew. Active in community youth sports programs, he enjoys tennis, skiing, softball, volleyball, and golf. He is a fellow of the Society of American Military Engineers and a member of the Annandale United Methodist Church.

As the Chief of the Planning Branch in the Installation Support Division (ISD), Military Programs, HQUSACE, **Stephen C. Reynolds** is responsible for coordinating USACE support to Army Real Property Management and Installation Master Planning. He currently leads a team doing long-range analysis of how to transform Army installations to support the Objective Force in the Army Chief of Staff's Transformation Plan.

Born and raised in Louisville, Kentucky, Mr. Reynolds received Bachelor of Science degrees in Mathematics from Kentucky Southern College and the University of Louisville, and later earned a Master of Science degree in Operations Research from George Washington University. He is also a graduate of the National Defense University, Industrial College of the Armed Forces.

From 1969 To 1975, Mr. Reynolds served in the U.S. Air Force on active duty and with the Air National Guard. He was stationed at Lackland Air Force Base, Texas, and Lowry Air Force Base, Colorado, where he was trained in airborne sensor systems, then with the 123d Tactical Reconnaissance Squadron in Louisville, Kentucky, and the 231st Mobile Communications Squadron in Washington, D.C.

Mr. Reynolds' civilian career began in 1970 as an Operations Research Analyst with the U.S. Army Combat Developments Command (CDC) at Fort Knox, Kentucky, and Fort Belvoir, Virginia. When CDC was abolished in 1973, he went to work for the U.S. Army Operational Test and Evaluation Agency as a Statistician, designing and analyzing operationally realistic tests for prototype army combat systems.

Next Mr. Reynolds spent four years at the Department of Energy (DOE) as an Operations Research Analyst, leading field surveys auditing oil industry methods of estimating oil field reserves and monitoring the quality assurance program for the DOE national oil and gas reserves database.

When he joined USACE in 1981, his first assignment was with the Engineer Studies Center (ESC) at Fort Belvoir, where he managed projects in force structuring, mobilization, stationing, and base realignment and closure for the Director of the Army Staff; U.S. Army Deputy Chief of Staff for Operations and Plans; and U.S. Army Training and Doctrine Command. Transferred to USACE Headquarters in Washington, D.C., three years ago, Mr. Reynolds shifted from combat engineering to strategic planning for the Chief of Engineers and now with ISD.

An active member of the Society of American Military Engineers and Army Engineer Association, Mr. Reynolds also belongs to the Military Operations Research Society, Army Operations Research Society, Institute for Operations Research & Management Science, and Washington Institute for Operations Research & Management Science.

Mr. Reynolds holds a private pilot's license and is a member of the Experimental Aircraft Association. His wife, Lois, is an Instructional Aide with the Fairfax County, Virginia Public Schools. They have two children: Laura, a Victim Witness Advocate with the Alexandria, Virginia Commonwealth Attorney's office, and Christopher, an Architecture student at Carnegie Mellon University.



2001 Earth Day Message from the Chief of Engineers

On April 22 the people of the U.S. Army Corps of Engineers and the nation will celebrate Earth Day 2001. It is an opportunity to reflect on the many contributions the Corps has made in environmental stewardship and to plan for the many challenges and opportunities the future holds.

Environmental protection and restoration considerations are major factors in the planning and execution of every Corps project. Twenty percent of the Civil Works budget is dedicated to environmental considerations and that percentage will continue to grow. The Military Programs Environmental Division budget is almost \$1.3 billion this year.

We can, and should, take great pride in the things we do for this nation's environment. From our role in the effort to get Everglades restoration approved, to wetlands and habitat restoration across the nation, to the world-class environmental research done by our laboratories, and our responsibilities in Formerly Used Defense Sites (FUDS) and Formerly Utilized Sites Remedial Action Program (FUSRAP), the Corps is a national leader for the environment.

In testimony before the Senate, I was proud to point out that projects with environmental benefits as a principal output now comprise the largest number of new starts for the Corps. Environmental values are fully integrated into every phase of our programs, and I have reenergized the Environmental Advisory Board to provide additional insight into project planning.

The Corps has matured over the years in its approach to the environment through improved science and knowledge gained by lessons learned. Along with the nation, we have made quantum leaps in gaining awareness of what impacts the projects we perform for the nation have on the environment, the steps we can take to minimize the impact, and even the things we can do to improve upon nature's design.

Our stewardship of the nearly 12 million acres of land and water that we are entrusted with is a tremendous responsibility and privilege. Management of these and associated resources provide for economic benefits in navigation, flood damage reduction and hydropower generation among other things.

These are all important, but it is the 463 lakes and more than 4,300 recreation areas visited annually by 400 million people to hunt, fish, boat and camp that represent the Corps to much of the nation. Our environmental preservation and planning efforts ensure that these national treasures are preserved for future generations and for critical habitat for flora and fauna.

As the 50th Chief of Engineers, I take a great deal of pride in knowing that when a recommendation for a project goes forward from the Corps, it will be based on the best science available, and the environment will be a key component of that recommendation.

Continue to take pride in the things you do for the Corps and the environment. Earth Day 2001 is an excellent opportunity for you to share with family and friends the role of the Corps in the environment.

Finally, I encourage each of you to take the opportunity in the near future to visit a Corps-managed recreation area for a day with family or friends.

Essayons!

Bob Flowers
